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FLOODS EMERGENCY AND RECOVERY PROJECT (FERP)

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

for

Component 2: Agricultural Sector Support

Component 3: Flood Protection

FINAL DOCUMENT
B E L G R A D E, February 2017

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ANNEXES:

Abbreviations

CEP	Contractor's Environmental Plan
EA	Environmental Assessment
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ESMF	Environmental Management Framework Document
ESSS	Environmental and Social Safeguard Specialist
FEA	Final Environmental Approval
FERP	Floods Emergency Recovery Project
GEMP	Generic Environmental Mitigation Plan
IFI	International Financing Institutions
INP	Institute for Nature Protection of the Republic of Serbia
IPCM	Institute for Protection of Cultural Monuments of the Republic of Serbia
LEP	Law on Environmental Protection
LOEIA	Law on EIA
MAEP	Ministry of Agriculture and Environmental Protection
OP	Operational Policy
PINP	Provincial Institute for the Nature Protection
PIU	Project Implementation Unit
PPE	Personnel Protective Equipment
PSC	Project Supervision Consultant
PSEP	Provincial Secretariat for Environmental Protection
PWMC	Public Water Management Company
SLMP	Safety Labour Management Plan
SSIP	Site Specific Implementation Plan
WB	The World Bank Group
WMP	Waste Management Plan

FOREWORD

On May 15, 2014, a national state of emergency was declared in Serbia. Unprecedented rainfall over a three-day period caused eight of the main rivers in the country to overflow their banks - resulting in massive flooding and landslides, and forcing more than 30,000 from their homes.

By the time the rains had stopped and the flood waters subsided, 51 people had lost their lives and more than 1.5 million people (20% of the country's entire population) had been impacted by these floods. Nearly 52,000 people were now temporarily unemployed, 110,000 households were cut off from the electricity supply, and an estimated 125,000 individuals had fallen below the poverty line as a result of this catastrophe.

A Recovery Needs Assessment, supported jointly by the European Union, the United Nations Development Programme, the Global Facility for Disaster Reduction and Recovery with support from Luxembourg, and the World Bank Group, placed the total value of the effects of the disaster at nearly €2 billion (more than 4% of Serbia's Gross Domestic Product - GDP).

Among those sectors hit the hardest in the country were the energy and agriculture sectors, while flood protection infrastructure suffered as well -leading to increased concerns of power and food shortages and leaving the country even more exposed to subsequent flooding.

Picture 1: Deadly flooding across southeast Europe, May 19, 2014

In response to this situation, the World Bank Group is working with the government of Serbia to address some of the country's most pressing needs in the wake of this disaster. An **Emergency Recovery Loan** has been approved in the amount of $300 million - the second largest loan ever approved by the World Bank Group in Serbia. The objective of the loan is to help restore the country's power systems to ensure domestic demand can be met, protect the livelihoods of farmers who were affected at the crucial start of the growing season, ensure the protection of those severely impacted by the floods, and improve Serbia's capacity in responding effectively to ensuing disasters. Further to helping the country recover from the immediate challenges posed by this disaster, the Loan is also helping to increase Serbia's long-term resiliency to subsequent floods- introducing complementary goals of preventing the next flood or mitigating the impacts if a flood does occur. The loan is supporting the urgent rehabilitation of flood protection and

drainage control infrastructure, and strengthening the technical capacity of government agencies for improved flood prevention and management.

Under the Loan a subject **Floods Emergency Recovery Project** (FERP) is launched on October 03rd 2014. The FERP focuses on delivering support to the priority sectors that were affected by the floods, as identified in the Recovery Needs Assessment already done by Government of the Republic of Serbia. This includes support to the energy and agriculture sectors, and flood protection. The needs in the housing sector, which was also one of the hardest hit, have been addressed by the government through other donor support mechanisms, notably from the EU and the UN.

The FERP project would help close the financing gap and ensure continued provision of electricity services, particularly during the first winter following the floods, provide direct financial support to farmers in affected areas at a time when the fiscal accounts are under severe stress and may be unable to deliver the needed support and help improve resilience to disasters by financing investments in critical flood prevention infrastructure.

The FERP has an objective to help restore power system capability to reliably meet domestic demand, protect livelihoods of farmers in flood affected areas, protect people and assets from floods and improve the Republic of Serbia capacity to respond effectively to disasters.

The project consists of four components: (1) Energy Sector Support; (2) Agricultural Sector Support; (3) Flood Protection; and (4) Contingent Emergency Response. The objective of Component 1 is to help restore power system capability to reliably meet domestic demand through power purchases, improved reliability of the distribution system and energy conservation measures, and help the restoration of strategic energy assets. Component 2 will support the ongoing Farm Incentives Program in order to protect the livelihood of farmers affected by the floods and offset their income losses. The objective of Component 3 is to support urgent rehabilitation of flood protection and drainage control infrastructure, and strengthen the technical capacity of government agencies for improved flood prevention and management. Component 4 is to improve Serbia's capacity to better respond to disasters. Following an adverse natural or man-made event that causes a major disaster; the Government of Serbia may request the Bank to re-allocate project funds to this component to partially cover emergency response and recovery costs. This component could also be used to channel additional funds should they become available as a result of the emergency.

This document presents the Environmental and Social Management Framework (ESMF) for Project Components 2 and 3. ESMF has been prepared to ensure that the proposed FERP Additional Financing is implemented in accordance with the World Bank operational guidelines, safeguards and local legislation related to environmental protection.

The main purpose of this ESMF document is to serve as a valuable tool for identifying possible key environmental and social impacts that will result from the project and proposing mitigation measures to address the most significant impacts. The ESFD also provides the responsibilities of different parties involved in the project implementation. Although major environmental issues are not anticipated (the project has been categorized as environmental Category B in according to the World bank OP/BP 4.01 on Environmental Assessment) since the investments are directed on the rehabilitation of existing embankment infrastructure, the ESFD identifies several mitigation measures aimed at environment protection and maintenance of environmental conditions mainly during the civil works.

The long-term effectiveness of these preventative measures is also being bolstered in both the energy and agriculture sectors. Investment grants are being made available to help increase agricultural competitiveness, while energy-efficient measures will be implemented throughout the country to promote energy savings, reduce energy consumption, and avoid potential blackouts.

Focus on both short-term and long-term solutions is helping the country recover today and rebuild for tomorrow.

1. DESCRIPTION OF PROJECT COMPONENTS INCLUDING DESCRIPTION OF TYPE OF ACTIVITIES ELIGIBLE FOR FINANCING

1.1. Background

Unprecedented rainfall started in early/mid-May 2014 causing massive floods, resulting in the declaration of a national state of emergency in Serbia on May 15, 2014. The heavy rainfall, led to a rapid and substantial increase of water levels in eight of the main rivers in western, south-western, central and eastern Serbia. Flash floods destroyed houses, bridges and sections of roads, while rising water levels resulted in flooding in both urban and rural areas. The disaster resulted in 51 deaths, with approximately 32,000 people evacuated from their homes, and around 110,000 households cut off from electricity supply. Overall, the floods affected some 1.6 million people, or about one fifth of the total population living in 49 municipalities. Adverse weather conditions have continued since, causing further damage to harvest and energy infrastructure.

The Government of Serbia conducted a Recovery Needs Assessment which revealed that the total value of the disaster effects are around EUR 1.7 billion, or over 4 percent of GDP. When all 49 municipalities affected by the floods are taken into account, the total value of disaster effects increases to EUR 1.7 billion, or over 4 percent of GDP. The most affected sector was mining/energy (32 percent of the total), followed by housing, agriculture and trade, each accounting for around 15 percent.

The energy sector was the hardest hit (losses and damages of EUR 488 million) and the power supply gap is expected to reach 15 percent of demand over the next winter season. Water overflowing from the Kolubara River flooded the open pit mines Tamnava West and Veliki Crljeni. These two open pit mines account for about two thirds of the country's coal production and are the primary sources of fuel supply to the Nikola Tesla Thermal Power Plants (TPPs).

The agriculture sector was also drastically affected by the floods. Thirty nine percent of Serbia's farm households representing 28 percent of total arable land and 41 percent of total livestock are located in the flood affected municipalities. As per the Recovery Needs Assessment, estimated damages and losses amount to EUR 228 million. Loss in farmers' income from crops alone amounts to EUR 90.6 million while damage and loss to the livestock sector is estimated to be EUR 5.3 million. Some 12,000 ha of crop area was rendered useless for agricultural production in the coming months. Support to the sector will be needed over the next 3 to 5 years to bring it back to its pre-flood production levels.

Flood protection infrastructure was significantly damaged and the country is now more vulnerable to future floods. The Recovery Needs Assessment indicates that the cost of repairs to existing flood protection and drainage infrastructure is in the order of EUR 24 million. The largest share of damages occurred to infrastructure managed by Public Water Management Company (PWMC) Srbijavode and PWMC Beogradvode. Drainage infrastructure was also affected, including both collector canals and pump stations used to help discharge the excess water collected on lower land when it cannot flow by gravity to the recipient river. Without attention to these flood protection facilities, some areas are at significantly increased risk of flooding.

The Floods Emergency Recovery Project focuses on the priority sectors identified in the Recovery Needs Assessment including energy, agriculture, and flood protection. The project would help close the financing gap and ensure continued provision of electricity services, forestall a likely decline in direct support to farmers in affected areas at a time when the fiscal accounts are under severe stress and help improve resilience to disasters by financing investments in critical flood prevention infrastructure.

1.2. Project Description

The project consists of four components: (1) Energy Sector Support; (2) Agricultural Sector Support; (3) Flood Protection; and (4) Contingent Emergency Response. See Annex 1 for a detailed description of the FERP sub-projects.

1.2.1. **Component 1**: Energy Sector Support (EUR 157.11 million)

The objective of this component is help restore power system capability to reliably meet domestic demand through power purchases, improved reliability of the distribution system and energy conservation measures, and help the restoration of strategic energy assets.

1.2.2. **Component 2**: Agricultural Sector Support (EUR 53.08 million)

Component 2 will support the ongoing **Farm Incentives Program** in order to protect the livelihood of farmers affected by the floods and facilitate gradual recovery of the farmers' income from agriculture to pre-floods level.

Although the Farm Incentives Program has some shortcomings (i.e. extensive focus on area payment, insufficient support to farm investments, and agri-environmental activities), it is currently the main source of income stability for farmers in Serbia. In addition, there is no dedicated income compensation program for farmers for losses incurred due to the floods. Safeguarding this public support, broadly in line with its current scope and size, is a needed intervention needed to help the agriculture sector recover from the flood damage.

The project will finance payments made to farmers under the three pillars of the Farm Incentives Program: *Direct income support, Investment grant and Special support measure.*

Direct income support currently accounts for up 92 percent of the annual budget of EUR 250 million available for the sector. Direct income support is targeting small and medium size (family) farmers, and largely serves as a social safety net. It is a critical tool for stabilizing farmers' incomes; in times of crisis, it is particularly important for ensuring the needed liquidity to replenish agriculture inputs (seeds, fertilizers, animal stock, etc.) that are needed to restart the production cycle.

Investment grants represent 4 percent of the current support program. This grant support is critical for ensuring that productive assets damaged (or lost) during floods - e.g. machinery, storage facilities, and infrastructure - are rebuilt or rehabilitated. Investment grants, targeted at commercially-oriented holdings, play an essential role in modernizing Serbia's farms and in increasing their competitiveness.

Special support measures take about 4 percent of the total program; aim at improving framer's knowledge on farm management, and modern technologies facilitating more efficient use of resources.

1.2.3. **Component 3**: Flood Protection (EUR 16.72 million).

The objective of this component is to support urgent rehabilitation of the flood protection and drainage control infrastructure, under the principle of '"building back better" through solutions which enhance the function and effectiveness of existing flood protection facilities (e.g. through heightening and improving design and construction standards). This component will also strengthen the technical capacity of the government agencies for improved flood prevention and management. The flood protection component consists of the following two subcomponents:

<u>Subcomponent 3A: Investments in Flood Protection</u> (EUR 14.72 million).

The aim of the proposed investments is to reduce imminent risk of recurring floods by restoring and/or improving the function of existing infrastructure. Physical investments proposed under this component include civil works and supply and installation of electrical and mechanical equipment, for the rehabilitation and reconstruction of flood protection and drainage systems, including flood protection dikes/levees and retention systems, cleaning and restoration of

drainage canals, and refurbishment of pump stations. The proposed investments concentrate on areas known to be vulnerable and affected by flooding, in which urgent protection is required in order to reduce the risk of future flooding and further devastating social and economic impacts.

The precise scope and cost estimates, indicated in the priority list of investments will be further reviewed and confirmed during implementation. A list of priority investments was put forward by the DWM, developed in close cooperation with the PWMC's. A rapid investment screening and prioritization process was carried out by the Bank, to identify an indicative list of priority activities (Table 1). The process was guided by the following key criteria: (1) repair / rehabilitation urgency – considering the extent of damage and risks of future impacts, (2) implementation readiness (i.e. status of designs, permits etc.,) and a (3) technical review of the scope and scheduling to confirm ability to complete works within the project duration. All **sub-projects** of Component 3 are presented within the Table 1.

Subcomponent 3B: Project Implementation Support for Flood Management and Disaster Resilience (EUR 2 million).

This Subcomponent will cover the incremental costs (staff, equipment, operating costs etc.) of a PIU which will be established under the DWM which will support the implementation of Components 2 and 3. PIU staff will include at least a project coordinator, procurement and financial management officers, a safeguards specialist, a civil engineer, and a monitoring and evaluation specialist. High priority technical assistance and capacity building activities will be selected to improve flood management, planning, prevention and resilience. It could include financing hydrological and hydraulic diagnostics of recent flood events, structural/safety inspections of major flood protection infrastructure, a review of design standards and planning norms for flood protection, and a review of existing DRM strategies/plans and institutional framework and capacity constraints to enable effective integrated flood management and broader disaster risk management. The final selection of TA activities will be defined during the initial stages of project implementation and will be designed to complement other planned sector wide initiatives for improved flood management and DRM.

1.2.4. **Component 4**: Contingent Emergency Response (USD 0)

Following an adverse natural event that causes a major natural disaster, the Government of Serbia may request the Bank to re-allocate project funds to support response and reconstruction and partially cover emergency response and recovery costs. This component could also be used to channel additional funds should they become available through as a result of the emergency.

1.2.5. Type of activities that will be mostly implemented during the project execution

Embankments - Four different types of works are proposed: Construction of Flood Protection structures, reconstruction of the weak points on the embankment, upgrading sections of embankment from the 1:25 year flood to the 1:100 year flood, and bank armoring in locations where erosion of the riverbank may undercut the embankment.

Benefiting from improved flood protection are about 7.000 households with 35,000 inhabitants and 18,950 ha, of arable land. The returns to the economy from increased agricultural productivity, increased incomes and associated fiscal benefits, and reduced losses from flooding.

Table 1: Indicative List of Sub-Projects, Priority Investment Proposed under Sub-component 3A

Responsibility / PWMC	Contract / Description	Cost Estimate (USD)	Contract Period	Readiness / Status
Works				
Serbiavode	Flood Protection of Novi Pazar settlement: Including regulation and embankment protection of Raska River and its tributaries. Section I: from Careva Cuprija to mouth of the Banjska River (2,15km)	2,415,400	16 months	Designs complete, construction permit to be issued
Serbiavode	Flood Protection of Aleksinac settlement: Including regulation and embankment works on Moravica river through Aleksinac town from km 2+370 to km 3+100 providing the flow capacity for the high water at upstream section from km 3+100 to km 3+950, and downstream section from km2+000 to km 2+370	1,840,800	18 months	Designs complete, construction permit to be issued
Serbiavode	Flood Protection of Smederevska Palanka settlement: Including reconstruction of regulation works at Jasenica river and dike (from km 10 +235 to 19+300) for protecting of the river flow capacity in the upstream section (from km 19+300 to km 24+454)	1,950,000	18 months	Designs complete, construction permit to be issued
Serbiavode	Flood Protection of Negotin area: Including reconstruction of protective system in Radujevac including embankment construction works (2,7km)	1,495,000	14 months	Designs complete and permits issued
Serbiavode	Construction of flood protection system for Donji Ljubes settlement: Including reconstruction of the left bank embankment (16,7км) of the river Southern Morava with left bank protection(1,1км)	3,105,700	19 months	Designs complete, construction permit to be issued
Beogradvode	Rehabilitation of Tamis dike including heightening of 1m for 13.5 km section.	3,361,800	18 months	Designs complete and permits not required
Vode Vojvodina	Erosion protection and rehabilitation works on left bank on the Sava River on section km 174+000 to km 178+500	94,900	9 months	Designs complete and permits not required

Responsibility / PWMC	Contract / Description	Cost Estimate (USD)	Contract Period	Readiness / Status
Vode Vojvodina	Rehabilitation of the left bank embankment on the Danube River on section B. Palanka town(km 1+800 to km 9+850) and Sombor town (km 3+461 to km 6+583 and km 49+410 to km 52+400)- embankment crest stabilization (asphaltic road)	2,185,300	13 months	Designs complete and permits not required
Goods				
All PWMCs	Supply and installation of equipment for flood control and protection	1,820,000	6 months	Draft specifications and estimates prepared
Services				
All PWMCs	Construction supervision for flood protection works	657,956	20 months	TOR to be prepared by effectiveness
Unallocated		1,073,144		
TOTAL		**20,000,000**		

1.3. Project Development Objective

The Project Development Objective is to:

- help restore power system capability to reliably meet domestic demand;
- protect livelihoods of farmers in flood affected areas;
- protect people and assets from floods; and
- improve the Republic of Serbia capacity to respond effectively to disasters.

1.4. Objectives of the Environmental Management Framework Document

This Environmental Management Framework Document (ESMF) provides general policies, guidelines, codes of practice and procedures to be integrated into the implementation of the WB-supported FERP Project. It defines the steps, processes, and procedures for screening, alternative analysis, assessment, monitoring and management of the environmentally-related issues. In addition, the ESMF analyzes environmental policies and legal regime of Serbia and safeguard policies of the WB; presents the institutional and capacity assessment related to the environmental management; and describes the principles, objectives and approach to be followed while designing site-specific environmental mitigation measures. The ESMF is intended to be used as a practical tool during program formulation, design, implementation, and monitoring in FERP.

The ESMF identifies the policy triggers for the project, the screening criteria for activities, the environmental and social impacts likely financing and the potential mitigation measures to mitigate the identified risks, assessment of the institutional capacity of the implementing agency and measures for capacity-filling gaps, and an estimate of the budget needed for the implementation of the ESMF and related instruments.

The ESMF outlines the environmental policy, legal, and administrative framework for undertaking the Project, presents environmental baseline information and potential environmental impacts and includes the range of available mitigation measures that may be adopted, based on each particular situation. The ESMF also contains a description of the environmental management system and institutional arrangements to be applied as well as recommendations for capacity building measures in PIU during project implementation in order to ensure environmental sustainability. The ESMF includes a generic sample environmental mitigation and environmental monitoring plans.

Since no strategic Environmental Assessment (EA) or Environmental Impact Assessment (EIA) have been prepared for the Farms Incentive Program, ESMF include specific actions to review the current impact of the program. The ESMF directly provide a list of activities that can be financed, and screen out activities that correspond to Category A projects that will not be financed by the project, or that may trigger additional safeguards policies. Additionally, the ESMF provide guidance for preparation of activities specific Environmental and Social Impact Assessments (ESIAs) and/or Environmental and Social Management Plans (EMPs).

1.5. Approach and Methodology

According to WB procedures, activities already identified for financing under the FERP project fall under Environmental Category B due to their potential impacts. WB Operational Policy OP 4.01 Environmental Assessment require partial EIA and development of site specific EMPs for projects belonging to Category B;

Proposed activities relate only to rehabilitation and/or repair of already existing infrastructure, which will not change their existing footprint. Flood recovery works on proposed projects (listed within Table 1) will have only minor impacts on the environment. Most of the impacts are of temporary character and they will disappear after the works are completed. Most of works involve only rehabilitation of the existing embankments. Construction works are planned as main activities on 2 sub-projects.

General characteristics of project activities covered Components 2 and 3 of FERP, which confirm that sub-projects are eligible for financing are:

- Sub-projects does not have a significant and irreversible environmental impact and do not require a mandatory environmental permit based on a full EIA report as per the Law on Environmental Protection and Law of EIA.
- Sub-projects does not involve significant conversion or degradation of critical or protected natural habitats.
- Sub-projects will not involve works and potential damages on any of the listed or potential cultural heritage sites and buildings that are proclaimed as such by the relevant institutions
- Sub-projects does not require pesticides that fall in WHO classes IA, IB or II.
- Sub-projects does not require displacement/resettlement of affected population or repair of privately owned production facilities/ houses.
- Sub-projects does not require any forest damage
- Sub-projects does not involve any activity which can jeopardize drinking water supply
- Sub-projects does not contain any activity related with new or significant expansion of sanitary and engineered disposal sites or expansion of open municipal dump-sites.
- No new roads or widening of primary roads is planned within the project.
- Procurement of seeds or planting material for crops meant for consumption will be mandatory performed with prior soil sampling to ensure no contamination and/or heavy metal presence in soil
- Procurement of seeds and seedlings is allowed only with guidance of the relevant agriculture/plant institutes in Republic of Serbia.
- Through FERP project no new irrigation scheme or expansion of a scheme requiring increased water intake will take place
- Project activities are construction of new and expansion of existing flood protection structures, but without including the conversion of floodplains or riverine forests.

The ESMF describes how the potential environmental impacts of any sub-project will be managed during preparation and implementation of the FERP Project. The ESMF incorporates a framework for implementation, monitoring, supervision, auditing and reporting of the ESMF requirements. The ESMF report also includes Generic Environmental Management Plan (Generic EMP) consisting of Generic Environmental Mitigation Plan (GEMP) and Generic Environmental Monitoring Plan to assist the Project Consultants in preparation of the necessary environmental specifications and/or sub-project specific Environmental Management Plans (EMP) for integration of impacts avoidance/prevention/mitigation measures with the design and contract documents of the sub-projects.

2. LEGAL AND INSTITUTIONAL FRAMEWORK

2.1. Foreword

The legal, legislative and institutional framework for health and environment in Serbia is founded on the Constitution of Serbia, which stipulates the right to a healthy environment and the duty of all, in line with the law, to protect and enhance the environment. Health and environment is also supported by many governmental strategies, international agreements and the Millennium Development Goals.

Environmental legislation in Serbia has over 100 laws and regulations. Currently, the majority of these are harmonized with WB legislation.

2.2. Relevant Institutions

The Ministry of Agriculture and Environmental Protection (MAEP), is the key relevant institution for environmental management for FERP related projects.

The other aspects of environmental management related to FERP projects are dealt with several other institutions, among which are the Institute for Nature Protection of Serbia (INP) and the Institute for Protection of Cultural Monuments of the Republic of Serbia (IPCM), and the Public Water Management Companies (PWMC) “Serbia Vode”, “Beograd Vode” & “Vode Vojvodina”.

Directorate of Agrarian Payments (DAP) implements the Farm Incentives Program. Farmers applying for the program have to be registered in the Farm Registry to be eligible for support.

2.3. EIA procedure in the Republic of Serbia

In the juridical system of the Republic of Serbia, the Environmental Impact Assessment procedure is regulated by the Law on Environmental Impact Assessment, which is completely in line with European EIA Directive (85/337/EEC, 97/11/EC, 2003/35/EC and COM 2009/378). According to that Law, preparation of the Environmental Impact Assessment is not required for the flood protection rehabilitation projects unless their alignments are placed within or in the vicinity of the nature or culture protected areas. In such cases the Project Proponent is obliged to submit so-called “Request for Decision about Need for Environmental Impact Assessment” (RDNEIA) to the MAEP. Depending on the Ministry’s assessment of significance of potential environmental impacts of the project, it is decided if there is a need (or not) to apply partial or full EIA procedure for the relevant sub-project.

If any project is found to be adjacent or within the nature/cultural protected area the EIA could be required for this project in accordance with the Serbian legislation, depending strictly on the opinions obtained from the relevant institutions (INP, Provincial Institute for the Nature Protection (PINP), Institute for Protection of Cultural Monuments (IPCM), Department of EIA (DoEIA) within the MAEP and Provincial Secretariat for Environmental Protection - PSEP). In such case a PIU should submit request to the INP/PINP and/or IPCM in order to obtain preconditions under which proposed project should be implemented.

. Request for opinion regarding necessity of EIA procedure for each sub-project which is found to be adjacent or within the nature/cultural protected area will be submitted to DoEIA together with other relevant project documentation, which mandatory include preconditions of relevant institutions in charge of the environmental protection.

After receiving preconditions of INP/PINP, IPCM and opinion of MAEP/PSEP, relevant PWMC will define a Terms of Reference (TOR) for such sub-projects. This will ensure proper implementation of all project related environmental requirements and will offset or minimize any negative impact on local human and biotic environment.

2.4. Relevant Government Policies, Acts, Rules, Strategies and Guidelines

Environmental protection in Republic of Serbia is regulated by several national and municipal laws and by-laws. The environmental legislation in force in Serbia is summarized in Annex 6.

The main legal documents are:

- The Constitution of Serbia ("Official Gazette of RS" No. 98/06).
- The National Strategy for Sustainable Development ("Official Gazette of RS" No. 72/09, 81/09)
- Law on Environmental Protection ("Official Gazette of RS" No. 135/04, 36/09)
- Law on Environmental Impact Assessment ("Official Gazette of RS" No. 135/04)
- The Law on Waste Management ("Official Gazette of RS" No. 36/09)
- The Law on Water ("Official Gazette of RS" No. 30/10, 93/12)
- The Law on Occupational Safety and Health ("Official Gazette of RS" No. 101/05)
- Law on Planning and Construction ("Official Gazette of RS" No. 72/09, 81/09)
- Law on Nature Protection, ("Official Gazette of RS" No. 36/09)
- Law on Strategic EIA ("Official Gazette of RS" No. 135/2004Law on Forest ("Official Gazette of RS", 46/91, 83/92, 54/93, 60/93, 53/93, 67/93, 48/94, 54/96, 101/05),
- Agricultural Land Law, ("Official Gazette of RS" No. 62/06, 41/09)

Regulations established on the basis of the Law on EIA include the following:

- Decree on establishing the List of Projects for which the Impact Assessment is mandatory and the List of projects for which the EIA can be requested ("Official Gazette of RS" No. 114/08)
- Rulebook on the contents of requests for the necessity of Impact Assessment and on the contents of requests for specification of scope and contents of the EIA Study ("Official Gazette of RS" No. 69/05)
- Rulebook on the contents of the EIA Study ("Official Gazette of RS" No. 69/05)
- Rulebook on the procedure of public inspection, presentation and public consultation about the EIA Study ("Official Gazette of RS" No. 69/05)
- Rulebook on the work of the Technical Committee for the EIA Study ("Official Gazette of RS" No. 69/05)
- Decree on establishing class of water bodies ("Official Gazette of SRS" No. 5/68)
- Regulations on dangers pollutants in waters ("Official Gazette of SRS" No. 31/82)
- Law on confirmation of convention on information disclosure, public involvement in process of decision making and legal protection in the environmental area ("Official Gazette of RS", 38/09)

2.4.1. The Constitution of Serbia

Serbia's Constitution, adopted in September 2006, states that "Everyone shall have the right to a healthy environment and the right to timely and full information about the state of the environment. Everyone, especially the Republic of Serbia and autonomous provinces, shall be accountable for the protection of the environment. Everyone shall be obliged to preserve and improve the environment."

2.4.2. The National Strategy for Sustainable Development

The National Strategy for Sustainable Development contains chapters that cover public health and environmental risk factors, including climate change, waste, chemicals, accidents, radiation, noise and natural disasters, such as floods, landslides, fires and earthquakes

2.4.3. Law on Environmental Protection

Law on Environmental Protection (LEP) is adopted in 2004. The LEP is currently the main legislation relating to environment protection in Serbia. The Law on Environmental Protection is fully harmonized with Council Directive 2003/105/EC, which amends Council Directive 96/82/EC on the control of major-accident hazards involving dangerous substances (Seveso II Directive).

The main objectives of LEP are:

- Conservation and improvement of the environment; and
- Control and mitigation of pollution of the environment.

The main focuses of LEP are:

- Declaration of ecologically critical areas and restriction on the operations and processes, which can or cannot be carried out/ initiated in the ecologically critical areas;
- Environmental Approval;
- Promulgation of standards for quality of air, water, noise and soil for different areas for different purposes;
- Promulgation of a standard limit for discharging and emitting waste; and
- Formulation and declaration of environmental guidelines.

To implement the Law on Environmental Impact Assessment, a government decree determines the list of projects for which an impact assessment is mandatory or may be required in accordance with the relevant EU directives 97/11/EC and 337/85/EEC. Public participation is also envisaged in all environmental impact assessment stages. All subsidiary regulations were adopted in 2005.

2.4.4. Law on Environmental Impact Assessment

The Law on EIA (LOEIA) provides categorization of industries and projects and identifies types of environmental assessment required against respective categories of industries or projects.

The Law covers, among others:

- Declaration of ecologically critical areas;
- Classification of industries and projects into 2 categories;
- Procedures for issuing the Final Environmental Approval (FEA); and
- Determination of environmental standards.

LOEIA also contains the procedures for obtaining FEA from the Department of EIA for different types of proposed industries or projects.

2.4.5. The Law on Waste Management

The Law on Waste Management, which is harmonized with all relevant EU directives, has been adopted in 2009 and contains provisions that relate to persistent organic pollutant waste and polychlorinated biphenyl and/or polychlorinated terphenyl waste.

2.4.6. The Law on Protection against Environmental Noise

The Law on Protection against Environmental Noise, adopted in May 2009, transposed EU Directive 2002/49/EC. The Law has the following main goals: establishment, maintenance and improvement of the system of noise protection on Serbian territory; and determination and realization of measures in the field of noise protection that avoid, prevent or decrease the harmful effects of noise on human health and the environment. Other goals are: determination of the limit values of noise levels in the environment in view of area, facilities and/or public (population) sensitivity, as well as in view of noise source; determination of the level of noise exposure in the environment; and public access to the information about noise and its effects.

The levels of noise are covered by the Regulation on permitted level of noise in the environment.

2.4.7. The Law on Water

The Law on Water ("Official Gazette of RS" No. 30/10, 93/12), which incorporates the EU Water Framework Directive, covers water regimes, water management areas, responsibilities for water management (including sub-law water management legislation), water management activities, limitation of owners' and beneficiaries' rights, water cooperatives, financing of water management activities, and administrative inspection to enforce the Law. The legislation provides for various water management sub-laws on water resource conditions, water resource compliance and water resource permits. Procedure for obtaining water permits is presented within the Annex 9.

2.4.8. The Law on Occupational Safety and Health

The Law on Occupational Safety and Health regulates the occupational safety and health system in Serbia. By harmonizing this law with the ratified International Labor Organization conventions and EU Framework Directive 89/391/EEC, as well as special directives derived from the Framework Directive, all guidelines originating from them have been accepted in a form adjusted to national conditions. Apart from this Law, the regulatory framework of the occupational safety and health system is integrated by several sub-acts.

3. APPLICABLE SAFEGUARDS

3.1. Safeguard Policies triggered by the Project

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	**X**	
Natural Habitats OP/BP 4.04		**X**
Forests OP/BP 4.36		**X**
Pest Management OP 4.09	**X**	
Physical Cultural Resources OP/BP 4.11		**X**
Indigenous Peoples OP/BP 4.10		**X**
Involuntary Resettlement OP/BP 4.12	**X**	
Safety of Dams OP/BP 4.37		**X**
Projects on International Waterways OP/BP 7.50	**X**	
Projects in Disputed Areas OP/BP 7.60		**X**

3.2. Detailed description of Safeguard Policies triggered by the FERP Project

Following is the short summary of several relevant Banks' Safeguards Policies. The full texts could be found at the WB web site.

3.2.1. OP/BP 4.01 Environmental Assessment

The Bank requires Environmental Assessment (EA) of projects proposed for Bank support to ensure that they do not have, or mitigate potential negative environmental impacts. The EA is a process whose breadth, depth, and type of analysis depend on the nature, scale, and potential environmental impact of the proposed project. The EA evaluates a project's potential environmental risks and impacts in its area of influence; examines project alternatives; identifies ways of improving project selection, siting, planning, design, and implementation by preventing, minimizing, mitigating, or compensating for adverse environmental impacts and enhancing positive impacts; and includes the process of mitigating and managing adverse environmental impacts throughout project implementation. The EA takes into account the natural environment (air, water and land); human health and safety; social aspects; and transboundary and global environmental aspects. The Borrower is responsible for carrying out the EA and the Bank advises the Borrower on the Bank's EA requirements.

The Bank classifies the proposed projects into three major categories, depending on the type, location, sensitivity, scale of the project and the nature and magnitude of its potential environmental impacts.

- Category A: The proposed project is likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. These impacts may affect an area broader than the sites or facilities subject to physical works.
- Category B: The proposed project's potential adverse environmental impacts on human population or environmentally important areas-including wetlands, forests, grasslands, or other natural habitats- are less adverse than those of Category A projects. These impacts are site specific; few if any of them are irreversible; and in most cases migratory measures can be designed more readily than Category A projects.
- Category C: The proposed project is likely to have minimal or no adverse environmental impacts

The activities already identified for financing under the FERP project fall under Environmental Category B due to their potential impacts.

3.2.2. OP 4.09: Pest Management

Component 2 of the FERP Project (support to Farm Incentives Program) could lead to increased use of pesticides. This ESMF indicate what measures will be in place to promote an Integrated Pest Management Approach (IPM) and to help ensure appropriate selection and safe use of pesticides when they are needed.

Rural development and health sector projects have to avoid using harmful pesticides. A preferred solution is to use IPM techniques and encourage their use in the whole of the sectors concerned.

If pesticides have to be used in crop protection or in the fight against vector-borne disease, the Bank-funded project should include a Pest Management Plan (PMP), prepared by the borrower, either as a stand-alone document or as part of an Environmental Assessment.

In assisting borrowers to manage pests that affect either agriculture or public health, the World Bank supports a strategy that promotes the use of biological or environmental control methods and reduces reliance on synthetic chemical pesticides. In Bank-financed projects, the borrower addresses pest management issues in the context of the project's environmental assessment.

In appraising a project that will involve pest management, the Bank assesses the capacity of the country's regulatory framework and institutions to promote and support safe, effective, and environmentally sound pest management. As necessary, the Bank and the borrower incorporate in the project components to strengthen such capacity.

Agricultural Pest Management

The Bank uses various means to assess pest management in the country and support integrated pest management (IPM) and the safe use of agricultural pesticides: economic and sector work, sectoral or project-specific environmental assessments, participatory IPM assessments, and investment projects and components aimed specifically at supporting the adoption and use of IPM.

In Bank-financed agriculture operations, pest populations are normally controlled through IPM approaches, such as biological control, cultural practices, and the development and use of crop varieties that are resistant or tolerant to the pest. The Bank may finance the purchase of pesticides when their use is justified under an IPM approach.

Pest Management in Public Health

In Bank-financed public health projects, the Bank supports controlling pests primarily through environmental methods. Where environmental methods alone are not effective, the Bank may finance the use of pesticides for control of disease vectors.

Criteria for Pesticide Selection and Use

The procurement of any pesticide in a Bank-financed project is contingent on an assessment of the nature and degree of associated risks, taking into account the proposed use and the intended users.5 With respect to the classification of pesticides and their specific formulations, the Bank refers to the World Health Organization's Recommended Classification of Pesticides by Hazard and Guidelines to Classification (Geneva: WHO 1994-95).6 The following criteria apply to the selection and use of pesticides in Bank-financed projects:

- They must have negligible adverse human health effects.
- They must be shown to be effective against the target species.
- They must have minimal effect on nontarget species and the natural environment. The methods, timing, and frequency of pesticide application are aimed to minimize damage to natural enemies. Pesticides used in public health programs must be demonstrated to be safe for inhabitants and domestic animals in the treated areas, as well as for personnel applying them.

- Their use must take into account the need to prevent the development of resistance in pests.

The World Bank requires that any pesticides it finances be manufactured, packaged, labeled, handled, stored, disposed of, and applied according to standards acceptable to the Bank. The Bank does not finance formulated products that fall in WHO classes IA and IB, or formulations of products in Class II, if (1) the country lacks restrictions on their distribution and use; or (b) they are likely to be used by, or be accessible to, lay personnel, farmers, or others without training, equipment, and facilities to handle, store, and apply these products properly.

3.2.3. OP/BP 4.12 Involuntary Resettlement

The Bank Operational Policy on Involuntary Resettlement (OP 4.12) has been triggered in view of the fact that the flood protection infrastructure rehabilitation and reconstruction works under Component 3A (floods protection investments) in some cases may lead to possible land acquisition. Land requirements are expected to be minor as the rehabilitation investments will be carried out mainly on government owned land. However, restoration and/or rebuilding of damaged facilities might to some extent have adverse social impact if the works require some temporary acquisition of private land for securing the right-of-way. Since the size, scale and location of subprojects cannot be determined at the project preparation stage, the Resettlement Policy Framework (RPF) and Environment and Social Management Framework (ESMF) is prepared to mitigate potential environmental and resettlement impacts.

No resettlement or land acquisition will be required to carry out activities under the Component 2 of the FERP Project.

3.2.4. OP 7.50 Projects on International Waterways

Project activities under Component 1C (Dewatering of the Tamnava West Open Pit Mine) will trigger O.P. 7.50 for Projects on International Waterways. Water from the open Pit mine will be discharged into the Kolubara River which is a tributary of the Sava and by extension the Danube River.

Due to its nature, project activities under Components 2 and 3 of FERP Project will not trigger O.P. 7.50 for Projects on International Waterways.

3.3. Implication of Republic of Serbia Policies in FERP

Except LEP and LOEIA, all other policies, strategies and legal instruments do not explicitly require any environmental assessment of the Project-related activities. Most of the policies, strategies and legal instruments emphasized the need for environmental consideration along with the project planning and implementation. There is no straight forward environmental categorization for the proposed FERP as per LEP and LOEIA. DWM/PIU will ensure, on a case-by-case basis, that environmental management will be an integral part of the sub-project planning, design, implementation, and operation and maintenance. DWM/PIU will screen and monitor the environmental issues in both rehabilitation works and in subsequent operation & maintenance phases and ensure efficient application of environmentally-related measures, as shall be defined in site-specific EMPs.

3.3.1. Environmental Approval Procedure

Legislative base for EIA in Serbia is found in LEP and LOEIA). The Department of EIA (DoEIA), under MAEP, is the regulatory body responsible for enforcing LEP and LOEIA. It is the responsibility of DWM/PIU to conduct EIA of development proposals (road sections to be rehabilitated), while the responsibility to review EIA for the purpose of issuing FEA rests on DoEIA.

Final Environment Approval has to be obtained by DWM/PIU from DoEIA for all FERP sub-projects which are found to be adjacent or within the nature/cultural protected area. The EIA could be required for such sub-projects in accordance with the Serbian legislation.

The procedure for “B” Environmental Category (which in major part correspond to Projects on List No.2 of the Decree on establishing the List of Projects for which the Impact Assessment

is mandatory and the List of projects for which the EIA can be requested ("Official Gazette of RS" No. 114/08)) includes submission of:

- Request for Decision about Need for EIA (RDNEIA)
- Environmental Impact Assessment (EIA)
- Environmental Management Plan (EMP)

Most of the FERP Component 3 sub-projects will be implemented within the non-sensitive areas in environmental point of view, so they could be categorized as a "Low B" Environmental Category. Such projects require only EMP, Checklist EMP or application of regulations/standards. Environmental management process, including obtaining of FEA includes:

- Screening/Scoping in order to determine what are the likely potential issues;
- Request for the Opinion about Need for EIA, submitted to MAEP/PSEP;
- Full Environmental Impact Assessment Procedure, shown in figure 2.2, only in case where MAEP/PSEP issue an Opinion that EIA is needed for these projects;
- In case where MAEP/PSEP issue an Opinion that EIA is not needed for the project, Environmental Approval is obtained by collecting subject Opinion.
- EMP

The environmental impact assessment, based on LOEIA, has been the most efficient regulatory instrument since it was implemented in Serbia over 15 years ago. With this instrument, impacts of any pollution originating from the future facilities and/or related activities can be foreseen and prevented or mitigated.

4. ENVIRONMENTAL AND SOCIAL BASELINE ON NATIONAL/STATE LEVEL

4.1. Baseline country and environmental information

Serbia has a land area of 77,474 square kilometers, constituting only 0.05% of the world's land area, or about 1.5 % of Europe. Despite its small size, however, the environment of Serbia is highly diverse compared to other countries in Europe. The reasons for this comparative richness include: the variety of climate, topography, and geology and the long-term ecological and evolutionary history of the region as a biological crossroads.

The Republic of Serbia (ROS) has a population of about 7, 5 million, of which some 50% live in rural areas, and 17% derive their living from agriculture and associated industries. The ROS has three major land forms – the plain areas in Vojvodina and the flood plains of the Danube, Sava and Drina rivers; the Morava valley in its main stream and two southern arms; and the mountainous areas which cover most of the country south of the Sava and Danube. The water resources of ROS in addition to rainfall are dominated by the river inflows from upstream riparian sources estimated at 85% of available water. The balance is derived from the River Morava from within the country. Due to seasonal variations there are some 160 storage dams, some of which have hydro-electric generation facilities.

The rivers are subject to extreme flows which cause damaging floods along the adjacent lands. In the Vojvodina region a vast and complex system of canals and associated structures and pumping stations has been developed, which serves transportation, drainage, water supply for municipalities, industry and agriculture, and fisheries. This is the Danube-Tisa-Danube Hydro system (DTD).

Agriculture accounts for 21% of GDP and 26% of exports. The agriculturally suitable land amounts to some 5.15 million ha, of which some 4.28 million ha are classified as arable. About 62% of the nation's arable land lies in Vojvodina. In general the Vojvodina region mainly produces field crops such as wheat, maize, sugar beet and other industrial crops.

Despite its long tradition, water management in Serbia is currently suffering a serious challenge. This is the incapacity of the current water sector institutions to provide a sufficient level of operations and maintenance (O&M) for water infrastructure that is rapidly deteriorating and, in some cases, is already collapsed or at risk of collapsing.

As a result of poor O&M, recovery of its costs is also poor and since those scarce resources are also ineffectively used (basically can only fund part of the salary needs of the water management companies) and budget transfers are limited, implementation of O&M activities is continually on the decline (currently estimated to be at 10-30 percent of the amount needed).

It is estimated that 29% of the surface area of the country and 2.67 million ha (or 52%) of agricultural land is affected by poor drainage. Drainage infrastructure was affected, including both collector canals and pump stations used to help discharge the excess water collected on lower land when it cannot flow by gravity to the recipient river. Significant attention is needed to these flood protection facilities in order to reduce increased risks of flooding. The largest share of damages occurred to infrastructure managed by Public Water Management Company (PWMC) Serbiavode and PWMC "Beogradvode". Due to neglect caused principally by lack of funds during the past decade and a half period, the drainage channels have generally deteriorated by siltation and weed growth, and the associated structures and pumping stations have also deteriorated. Drainage infrastructure was also affected, including both collector canals and pump stations used to help discharge the excess water collected on lower land when it cannot flow by gravity to the recipient river

It is estimated that some 1.57 million ha, especially in areas adjacent to the large flood plain rivers, are subject to flooding. Of this area, 1.45 million ha are in Vojvodina and the plains east of Belgrade; the rest are in Central Serbia. About 30% of agricultural land is vulnerable to flooding, as are 512 larger settlements, 515 industrial installations, 4,000 km of roads, and 680 km of railways. To meet this hazard, the Government has constructed 3,434 km of flood amelioration embankments and 30 flood control reservoirs. However, even with this large investment, extreme floods can still cause damage. Crop loss due to flooding ranges from marginal to complete, depending on the inundation period.

Due to lack of maintenance on the embankments, dams, and their appurtenant structures, the system requires rehabilitation. Gaps need to be filled, and older levees should be heightened to meet more stringent protection criteria. Without attention to these flood protection facilities, additional investments in irrigation and drainage improvements in the areas prone to flooding would be pointless. Work in this sub-sector is therefore of the highest priority and would result in rapid and substantial benefits.

4.2. Water

4.2.1. Water quality

Water quality in Serbia differs significantly from one region to next. Monitoring has shown the presence of: ammonia, nitrates, sulfides, iron and mineral oils in the Tisa River Basin; evaporable phenols and manganese in wells in the area of Backa; and, in some cases, suspended solids – for example, in the South Morava Basin. Throughout Serbia, the most problematic physicochemical water quality parameters are turbidity, iron, manganese, nitrates and, in the Autonomous Province of Vojvodina, arsenic. In Central Serbia the main problem is bacteriological contamination, with more than 40% of samples not meeting required standards for unlimited use. Moreover, the reserves of underground water in the Autonomous Province of Vojvodina are polluted with heavy metal contamination, particularly arsenic.

On the basis of the multiannual monitoring, concentrations of BP5K parameters show that ammonium ion, nitrates and orthophosphates are within allowed amounts for class I and II, which is equivalent to excellent and good ecological status.

In the last fourteen years the worst quality was in the waters of Vojvodina`s rivers and canals. Expressed with indicator Serbian Water Quality Index, compared to the total number of samples from all watersheds, the result is very bad in as much as 83% of the samples from Vojvodina`s territory. Poor condition of water quality in this watershed is further accompanied by the information that even 45% of samples are in categories bad and very bad.

Based on the analyses of biological quality of watercourses with the saprobity index method, in 70% of measuring stations satisfactory status is achieved (excellent and good) while in 30% of measuring stations status is not satisfactory (moderate and low). It is important that during this research no water bodies with poor status were identified.

4.2.2. Quality of underground waters close to big rivers

Today, underground waters are supplying 65% of water needs for households and industries in Republic of Serbia, and in Vojvodina this is the only way of water supplying. According to the available statistical data about exploitation of underground waters for the public water supplying and estimate of the amounts for the rural population, today in Serbia about 600 million m3 of underground water is being used.

Total capacities of existing underground water sources in Serbia are about 670 million m3 per year, and estimated potential amount of underground waters until 2021 is 1.948 million m3 per year. In relation to the existing capacities, today is used 90% of exploitable capacities from existing sources, while in relation to the estimated potential amounts 31% could be used.

Existing databases are not reliable enough for estimating the impact of today`s and future exploitation on the change of quality and quantity of underground waters in Serbia. Generally speaking the monitoring programme is unsuitable in relation to the scope and content of today`s condition of endangered quality of underground waters, especially because of the influence of polluted watercourses, urban- industrial agglomerations and the influence of agritechnical measures in agricultural areas.

4.2.3. Water pollution

Untreated municipal and industrial waste waters are still the greatest source of pollution. The response of pollutants is still unsatisfactory for fulfilment of their legal obligations and reporting about emissions in waters.

4.2.4. Likely Future trends

There is a need for the modernisation of livestock farms, transformation of machinery stock and fuel storage facilities, adequate management of liquid manure and agricultural wastes, outer and inner integrated establishment and maintenance of drainage. The interventions providing the achievement of good ecological state of waters by adequately selected agrotechnological operations should be preferentially supported. Stopping of further increase in nitrate concentration of groundwaters can be ensured by the compliance and enforcement of nitrate sensitive areas regulation.

The risk of groundwater pollution and the degree of pollution can be reduced by following measures: change in land use, afforestation, establishment of wetland habitats and fish ponds, establishment of rational and integrated surface water management, Natura 2000 grants, organic farming, modernisation of livestock farms, spreading of extensive animal management, modernisation of machinery stock and fuel storage facilities, adequate management of liquid manures and agricultural wastes, prevention of the development of stagnant waters. Appropriate risk management of water acquisition and distribution is also an important part. The lack of maintenance of water supply systems leads to microbiological and/ or chemical contamination. Lack of reconstruction of water utilities jeopardizes the safety of the service as well.

4.3. Waste

4.3.1. Waste

The general state of waste management in Serbia is still inadequate, posing public health and environmental hazards. The most acute problem is hazardous waste, which is not separately collected and disposed of – currently it is processed in regular waste disposal sites. In general, over 50% of disposal sites do not meet the technical requirements of sanitary landfills, and are actually just fenced and mapped dump areas. There are also hundreds of illegal dump sites of various sizes in rural areas. Moreover, leakage from these dump sites poses a threat to groundwater, surface water and soil, due to the high content of organic matter and heavy metals. It is, however, important to mention adoption of the new Law on Waste Management, which is fully harmonized with the EU *acquis communautaire*, and the numerous sub-laws that are currently being developed.

4.4. Climate changes

According to the World Meteorological Organization, the estimated effects of climate change on Serbia will be the medium range. Serbia, as well as south-east Europe, is likely to have hotter summers, decreased precipitation and, therefore, an increased risk of summer drought. According to data trend over the last 35 years an increase of yearly air temperature by 1°C is noted on Serbian territory in the last 100 years. Shorter periods have greater positive values which mean that the increase of temperature at yearly level has intensified over the last couple of decades. Although there are periods with positive and negative trends, since 1982 negative trends ceased and only an increase in temperatures was noted and it lasts still today.

Besides the increase in temperature, over the last 50 years also was noted a 10% decrease of precipitation from its normal values. Negative trends of yearly sum of precipitation coincide with the positive temperature change trends.

Estimates for Serbia are that by the end of this century an increase in temperature even by 4°C can be expected. Compared to the temperature changes, where in all of Europe an increase is expected, future trend for precipitation is somewhat more complex. Estimates are

that certainly there will be a decrease during the summer periods in Mediterranean, so also for Serbia a future decrease of 20% for the summer is expected.

These climate changes certainly are contributing to more frequent droughts and also higher probability for flooding events due to the complex and changed interaction of climate elements. A testament to that are unprecedented floods that happened this year and did vast damages to Serbia, and also some recent dry years occurred. The North-Eastern part of the country however was not endangered in recent flooding events, but in 2009 after snow melts flooding took place also in Borski district, and several rivers were overflowing.

4.5. Biodiversity, flora, fauna

4.5.1. General information

It is estimated that in Serbian territory over 1000 species of flora are endangered, according to the Red list of Serbian flora (2002). Most of the endangered plants in Serbia is in the IUCN category of “rare plants”. The most endangered part in Serbia’s biodiversity considers the forest ecosystems and especially sensitive ecosystems (e.g. wetland habitats, prairie habitats, continental salt marshes, sandy terrains, mountain habitats) some of which are refugial habitats for relict and endemic species.

The varied ecosystems of Serbia in turn give rise to a diversity of valuable ecological processes. The following ecosystems are represented: deciduous forests of several types in lowland, foothills, and mountain areas; mountain forests of pine, spruce, and fir; steppe (grasslands that develop in regions of wind-deposited soil) and forest-steppe; and alpine grasslands above “tree line” in the high mountains.

Serbia is species-rich. The Balkan Peninsula is the most species-rich part of Europe for flowering plants and Serbia is among the most diverse parts of the Balkan Peninsula - only Greece and Bulgaria being comparable.

In general, Serbia has a number of different types of ecosystems of particular environmental importance, including: forest ecosystems representing different types of forests ; high mountain regions with characteristic mountain ecosystems well-represented or preserved, some of which are found on borders and would require trans-boundary management efforts; mountain regions in which traditional human activities have maintained and even increased biodiversity through centuries of maintaining the open pastures of mountain meadows; gorges and canyons that have been identified as important centers for relict and endemic species; steppe and sands of Vojvodina, as well as lakes, wetlands swamps, marshes, ponds which provide key habitat for migratory birds from elsewhere in Europe and have been identified as wetlands of the Ramsar Convention; karst regions in parts of Serbia, with their numerous caves and pits, supporting a rich fauna; and mountain bogs around mountain and glacial lakes.

4.6. Soil erosion and contamination

4.6.1. General information

On the territory of Republic of Serbia different forms of erosion dynamic processes can be found (landslides, landfalls, screes, erosions…). Besides the natural factors which are causing these processes, inadequate usage of terrain also contributes to the making, development and intensifying of these processes.

Terrain instability, with occurring landslides, landfalls, screes and collapsing of riverbed banks vary in dimension and activity, is present in about 25 – 30% of Serbian territory. In relation to the total Serbian territory landslides take 20 – 25%. Also, occurring terrain instabilities are present in river valleys and in unsecured slopes in road zones.

Landslides are mostly 5-10 m deep, in which also appear smaller secondary, active landslides with acute cinematic status. In connected petrified rocks, landslides are limited to decomposed rocky mass and deluvial zone, while in neogenic rock complex they are deeper (often ever 10m). Deepest landslides formed in Danube and Sava coastal area.

Landfalls are mostly found in canyon valleys, broken rock masses, mostly limestone and

serpentinite, endangering roads and watercourses causing barriers to form.

Erosion activities on slopes are present in terrains comprised of unbound, weak bounded and degraded rock masses. Combined with torrential flows, wherein in times of snow melts and intensive precipitation, their activity is intensified.

Fluvial erosion with collapsing of river bed banks and terrain flooding are present on the banks and in immediate zones of constant watercourses, and are caused by abundant precipitation, snow melting and by development of slope erosion and torrential activities in upper and middle parts of the watershed in highlands and mountain regions.

Intensive river bed carving and collapsing of banks in river valleys can cause landslides in unstable and relatively stable slopes. Collapsing of river banks is present in unregulated parts of river beds, mostly outside of urban areas, where the agricultural areas are predominantly endangered. Also there are unregulated or insufficiently regulated banks in urban areas.

Based on the data of Republic Institute of Statistics in 2012, 6296 km2 of soil in Serbia eroded, while 374 km2 was stabilized.

Eroded soil is a soil which was completely or partially deprived of its fertile layer and vegetation, so its capacity for plant production is significantly decreased or disabled. On stabilized soil there is no more washouts, landfalls and carrying of new deposit material.

4.7. Reaching environmental standards in Serbia

Republic of Serbia is taking a huge effort to reach good environmental standards. A set of environmental laws adopted during the last decade contributed to Serbia coming closer to desired environmental standards. The standards of good environmental practice are applied throughout the country, and progress is particularly visible within the energy and transport sector, also due to the fact that several large projects were financed by different International Financing Institutions (IFI), which implemented a strict environmental systems.

However, there is still a lot of work to be done regarding environmental protection in Serbia and this chapter is focused on issues most commonly present in these fields, which lead to environmental degradation

5. SCREENING CRITERIA FOR ACTIVITIES

5.1. Introduction

The Environmental Management System establishes the criteria to identify the level of Environmental Assessment (EA) and the processes involved, their sequence to conduct the EA studies for various components/phases of the flood recovery structures, including their legal requirements and implications Understanding the required level of EA will help the FERP in assessing the requirements related to needs of the external services to be engaged at planning and design stages and requirements related to the Project Supervision Consultant (PSC) during the project implementation stage all in according to Serbian legislation.

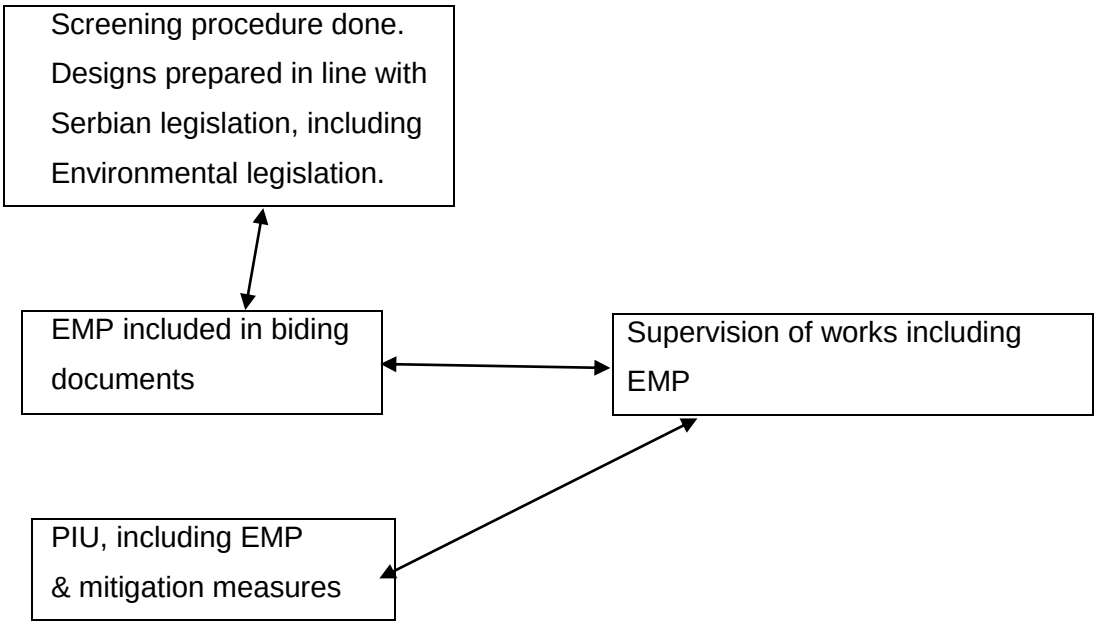


Figure 4.1: Environmental Management System in Project Life Cycle

First step of Environmental Management System is screening of the project components to ascertain the category of Environmental Assessment required.

The category of EA can be assessed by FERP or if desired can be offered to some agency or independent environmental expert. It is worth to mention here that any external agency or consultant or expert can help FERP in analyzing and reporting of environmental features and parameters, filing the application for approval, but ultimately the responsibility lies with FERP. The FERP has to ensure that all legal rules and regulations set by DoEIA through MAEP are adhered to.

5.2. General Principles for Environmental Management on FERP Project

All sub-projects of FERP components 2 and 3 are classified as Environmental Category B, since they will involve only flood recovery projects, with the possibility of minor changes for safety purposes.

General responsibilities under DWM/PIU are:

- The PIU will be responsible for the environmental compliance monitoring and oversight to ensure overall project environmental compliance. The ESSS consultant that would be hired by PIU would assist PIU to carry out this mandate.
- PIU will follow the related government rules (laws, ordinances, acts etc.) and WB Operational Policies and Guidelines. This ESMF would serve as a base for ensuring this compliance.
- PIU will ensure participation of local communities in planning and implementation of sub-projects.
- PIU will be responsible for obtaining and ensuring Environmental Approvals required from DoEIA for all FERP sub-projects for which EIA study is required. All the activities proposed

under the project will abide by Generic Environmental Mitigation Plan (GEMP) prepared under ESMF.

- The requirements of EMP, ESMF and Serbian standards will be included in all sub-project's civil works contracts through a set of special environmental clauses included in the Technical Specification of the bidding documents.
- Environmental Management Plan along with ESMF will be incorporated in the bid document's work requirements. Penalty clauses for not complying with EMP requirements will be incorporated.

5.3. Environmental Assessment Procedure

- For all projects ESSS will carry out the environmental screening.
- PIU will ensure that proper environmental screening will be done by ESSS.
- ESSS will ensure that environmental considerations are given sufficient attention. To this end, it will carry out preparation of the specific EMPs for all FERP projects based on screening criterion.
- For each project which is placed within the natural/cultural protected areas, ESSS will assist PIU in process of obtaining of all necessary preconditions from relevant institutions (INP/IPCM) and prepare RDNEIA to be submitted to MAEP/PSEP, PIU will obtain FEA from MAEP/PSEP
- Bid documents will be prepared by PIU, and will include site-specific EMPs. The EMP implementation should be done by relevant contractors.
- FERP projects supervised by PSC.
- PIU will ensure that environmental assessment addresses all potential environmental direct and indirect impacts of the project throughout its life

5.4. Screening and Scoping

5.4.1. Screening

Environmental and Social Safeguard Specialist (ESSS), contracted by PIU, is obliged to perform all environmental screening activities as a process by which the appropriate level and type of EIA will be determined for a given subproject on the basis of its likely environmental impacts**.** The methodology for screening includes definition of environmental screening category, desk study, reconnaissance survey and literature available.

Screening Criteria

ESSS should note site-specific environmental risks and impacts, land zoning requirements and prepare documentation for environmental license/permit in accordance with procedure.

Screening Category

All FERP projects are classified as Environmental Category B. Depending on subproject EA Category, they could be additionally divided into "B" or "Low B" Category.

Project recognized as "Low B" environmental category requires only EMP, Checklist EMP or application of regulations/standards.

Project recognized as "B" environmental category contains all "Low B" requirements.

Desk Study: Purpose of this activity is to collect the secondary information and choose the methodology for carrying out EIA Study (if requested by MAEP) and determining responsibilities of EA team members for preparing site-specific Environmental Management Plan. It shall include:

- Gathering and reviewing existing environmental data (secondary data) relevant to the proposed development, in the form of topo sheets, physical maps, thematic maps showing details of soil type, geology, seismic activity, hydrology etc.
- Collect all the earlier carried out environmental and engineering studies in project area.

Reconnaissance survey – field research**:** Purpose of this activity is to collect the first hand information about the project area by verifying the data collected during desk study, assessing the likely impacts, identifying the major/main issues and preparing the methodology for detailed investigation.

Determining Degree of Impact:

Once all project environmental aspects will be identified, the level of impact that may result from each of the activity will be assessed. In assessing the level of impact that an activity may cause, two key elements are considered namely:

Consequence: the resultant impact (positive or negative) of an activity‘s interaction with the legal, natural and/or socio-economic environments; the categorization for consequence is presented in Table 4.1 .

Likelihood: the likelihood that an activity will occur. The categorization for likelihood is presented in Table 4.2

Table 4.1: Consequence Categories and Rankings

Consequence Category	**Addressed**
Significant	Most severe, alternative will be proposed through environmental hazard risk management
Major	Severe, alternative/avoidance will be proposed through environmental hazard risk management
Moderate	Less severe, measures will be proposed to minimize impact
Minor	Less severe, mitigation measures will be proposed
Negligible	Less severe, mitigation and enhancement measures will be prepared if possible
None	No impact, enhancement measures will be proposed if possible
Positive	Positive impact

Table 4.2: Likelihood Categories and Rankings

Likelihood Category	**Definition**
Certain	The activity will occur under normal operating conditions.
Very likely	The activity is very likely to occur under normal operating condition.
Likely	The activity is likely to occur at some time under normal operating condition.
Unlikely	The activity is unlikely to but may occur at some time under normal operating condition.
Very unlikely	The activity is very unlikely to occur under normal operating conditions but may occur in exceptional circumstances.

5.4.2. Scoping

The next step in the EA preparation will be to define FERP activities and the physical, regulatory and environment of the area in which development will occur. This will be achieved through scoping. Scoping will identify which of the activities has a potential to interact with the environment. Scoping will be conducted early in the EA process so that a focus on the priority issues (i.e. those that have the greatest potential to affect the natural and/or environment) can be established for the rest of the EA process.

5.5. Screening Check-list

Main purpose of the FERP Screening Checklist is to provide a simple tool for identification of potential environmental impacts related to reconstruction of existing infrastructure that was damaged due to the recent floods. It will also help to simplify decision-making process on whether a detailed EMP needs to be developed for a project or not.

The term reconstruction is understood to cover rebuilding of infrastructure after being damaged or destroyed to a previous state without change in its original purpose or increase of capacities.

The FERP screening checklist provides a set of associated environmental mitigation measures as well as monitoring measures that will help assess the implementation of the selected mitigation measures.

The screening checklist is to be used for all smaller reconstruction subprojects on reconstruction or roads, railways and buildings where identified issues will not case significant effects on environment. For all other large reconstruction subprojects, specific EMPs will be developed.

The design and concept of the FERP Screening Checklist allow for it to be used either by specialists or non-specialists dealing with infrastructure reconstruction. The checklist-type format has been developed to provide “example good practices” and designed to be user friendly and compatible with the World Bank safeguard requirements.

The checklist-type format attempts to cover typical core mitigation approaches to civil and other reconstruction works with small, localized impacts on environment and human health. It is accepted that this format provides the key elements of an Environmental Management Plan (EMP) or Environmental and Social Management Framework (ESMF) to meet World Bank Environmental Assessment requirements under OP 4.01. The intention of this checklist is that it would be applicable as guidelines for the rehabilitation works contractors and constitute an integral part of bidding documents and contracts for contractors carrying subproject.

5.5.1. Directions for use and application of results

The Administrative and Institutional Data section of the FERP Screening Checklist requires knowledge about basic general and technical information on sub-projects. Where asked, the boxes should be checked and values filled in. Supplemental information can be attached to the document.

The Environmental Screening questionnaire should be completed in four steps:

Step 1 User should identify present or potential impacts of the project on environment among those listed in the column **Possible Environmental Impacts**. The appropriate Yes/No boxes adjacent to each impact identified should be checked.

Step 2 For each impact identified, appropriate mitigation measures are listed in the column **Mitigation Measures**. One environmental impact can trigger one or several of the mitigation measures stated in the table. An attempt is to be made to implement all mitigation measures proposed. Following completion of monitoring activities, those measures that are actually implemented should be circled.

Step 3 The monitoring parameters appropriate to mitigation measures among are listed in the column **Monitoring parameters**. The proposed monitoring parameters will be checked accordingly, as suitable. Decision on which of the monitoring parameters is optimal to

monitor is based on the possibility of occurrence of the impact and its severity, cost of monitoring, etc. Following completion of monitoring activities, those parameters that are actually monitored should be circled.

Step 4 The Bodies (Proponent, Design Engineer, Contractor, etc.) listed in the column **Responsible body** are identified as responsible for implementing mitigation measure and/or conduct the monitoring. They should be notified of their obligations.

5.5.2. Sample check-list questionnaire for FERP project

Sample check-;list questionnaire for FERP Project is presented in Annex 8 of this ESMF document.

6. ENVIRONMENTAL AND SOCIAL IMPACT OF PROPSED FERP PROJECT

Since the existing infrastructure, facilities and equipment will be rehabilitated, reconstructed, repaired and replaced during the realisation of the project, impacts on environment will be a consequence of human presence and construction machines, and the nature of construction works at a location, which are limited to the location of works or its surrounding vicinity.

6.1. Environmental and social Impacts during Project execution

No negative impacts on natural environment are expected in operative phase, since the rehabilitation of the existing public infrastructure is planned. Moreover, impacts in operative phase are considered very positive because the objective of the project is to prevent risks to environment, humans and property from the flood-induced consequences.

Impacts on the environment which will occur during the project implementation are a direct consequence of human presence and construction machines, as well as the execution of civil engineering, assembly, construction works at a location. Pollutions that occur in the phase of reconstruction, rehabilitation, repair are temporary in their scope and limited in intensity although they can cause serious consequences in cases of individual breakdowns.

6.1.1. Impact on soil and agricultural land

- Physical damages to soil,
- Soil degradation,
- Emission of gases, dust, heavy metals from construction machines and transportation vehicles leads to the contamination of surrounding soil,
- Using land to dispose of waste, temporary construction sites and temporary roads

6.1.2. Possible Water pollution

- Filling/backfilling of riverbeds with construction material due to contractor's lack of care can cause bed silting up, water contamination, water level rise in the upstream part or even complete clogging of the bed with stone material with watercourse continuing underground movement.
- Discharging diverse waste products from construction site process and construction site complex (liquids, particles and solid waste) on banks or directly into river beds leads to water pollution and pollution spreading along the watercourse.
- Discharging used waters from the construction site (technological and hygienic) into watercourses, or into soil leads to hazardous polluters and biological agents' diffusion.
- Excavations in the field can cause the cutting – opening of aquifers, i.e. disruption of groundwater (water cycle).
- Fine fractions can be washed away during the execution of construction works under influence of material falls from temporary landfills. This will make surface courses turbid. Material is washed away under the same conditions during transport.
- Waste material, mechanical oil, fuel etc. can be disseminated by malfunctioning construction machines and vehicles or negligent personnel.
- Location of heavy machines, temporary construction material depots near rivers or surface watercourses.

6.1.3. Air

An increased concentration of polluting substances, primarily dust and exhaust gases from vehicles is expected as a consequence of construction works. Air quality deterioration will be caused by:

- exhaust gases from trucks and mechanisation that will be engaged in the works execution,

- suspended particles (dust) that will rise from the construction site, transport roads when trucks and mechanisation pass,
- suspended particles from temporary landfills of stone aggregates.

Dust, as a consequence of transport and execution of works (excavation, loading and unloading of material), exhaust gases emitted by construction machines and motor vehicles can cause a decrease in air quality in the zone of construction works during the works. Impact on air is expected in the area that is several hundred metres away from the location of works. However, a significant impact on local population is not expected, nor violation of law-allowed concentration of emissions into the air. Thus all impacts are closely related to the location of works, they are temporary with tendency to restore into original condition upon the termination of works.

6.1.4. Noise

Noise and vibrations can occur as a consequence of:

- execution of works at the location,
- activity of construction workers and
- movement of vehicles and heavy construction mechanisation.

6.1.5. Flora and fauna

- Emissions of polluters from trucks and construction machines have negative impacts on vegetation around the construction site;
- Disturbance of wildlife and other animals due to increased noise and human presence.

6.1.6. Impacts on settlements and population

- Uncontrolled positioning of the construction site near residential units can lead to disruption of communication roads:
- Deterioration of life quality during the construction works through increased noise, vibrations, dust.

6.1.7. Impacts on habitats and biodiversity

Since reconstruction, rehabilitation, repair of the flood-damaged existing infrastructure, facilities and equipment are implemented, no new infrastructural capacities will be built, which could lead to the occupation of new land, loss of habitat, fragmentation of habitat and thereby a significant negative impact on biodiversity.

6.1.8. Impacts on cultural and historic heritage

If cultural and historic values are located in the zone of works, they can be jeopardised with construction works.

If during the works the contractor finds archaeological sites or archaeological objects or natural goods of geological and paleontological or mineral-petrographic origin, which are assumed to have a capacity of natural monument, he is obliged to immediately disrupt works and notify the Republic Institution for Protection of Cultural Monuments (IPCM) and take measures to prevent the finding from destruction and damages and to keep it in the position where it was discovered.

6.2. Specific Project impacts

In respect to Component 2: the activities proposed to be funded under the Project will provide support to farmers under the Government's farm incentive program, which is well established in the country for over 5 years. These activities are carried out at already anthropogenically-modified environment and are environmentally-neutral in most cases. It is estimated that by supporting the farm incentives program in the flood affected areas the Project will have an

impact on food self-sufficiency of farm household which makes about 15-20 percent of their total income, i.e. about EUR 510 per household. Having in mind that the farms in this area generate 8-10 percent of their income from the sale of agricultural products, it is estimated that the project will contribute to generating additional cash *income derived from sales of agricultural products* of about USD 500 per household. However, in some cases, like incentives provided for environmentally-friendly practices (autochthonous plant species and animal breeds preservation program; application of the code of good agriculture practice; organic agriculture) they have a positive impact to enhancing the existing environmental status. At the same time, it is recognized that agricultural subsidies can also lead to agricultural practices that are environmentally damaging.

On the other side, potential environmental and social impacts of the farmer subsidy program is noted, including issues relating to pest management and use of pesticides.

In respect to Component 3: rehabilitation of damaged infrastructure will be undertaken without change of the existing footprint, and by using the same type of material as the structures were made from (earth, clay, stone block, geotextile). The expected environmental impacts are generally related to handling of construction material, construction waste, servicing and maintenance of construction machinery and the health and safety of workers and general population that need to be close to the construction area. Mitigation of negative impacts related to these activities will be undertaken using well known methods contained in the code of the good construction practice, which will be applied on all construction sites, which will be detailed in ESMF and site-specific EMPs, as appropriate. Hazardous materials are unlikely to be found at any site. No other large, significant or potentially irreversible environmental impacts have been identified, nor are they expected during the execution of the civil works.

The infrastructure rehabilitation and reconstruction works under Component 3A (flood protection infrastructure) in some cases may lead to small amounts of land acquisition. Land requirements are expected to be minor as the rehabilitation investments will be carried out mainly on municipally owned land, or other government owned land.

However, restoration and/or rebuilding of damaged facilities might to some extent have adverse social impact if the works require some temporary acquisition of private land for securing the right-of-way.

No long term negative impacts are envisaged if the Project is implemented with due care and observing the relevant procedures.

The whole FERP project is expected to result in significant social benefits through reduced electricity shortages, increased security of domestic food supply and improved floods prevention and management.

By ensuring continued energy supplies, improving protection for the population against future floods, and compensating for lost income for farmers, the whole FERP project is expected to have a positive impact on the poor and help restore income growth of the poorest 40 percent. This includes a direct positive impact on the livelihoods of project beneficiaries, as losses - including public infrastructure, agricultural and livestock production, as well as family household assets - are significantly reduced.

The project activities will generate positive impacts for both women and men. Relevant implementing agencies will make sure that the services are provided in a gender and vulnerability informed/sensitive manner. For the purpose of project monitoring and evaluation and to the extent possible, implementing agencies will report on the project impact through data disaggregated by gender, age and vulnerability.

As affected areas are dominated by labor-intensive sectors of agriculture, such as horticulture and viticulture, the Project will have a significant impact on the preservation of jobs of permanent and seasonal workers.

6.3. Other positive impacts of FERP Project

The repair of flood-damaged infrastructure and facilities will bring economic, social, health and ecological benefits, to population and local community in this area. Experiences of similar projects show that the project will have many positive effects on society through the creation of conditions for population's standard growth in almost all segments (education, health protection, additional employment).

In case of unemployment and poverty in the project area, manpower resources will not be reduced. If some of the unemployed are employed or if employment has impact on unemployment, the project creates social benefits due to decreased social support or aid to the unemployed. That is the case in the flood emergency response project. The following social benefits will be generated through additional employment:

- Increase in the number of work positions during the investment implementation (temporary effect);
- Increase in the number of work positions due to needs for maintenance activities;
- New work positions as a consequence of economic development enabled by the investment implementation.

6.4. Potential negative Impacts and recommended Mitigation Measures

The potential impacts and recommended mitigation measures are described below as well as a sample subproject characteristic impacts and mitigation measures.

Table 6.4: Summary of key impacts during construction phase

impact	significance	comment
impacts on land use/ settlements,	low	There will be no land acquisition as defined by WB OP 4.01 during the project implementation. In case of any land acquisition – RFP document is prepared for this Project
ground and surface water,	low	Due to low amount of drainage water that can be potentially drained into any river the consequential impact is expected to be minimal to negligible
air quality,	low	Temporary impact. Local air quality may experience some moderate and temporary deterioration due to dust from construction traffic and elevated levels of nitrogen oxide (NOx) and sulphur oxide (SOx) from construction equipment exhausts. Impact can be mitigated by following GEMM procedures
flora and fauna (protected areas and species),	low	Minimal loss or damage of vegetation and loss and damage or disruption to fauna can occur during works. Impacts can be offset or mitigated by following GEMM procedures. There will be no negative impacts on protected areas due to nature of works.
noise and vibration,	low	Only limited temporary impact during the rehabilitation phase. Mitigation measures in form of noise deflecting shields will be placed where the work-scheduling activities cannot have desired effect. Impact can be mitigated by following GEMM procedures.

impact	significance	comment
soil quality,	low	Soil contamination can occur from: drainage of dredged materials, spillage of hazardous and toxic chemicals. Impact can be mitigated by following GEMM procedures
waste,	low	Health hazards and environmental impacts can happen due to improper waste management practices. Impact can be mitigated by following GEMM procedures
cultural and religious issues,	low	Regular rehabilitation activities could, if not properly managed, cause disturbance to the cultural and religious sites. Impact can be avoided by implementing EMP related measures.
cumulative impacts etc.	Medium/ moderate	Temporary, rehabilitation works may cause a slight increase of noise levels and air pollutants concentrations during the works only

7. MITIGATION MEASURES AND ENVIRONMENTAL MONITORING ACTIVITIES

For each FERP sub-project ESSS is obliged to produce a site-specific EMP document. EMP is an Action Plan that indicates which of the EA report recommendations and alternatives will actually be adopted and implemented. EMP could be produced as a part of Detailed Design or as a free-standing document. It will ensure incorporation of the relevant environmental factors into the overall project design and will identify linkages to other safeguard policies relating to the project.

EMP documents, prepared for each FERP sub-project , will ensure that the environmental mitigation measures and their practical monitoring become a legal responsibility of PIU.

Recommended content of EMP document is:

- Executive Summary
- Project description
- Policy, legal and administrative framework
- Baseline conditions assessed during route survey
- Summary of predicted adverse environmental and social impacts related to project;
- Description of mitigation measures and plan
- Description of monitoring activities and plan
- Institutional arrangements and reporting procedures
- Stakeholder engagement – information disclosure, public consultations and participation

7.1. Mitigation Measures

7.1.1. General

The environmental impacts identified at this stage are preliminary in nature and will need to be further elaborated specifically (subproject wise) and potential for occurrence has to be ascertained during further stages of subproject design and implementation.

This section details out the potential environmental impacts of the sub-projects funded by WB under FERP.

The overall mitigation measures will broadly fit in the following strategies:

- Impact avoidance, adjust project tasks if necessary
- Impact minimization: where impacts cannot be avoided, implementing mitigation measures to reduce the impact to acceptable levels.
- Compensation: where impacts cannot be avoided or sufficiently mitigated, arranging compensation.
- Enhancement: measures, which, at little cost to the project, give appreciable environmental benefits.

The crucial type of activities will be mostly implemented during the construction / reconstruction / rehabilitation works under the FERP Project are embankments works (flood protection structure works).

Four different types of works are proposed: Construction of FP structures, reconstruction of the weak points on the embankment, upgrading sections of embankment from the 1:25 year flood to the 1:100 year flood, and bank armoring in locations where erosion of the riverbank may undercut the embankment.

. The overall mitigation measures will broadly fit in the following strategies:

- Impact avoidance: changing project location, design and rehabilitation methods to avoid impacts.
- Impact minimization: where impacts cannot be avoided, implementing mitigation measures to reduce the impact to acceptable levels.
- Compensation: where impacts cannot be avoided or sufficiently mitigated, arranging compensation.
- Enhancement: measures, which, at little cost to the project, give appreciable environmental benefits.

Mitigation measures will be considered starting with the Environmental Assessment process. Impacts identified severe in consequence category and or likelihood category will be further analyzed to identify additional mitigation measures that are potentially available to eliminate or reduce the predicted level of impact. Potential mitigation measures will include:

- habitat compensation program
- species specific management program
- engineering design solutions
- alternative approaches and methods to achieving an activity‘s objective
- stakeholders participation in finalizing mitigation measures
- construction practice, including labor welfare measures.
- operational control procedures
- management systems

Mitigation is an integral part of impact evaluation. It looks for better ways of doing things so that the negative impacts of the proposal are eliminated or minimized and the benefits are enhanced. As soon as significant adverse impacts are identified, discussions should be held to see if they can be designed out through changes in project design, location or operation. It is important therefore, that there is good integration between the EIA team and project design engineers.

The EMP should be developed so as to counter the impacts assessed and also the likely impacts during the rehabilitation works and operational phase. Based on 3 already prepared EMP document, a Generic Mitigation plan for FERP sub-projects is presented within the Annex 3 of this ESMF document. Respecting the DWM/PIU experience in road management and IFI financed projects, a generic EMP has been presented in Table 4 .4. This can be used as a reference material for comprehending the scope of the EMP.

7.1.2. Environmental Impacts and adequate Mitigation Measures

Erosion of embankment slopes

Impact - The earthworks for the sub-project activities might cause negative impacts in form of erosion on embankment slopes, dust, noise and vibration to disturb the local people.

Mitigation Measures - Excavation and/or filling will be done in such a way that the slope of the embankment should be within right of way and will not disrupt drainage problems. The Contractor should use erosion control measures such as re-vegetation of disturbed areas and placing of tarps. The Contractor shall stabilize the cleared areas not used for rehabilitation activities with vegetation or with the appropriate surface treatments as soon as practicable following completion of activities.

Potential air pollution - Dust

Impact - Possible sources of air pollution will be dust due to maintenance activities, machinery movement and other sources. Rehabilitation works involve breaking up, digging, crushing, transporting, and dumping small quantities of dry materials. Locally, the air quality may experience some moderate and temporary deterioration due to dust from construction traffic and elevated

levels of nitrogen oxide (NOx) and sulphur oxide (SOx) from construction equipment exhausts. The dust may settle on vegetation, crops, structures and buildings.

Mitigation Measures - Spraying of water is the main way of controlling dust. Water is, in any case, required to be added to fill material during the rehabilitation works.

Potential water contamination

Impact - Water contamination may occur during the execution of the project from site run off, spills from the equipment maintenance areas and sanitary wastewater effluent from the work camps. As for the potential pollution during operation, these are mostly limited to accidents. In such a case, procedures for action in incidental situations, as defined by the Ministry of Interior and in the Water Law, will apply.

Mitigation Measures - Fuel and lubricant spills can occur at the Contractor's work camp while maintaining and washing equipment and work vehicles. During the normal operations, these areas should be equipped with the adequately sized, gravity oil separator. Should spills occur, to mitigate the problem the Contractor should use absorbing materials, such as absorbent mats/fabrics, or sand and scrape off the contaminated soils and dispose them in approved facility, in accordance with the Water Law.

Potential contamination of soils due to pesticide usage and improper waste disposal

Impact - Potential contamination of soils due to increased use of pesticides during implementation of Farm Incentives Program (FERP – Component 2).

Mitigation Measures - Integrated Pest Management Approach (IPM) is mandatory during project execution. Ensuring of appropriate selection and safe use of pesticides when they are needed by project demands related to safeguard OP 4.09 - Pest Management. Avoiding of use of pesticides that fall in WHO classes IA, IB or II.

Impact - Potential contamination of soils and watercourses as a result of improper disposal of liquid and solid wastes from rehabilitation activities.

Mitigation Measures - The mitigation measure to avoid contamination of soils and watercourses is to ensure that waste materials are properly disposed to the suitable locations. Partly, inert waste materials can be used as filling material.

Contractor should produce a Waste Management Plan for the Project. Mitigation measures should, among other requirement, contain contractor obligations to:

- locate the garbage pit/waste disposal site min 500 m away from the residence so that peoples are not disturbed with the odor likely to be produced from anaerobic decomposition of wastes at the waste dumping places. Encompass the waste dumping place by fencing and tree plantation to prevent children to enter and play with. All solid waste will be collected and removed from the work camps and disposed in approval waste disposal sites.
- In case oil and grease are trapped for reuse in a minimum 60cm thick lined pit, care shall be taken to ensure that the pit should be located at the lowest end of the site and away from the residential areas.
- In case of filling of low-lying areas with wastes, it needs to be ensured that the level matches with the surrounding areas. In this case care should be taken that these low lying areas are not used for rainwater storage

Equipment maintenance and fuelling

Impact - equipment maintenance and fuelling may cause contamination of soils and watercourses, including groundwater, if handling of lubricants, fuels and solvents is improper or careless.

Mitigation Measures - To avoid damage to natural environment there is a need to ensure proper handling of lubricants, fuels and solvents while maintaining the equipment.

Occupational Health and Safety

Impacts - Construction workers may be affected adversely due to hazardous working environments where high noise, dust, unsafe movement of machinery etc. may be present.

Mitigation Measures - The Contractor shall instruct his workers in health and safety matters, and require from the workers to use the provided personal safety equipment. Contractor has to ensure that all operators of heavy or dangerous machinery are properly trained/certified, and also insured. He will have to provide first aid facilities, rapid availability of trained paramedical personnel, and emergency transport to nearest hospital with accident and emergency facilities.

Noise

Impact - Noise caused by the rehabilitation works will have only a temporary impact. Although temporary and mostly moderate, noise impacts in the vicinity of residential areas may cause negative health impact, if not mitigated.

Mitigation Measures - In sensitive areas (schools, nature parks, hospitals) special care regarding noise emission will be taken by the Contractor, strictly respecting the EMP requirements. In case of noise disturbance with noise emissions which are above permitted level, temporary noise barriers should be considered as appropriate mitigation measure. Awareness building and administrative measures should be taken to ensure proper maintenance of vehicles. In case of exceeded noise limits for sensitive areas the Contractor should erect temporary shields to prevent a free noise spreading to the sensitive receptors.

7.2. PEST MANAGEMENT

7.2.1. Introduction

Integrated Pest Management (IPM) is seen as the way to achieve sustainable agricultural production with less damage to the environment.

IPM has evolved from a solely technical approach to a more holistic view of the agricultural production system that connects the long-term sustainability of agricultural production with environmental, economic, and social issues, including public health. A range of important stakeholders beyond the research and farming community increasingly are expressing their interest in IPM. A watershed was reached when the 1992 United Nations Conference on Environment and Development (UNCED), or Rio Earth Summit, adopted IPM as a cornerstone of Chapter 14 of Agenda 21. National governments, international agencies, and other players were asked to increase assistance to increase adoption of IPM in agriculture.

Now, 10 years after the Rio conference, a relatively realistic view of sustainable development has been reached. Case studies demonstrate the economic benefits at the farm level, as well as IPM' s contribution to reducing environmental and health externalities. Despite this progress, farmers' adoption of IPM is proceeding rather slowly. Even though traditional low-input farming systems often use similar techniques, in many countries, in the context of raising productivity and household income, IPM techniques still are used by only a small number of farmers, primarily in pilot initiatives supported by external donors.

The World Bank's position on IPM was published in 1997. Since that time, several important developments have taken place. The Safeguard Policy on Pest Management was strengthened in 1998. The Operational Policy for Pest Management (OP 4.09) governs the financing of pesticides in project investments and mandates a preference for IPM approaches (appendix 1). Since IPM also is included in strategy documents, such as the Agriculture and Rural Development Strategy, *Reaching the Rural Poor* (World Bank forthcoming 2003), it is time to review the recent developments in IPM itself and the achievements that the Bank has made in IPM.

7.2.2. Specific actions to mitigate negative impact of the Farm Incentive Program

Component 2 of the FERP Project (support to Farm Incentives Program) could lead to increased use of pesticides. This ESMF indicate what measures will be in place to promote an Integrated Pest Management Approach (IPM) and to help ensure appropriate selection and safe use of pesticides when they are needed.

Criteria for Pesticide Selection and Use

The procurement of any pesticide in a FERP project is contingent on an assessment of the nature and degree of associated risks, taking into account the proposed use and the intended users. With respect to the classification of pesticides and their specific formulations, the World Bank refers to the World Health Organization's *Recommended Classification of Pesticides by Hazard and Guidelines* to *Classification* (Geneva: WHO 1994-95).§ The following criteria apply to the selection and use of pesticides in FERP project:

(a) They must have negligible adverse human health effects.

(b) They must be shown to be effective against the target species.

(c) They must have minimal effect on nontarget species and the natural environment. The methods, timing, and frequency of pesticide application are aimed to minimize damage to natural enemies. Pesticides used in public health programs must be demonstrated to be safe for inhabitants and domestic animals in the treated areas, as well as for personnel applying them.

(d) Their use must take into account the need to prevent the development of resistance in pests.

MAEP/PIU will require that any pesticides used within the FERP project must be manufactured, packaged, labeled, handled, stored, disposed of, and applied according to standards acceptable

to the WB. MAEP/PIU took into account that WB does not finance products that fall in WHO classes lA and IB, or formulations of products in Class II, if (a) the country lacks restrictions on their distribution and use; or (b) they are likely to be used by, or be accessible to, lay personnel, farmers, or others without training, equipment, and facilities to handle, store, and apply these products properly.

2.2 Procurement of Pesticides

The following criteria apply to the selection and use of pesticides:

- They must be negligible adverse human health effects;
- They must be shown to be effective against target species;
- They must have minimal effect on non-target species and the natural environment. The methods, timing and frequency of pesticide applications are aimed at minimizing damage to natural enemies;
- Pesticides used in public health programs must be demonstrated to be safe for inhabitants and domestic animals in the treated areas, as well as for personnel applying them; and
- Their use must take into account the need to prevent the development of resistant pests.

Selection of pesticides will also be based on careful evaluation of possible hazard to the environment and to important natural resources. For example, materials having high acute toxicity to fish or aquatic invertebrates will not be used where there are aquatic resources which could be affected by runoff, drift or soil erosion and those highly toxic to honeybees will not be used when they will present a threat to important pollinators. Information on toxicity to non-target organisms will be available from the manufacturer if it is not in published literature.

Where pesticides are procured for supply to farmers, it is essential for the MAEP/PIU to select materials which can be applied safely and effectively without close supervision. Staff in the implementing agency will also be adequately supported and trained in the use of the materials so that they may demonstrate the correct techniques and give appropriate advice, including advice for on-farm storage of concentrates and eventual disposal of surplus pesticides and empty containers.

Technical specifications for the procurement of pesticides will define all the critical characteristics in the formulation of the pesticide required. To ensure effective competition among suppliers who formulate a particular active ingredient under one or more different trade names, the IFB and other tender documents will use accepted generic names of the material or materials to be purchases.

Foreign suppliers/manufacturers will be required to submit with their bids certification that the product is exactly the same (in terms of physical and chemical properties, formulating ingredients and manufacturing process) as that marketed and registered in the country of origin and state any deviations and provide rationale for them.

Specifications will also indicate any special features of packaging and labeling which are necessary for product protection during handling and storage to ensure effective use. This includes requirement in the bidding documents that materials used for seed treatment be formulated with warning colorants or dust which will persist under anticipated storage and handling conditions. Reference may also be made to internationally accepted packaging and labeling standards. In case of products which are not water soluble, Bidding documents will require suppliers/manufacturers to recommend and provide a suitable solvent for washing application equipment and containers. Where available containers which discourage re - use for storing liquids will be specified.

MAEP/PIU will establish internal control which will require that any pesticides used within the FERP project will be manufactures, packaged, labeled, handled, stored, disposed of and applied in accordance with Food and Agriculture Organization's (FAO) Guidelines for Packaging and Storage of Pesticides, Guidelines on Good Labeling of Pesticides, and Guidelines for the Disposal of Waste Pesticide and Pesticide Containers on the Farm. **This will be indicated in bidding documents**.

PIU will also ensure rigid restrictions on distibution and use of any potential products that fall in WHO classes IA and IB, or formulations of products in Class II. PIU will also ensure that any of these products will not be used by, or be accessible to lay personnel, farmers, or others without training, equipment and facilities to handle, apply and store these products properly.

Bidding documents will specify the standards of packaging of pesticides, in order to ensure that they are adequate to withstand the considerable abuse which can occur during transport and storage. Clear and durable labeling of all packages to depict the hazardous nature of the contents will be mandatory. Bidding documents will also require that the labels be in a specified language(s), and be consistent with internationally accepted standards.

The MAEP/PIU will encourage suppliers to pack the pesticides in single dose packages or small containers to reduce the need for measuring concentrates. This alleviates some of the problems of on - farm storage of open pesticide containers. Bidding documents can permit repackaging in properly licensed and inspected facilities meeting acceptable safety standards and preferably under the control of the supplier winning the bid, who will be fully responsible for the suitability of the new package including labeling and instructions for use, the quality of the repackaged product and the safety of the repackaging process.

Bidding documents will also require that manufacturers design containers which discourage reuse. This is because, although all empty containers will be destroyed, there may be countries in which adherence to regulations requiring their destruction is difficult to enforce due to a shortage of empty containers to store liquids.

PIU will not approve of re-use of pesticide containers and will strongly recommend that all possible deterrent measures be taken. However, in instances where the only available and suitable package offered by suppliers is a non - returnable drum and where destruction of all empty containers cannot be ensured, their thorough washing with an appropriate solvent and numerous water rinses will be ensured by the MAEP/PIU. The latter can be done through requiring bidders to include detailed instructions in the containers to enable final users and the implementing agency's staff to carry out this process satisfactorily.

Where pesticides are applied by contractors, they will be required in the bidding documents to take all necessary precautions to protect the public and the environment from damage due to spray drift or other accidental contamination. For particularly toxic materials, it may be expedient for bidding documents to require the supplier to supervise the correct handling and application of the materials in accordance with accepted safety standards.

Evaluation of bids for procurement of pesticide would follow the normal Bank accepted evaluation policies. ***(Refer to Section 19 of the Manual for detailed instructions)*** However, in the particular case of pesticides, in order for the MAEP/PIU to effectively evaluate tenders from different sources offering different materials for the control of the same pest, prior comparison of the different materials in field tests is necessary to evaluate their relative efficiencies.

Where adequate information is available, efficiency weightings may be given to different materials and used in the evaluation of bids, but to do so, the weights must be made public in the bidding documents supplied to potential bidders so that in making offers they are aware of the conditions under which their product will be evaluated. Such weights may be used to reflect the advantage a particular material might offer by:

- controlling other pests besides the one for which the pesticide sought by the MAEP/PIU is intended;
- being less harmful to predators; or
- by being less dangerous to handle.

Where data is insufficient to apply such efficiency factors, materials are compared on the basis of their cost per unit area when applied, in accordance with the local recommended practices in the MAEP/PIU country and taking account of the manufacturers recommendations, at the rate and frequency of control of the pest concerned. Where one material has been shown in trials and practice to offer a longer period of control than another, and thus requires fewer applications, the saving in the application costs will be taken into account in evaluating the bids.

7.3. General Environmental Mitigation Measures During Project execution

The requirements of General Environmental Mitigation Measures (**GEMM**), EMPs and of the Serbia standards will be included in all sub project civil works contracts through a set of special environmental clauses included in the Technical Specification of the bidding documents. The set of standard Special Environmental Clauses will be subject to revision for each sub-project to ensure the relevant issues for each sub-project are being adopted.

7.3.1. Site Preparation

The preparation of site for rehabilitation works involves clearing of land required for rehabilitation works and management of activities such as traffic during rehabilitation works. These activities have been detailed out for civil works of FERP activities separately.

Site Preparation Activities by the Contractor

The activities to be undertaken by the contractor during the clearing and grubbing of the site are as follows: The clearance of site shall involve the removal of all materials such as trees, bushes, shrubs, stumps, roots, grass, weeds, part of topsoil and rubbish. Towards this end, the Contractor shall adopt the following measures: (i) Limiting the surface area of erodible earth material exposed by clearing and grubbing; (ii) Conservation of top soil and stock piling as per the measures suggested as part of GEMM; and (iii) Carry out necessary backfilling of pits resulting from uprooting of trees and stumps with excavated or approved materials to the required compaction conforming to the surrounding area. To minimize the adverse impact on vegetation, only ground cover/shrubs that impinge directly on the permanent works shall be removed. Cutting of trees and vegetation outside the working area shall be avoided under all circumstances.

The locations for disposal of grubbing waste shall be finalized prior to the start of the works on any particular section. The criteria for disposal of wastes shall be in accordance with the measures given in GEMM (Waste Management).

In locations where erosion or sedimentation is likely to be a problem, clearing and grubbing operations should be so scheduled and performed that grading operations and permanent erosion and sedimentation control features can follow immediately, if the project conditions permit. Dismantling of structures and culverts shall be carried out in a manner as not to damage the remaining required portion of structures and other surrounding properties. The disposal of wastes shall be in accordance with the provisions given in GEMM (Waste Management). The following precautions shall be adopted:

- The waste generated shall not be disposed of in watercourses, to avoid hindrance to the flow.
- All necessary measures shall be taken while working close to cross drainage channels to prevent earthwork, stonework as well as the method of operation from impeding cross drainage at rivers, water canals and existing irrigation and drainage systems.

The designated sites duly approved by DWM/PIU shall be cleared of its existing cover for setting up of the construction sites, camps and related infrastructure facilities, borrow areas and other locations identified for temporary use during rehabilitation works. The contractor shall comply with all safety requirements in consideration as specified in the GEMM (Occupational Health and Safety). Before initiation of site preparation activities along these lands to be used temporarily during rehabilitation works, it shall be the responsibility of the Contractor to submit and obtain approval of the site redevelopment plan from DWM/PIU. The letter/contract agreement between the owner(s) of the land parcel for temporary usage shall include site redevelopment to its original status. The adequate mitigation measures for the same are furnished in the GEMM (Construction Camp Management and Borrow Areas Development & Operation).

7.3.2. Waste Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures
General Waste	Soil and water pollution from the improper management of wastes and excess materials from the construction sites.	The Contractor shall: * Develop **waste management plan** for various specific waste streams (e.g., reusable waste, flammable waste, construction debris, food waste etc.) prior to commencing of works and submit to DWM/PIU for approval. * Organize disposal of all wastes generated during rehabilitation works in an environmentally acceptable manner. This will include consideration of the nature and location of disposal site, so as to cause less environmental impact. * Minimize the production of waste materials by 3R (Reduce, Recycle and Reuse) approach.
		* Segregate and reuse or recycle all the wastes, wherever practical. * Prohibit burning of solid waste * Collect and transport non-hazardous wastes to all the approved disposal sites. Vehicles transporting solid waste shall be covered with tarps or nets to prevent spilling waste along the route * Provide refuse containers at each worksite. *Request suppliers to minimize packaging where practicable. * Maintain all construction sites in a cleaner, tidy and safe condition and provide and maintain appropriate facilities as temporary storage of all wastes before transportation and final disposal.
Hazardous Waste	Health hazards and environmental impacts due to improper waste management practices	The Contractor shall: * Collect chemical wastes in 200 liter drums (or similar sealed container), appropriately labeled for safe transport to an approved chemical waste depot. * Store, transport and handle all chemicals avoiding potential environmental pollution. * Store all hazardous wastes appropriately in bunded areas away from water courses. * Make available Material Safety Data Sheets for hazardous materials on-site during rehabilitation works. * Collect hydrocarbon wastes, including lube oils, for safe transport off-site for reuse,

7.3.3. Hazardous Materials Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures
Fuels and Hazardous goods.	Materials used in rehabilitation have a potential to be a source of contamination. Improper storage and handling of fuels, lubricants, chemicals and hazardous goods/materials on- site, and potential spills from these goods may harm the environment or health of rehabilitation workers.	* Prepare spill control procedures and submit the plan for DWM/PIU approval. * Train the relevant contractor personnel in handling of fuels and spill control procedures. * Store dangerous goods in bounded areas on a top of a sealed plastic sheet away from watercourses. * Refueling shall occur only within bounded areas. * Make available Material Safety Data Sheets for chemicals and dangerous goods on-site. * Provide absorbent and containment material (e.g., absorbent matting) where hazardous material are used and stored and personnel trained in the correct use. * Provide protective clothing, safety boots, helmets, masks, gloves, goggles, to the contractor personnel, appropriate to materials in use. * Make sure all containers, drums, and tanks that are used for storage are in good condition and are labeled with expiry date. Any container, drum, or tank that is dented, cracked, or rusted might eventually leak. Check for leakage regularly to identify potential problems before they occur. * Put containers and drums in temporary storages in clearly marked areas, where they will not be run over by vehicles or heavy machinery. The area shall preferably slope or drain to a safe collection area in the event of a spill. * Take all precautionary measures when handling and storing fuels and lubricants, avoiding environmental pollution. * Avoid the use of material with greater potential for contamination by substituting them with more environmentally friendly materials.

7.3.4. Water Resources Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures
Discharge from construction sites	During rehabilitation works both surface and groundwater quality may be deteriorated due to rehabilitation activities in the waterway/river, sewerages from construction sites and work camps. The	The Contractor shall: * Install temporary drainage works (channels and bunds) in areas required for sediment and erosion control and around storage areas for rehabilitation materials * Install temporary sediment basins, where appropriate, to capture sediment-laden run-off from site

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures
	rehabilitation works will modify groundcover and topography changing the surface water drainage patterns of the area including infiltration and storage of storm water. These changes in hydrological regime lead to increased rate of runoff increase in sediment and contaminant loading, increased flooding, groundwater contamination, and effect habitat of fish and other aquatic biology.	* Divert runoff from undisturbed areas around the construction site * Stockpile materials away from drainage lines * Prevent all solid and liquid wastes entering waterways by collecting solid waste, oils, chemicals, bitumen spray waste and wastewaters from brick, concrete and asphalt cutting where possible and transport to an approved waste disposal site or recycling depot * Wash out ready-mix concrete agitators and concrete handling equipment at washing facilities off site or into approved bunded areas on site. Ensure that tires of construction vehicles are cleaned in the washing bay (constructed at the entrance of the construction site) to remove the mud from the wheels.
Soil Erosion and siltation	Soil erosion and dust from the material stockpiles will increase the sediment and contaminant loading of surface water bodies.	The Contractor shall: * Stabilize the cleared areas not used for rehabilitation activities with vegetation or appropriate surface water treatments as soon as practicable following earthwork to minimize erosion * Ensure that roads used by construction vehicles are swept regularly to remove sediment. * Water the material stockpiles, access roads and bare soils on an as required basis to minimize dust. Increase the watering frequency during periods of high risk (e.g. high winds)

7.3.5. Drainage Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures
Excavation and earth works, and construction yards	Lack of proper drainage for rainwater/liquid waste or wastewater owing to the rehabilitation activities harms environment in terms of water and soil contamination	The Contractor shall: * Prepare a program for prevent/avoid standing waters, which PSC will verify in advance and confirm during implementation * Provide alternative drainage for rainwater if the rehabilitation works/earth-fillings cut the established drainage line * Establish local drainage line with appropriate silt collector and silt screen for rainwater or wastewater connecting to the existing established drainage lines already there

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures
		* Rehabilitate drainage structures immediately if damaged by contractors‘ transports. * Construct wide drains instead of deep drains to avoid sand deposition in the drains that require frequent cleaning. * Provide appropriate silt collector and silt screen at the inlet and manholes and periodically clean the drainage system to avoid drainage congestion * Protect natural slopes of drainage channels to ensure adequate storm water drains. * Regularly inspect and maintain all drainage channels to assess and alleviate any drainage congestion problem. * Reduce infiltration of contaminated drainage through storm water management design

7.3.6. Soil Quality Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures
Filling of Sites with dredge materials	Soil contamination will occur from drainage of dredged materials	The Contractor shall: * Ensure that dredged sand used for land filling should be free of pollutants. Prior to filling, sand quality should be tested to confirm whether soil is pollution free. Sediments should be properly compacted. Top layer should be the 0.5 m thick clay on the surface and boundary slopes along with grass. Side Slope of Filled Land of 1:2 should be constructed by suitable soils with proper compaction as per design. Slope surface should be covered by top soils/ cladding materials (0.5m thick) and grass turfing with suitable grass. * Leaching from the sediments should be contained to seep into the subsoil or should be discharged into settling lagoons before final disposal. * No sediment laden water in the adjacent lands near the construction sites, and/or wastewater of suspended materials excessive of 200mg/l from dredge material storage/use area in the adjacent agricultural lands.
Storage of hazardous and toxic chemicals	Spillage of hazardous and toxic chemicals will contaminate the soils	The Contractor shall: * Strictly manage the wastes management plans * Construct appropriate spill contaminant facilities for all fuel storage areas * Establish and maintain a hazardous materials register detailing the location and quantities of

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures
		hazardous substances including the storage, use of disposals * Train personnel and implement safe work practices for minimizing the risk of spillage * Identify the cause of contamination, if it is reported, and contain the area of contamination. The impact may be contained by isolating the source or implementing controls around the affected site * Remediate the contaminated land using the most appropriate available method
rehabilitation material stock piles	Erosion from rehabilitation material stockpiles may contaminate the soils	The Contractor shall: * Protect the toe of all stockpiles, where erosion is likely to occur, with silt fences, straw bales or bunds

7.3.7. Top Soil Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures
Land clearing and earth works	Earthworks will impact the fertile top soils that are enriched with nutrients required for plant growth or agricultural development.	The Contractor shall: * Strip the top soil to a depth of 15 cm and store in stock piles of height not exceeding 2m. * Remove unwanted materials from top soil like grass, roots of trees and similar others. * The stockpiles will be done in slopes of 2:1 to reduce surface runoff and enhance percolation through the mass of stored soil. * Locate topsoil stockpiles in areas outside drainage lines and protect from erosion. * Construct diversion channels and silt fences around the topsoil stockpiles to prevent erosion and loss of topsoil. * Spread the topsoil to maintain the physico-chemical and biological activity of the soil. The stored top soil will be utilized for covering all disturbed area and along the proposed plantation sites * Prior to the re-spreading of topsoil, the ground surface will be ripped to assist the bonding of the soil layers, water penetration and re-vegetation
Potential soil pollution by pesticides	Component 2 of the FERP Project (support to Farm Incentives Program) could lead to increased use of pesticides.	Integrated Pest Management Approach (IPM) is mandatory during project execution. Ensuring of appropriate selection and safe use of pesticides when they are needed by project demands related to safeguard OP 4.09 - Pest Management. Avoiding of use of pesticides that fall in WHO classes IA, IB or II.

7.3.8. Air Quality Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures
Construction vehicular traffic	Air quality can be adversely affected by vehicle exhaust emissions and combustion of fuels.	The Contractor should * Fit vehicles with appropriate exhaust systems and emission control devices. Maintain these devices in good working condition. * Operate the vehicles in a fuel efficient manner * Cover haul vehicles carrying dusty materials moving outside the construction site * Impose speed limits on all vehicle movement at the worksite to reduce dust emissions * Control the movement of construction traffic * Service all vehicles regularly
Construction machinery	Air quality can be adversely affected by emissions from machinery and combustion of fuels.	The Contractor shall: * Fit machinery with appropriate exhaust systems and emission control devices. Maintain these devices in good working condition in accordance with the specifications defined by their manufacturers to maximize combustion efficiency and minimize the contaminant emissions. Proof or maintenance register shall be required by the equipment suppliers and contractors/subcontractors * Focus special attention on containing the emissions from generators * Machinery causing excess pollution (e.g. visible smoke) will be banned from construction sites * Service all equipment regularly to minimize emissions * Provide filtering systems, duct collectors or humidification or other techniques (as applicable) to the concrete batching and mixing plant to control the particle emissions in all its stages, including unloading, collection, aggregate handling, cement dumping, circulation of trucks and machinery inside the installations
rehabilitation activities	Dust generation from construction sites, material stockpiles and access roads is a nuisance in the environment and can be a health hazard.	* Water the material stockpiles, access roads and bare soils on an as required basis to minimize the potential for environmental nuisance due to dust. Increase the watering frequency during periods of high risk (e.g. high winds). Stored materials such as gravel and sand shall be covered and confined to avoid their being wind-drifted * Minimize the extent and period of exposure of the bare surfaces * Reschedule earthwork activities or vegetation clearing activities, where practical, if necessary to

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures
		avoid during periods of high wind and if visible dust is blowing off-site * Restore disturbed areas as soon as practicable by vegetation/grass-turfing * Store the cement in silos and minimize the emissions from silos by equipping them with filters. * Establish adequate locations for storage, mixing and loading of construction materials, in a way that dust dispersion is prevented because of such operations

7.3.9. Noise and Vibration Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures
Construction vehicular traffic	Noise quality will be deteriorated due to vehicular traffic	The Contractor shall: * Maintain all vehicles in order to keep it in good working order in accordance with manufactures maintenance procedures * Make sure all drivers will comply with the traffic codes concerning maximum speed limit, driving hours, etc. * Organize the loading and unloading of trucks, and handling operations for the purpose of minimizing construction noise on the work site
Construction machinery	Noise and vibration may have an impact on people, property, fauna, livestock and the natural environment.	The Contractor shall: * Appropriately site all noise generating activities to avoid noise pollution to local residents * Use the quietest available plant and equipment * Modify equipment to reduce noise (for example, noise control kits, lining of truck trays or pipelines) * Maintain all equipment in order to keep it in good working order in accordance with manufactures maintenance procedures. Equipment suppliers and contractors shall present proof of maintenance register of their equipment. * Install acoustic enclosures around generators to reduce noise levels. * Fit high efficiency mufflers to appropriate construction equipment * Avoid the unnecessary use of alarms, horns and sirens
rehabilitation activities	Noise and vibration may have an impact on people, property, fauna, livestock and	The Contractor shall: * Notify adjacent landholders prior any typical noise events outside of daylight hours

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures
	the natural environment.	* Educate the operators of construction equipment on potential noise problems and the techniques to minimize noise emissions * Employ best available work practices on-site to minimize occupational noise levels * Install temporary noise control barriers where appropriate * Plan activities on site and deliveries to and from site to minimize impact * Monitor and analyze noise and vibration results and adjust rehabilitation practices as required. * Avoid undertaking the noisiest activities, where possible, when working at night near the residential areas

7.3.10. Tree Cutting and Afforestation

This section discusses the issue of tree cutting and afforestation. Loss of trees creates adverse environmental impacts. In order to mitigate these impacts, suitable measures have been suggested.

Post-rehabilitation Stage

The maintenance of the saplings (including activities much as weeding, watering, planting of replacement saplings, etc. application of manure etc.) shall be the responsibility of the forest department.

7.3.11. Erosion and Sedimentation Control

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures
Clearing of construction sites	Cleared areas and slopes are susceptible for erosion of top soils that affects the growth of vegetation which causes ecological imbalance.	* Reinstate and protect cleared areas as soon as possible. * Mulch to protect batter slopes before planting * Cover unused area of disturbed or exposed surfaces immediately with mulch/grass tree plantations
rehabilitation activities and material stockpiles	The impact of soil erosion are (i) Increased run off and sedimentation causing a greater flood hazard to the downstream, (ii) destruction of aquatic environment in nearby lakes, streams, and reservoirs caused by erosion and/or deposition of sediment damaging the spawning grounds of fish, and (iii) destruction of vegetation by burying or gullying.	The Contractor shall: * Locate stockpiles away from drainage lines * Protect the toe of all stockpiles, where erosion is likely to occur, with silt fences, straw bales or bunds * Remove debris from drainage paths and sediment control structures * Cover the loose sediments and water them if required * Divert natural runoff around construction areas prior to any site disturbance * Install protective measures on site prior to rehabilitation, for example, sediment traps * Control drainage through a site in protected channels or slope drains * Install ‗cut off drains' on large cut/fill batter slopes to control water runoff speed and hence erosion * Observe the performance of drainage structures and erosion controls during rain and modify as required

7.3.12. Construction Camp Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures
Siting and Location of construction camps	Campsites for construction workers are the important locations that have significant impacts such as health and safety hazards on local resources and infrastructure of nearby communities.	The Contractor shall: * Locate the construction camps at areas which are acceptable from environmental, cultural or social point of view. * Consider the location of construction camps away from communities in order to avoid social conflict in using the natural resources such as water or to avoid the possible adverse impacts of the construction camps on the surrounding communities. * Local authorities responsible for health, religious and security shall be duly informed on the set up of

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures
		camp facilities so as to maintain effective surveillance over public health, social and security matters
Construction Camp Facilities	Lack of proper infrastructure facilities such as housing, water supply and sanitation facilities will increase pressure on the local services and generate substandard living standards and health hazards.	Contractor shall provide the following facilities in the Campsites: * Adequate housing for all workers * Safe and reliable water supply. Water supply from deep tube wells of 300 m depth that meets the national standards * Hygienic sanitary facilities and sewerage system. The toilets and domestic waste water will be collected through a common sewerage. Provide separate latrines and bathing places for males and females with total isolation by wall or by location. The minimum number of toilet facilities required is one toilet for every ten persons. * Provide in-house community/common entertainment facilities. Dependence of local entertainment outlets by the construction camps to be discouraged/prohibited to the extent possible.
Disposal of waste	Management of wastes is crucial to minimize impacts on the environment	The Contractor should * Ensure proper collection and disposal of solid wastes within the construction camps * Insist waste separation by source; organic wastes in one pot and inorganic wastes in another pot at household level. * Store inorganic wastes in a safe place within the household and clear organic wastes on daily basis to waste collector. Establish waste collection, transportation and disposal systems with the manpower and equipment/vehicles needed. * Locate the garbage pit/waste disposal site min 500 m away from the residence so that peoples are not disturbed with the odor likely to be produced from anaerobic decomposition of wastes at the waste dumping places. Encompass the waste dumping place by fencing and tree plantation to prevent children to enter and play with. * Do not establish site specific landfill sites. All solid waste will be collected and removed from the work camps and disposed in approval waste disposal sites.
Health and Hygiene	There will be a potential for diseases to be transmitted	The Contractor shall: * Provide adequate health care facilities within construction sites. * Provide first aid facility round the clock. Maintain stock of medicines in the facility and appoint fulltime designated first aider or nurse.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures
		* Provide ambulance facility for the laborers during emergency to be transported to nearest hospitals. * Initial health screening of the laborers coming from outside areas * Carryout short training sessions on best hygiene practices to be mandatorily participated by all workers. Place display boards at strategic locations within the camps containing messages on best hygienic practices

7.3.13. Cultural and Religious Issues

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures
rehabilitation activities near religious and cultural sites	Disturbance from rehabilitation works to the cultural and religious sites, and contractors lack of knowledge on cultural issues cause social disturbances.	The Contractor shall: * Communicate to the public through community consultation and newspaper announcements regarding the scope and schedule of rehabilitation, as well as certain rehabilitation activities causing disruptions or access restriction. * Do not block access to cultural and religious sites, wherever possible * Restrict all rehabilitation activities within the foot prints of the construction sites. * Stop rehabilitation works that produce noise (particularly during prayer time) should there be any church/religious/educational institutions close to the construction sites and users make objections. * Take special care and use appropriate equipment when working next to a cultural/religious institution. * Resolve cultural issues in consultation with local leaders and PSC * Establish a mechanism that allows local people to raise grievances arising from the rehabilitation process.

7.3.14. Occupational Health and Safety

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures
Best practices	rehabilitation works may pose health and safety risks to the construction workers and site visitors leading to severe injuries and deaths. The population in the	The Contractor shall: * Implement suitable safety standards for all workers and site visitors which should not be less than those laid down on the international standards (e.g. WB's „Environmental Health and Safety Guidelines") and contractor's own national standards or statutory regulations, in addition to complying with the national

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures
	proximity of the construction site and the construction workers will be exposed to a number of (i) biophysical health risk factors, (e.g. noise, dust, chemicals, construction material, solid waste, waste water, vector transmitted diseases etc.), (and (ii) accidents from construction traffic.	standards of the Government of Serbia (e.g. `The Serbia Labor Code‘) * Provide the workers with a safe and healthy work environment, taking into account inherent risks in its particular rehabilitation activity and specific classes of hazards in the work areas, * Provide personal protective equipment (PPE) for workers, such as safety boots, helmets, masks, gloves, protective clothing, goggles, full-face eye shields, and ear protection. Maintain the PPE properly by cleaning dirty ones and replacing them with the damaged ones. * Safety procedures include provision of information, training and protective clothing to workers involved in hazardous operations and proper performance of their job * Appoint an environment, health and safety manager to look after the health and safety of the workers
Accidents	Lack of first aid facilities and health care facilities in the immediate vicinity will aggravate the health conditions of the victims	* Provide health care facilities and first aid facilities are readily available. Appropriately equipped first-aid stations should be easily accessible throughout the place of work * Document and report occupational accidents, diseases, and incidents. * Prevent accidents, injury, and disease arising from, associated with, or occurring in the course of work by minimizing, so far as reasonably practicable, the causes of hazards. In a manner consistent with good international industry practice. * Identify potential hazards to workers, particularly those that may be life-threatening and provide necessary preventive and protective measures. * Provide awareness to the construction drivers to strictly follow the driving rules * Provide adequate lighting in the construction area
Water and sanitation facilities at the construction sites	Lack of Water sanitation facilities at construction sites cause inconvenience to the construction workers and affect their personal hygiene.	* The contractor should provide portable toilets at the construction sites, if about 25 people are working the whole day for a month. Location of portable facilities should be at least 6m away from storm drain system and surface waters. These portable toilets should be cleaned once a day and all the sewerage should be pumped from the collection tank once a day and should be brought to the common septic tank for further treatment. * Contractor should provide bottled drinking water facilities to the construction workers at all the construction sites.

7.4. Mitigation Plan

7.4.1. Contractor Management

The EMP recommendations and proposed mitigation measures will be attached to the Bidding Documents and subsequently the resulting contracts. Mitigation measures will be incorporated as part of the standard design and rehabilitation practices and as such their costs will be included in the rehabilitation cost.

Each EMP will be submitted to WB for approval. To ensure compliance with WB environmental policies, all construction activities will be monitored and documented for mitigation of environmental impacts.

The Contractor will comply with WB environmental procedures and appropriate Serbian environmental laws including sanitary standards, rules and regulations for construction activities and appropriate engineering practices.

Experience shows that inadequate application of EMP by the Contractor may occur due to weak linkages of EMP with the other contract documents. To prevent this occurring, EMP is to become integral part of the bid and contract documents. It is the Contractor's obligation to cost the implementation of the environmental mitigation measures in his overall cost. The Contractor will be required to provide a short statement that confirms that:

- the EMP conditions have been costed into the bid price;
- the Contractor has a qualified and experienced person on the Contractor‘s team who will be responsible for implementation of the environmental compliance requirements as stated in EMP;.
- the Contractor (and its sub-contractors) will comply with Republic of Serbia national laws, EU standards and Lender requirements.

During the rehabilitation, the Contractor will work according to the requirements of the Contractor‘s Environmental Plan (CEP), which is fully-compliant with the site-specific EMP. CEP will be prepared by the Contractor and approved by DWM/PIU. Supervision and monitoring of CEP activities will be undertaken as follows:

- The contractor has the responsibility for preparing and implementing CEP as per the works contract.
- Resident Engineer (RE) will direct the Contractor with regard to compliance with CEP.
- DWM/PIU will carry out independent monitoring of the works and can issue Defect Notices to RE who will transmit these to the Contractor.
- Contractor will have his own representative on site – the Site Engineer (SE) who will be responsible for implementing the contract and complying with CEP.

7.4.2. Contractor's Camp and Facilities

The location and development of the Contractor's facilities (this applies to all types of facilities, storage areas, workshops, labour camps (if needed), concrete batching areas, asphalt plants, etc.) will be approved by RE. Locations will be selected so that:

- they do not interfere with the environment and social well-being of the surrounding communities in respect to noise, dust, vibration and other physical impacts.
- the size of contractor‘s facilities are limited to absolute minimum to reduce unnecessary clearing of vegetation.
- sanitary waste and grey waters are treated before release into surface water systems, in accordance with the Law on Water ("Gazette of RS", 30/10, 93/12.
- the sites are properly drained. Paved areas, including vehicle parking areas, workshops and fuel storage areas are to drain to an oil and water separator,
- fuel storage areas are not located within 20m of a water course. The contractor‘s facilities are to be contained within an adequate security fence.

- clearing of sites and removal and disposal of vegetation should be limited to absolute minimum for safe conduction of related activities.
- wherever possible limit area to be cleared and avoid excessive machine disturbance of the topsoil.
- cleared material is to be piled into manageable sized heaps according to disposal or re-use requirements.
- prevention of soil erosion on construction site - the contractor will be responsible for ensuring that the erosion is contained by soil conservation protection methods. The contractor will: (i) Limit the extent of excavation to reduce soil erosion potential; (ii) Apply soil conservation protection methodology to susceptible areas to prevent / minimize storm water runoff carrying eroded materials off-site; and (iii) Avoid excavation and operating machinery in wet ground conditions.
- Where fuel in excess of 5,000 litres is stored on site, it will be stored in sealed tank(s) on a concrete base that is designed to hold 110% of the tank(s) capacity.
- All workshops would be provided with oil and water separators.
- The contractor must have trained personnel who are competent in fuel handling procedures and for cleaning up accidental spills.
- All waste oil, oil and fuel filters will be collected and disposed of in secure landfill areas or turned over to the Investor (as specified in the contracts). At the closure of the site, all contaminated soil will be excavated, removed and replaced with fresh topsoil.

7.4.3. Environmental Documentation Plans During Rehabilitation Works

Considering the possible impacts, it is essential for the Contractor to prepare and later conscientiously implement EMP-related activities throughout the duration of the project. The Contractor is obliged to produce the following documents before start of the works:

- Layout of the work camp and details of the proposed measures to address adverse environmental impacts resulting from its installation. Description and layout of equipment maintenance areas and lubricant and fuel storage facilities including distance from water sources/bodies;
- Sewage and septage management plan for provision of sanitary latrines and proper sewage collection and disposal system to prevent pollution of watercourses;
- A plan (mechanism and organizational structure) detailing the means by which local people and other project affected persons can raise grievances arising from the rehabilitation process and how these will be addressed (e.g., through dialogues, consultations, etc.) ;
- Soil Management Plan detailing measures to be undertaken to minimize effects of wind and water erosion on stockpiles, measures to minimize loss of fertility of topsoil, timeframes, haul routes and disposal site;
- A plan indicating the location of the proposed material extraction site as well as rehabilitation measures to be implemented for the borrow areas and access roads upon project completion;
- Waste and wastewater management plan. All construction waste materials including drums, lumber, sand and gravel, cement bags etc. are to be suitably disposed of. If these cannot be recovered for scrap value these materials should be taken to an approved landfill sites for safe disposal. The Plan should cover all aspects of waste management, including implementation of practice standards such as reduce, re-use and recycle. It should specify final disposal alignments for all waste and demonstrate compliance to national legislation and best practice procedures on waste management. The Plan will, as a minimum, include details of temporary waste storage, waste transfer and pre-treatment prior to final disposal or recycling. Licensed/approved facilities for solid and liquid waste disposal must be used and a duty of care and chain of custody for all waste leaving the site will be followed.
- Oil and fuel storage management plan. The Contractor’s Plan should cover all procedures for storage, transportation and usage of oils and fuels, refuelling of plant and machinery and procedures for minimizing the risk of ground and water contamination. All oils and fuels will be required to be stored within secondary containment of 110 % capacity and all spillages

shall be cleaned up immediately. Re-fuelling vehicles will carry Spill Kits to enable spillages to be cleaned up as soon as possible.

- In-river works management plan. The Contractor's Plan should cover procedures and plans for safeguarding aquatic habitats and fish during in-river work and will complement the Construction Method Statements.
- Camp management plan. The Contractor's Plan should contain procedures for establishing and operating construction camps in order to safeguard nearby communities and environmental resources.
- Emergency response plan. The Contractor's Plan should contain procedures for emergency response in the event of accidents or major incidents, in order to safeguard people, property and environmental resources. Details of the spill response equipment to be provided on site are to be specified.
- Noise – all equipment is licenced and approved in accordance with EU standards. This applies to all machinery, vehicles and construction sites where noise and vibration may affect susceptible receptors. The contractor will be responsible for ensuring that noise and vibration does not affect the adjacent communities, in accordance with the Law on Noise Protection. While it is unlikely that noise and vibration will be an issue due to the large distances between the activities and the communities, the Contractor will confine all work to daylight hours (0700hrs - 1900hrs) should the community find that any night time operations become a nuisance.
- Rehabilitation Plan: Rehabilitation of construction sites and removal of contractor‘s facilities following successful completion of rehabilitation activities. This includes removal of all waste materials, machinery and any contaminated soil. The contractor will develop a plan for handover, sale or removal of all plant, vehicles and machinery to ensure that no unserviceable items are left on the construction site, in accordance with the Law on Waste Management and Law on Environmental Protection. Should the Contractor fail to remove the waste, DWM/PIU is entitled to withhold payment and arrange the clean-up and deduct the cost of the clean-up activities and administrative charges from the final payment.

7.4.4. Health and Safety

Safety and Hazard Assessment: Before commencing work, the Contractor will be required to identify potential hazards. Provisions for emergency responses are to be included in the Contractor‘s site safety plan which is to include nomination of a person who will be immediately contacted should an accident occur. The site safety plan will be submitted to PSC for approval one week prior to starting of the work.

- The contractor will be required to keep the site free of drugs and alcohol.
- The contractor‘s site safety plan will include provision for a safe work environment and provide safety measures and protective equipment to all workers, including hand, head, eye and ear protection and safety footwear.
- The site safety plan will include provision or first aid facilities on-site and employ a trained first aid person, in accordance with the Law on Safety and Health at Work.
- The contractor will provide supplies of potable water, toilets and wash water to the workers.
- Safety and Labour Management Plan (SLMP), prepared by DWM/PIU, will be an integral part of the bidding documentation, in order to ensure adequate H&S provisions during rehabilitation works.
- Contractor is obliged to perform all project activities by respecting SLMP recommendations and all Serbian laws and sub-laws which are covering H&S issues.
- Contractor is responsible to ensure workers are properly certified to use the equipment
- Contractor is insured against accidents.

DWM/PIU and Contractor together have responsibility for reporting and investigating incidents.

In order to safeguard the local communities from the increased vehicle movements, the Contractor is to ensure that:

- all trucks and equipment is maintained in a safe operating condition,
- all drivers and machinery operators are trained and act responsibly,
- all loads are secured and all loads with potential dust generating materials will be covered with tarpaulins,
- the Contractor will immediately remove any drivers that ignore any of the community safety requirements,
- speed limits will be observed at all time.

Prior to commencement of construction activities/site works, all of the above plans will be submitted by the Contractor to DWM/PIU for approval.

7.5. Generic Environmental Mitigation Plan for FERP Project

Environment management plans for FERP sub-projects will be prepared and will include measures to reduce possible negative impacts during the project implementation, that will be applied during the project implementation, including cost assessment and responsibility for their implementation. Mitigation measures were categorised as:

- Mitigation measures in the planning phase prior to construction;
- Mitigation measures in the project implementation phase;
- Mitigation measures in the works completion phase.

Mitigation measures in the phase prior to construction refer to the acquiring of all relevant permits.

Mitigation measures in the subproject activities implementation phase mainly refer to the implementation of good construction practices in order to avoid negative impacts on water and soil quality and noise level, air quality. The contractor is responsible for their implementation. They

must be included into the contract with the contract together with the Environment Monitoring Plan.

Mitigation measures in the phase of exploitation refer to the mitigation of negative impacts that can occur as a consequence of inadequate usage and maintenance of repaired facilities.

Monitoring costs for these measures should be included into construction costs although they usually include measures of good management and do not require significant financial funds. The client and appointed supervising body will monitor the implementation of the Environment Monitoring Plan (EMP) and Environment Monitoring Plan.

Mitigation measures in the works completion phase refer to the removal of all types of waste and restoration of the field where the works were executed.

A generic Monitoring Plan for FERP Project activities is presented as Annex 4 of this ESMF document.

7.6. Environmental Monitoring Plan

DWM/PIU and PSC will monitor overall environmental performance during project implementation. Each FERP sub-project will have a site specific EMP document in which a monitoring plan(s) and check-lists are presented.

For each of the environmental components, the monitoring plan specifies the parameters to be monitored; location of the monitoring sites and duration of monitoring. The monitoring plan also specifies the applicable standards, implementation and supervising responsibilities. A generic Monitoring Plan for rehabilitation works is presented within the Annex 4 of this ESMF document.

In addition to the critical locations selected during design stage, the environmental monitoring will also be done at the construction camp site and any other plant site as determined relevant during rehabilitation works stage.

7.7. Generic Environmental Monitoring Plan for FERP Project

A generic Monitoring Plan for FERP Project activities is presented as Annex 4 of this ESMF document

8. IMPLEMENTATION ARRANGEMENTS

8.1. Introduction

The project will be implemented over three years with a proposed closing date of December 31, 2017. The following section captures the institutional arrangements for ESMF implementation by concerned officials of PIU, their consultants and working contractors. An organizational structure shall be developed at the corporate and site level to aid effective implementation of the ESMF document.

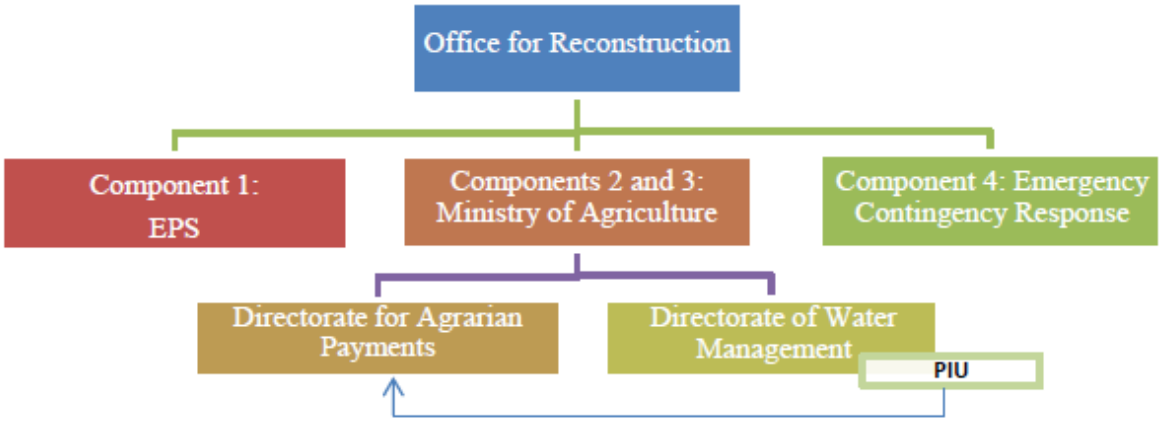
Institutional arrangements and responsibilities of the different institutions are outlined below.

8.2. Responsibility for Project implementation

The Office for Reconstruction will be responsible for overseeing the overall project implementation. Project management functions and day to day operations will be the responsibility of EPS, the Directorate for Agrarian Payments (DAP) (with the support of Treasury), and the Project Implementation Unit (PIU) established under DWM.

The responsibilities of various Government Agencies will be as follows:

Figure 1: Project Implementation Arrangements



8.2.1. Institutional Responsibility for particular FERP Project Components

Component 1: Energy Sector Support will be the responsibility of EPS. General management and support functions are assigned to its Head Office in Belgrade. EPS will designate a small team of staff (project implementation team) for the implementation of the proposed project to work under the Head of Strategy and Investment Department of EPS.

Component 2: Agriculture Sector Support will be the responsibility of DAP under the MAEP. DAP has a contract with the Treasury and uses the network of local Treasury offices to deliver the direct support scheme to registered farmers. The project component will be implemented by the existing system for implementing the Financial Incentives Program to farmers. DAP will be responsible for identification of eligible payments (with support from the Treasury). Technical support to DAP in order to meet the additional responsibilities under this project, such as preparation of the **POM**, financial management, disbursement, safeguards, and monitoring and evaluation will be provided by the PIU established in DWM (Component 3).

Component 3: Flood Protection will be the responsibility of DWM. A PIU will be established, with a similar form and function to that which was previously utilized under the recently completed World Bank financed Irrigation and Drainage Rehabilitation Project (IDRP, P087964) which closed on March 31, 2013. The PIU will be responsible for procurement and contract

management for Component 3, and financial management, disbursement, safeguards, and monitoring and evaluation for Components 2 and 3. Consultants will be engaged to provide technical support to the PIU as needed. The POM prepared under IDRP will be updated during implementation and utilized to guide activities to be financed under Components 2 and 3. During preparation of investments and implementation of works, the PIU will work in close coordination with the three PWMCs.

Component 4: Contingent Emergency Response: will be the responsibility of the Office of Reconstruction or any successor thereto.

DAP implements the Farm Incentives Program. Farmers applying for the program have to be registered in the Farm Registry to be eligible for support. DAP announces the calls for farmers to apply for incentives, with details on the criteria for each individual incentive specified. DAP screens the applications against the criteria and processes applications in accordance with the procedures prescribed by the DAP's rulebooks.

Responsibility for financial management for Components 2 and 3 will be assumed by a Project Implementation Unit (PIU) under the Directorate of Water Management (DWM). In line with procedures for emergency operations, it is acceptable for the PIU to be appropriately staffed during implementation, with no conditions in this sense imposed for preparation stages. The PIU will include financial management staff, besides staff in charge for technical aspects, procurement and other functions.

The PIU which is established for implementation of Components 2 and 3, will be staffed by qualified and experienced financial management officer in addition to staff in charge of technical aspects, procurement and other functions. Terms of Reference for the financial management staff with detailed descriptions of duties will be agreed with implementing entities and will make part of the respective Project Operations Manual (Components 2 and 3).

Key internal controls to be applied include appropriate authorizations, control checks, segregation of duties, reconciliations and documenting transactions. Such controls and procedures are described in existing manuals and rulebooks within EPS and will apply to implementation of Component 1. For Components 2 and 3, those will be described in Project Operations Manuals that will be developed.

Each implementing entity will sign contracts related to its component. The latter entity receives an invoice and verifies it in terms of quality and quantity of the goods/services received versus invoiced. Financial management staff checks the invoice, the calculation of the invoice, and finds the appropriate budget from which the amount will be charged (contract number, item number and component).

Component 2 will focus on cash transfers to farmers. The transfers are administered by the Treasury for certain types and nature of payments, and by DAP for others. Process and control mechanism were reviewed in both institutions, and were assessed to be reliable. There is a set of written procedures which define different steps in this process, starting from eligibility, appropriate submission forms, needed documentation, control checks and processing of payment.

In relation to components 2 and 3, all implementing agencies are in the scope of work of internal audit department within the Government. Internal audit is a young function within the public sector in Serbia, hence the internal audit department, although rapidly developing, still lacks capacity and experience.

8.2.2. Contractor's Responsibility regarding environmental protection

Construction/Rehabilitation Contractor is responsible for undertaking all activities related to environmental protection during rehabilitation works. During the EMP preparation phase, potential negative environmental impacts will be identified and DWM/PIU will be obliged to ensure implementation of adequate mitigation measures.

The Contractor will appoint a person responsible for environment protection (B.Sc. environmental engineering) with adequate experience to be responsible for the implementation of all demands of environment protection and the Environment Monitoring Plan implementation.

8.3. Implementation Support and Supervision

8.3.1. Assessment of the institutional capacity if the implementing agency

Technical assistance will be provided to increase capacity in government institutions so that the country's resilience and response to floods is improved. These activities will be coordinated with a broader, strategic dialogue on flood management and DRM that the Bank is leading together with the Office for Reconstruction.

The Implementation Support Plan (ISP) for the FERP project has been developed based on the specific and multi-sector nature of the project, the planned implementation schedule, lessons learned from similar emergency operations. The ISP envisages frequent implementation support missions by a multi- sectoral team. The Bank team will monitor implementation progress through: i) reporting against the key performance indicators as outlined in the results framework; ii) entity level project reports; iii) independent verification of progress through field visits; iv) fiduciary oversight of implementing entity activities (EPS, DAP and the PIU); and v) regular communication with the implementing entities and the Office for Reconstruction.

The Bank's procurement, financial management, environmental and social safeguards specialists are both HQ and field based and will provide regular implementation support and technical assistance to the counterpart teams during the project implementation. These team members will also identify capacity building needs to strengthen procurement, financial management, and safeguard capacity of the project implementation units.

8.3.2. PIU's Environmental & Social Safeguard Consultant

The PIU will be responsible for the environmental compliance monitoring and oversight to ensure overall project environmental compliance. The ESSS consultant that would be hired by PIU would assist PIU to carry out this mandate. Basic ESSS responsibilities are:

- Environmental screening and preparing sub-project specific environment screening/assessment report with EMP
- help PIU in process of obtaining preconditions from relevant institutions (INP/IPCM)
- producing EMP documents for all sub-projects
- Ensure the implementation of the various mitigation measures proposed for the protection of bio diversity etc., prior to the commencement of FERP activities at that particular sub-section of the project.

8.3.3. Project Supervision Consultants

PIU is responsible for the supervision of the EMP implementation in the Project, which will be done through the consulting services (PSC).

Following the approval of the Contractor's EMP document (CEP), the Contractor together with the person on the Contractor's staff who will be responsible for implementation supervision of CEP will meet PSC on-site. If the plan is appropriate and implementable, PSC will advise PE that the Contractor can now commence the work.

Additionally, a PSC will review works or contracts believed to have sensitive environmental or social impacts, or those requiring special oversight as determined by the WB. Among other issues, PSC's review will cover engineering designs and social and environmental safeguard related actions.

In respect to environmental requirements, the specific roles and responsibilities of Project Supervision Consultant shall include, but not limited to the following:

- Supervise the implementation of the EMP by the Contractors;

- Monitor and review the screening and categorization process for each sub-project;
- Review and approve site specific environmental enhancement/mitigation designs worked out by the Contractor;
- Hold regular meetings with the ESSS;
- Review the Contractors Environmental Implementation Plans to ensure compliance with the Environmental Management Plan (EMP);
- Develop good practice construction guidelines to assist the contractors in implementing EMPs;
- Prepare and submit regular environmental monitoring and implementation progress reports;
- Continuously interact with the ESSS regarding the implementation of the environmental provisions;
- Ensure that proper environmental safeguards are being maintained at all ancillary sites such as brick fields, borrow areas, brick crushing area, materials storage yards, worker's camps etc. from which the contractor procures material for rehabilitation works;
- Supervise the proper construction and maintenance of the facilities for the labour camps, including the provisions for the safety and health of workers and their families;

Main activities of PSC related to environmental protection during project implementation are:

- supervising the implementation of EMP(s)
- producing the Monthly Progress Reports and submitting them to PIU
- monitoring of project progress including EMP and GEMP implementation

8.3.4. Bank's Environmental and Social Safeguards Specialists

During the period of civil works the environmental and social safeguards specialist will make annual or more frequent mission visits to ensure compliance with project safeguard requirements. Between missions they will review the supervision consultant's reports to monitor progress and identify issues that may arise. The Safeguards specialists will monitor the implementation in accordance with the Bank safeguard policies, and advise on corrective measures as needed. The implementation of the EMP will be closely monitored, both through reviewing the supervision consultant's reports and through field visits.

Table 1: Skills and Resource Requirements for Environmental and Social safeguard Consultants

Focus	Skills Needed
Environmental safeguards monitoring & training	Environmental Specialist
Social safeguards monitoring & training	Social Specialist
Environmental safeguards monitoring & training	Environmental Specialist
Social safeguards monitoring & training	Social Specialist

8.4. Training

1. PIU will prepare an annual training plan which will be agreed with the Bank. It will include information on the title of training, institution that shall provide it, timeline, cost, number, position and names of relevant people to be trained. The training plan shall be updated in agreement with the Bank through the duration of the Project at least annually or as required to reflect the actual project implementation needs.

With the aim of achieving as good environment protection as possible, the Contractor should enhance the proficiency of all employees through training and mobilisation of all persons involved in the project.

All employees at the construction site should be familiarised with:

- guidelines for the implementation of good construction practice,
- Environment Monitoring Plan requirements,
- their tasks and responsibilities for achievement of the conformity with Environment Monitoring Plan requirements,
- possible consequences in the case of aberration from established procedures.

Supervising Consultant that supervises the works execution should have adequate qualifications, i.e. to have a diploma of a civil engineer with at least 5 years of experience in the supervising body activities execution.

8.4.1. Modes of Environmental Training

A key concept in training programs is to provide training through a combination of formal classroom training and practical on-the job sessions. Technical assistance should be made available to provide training, guidance and advisory support in all aspects of works implementation in order that the key players (environmental as well as technical team) become fully conversant with, and capable of carrying out their respective duties. Training for the various categories of staff needs to be carried out with varying durations and through different approaches, such as on-site and classroom training, workshops, seminars and practical on-the-job training.

8.4.2. Concept of Training

Training is always an effective up-front quality assurance measure. Experience shows that there is a great demand for training in technical subjects for the government staff in charge of work supervision. Effective training programs involve both the introduction of new technology as well as in-depth studies of the particular skills required in each position in DWM/PIU. As the training content for these reasons relate to practical hands-on skills, the training often consists of dissemination of best practices and work methods which have been proved most effective in projects with similar tasks and working conditions.

8.4.3. Training Methods

The most effective way of addressing such training needs is by carrying out the training in an environment which to the extent possible resembles the real situation in which the trainees will eventually operate.

8.4.4. On-the-job Training

It has been proved that on-the-job training is the most effective method of training most categories of government staff. This involves the extensive use of practical demonstrations and skill training at full-scale training sites. This approach is very effective for the training of managers, engineers and supervisors with the on-site training being supported by classroom components tailored for the various categories of staff.

8.4.5. Workshops

Intensive refresher courses for periods of one to three days are useful for addressing specific problem areas. Such workshops are organized to supplement on-the-job training for some of the technical and administrative staff. Short workshop can either be arranged through the provision of technical assistance, an in-house training facility, or by contracting other training institutions within the country.

8.4.6. Seminars

Seminars are useful as a means for disseminating data and information, in particular for senior government officials at central and local level, as well as representatives of other government agencies. Seminars can be an effective platform for policy makers, planners and administrators to review the importance of an Environmental Management System. Equally important, this type of seminar is important in terms of creating awareness of the potential of utilizing new organizational arrangements, work methods, and involvement of the private sector, beyond the boundaries of a particular program.

8.5. Capacity Building

Subcomponent 3B - Project Implementation Support for Flood Management and Disaster Resilience will cover the incremental costs (staff, equipment, operating costs etc.) of a PIU which will be established under the DWM which will support the implementation of Components 2 and 3. PIU staff will include at least a project coordinator, procurement and financial management officers, an environmental and social safeguards specialist, a civil engineer, and a monitoring and evaluation specialist.

High priority technical assistance and capacity building activities will be selected to improve flood management, planning, prevention and resilience. It could include financing hydrological and hydraulic diagnostics of recent flood events, structural/safety inspections of major flood protection infrastructure, a review of design standards and planning norms for flood protection, and a review of existing DRM strategies/plans and institutional framework and capacity constraints to enable effective integrated flood management and broader disaster risk management. The final selection of TA activities will be defined during the initial stages of project implementation and will be designed to complement other planned sector wide initiatives for improved flood management and DRM.

Capacity building measures to PIU as, may be necessary in environmental and social safeguards and annual program planning.

Capacity building can be achieved by:

- Training program for the existing staff.

- Technical Assistance: knowledge sharing and on-the-job training and mentorship.

9. PUBLIC CONSULTATION AND DISCLOSURE PROCESS/PROCEDURES

9.1. Introduction

Participatory consultation is both an essential criteria and important strategy for an integrated environmental and social analysis process, the project design and its implementation. Views of the project affected persons and NGOs have been fully taken into account during the project preparation and continue to form a basis for further design and implementation of the projects throughout the FERP implementation period. The purpose of the stakeholder consultation is to identify the views of local communities, major institutional and other stakeholders, and to assess any mitigation measures which may be undertaken to minimize any adverse impacts of the proposals under consideration

9.2. Consultation and Information Disclosure

Preparation and disclosure of the ESMF and RPF is a condition for reimbursement and disbursement of project funds under Components 1 and 3, except for power purchases.

As per this ESMF, subsequent EMPs will be prepared, with disclosure and public consultations in accordance with the Bank policies at national and local levels. After approval, the EMP will become part of the contract with the contractor.

Since the size, scale and location of subprojects cannot be determined at the project preparation stage, the Resettlement Policy Framework (RPF) and Environment and Social Management Framework (ESMF) is prepared to mitigate potential environmental and resettlement impacts.

Preparation and disclosure of the ESMF and RPF will be a condition for reimbursement and disbursement of project funds under Components 1 and 3, except for power purchases.

9.2.1. 6.2.2. Information Disclosure and Dissemination of potential EIA Studies

For all the sub-projects for which the EIA Study will be requested by MAEP, the documents including the mitigation measures and consultation process will be made available for public review in both English and Serbian. The summary EA will be published on PIU and WB websites.

The relevant information prior to public consultations in a timely manner and in a form that is meaningful for, and accessible to, the groups being consulted, will be disseminated as outlined above.

The framework for the information disclosure is shown in Table 6.1.

Stage of Consultation	**Information dissemination tools**
Initial Consultation, Decision about scope and Content of EIA Study	Documentation of a summary of the project description and objectives, and potential adverse effects of the proposed project will be delivered to the MAEP/PSEP. Interested public will be invited to participate during process of decision making regarding Scope and Content of EIA Study This round of consultation will be announced in daily newspaper and on the DWM/PIU web site
Draft EIA Study	DWM/PIU will deliver a Draft EIA Study for approval to the MAEP/PSEP. Second round of public consultation will be organized and Draft EIA Study will be disclosed on DWM/PIU web site and delivered to the municipalities which are potentially affected with the project.

	MAEP will announce invitation to interested parties in order to participate this round of consultations. A public presentation of Draft EIA Study will be organized on a local level, in one of municipalities which is by MAEP recognized as a most relevant local community.
Final Environmental Approval	MAEP will inform, through local daily newspaper, interested parties about Decision made regarding Final Environmental Approval for EIA Study. Interested parties will be invited to protest in case they find EIA procedure was irregular and/or their complaints are not properly integrated within the Final EIA Study.

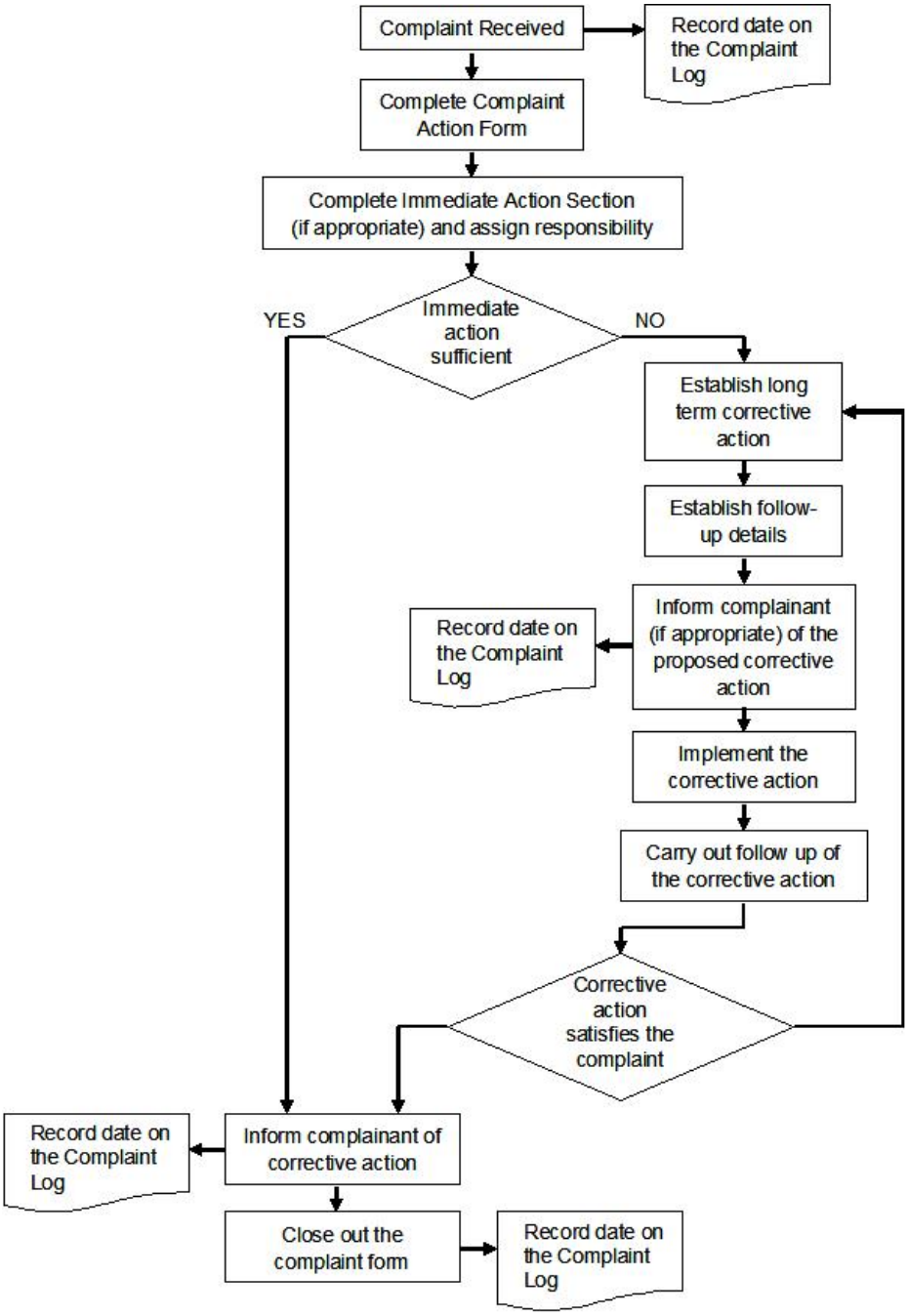
9.3. Grievances Redress Mechanism

A Grievance Mechanism will be implemented to ensure that all complaints from local communities are dealt with appropriately, with corrective actions being implemented, and the complainant being informed of the outcome. It will be applied to all complaints from affected parties.

DWM/PIU will maintain a Complaints Database, which will contain all the information on complaints or grievances received from the communities or other stakeholders. This would include: the type of complaint, location, time, actions to address these complaints, and final outcome.

The contractor, in coordination with DWM/PIU, shall set-up a grievance redress committee that will address any complaints during project implementation. Grievances should be resolved within 15 working days.

Figure 6.1 - Flowchart of Complaints/Grievance Procedure:



A grievance form is presented below and hard copies will be made available at community centres.

Figure 6.2 – Sample Grievance Reporting Form

<table>
<tr><td colspan="5">Grievance Reference Number (to be filled in by [name]):</td></tr>
<tr><td rowspan="3">Contact Details</td><td colspan="4">Name:</td></tr>
<tr><td colspan="4">Address:</td></tr>
<tr><td colspan="4">Tel:</td></tr>
<tr><td></td><td colspan="4">e-mail:</td></tr>
<tr><td>How would you prefer to be contacted? Please tick box</td><td>By post</td><td>By phone</td><td colspan="2">By e-mail</td></tr>
<tr><td colspan="5">Name and the identification information (JMBG from identity card).</td></tr>
<tr><td colspan="5">Details of your grievance. Please describe the problems, how it happened, when, where and how many times, as relevant</td></tr>
<tr><td colspan="5">What is your suggested resolution for the grievance?</td></tr>
<tr><td rowspan="3">How to submit this form to DWM/PIU</td><td colspan="4">By Post to: [tbc]</td></tr>
<tr><td colspan="4">By hand: please drop this form at [tbc]</td></tr>
<tr><td colspan="4">By e-mail: Please email your grievance, suggested resolution and preferred contact details to: [tbc]</td></tr>
<tr><td>Signature</td><td colspan="2"></td><td>Date</td><td></td></tr>
</table>

11. MONITORING AND REPORTING ARRANGEMENTS

11.1. FERP Project Monitoring

The FERP project will be monitored by EPS, and the PIU under the DWM. Information and data collected at each of the implementation agencies will be fed into overall monitoring and evaluation (M&E). The Office for Reconstruction will oversee M&E activities regularly through the project reports, evaluate the results achieved and guide the implementing agencies on corrective management actions.

PIU and PSC will monitor overall environmental performance during project implementation. Each FERP project will have a site specific EMP document in which a monitoring plan(s) and check-lists are presented.

For each of the environmental components, the monitoring plan specifies the parameters to be monitored; location of the monitoring sites and duration of monitoring. The monitoring plan also specifies the applicable standards, implementation and supervising responsibilities.

In addition to the critical locations selected during design stage, the environmental monitoring will also be done at the construction camp site and any other plant site as determined relevant during rehabilitation works stage.

The PIU will be responsible for collecting the data required for monitoring and evaluation which will in turn be reviewed. Indicators will be measured against the agreed targets and compared to the defined baselines. Project progress reports, including monitoring indicators and reporting on the implementation of the requirements set in the EMPs will be prepared on a quarterly basis and submitted for WB review. Monthly progress reports prepared by the supervision consultants will be submitted by PIU to WB for review upon a request.

The Construction contractor is obliged to perform all monitoring activities (sampling, measurement, etc.) prescribed within the Monitoring Plan of EMP document produced for project on which the Contractor is engaged.

Supervision Consultant is responsible to monitor all construction activities, including environmental protection during project rehabilitation. PSC will be authorized to perform additional sampling in case he finds this needed.

11.2. Environmental Monitoring Plans

Monitoring plan for FERP projects should be in respect of the bidding documents. The main components of the monitoring plans include:

- Environmental issue to be monitored and the means of verification
- Specific areas, locations and parameters to be monitored;
- Applicable standards and criteria;
- Monitoring of the procurement of materials (checks that valid permits are in place)
- Duration
- Institutional responsibilities for monitoring and supervision

A site specific monitoring checklist will be prepared by ESSS for each subproject, as an integral part of Site Specific EMP document. Monitoring checklist should be prepared based on the generic monitoring plan presented within this ESMF document and respecting significant site specific impacts and proposed mitigation measures elaborated in site specific EMP document. The field monitoring checklist will be used by the supervising field engineers. The signed checklists will be provided to PIU, which will be responsible for the follow-up and compliance reporting.

11.3. Reporting Arrangements

11.3.1. Environmental and Social Safeguard Specialist to PIU

ESSS will prepare a site specific EMP document for each subproject, as a part of detailed design.

ESSS will prepare EMP presentation and will organize and perform EMP presentation and consultation to the interested parties and stakeholders.

ESSS will prepare and submit to PIU a Detailed Report on Public Consultation. Comments, remarks and suggestions collected during public consultation process should be integrated within the final EMP document.

11.3.2. Contractor to PIU

The Contractor will prepare his compliance reports in respect to EMP and his SSIP as a Quarterly Progress Reports and submit them to PIU, in both Serbian and English language, in hard copy and electronic versions.

Construction Contractor will provide quarterly reports to PIU which document the environmental mitigation and protection measures, together with prescribed monitoring activities carried out during that quarter's reporting period. Construction Contractor will take care of the environment quality according to the mitigation and monitoring plan which are part of EMP.

The same applies to the Environmental Monitoring and Supervision Contractors for their part of mitigation and environmental monitoring activities.

If any kind of accident or endangerment of environment happens, reporting will be immediate. PIU and the Contractor have joint responsibility for reporting and investigating incidents. The Contractor is obliged to inform the project manager and local authorities about accident immediately after it happened.

Annual Environmental & Social Report

Each Contractor is obliged to produce and deliver to PIU an Annual Environmental and Social Report (AESR) covering all project activities during a calendar year.

11.3.3. Project Supervision Consultant to PIU

The findings of the regular monitoring activities, including activities specified in the Generic Monitoring Plan, carried by the Contractor will be included in the quarterly PSC progress reports.

11.3.4. PIU to MAEP, WB,

Annual Environmental Health and Safety (AEHS) reports, including monitoring indicators and reporting on the implementation of the requirements set forth in the EMPs will be prepared by PIU and submitted for IFIs review. IFIs will review the reports and verify their contents through periodic site visits. PIU shall provide Annual reports to MAEP and IFIs regarding the status of implementation of mitigation measures by the Contractors, additional mitigation measures that may need to be implemented, incidents of non-compliance with applicable environmental permits, complaints received from local residents, NGOs, etc. and how these were addressed.

In case of fatalities or major incidents on site the PIU will immediately report to WB.

Monitoring and compliance in accordance with ESMF and site specific EMPs, including monitoring of implementation of site-specific measures on each sub-project/section during project implementation will be undertaken by PIU and its implementation unit, and reported in writing to the Bank on semi-annual basis. An environmental specialist will be appointed to the Project by PIU to ensure quality in the implementation of EMPs.

ANNEXES:

Annex 1: List of Priority Projects under Sub-Component 3A

Annex 2: Sample Screening Checklist for the Annual Environmental and Social Report

Annex 3: Generic EMP - Mitigation Plan for FERP Sub-Projects

Annex 4: Generic EMP - Monitoring Plan for FERP Sub-Projects

Annex 5: Sample Environmental Checklist

Annex 6: Relevant National Legislation as of February 2017

Annex 7: Report on Public Disclosure and Public Consultation

Annex 8: Sample Check-list questionnaire for FERP Project

Annex 9: Procedure for obtaining water management approval

ANNEX 1 LIST OF PRIORITY PROJECTS UNDER SUB-COMPONENT 3A

Responsibility / PWMC	Contract / Description	Cost Estimate (USD)	Contract Period	Readiness / Status
Works				
„Srbijavode“	Flood Protection of Novi Pazar settlement: Including regulation and embankment protection of Raska River and its tributaries. Section I: from CarevaCuprija to mouth of the Banjska River (2,15km)	2,415,400	16 months	Designs complete, construction permit to be issued
„Srbijavode“	Flood Protection of Aleksinac settlement: Including regulation and embankment works on Moravica river through Aleksinac town from km 2+370 to km 3+100 providing the flow capacity for the high water at upstream section from km 3+100 to km 3+950, and downstream section from km2+000 to km 2+370	1,840,800	18 months	Designs complete, construction permit to be issued
„Srbijavode“	Flood Protection of SmederevskaPalanka settlement: Including reconstruction of regulation works at Jasenica river and dike (from km 10 +235 to 19+300) for protecting of the river flow capacity in the upstream section (from km 19+300 to km 24+454)	1,950,000	18 months	Designs complete, construction permit to be issued
„Srbijavode“	Flood Protection of Negotin area: Including reconstruction of protective system in Radujevac including embankment construction works (2,7km)	1,495,000	14 months	Designs complete and permits issued
„Srbijavode“	Construction of flood protection system for DonjiLjubes settlement: Including reconstruction of the left bank embankment (16,7км) of the river Southern Morava with left bank protection(1,1км)	3,105,700	19 months	Designs complete, construction permit to be issued
„Beogradvode“	Rehabilitation of Tamis dike including heightening of 1m for 13.5 km section.	3,361,800	18 months	Designs complete and permits not required
„VodeVojvodina“	Erosion protection and rehabilitation works on left bank on the Sava River on section km 174+000 to km 178+500	94,900	9 months	Designs complete and permits not required

Responsibility / PWMC	Contract / Description	Cost Estimate (USD)	Contract Period	Readiness / Status
„VodeVojvodina“	Rehabilitation of the left bank embankment on the Danube River on section B.Palanka town(km 1+800 to km 9+850) and Sombor town (km 3+461 to km 6+583 and km 49+410 to km 52+400)-embankment crest stabilization (asphaltic road)	2,185,300	13 months	Designs complete and permits not required
SUB-TOTAL		**16,448,900**		
Goods				
All PWMCs	Supply ofmobileequipment for flood control and protection	1,820,000	6 months	Draft specifications and estimates prepared
Services				
All PWMCs	Construction supervision for flood protection works	657,956	20 months	TOR to be prepared by effectiveness
Unallocated		**1,073,144**		
TOTAL		**20,000,000**		

ANNEX 2: SAMPLE SCREENING CHECKLIST FOR THE ANNUAL ENVIRONMENTAL & SOCIAL REPORT

1. General		
Is the project materially compliant with all relevant Performance Requirements (taking account of agreed action plans, exemptions or derogations)?	Yes ❑ No ❑	If No, please provide details of any material non-compliances:
Is the project materially compliant with all applicable environmental and social laws and regulations?	Yes ❑ No ❑	If No, please provide details of any material non-compliances:
Have there been any accidents or incidents that have caused damage to the environment, brought about injuries or fatalities, affected project labour or local communities, affected cultural property, or created liabilities for the company?	Yes ❑ No ❑	If yes, please describe, including details of actions to repair and prevent reoccurrence:
Have there been any changes to environment, social, labour or health and safety laws or regulations that have materially affected the company?	Yes ❑ No ❑	If yes, please describe:
How many inspections did you receive from the environmental authorities during the reporting period?	Number:	Please provide details of these visits, including number and nature of any violations found
How many inspections did you receive from the health and safety authorities during the reporting period?	Number:	Please provide details of these visits, including number and nature of any violations found
How many inspections did you receive from the labour authorities during the reporting period?	Number:	Please provide details of these visits, including number and nature of any violations found:
Have these visits resulted in any penalties, fines and/or corrective action plans?	Yes ❑ No ❑	If yes, please describe, including status of implementing corrective actions to address any violations found:
Has the Company engaged any contractors for project-related work in the reporting period?	Yes ❑ No ❑	If yes, please state for which types of work, and how the company has monitored the compliance of contractors with Performance Requirements and the Environmental and Social Action Plan:

Were any of the violations stated above the responsibility of contractors?	Yes ❑ No ❑	If yes, please provide details, including how the Company is ensuring that corrective actions are implemented by the Contractor?
Have any operations been reduced, temporarily suspended or closed down due to environmental, health, safety or labour reasons?	Yes ❑ No ❑	If yes, please describe:
Please describe any environment or social programmes, initiatives or sub-projects undertaking during the reporting period to improve the company's environmental or social performance and/or management systems: Please indicate the level of associated expenditure (capital expenditure and operating expenditure), and whether this relates to the requirements of the Environmental and Social Action Plan, or to any other initiative:		

2. Status of the Environmental and Social Action Plan

Please provide information on the status of each item in the Environmental and Social Action Plan (ESAP). If the ESAP has been updated during the reporting period, please attach a copy of the new plan.

3. Environmental Monitoring Data[1]

Please provide the name and contact details for your environmental manager:				
Parameter[2]	**Value[3]**	**Unit**	**Compliance Status[4]**	**Comments[5]**
Waste Water				
Total waste water generated				
BOD				
COD				
Suspended Solids				
Phosphorus				
Nitrates				
Heavy metals				
[Other]				
Air Emissions				

[1] Please provide the results of any environmental monitoring carried out by the Company or its consultants. If you already have all the data requested available in another format, then this can used instead.
[2] Not all parameters will necessarily apply. Please complete those rows that are most relevant to the industry sector. Additional parameters can be added as necessary.
[3] Please ensure that the units of measurement are clearly stated
[4] Please report on compliance against the standards for this project (typically local, EU and/or World Bank Group)
[5] In addition to any other comments, please indicate whether the measurements reported apply to all or only some process operations at the facility

Please provide the name and contact details for your environmental manager:				
Parameter[2]	**Value[3]**	**Unit**	**Compliance Status[4]**	**Comments[5]**
SO_2				
NO_X				
Particulates				
CO_2				
CH_4				
N_2O				
HFCs				
PFCs				
SF_6				
[Other]				
Other Parameters				
Noise				
[Other]				
Solid Waste				
Please provide details of the types and amounts of solid wastes generated by the project. Indicate where wastes are classified as hazardous. Indicate the final re-use, recycle or disposal method for each waste type.				

Please provide the name and contact details for your environmental manager:				
Parameter[2]	**Value[3]**	**Unit**	**Compliance Status[4]**	**Comments[5]**

4. Resource Usage and Product Output			
Parameter	**Value**	**Measurement Unit**	**Comments[6]**
Fuels used			
Oil			
Gas			
Coal			
Lignite			
Grid Electricity			
Heat Purchased			
Feedstocks and raw materials consumed			
Name 1			
Name 2			
Product output			
Product 1			
Product 2			

[6] In addition to any other comments, please indicate whether the measurements reported apply to all or only some process operations at the facility Please include any fuel quality parameters (e.g. calorific value)

5. Human Resources Management			
Please provide the name and contact details for your Human Resources manager:			
	Total	**Recruited in this reporting period**	**Dismissed in this reporting period**
Number of direct employees:			
Number of contracted workers:			
Were there any collective redundancies during the reporting period?	Yes ❑ No ❑	If yes, please describe the redundancy plan, including reasons for redundancies, number of workers involved, how they were selected, consultation undertaken, and measures to mitigate the effects of redundancy:	
Are there any planned redundancies to the workforce in the next year?	Yes ❑ No ❑	If yes, please describe the redundancy plan, including reasons for redundancies, number of workers involved, and selection and consultation process:	
Were there any changes in trade union representation at Company facilities during the reporting period?	Yes ❑ No ❑	If yes, please provide details, and summarise engagement with trade unions during reporting period:	
Were there any other worker representatives (e.g. in the absence of a trade union)?	Yes ❑ No ❑	If yes, please provide details and summarise engagement with them during reporting period:	
Were there any changes in the status of Collective Agreements?	Yes ❑ No ❑	If yes, please provide details:	

Have employees raised any grievances with the project during the reporting period?	Yes ❑ No ❑	If yes, please state how many, split by gender, summarise the issues raised in grievances by male and female staff and explain how the Company has addressed them:
Have employees raised any complaints about harassment or bullying during the reporting period?	Yes ❑ No ❑	If yes, please state how many, split by gender, summarise the issues raised by male and female staff and explain how the Company has addressed them:
Have there been any strikes or other collective disputes related to labour and working conditions at the Company in the reporting period?	Yes ❑ No ❑	If yes, please summarise nature of, and reasons for, disputes and explain how they were resolved
Have there been any court cases related to labour issues during the reporting period?	Yes ❑ No ❑	If yes, please summarise the issues contested and outcome:
Have there been any changes to the following policies or terms and conditions during the reporting period in any of the following areas: • Union recognition • Collective Agreement • Non-discrimination and equal opportunity • Equal pay for equal work • Gender Equality • Bullying and harassment, including sexual harassment • Employment of young persons under age 18	Yes ❑ No ❑	If yes, please give details, including of any new initiatives:

• Wages (wage level, normal and overtime) • Overtime • Working hours • Flexible working / work-life balance • Grievance mechanism for workers • Health & safety		

6. Occupational Health and Safety Data

Please provide the name and contact details for your Health and Safety manager:					
	Direct employees	**Contracted workers**		**Direct employees**	**Contracted workers**
Number of man-hours worked this reporting period:			Number of Fatalities[7]:		
Budget spent on OHS in this period (total amount and currency):			Number of disabling injuries:		
OHS training provided in this period in person-days:			Number of Lost Time Incidents (including vehicular)[8]:		
Number of lost workdays[9] resulting from incidents:			Number of cases of occupational disease:		

[7] If you have not already done so, please provide a separate report detailing the circumstances of each fatality.
[8] Incapacity to work for at least one full workday beyond the day on which the accident or illness occurred.
[9] Lost workdays are the number of workdays (consecutive or not) beyond the date of injury or onset of illness that the employee was away from work or limited to restricted work activity because of an occupational injury or illness.

Number of sick days:					
Accident causes (falling, heavy loads, struck by object, contact with energy source etc.):					
Please provide details of any fatalities or major accidents that have not previously been reported to Banks, including total compensation paid due to occupational injury or illness (amount and currency):					
Please summarise any emergency prevention and response training that has been provided for company personnel during the report period:					
Please summarise any emergency response exercises or drills that have been carried out during the report period:					

7. Stakeholder Engagement	
Please provide the name and contact details for your external relations or community engagement manager:	
Please provide information on the implementation of the stakeholder engagement plan and summarise interaction with stakeholders during the reporting period, including: - Meeting or other initiatives to engage with members of the public or public organisations during the report period, - information provided to members of the public and other stakeholders during the report period relating to environmental, social or safety issues - coverage in media, - and interaction with any environmental or other community groups. Please describe any changes to the Stakeholder Engagement Plan:	

How many complaints or grievances did the project receive from members of the public or civil society organisations during the reporting period? Please split by stakeholder group. Summarise any issues raised in the complaints or grievances and explain how they were resolved:

8. Status and Reporting on Resettlement Action Plan/Livelihood Restoration Framework		
Existing Land Acquisitions Please report any further progress made during this reporting period in the implementation of the Resettlement Action Plan (RAP) or Livelihood Restoration Framework (LRF), using the monitoring indicators as detailed in the RAP or LRF, and complete the table below. Please provide the results of any other related monitoring carried out by the Company or its consultants and attach any additional information you think would be useful.		
Have all the affected persons been fully compensated for their physical displacement and, if applicable, any economic losses resulting from the project?	Yes ❑ No ❑	If no, specify how many compensation payments are still outstanding (in terms of number and percentage of recipients and payment amounts) and state when these payment will be made:

Has the land acquisition had any additional, unforeseen impacts on affected persons' standard of living or access to livelihoods that were not previously covered in the RAP?	Yes ❑ No ❑	If yes, quantify these impacts and specify what measures have been undertaken to minimize and mitigate these impacts. If no, specify how potential impacts on livelihoods have been monitored.
Have any vulnerable groups been identified?	Yes ❑ No ❑	If yes, list the groups that were identified and describe any additional measures undertaken in order to mitigate impacts specific to these groups.
If applicable, have all transit allowances been paid?	Yes ❑ No ❑	If no, specify how many payments are still outstanding (in terms of number and percentage of recipients and payment amounts) and state when these payments will be made.
Has legal support been provided to all the affected persons?	Yes ❑ No ❑	If yes, specify how many persons effectively made use of the legal support.
Have all outstanding land and/or resource claims been settled?	Yes ❑ No ❑ Not applicable ❑	If no, specify how many claims are still outstanding and state what the expected timing is for settling them.
Have there been any new land acquisition-related complaints or grievances?	Yes ❑ No ❑	If yes, please state how many and summarize their content.

Has the company regularly reported to the affected communities on progress made in implementing the RAP?	Yes ❑ No ❑	If yes, please state how many meetings were held and how many participants attended.
New Land Acquisitions If the company acquired any new land for the project during the reporting year, please provide documents to show closure of land acquisition transactions. Please attach new/revised RAP covering the new land acquisition and describe mitigation measures, compensation, agreements reached, etc., and provide in tabular form a list of affected people and status of compensation.		
Have any persons been physically displaced?	Yes ❑ No ❑	If yes, how many?
Have any persons been economically displaced?	Yes ❑ No ❑	If yes, how many?
Was it a government assisted resettlement?	Yes ❑ No ❑	

9. Community Interaction and Development
Please summarise any social or community development initiatives undertaken by the company during the reporting period, and any associated expenditure:

ANNEX 3: GENERIC EMP - MITIGATION PLAN FOR FERP SUB-PROJECTS

Phase	Problem/activity impact	Mitigation measures	Costs		Institutional responsibility		Comment
			Planning	implementation	Planning	implementation	
Planning/ Designing	Assure compliance with relevant construction field legislation	Acquire construction permit Provide Water management guidelines if subprojects are executed near surface watercourses,	n/a	n/a	Project applicant	Project applicant	
Planning/ Designing	Potential damages to the existing infrastructure and facilities, especially underground installations (water supply and sewerage pipeline etc.) which cause obstacles in the provision of services to consumers.	Precisely situate the position of infrastructural facilities and underground installations at the location of works in cooperation with relevant institutions at all levels of authority.	n/a	n/a	Designer	Project applicant in cooperation with designers and representatives of relevant institutions of local authority.	
Planning/ Designing	Increased possibility of employment and gaining income in the local community.	Prioritise qualified local population in employment.	n/a	n/a	Project applicant	Contractor	Problems should be regulated through tender documentation.
Rehabilitation/ Reconstruction/ Repair	Supply of material	Use the existing quarries, asphalt and concrete bases for the supply of material Use licenced suppliers for other materials	n/a	n/a	Contractor	Contractor	Borrow pits from which materials of asphalt and concrete base are supplied must have valid environmental permits.
Rehabilitation/ Reconstruction/ Repair	Transport of material.	Using trucks with awning and special vehicles depending on the type of material.	n/a	n/a	Contractor	Contractor	When transporting material, drivers must observe speed limitations
Rehabilitation/ Reconstruction/ Repair	Violation of vegetation cover	Replant or re-seed vegetation. Apply measures of good construction practice	n/a	n/a	Contractor	Contractor	Problems should be regulated through the Works execution contract.

Phase	Problem/activity impact	Mitigation measures	Costs		Institutional responsibility		Comment
			Planning	implementation	Planning	implementation	
Rehabilitation/ Reconstruction/ Repair	Emissions of dust from the landfill of earth material, due to vehicles' movement on macadam roads and construction works execution.	Compact deposited earth material. Sprinkle dust sources with water in order to reduce impacts on the surrounding population and vegetation. Control the speed of vehicles in order to reduce dust rising. Prepare and implement a Plan for construction site organisation that includes good construction practices.	n/a	n/a	Contractor	Contractor	Problems should be regulated through the Works execution contract.
Rehabilitation/ Reconstruction/ Repair	Emission of gases and particles from vehicles, mechanisation and generators.	Regular equipment maintenance. The contractor is obliged to submit evidence of vehicle roadworthiness in line with the regulations on hazardous gases emission. Prepare and implement the Construction Site Organisation Plan that incorporates good construction practice measures.	n/a	n/a	Contractor	Contractor	Problems should be regulated through the Works execution contract.
Rehabilitation/ Reconstruction/ Repair	Noise in the operation of heavy mechanisation and generators.	Observe law-defined working hours at the construction site. Make the generator casings sound proof if they are located near residential units. Ensure mufflers for heavy machinery. Prepare and implement the Construction Site Organisation Plan that incorporates good construction practice measures.	n/a	n/a	Contractor	Contractor	Problems should be regulated through the Works execution contract.

Phase	Problem/activity impact	Mitigation measures	Costs		Institutional responsibility		Comment
			Planning	implementation	Planning	implementation	
Rehabilitation/ Reconstruction/ Repair	Increased water turbidity as a consequence of the works.	Construction works should be executed in a way that surfaces and natural contents outside the project are not damaged and that works are performed so that watercourses are not unnecessarily made turbid and watercourses discontinued. Works should be executed in dry weather. Prepare and implement a Construction Site Organisation	n/a	n/a	Contractor	Contractor	Problems should be regulated through the Works execution contract.
Rehabilitation/ Reconstruction/ Repair	Soil, groundwater and surface water pollution, with oils and lubricants due to equipment poor maintenance and repairs and refuelling at the construction site.	Avoid servicing and refuelling at the site. Use protective foils during possible vehicle refuelling and maintenance at the construction site. Provide absorbing material in case of fuel spills. Used oiled materials and agents should be managed in line with the Waste management report. Procedure for actions in case of incidental oil and lubrication spills. Prepare and implement the Construction Site Organisation Plan that incorporates good construction practice measures, measures from water management documents and measures from the Waste management report.	n/a	n/a	Contractor	Contractor	Problems should be regulated through the Works execution contract.

Phase	Problem/activity impact	Mitigation measures	Costs		Institutional responsibility		Comment
			Planning	implementation	Planning	implementation	
Rehabilitation/ Reconstruction/ Repair	Water and soil pollution due to inadequate disposal of communal, inert and hazardous waste.	Typical containers for solid communal waste are placed at the construction site locations; Acceptance of collected communal waste and its disposal by authorised institutions; Hazardous waste fractions (used waste oils, oiled packaging, bitumen agents waste, waste transformer oils, waste asbestos-cement pipes etc.) are separately collected into typical containers or metal barrels; they are to be consigned to entities authorised for hazardous waste management; Re-usage and recycle of waste whenever possible. It is prohibited to incinerate waste in the open and at the location. Actions in line with the waste management report.	n/a	n/a	Contractor	Contractor	Problems should be regulated through the Works execution contract.
Rehabilitation/ Reconstruction/ Repair	Reconstruction of damaged brides	Avoid driving on the riverbank or river; Ensure riverbed and bank in the zone of bridges, upstream and downstream from bridges, as to ensure their protection from erosion processes.	n/a	n/a	Contractor	Contractor	Problems should be regulated through the Works execution contract.

Phase	Problem/activity impact	Mitigation measures	Costs		Institutional responsibility		Comment
			Planning	implementation	Planning	implementation	
Rehabilitation/ Reconstruction/ Repair	Reduced passability through the area where the works are executed.	Plan the relocation of equipment at times when daily traffic is not jammed; Provide alternative passage for pedestrians and vehicles in cooperation with local authorities or provide a safe passage through the construction site; Avoid roads through inhabited areas especially near schools and hospitals; Prepare and implement the Construction Site Organisation Plan that incorporates good construction practice measures.	n/a	n/a	Contractor	Contractor	Problems should be regulated through the Works execution contract.
Rehabilitation/ Reconstruction/ Repair	Potential pollution of soil and water due to the discharge of waste sanitary waters from the construction site	Installation of ecological toilettes for workers	n/a	n/a	Contractor	Contractor	Problems should be regulated through the Works execution contract.
Rehabilitation/ Reconstruction/ Repair	Population at increased risks of traffic accidents and construction works to population.	Assure adequate warning signs, lighting, protective fencing etc. Observe traffic rules. Clean construction waste form the construction site both in the construction phase and after works completion, when closing the construction site. Assure medical supplies and aid through institutional and administrative arrangements with municipal hospitals at the construction site Implement the Construction Site Organisation Plan.	n/a	n/a	Contractor	Contractor	Problems should be regulated through the Works execution contract.

Phase	Problem/activity impact	Mitigation measures	Costs		Institutional responsibility		Comment
			Planning	implementation	Planning	implementation	
Rehabilitation/ Reconstruction/ Repair	Risk of injuries at work.	Demand from all workers to abide by the Protection at work measures; Provide protective equipment; Install warning signs at the construction site; Prepare and implement the Construction Site Organisation Plan and Protection at work measures plan.	n/a	n/a	Contractor	Contractor	Problems should be regulated through the Works execution contract.
Construction site closure	Construction material leftovers of after the closure of temporary construction sites	All shivers and material that remain after the closure of temporary construction sites are to be removed from the location and re-used/recycled where possible. All remains are to be disposed of in a manner that will not be harmful to environment; this is to be done by companies that have permits to perform such works.	n/a	n/a	Contractor	Contractor	Problems should be regulated through the Works execution contract.
Farm Incentives Program	Component 2 of the FERP Project (support to Farm Incentives Program) could lead to increased use of pesticides.	Integrated Pest Management Approach (IPM) is mandatory during project execution. Ensuring of appropriate selection and safe use of pesticides when they are needed by project demands related to safeguard OP 4.09 - Pest Management. Avoiding of use of pesticides that fall in WHO classes IA, IB or II.	n/a	n/a	Farmers	Farmers	Problems should be regulated through the Program execution.

ANNEX 4: GENERIC EMP - Monitoring Plan for FERP Sub-Projects

Phases	Monitoring parameter	Monitoring location	Monitoring manner / monitoring equipment	Monitoring time – measurement frequency or permanently	Why is monitoring necessary	Costs		Responsibility	
						Planning	Implement.	Planning	Implement.
Supply of material	Possession of environmental permits for plants of quarries, asphalt and concrete bases from which material is supplied	Legal entities that own the plants	Insight into the documentation	During material supply	Assure that the plant conforms to the requirements of environment protection, health protection and human safety		Incorporated into the supervision implementation costs	Supervising body	Supervising body
Transport of material	If trucks are covered during powdered material transport	At the construction site and transport roads	Visual supervision	During material transport	See that no dust is emitted into the air and material spilled into environment		Incorporated into the supervision implementation costs	Supervising body	Supervising body
Rehabilitation/ Reconstruction/ Repair	Degradation and soil pollution	At the construction site and directly around the construction site	Visual supervision	Weekly	To establish if liquid oil derivatives leaked, soil erosion and landslide occurred due to construction works		Incorporated into the supervision implementation costs	Supervising body	Supervising body
Rehabilitation/ Reconstruction/ Repair	Does the construction site meet the criteria from the guidelines for good construction practice	At the construction site	Visual supervision, insight into the documentation.	During the works execution	To assure environment protection and prevent the occurrence of incident situations at the construction site.		Incorporated into the supervision implementation costs	Supervising body	Supervising body

Phases	Monitoring parameter	Monitoring location	Monitoring manner / monitoring equipment	Monitoring time – measurement frequency or permanently	Why is monitoring necessary	Costs		Responsibility	
						Planning	Implement.	Planning	Implement.
Rehabilitation/ Reconstruction/ Repair	Occurrence of noise and air pollution	At the works execution location	Standard air quality and noise level measurement equipment.	Upon received citizens' complaints	In order to establish the level of air pollution and noise and make comparison with legal limit values. In case of aberration additional mitigation measures.		1100 KM/ per measurement spot	Contractor	Company that has licence to perform environment monitoring works
Rehabilitation/ Reconstruction/ Repair	Destruction of crops, woods, meadows etc.	At the works execution location and in the vicinity	Visually	Upon received citizens' complaints	In order to establish that works are only executed at project-envisaged locations		Incorporated into the supervision implementation costs	Supervising body	Supervising body
Rehabilitation/ Reconstruction/ Repair	Working hours control.	At the works execution location	Visually and comparison with the construction site organisation plan.	Upon received citizens' complaints	In order to establish that working hours and noise emission limitations are observed during daily working hours.			Supervising body	Supervising body
Rehabilitation/ Reconstruction/ Repair	Waste management during the works execution	At the construction site	Visually and by comparison with the waste management report.	Permanently	Are containers/bins for communal waste installed, is hazardous waste treated in adequate manners, in order to prevent uncontrolled waste disposal		Incorporated into the supervision implementation costs	Contractor	Supervising body

Phases	Monitoring parameter	Monitoring location	Monitoring manner / monitoring equipment	Monitoring time – measurement frequency or permanently	Why is monitoring necessary	Costs		Responsibility	
						Planning	Implement.	Planning	Implement.
Rehabilitation/ Reconstruction/ Repair	Number of registered accidents Existence of hygienic conditions for workers, Protective equipment application	At the construction site	Visually and insight into the register	Permanently during the works execution	In order to establish that protection at work measures are implemented.		Incorporated into the supervision implementation costs	Contractor	Supervising body
Rehabilitation/ Reconstruction/ Repair	Impact on population due to the limitation of business activity and right to use land	Local community	Insight into the register	Upon received citizens' complaints	In order to timely prevent impact		Incorporated into the supervision implementation costs	Project applicant	Project applicant
Rehabilitation/ Reconstruction/ Repair	Quality of executed works Quality of material that is installed	At the construction site	Visual monitoring and through register	Permanently during the works execution and construction site removal	Poor monitoring and works execution quality assessment can cause damages to environment, bad quality structures and usage of poor quality material, can result in damages to structures and expose inhabitants to risks and possible accidents		Incorporated into the supervision implementation costs	Contractor	Supervising body
Construction site closure	Waste remnants and soil degradation	At the project location	Visually	After the works completion	In order to establish whether all waste was removed from the construction site whether field was restored		Incorporated into the supervision implementation costs	Contractor	Supervising body

ANNEX 5: SAMPLE ENVIRONMENTAL CHECKLIST

Note: this document could be used as a support material in order to ensure that the major environmental issues have been taken into consideration during preparation of the section-specific EMP.

Check appropriate column as Yes (Y), Maybe (M), No (N) or Beneficial (B). Briefly explain Y, M and B checks in next Section, "Explanations". A "Y" response does not necessarily indicate a significant effect, but rather an issue that requires focused consideration.

Y. M. N or B

1. Earth Resources

a. grading, trenching, or excavation in cubic meters or hectare ___
b. geologic hazards (faults, landslides, liquefaction, un-engineered fill, etc.) ___
c. contaminated soils or ground water on the site ___
d. offsite overburden/waste disposal or borrow pits required in cubic meters or tons e. loss of high-quality farmlands in hectares ___

2. Agricultural and Agrochemical

a. impacts of inputs such as seeds and fertilizers ___
b. impact of production process on human health and environment ___
c. other adverse impacts

3. Industries

a. impacts of run-off and run-on water ___
b. impact of farming such as intensification or extensification ___
c. impact of other factors ___

4. Air Quality

a. substantial increase in onsite air pollutant emissions (construction/operation) ___
b. violation of applicable air pollutant emissions or ambient concentration standards c. substantial increase in vehicle traffic during construction or operation ___
d. demolition or blasting for construction __
e. substantial increase in odor during construction or operation ___
f. substantial alteration of microclimate ___

5. Water Resources and Quality

a. river, stream or lake onsite or within 30 meters of construction ___
b. withdrawals from or discharges to surface or ground water ___
c. excavation or placing of fill, removing gravel from, a river, stream or lake ___
d. on-site storage of liquid fuels or hazardous materials in bulk quantities ___

6. Cultural Resources

a. prehistoric, historic, or paleontological resources within 30 meters of construction b. site/facility with unique cultural or ethnic values or protected heritage site within 30 metres of construction ___

7. Biological Resources

a. vegetation removal or construction in wetlands or riparian areas b. use ___
___

of pesticides/rodenticides, insecticides, or herbicides in hectare
c. construction in or adjacent to a designated wildlife refuge ___
d. existence of protected natural resources – water, flora, fauna

8. Planning and Land Use

a. potential conflict with adjacent land uses ___
b. non-compliance with existing codes, plans, permits or design ___
factors ___
c. construction in national park or designated recreational area
d. create substantially annoying source of light or glare ___
e. relocation of individuals for +6 months ___
f. interrupt necessary utility or municipal service > 10 individuals for +6 months ___
g. substantial loss of inefficient use of mineral or non-renewable resources ___
h. increase existing noise levels >5 decibels for +3 months ___

9. Traffic, Transportation and Circulation

a. increase vehicle trips >20% or cause substantial ___
congestion ___
b. design features cause or contribute to safety hazards
c. inadequate access or emergency access for anticipated volume of people or traffic___

10. Hazards

a. substantially increase risk of fire, explosion, or hazardous chemical ___
release b. bulk quantities of hazardous materials or fuels stored on site +3 ___
months
c. create or substantially contribute to human health hazard ___

11. Other Issues (to be used for categories not captured under 1 through 10 above)

a. Substantial adverse impact ___
b. Adverse/negative impact ___
c. Minimal impact ___

B. EXPLANATION OF ENVIRONMENTAL CONSEQUENCES: explain Y, M and B responses

C. RECOMMENDED ACTION (Highlight Appropriate Action):

1. The project has no potential for substantial adverse environmental effects. No further Environmental Management Plan is required.*
2. The project has potential for adverse environmental concerns (baselines section and water quality issues) and/or environmental impacts; however the recommended mitigation measures will be developed and incorporated in to the project design phase. The recommended mitigation measures will be approved by the MEO in consultation with the BEO. Monitoring of mitigation done will be documented in a monitoring report and sent to the BEO.
3. The project has substantial but mitigatable adverse environmental effects and required measures to mitigate environmental effects. Mitigation and Monitoring (M&M) Plan must be developed and approved by the BEO and/or REO prior to implementation. M&M Plan is to be attached to the Scope of Work.*
4. The project has potentially substantial adverse environmental effects, but requires more analysis to form a conclusion. A Scoping Statement must be prepared and be submitted to the BEO for approval. Following BEO approval an Environmental Assessment (EA) will be conducted. Project may not be implemented until the BEO approves the final EA. For

activities related to the procurement, use, or training related to Pesticides a PERUSAP will be prepared for BEO approval.
5. The project has potentially substantial adverse environmental effects, and revisions to the project design or location or the development of new alternatives is required.
6. The project has substantial and unmitigable adverse environmental effects. Mitigation is insufficient to eliminate these effects and alternatives are not feasible. The project is not recommended for funding.

D. IDENTIFIED SIGNIFICANT ENVIRONMENTAL IMPACTS (including **physical, biological and social**), if any: (Use EMP tools such as **Leopold Matrix** to identify significant environmental impacts)

E. RECOMMENDED MITIGATION MEASURES (if any):

F. RECOMMENDED MONITORING MEASURES (if any):

ANNEX 6: RELEVANT NATIONAL LEGISLATION AS OF FEBRUARY 2017

The main laws and regulations currently in force in Republic of Serbia which are relevant to the environmental protection during planning, design, construction and operating of this Project are listed below:

1. Law on planning and construction ("Official Gazette of RS" No. 72/2009, 81/2009, 64/2010, 24/2011, 121/2012, 42/2013, 50/2013, 98/2013, 132/2014, 145/2014)
2. Law on nature protection ("Official Gazette of RS", 36/09, 88/10, 91/10, 14/16)
3. Law on environmental protection ("Official Gazette of RS" No. 135/04, 36/09, 72/09, 43/11, 14/16)
4. Law on EIA ("Official Gazette of RS" No. 135/2004, 36/2009)
5. Law on Strategic EIA ("Official Gazette of RS" No. 135/2004)
6. Law on waste management ("Official Gazette of RS", 36/09, 88/10, 14/16)
7. Law on noise protection ("Official Gazette of RS", 36/09, 88/10)
8. Law on water ("Official Gazette of RS", 30/10, 93/12, 101/16)
9. Law on forest ("Official Gazette of RS", 30/10, 93/12, 89/15)
10. Law on air protection ("Official Gazette of RS", 36/09, 10/13)
11. Law on Safety and Health at Work ("Official Gazette of RS", 101/05, 91/15)
12. Agricultural Land Law, ("Official Gazette of RS" No. 62/06, 65/08, 41/09, 112/2015)

Regulations established on the basis of the Law on EIA include the following:

12. Decree on establishing the List of Projects for which the Impact Assessment is mandatory and the List of projects for which the EIA can be requested ("Official Gazette of RS" No. 114/08)
13. Rulebook on the contents of requests for the necessity of Impact Assessment and on the contents of requests for specification of scope and contents of the EIA Study ("Official Gazette of RS" No. 69/05)
14. Rulebook on the contents of the EIA Study ("Official Gazette of RS" No. 69/05)
15. Rulebook on the procedure of public inspection, presentation and public consultation about the EIA Study ("Official Gazette of RS" No. 69/05)
16. Rulebook on the work of the Technical Committee for the EIA Study ("Official Gazette of RS" No. 69/05)
17. Regulations on permitted noise level in the environment ("Official Gazette of RS" No. 72/10)
18. Decree on establishing class of water bodies ("Official Gazette of SRS" No. 5/68)
19. Regulations on dangers pollutants in waters ("Official Gazette of SRS" No. 31/82)

Other relevant Serbian legislation

21. Law on confirmation of convention on information disclosure, public involvement in process of decision making and legal protection in the environmental area ("Official Gazette of RS", 38/09)

22. European Environment and Health Committee. Serbia. Copenhagen, WHO Regional Office for Europe, 2006 (http://www.euro.who.int/eehc/implementation/20061010_9 accessed 29 December 2009).

23. National Assembly. Law on Protection against Environmental Noise. Official Gazette of the Republic of Serbia, No. 36/09, 88/10.

24. National Assembly. Law on Waste Management. Official Gazette of the Republic of Serbia, 2009, No. 36/09, 88/10, 14/16.

25. National Assembly. Constitution of the Republic of Serbia. Official Gazette of the Republic of Serbia, 2006, No. 98/06.

26. National Assembly. Law on Environmental Protection. Official Gazette of the Republic of Serbia, 2004, No. 135/04, 36/09, 72/09, 43/11, 14/16.

27. National Assembly. Law on Air Protection. Official Gazette of the Republic of Serbia, 2009, No. 36/09, 10/13.

28. National Assembly. Law on Chemicals. Official Gazette of the Republic of Serbia, 2009, No. 36/09. 88/10, 92/11, 93/12, 25/15

29. National Assembly. Law on Biocidal Products. Official Gazette of the Republic of Serbia, 2009, No. 36/09, 88/10, 92/11, 25/15

30. National Assembly. Law on Occupational Safety and Health. Official Gazette of the Republic of Serbia, 2005, No. 101/05, 91/15

31. National Assembly. Law on Environmental Impact Assessment. Official Gazette of the Republic of Serbia, 2004, No. 135/04, 36/09

32. Federal Assembly. Regulation on permitted level of noise in the environment. Official Gazette of the Republic of Serbia, 2010, No. 72/10.

33. National Assembly. Law on Integrated Pollution Prevention and Control. Official Gazette of the Republic of Serbia, No. 135/04 (http://www.basel.int/legalmatters/natleg/serbia-04e.pdf, accessed 11 January 2010).

34. Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC. Official Journal of the European Union, 2006, L396:1–849.

35. Directive 2003/35/EC of the European Parliament and of the Council of 26 May 2003 providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending with regard to public participation and access to justice Council Directives 85/337/EEC and 96/61/EC. Official Journal of the European Union, 2003, L156:17–24.

36. Council Directive 91/271/EEC of 21 May 1991 concerning urban waste water treatment. Official Journal of the European Communities, 1991, L135:40–52 (http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31991L0271:EN:HTML, accessed 25 January 2010).

37. Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption. Official Journal of the European Communities, 1998, L330:32–33 (http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:1998:330:0032::EN:PDF, accessed 25 January 2010).

38. Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise – Declaration by the Commission in the Conciliation Committee on the Directive relating to the assessment and management of environmental noise. Official Journal of the European Communities, 2002, L189:12–25 (http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:189:0012::EN:PDF , accessed 25 January 2010).

39. Federal Assembly. Regulation on permitted level of noise in the environment. Official Gazette of of the Republic of Serbia, 2010, No. 72/10.

40. National Assembly. Law on Integrated Pollution Prevention and Control. Official Gazette of the Republic of Serbia, No. 135/04 (http://www.basel.int/legalmatters/natleg/serbia-04e.pdf, accessed 11 January 2010).

41. Council Directive 1999/30/EC of 22 April 1999 relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air. Official Journal of the European Communities, L163:41–60.

ANNEX 7: REPORT ON PUBLIC DISCLOSURE AND PUBLIC CONSULTATION

1. BACKGROUND

Unprecedented rainfall started in early/mid-May 2014 causing massive floods, resulting in the declaration of a national state of emergency in Serbia on May 15, 2014. The heavy rainfall, led to a rapid and substantial increase of water levels in eight of the main rivers in western, south-western, central and eastern Serbia. Flash floods destroyed houses, bridges and sections of roads, while rising water levels resulted in flooding of both urban and rural areas. The disaster resulted in 51 deaths, with approximately 32,000 people evacuated from their homes, and around 110,000 households cut off from the electricity supply. Overall, the floods affected some 1.6 million people, or about one fifth of the total population living in 49 municipalities. Adverse weather conditions have continued during next few months, causing further damage to harvest and energy infrastructure.

The Floods Emergency Recovery Project focuses on the priority sectors identified in the Recovery Needs Assessment including energy, agriculture, and flood protection. The project would help close the financing gap and ensure continued provision of electricity services, forestall a likely decline in direct support to farmers in affected areas at a time when the fiscal accounts are under severe stress and help improve resilience to disasters by financing investments in critical flood prevention infrastructure.

Component 2 (Agricultural Sector Support) of the Project will support the ongoing Farm Incentives Program in order to protect the livelihood of farmers affected by the floods and facilitate gradual recovery of the farmers' income from agriculture to pre-floods level.

The objective of Component 3 (Flood Protection) is to support urgent rehabilitation of the flood protection and drainage control infrastructure, under the principle of '"building back better" through solutions which enhance the function and effectiveness of existing flood protection facilities (e.g. through heightening and improving design and construction standards). This component will also strengthen the technical capacity of the government agencies for improved flood prevention and management. The flood protection component consists of the following two subcomponents: Subcomponent 3A: Investments in Flood Protection and Subcomponent 3B: Project Implementation Support for Flood Management and Disaster Resilience.

Four different types of works are proposed: Construction of Flood Protection structures, reconstruction of the weak points on the embankment, upgrading sections of embankment from the 1:25 year flood to the 1:100 year flood, and bank armoring in locations where erosion of the riverbank may undercut the embankment.

Benefiting from improved flood protection are about 7.000 households with 35,000 inhabitants and 18,950 ha, of arable land. The returns to the economy from increased agricultural productivity, increased incomes and associated fiscal benefits, and reduced losses from flooding.

Project Implementation Unit (PIU) prepared ESMF document which provide general policies, guidelines, codes of practice and procedures to be integrated into the implementation of the WB-supported FERP Project. It defines the steps, processes, and procedures for screening, alternative analysis, assessment, monitoring and management of the environmentally-related issues. In addition, the ESMF analyzes environmental policies and legal regime of Serbia and safeguard policies of the WB; presents the institutional and capacity assessment related to the environmental management; and describes the principles, objectives and approach to be followed while designing site-specific environmental mitigation measures. The ESMF is intended to be used as a practical tool during program formulation, design, implementation, and monitoring in FERP.

The ESMF outlines the environmental policy, legal, and administrative framework for undertaking the Project, presents environmental baseline information and potential environmental impacts and includes the range of available mitigation measures that may be adopted, based on each particular situation. The ESMF also contains a description of the environmental management system and institutional arrangements to be applied as well as recommendations for capacity building measures in PIU during project implementation in order to ensure environmental sustainability. The ESMF includes a generic sample environmental mitigation and environmental monitoring plans.

Since no strategic Environmental Assessment (EA) or Environmental Impact Assessment (EIA) have been prepared for the Farms Incentive Program, ESMF include specific actions to review the current impact of the program.

According to WB procedures, activities already identified for financing under the FERP project fall under Environmental Category B due to their potential impacts. WB Operational Policy OP 4.01 Environmental Assessment require partial EIA and development of site specific EMPs for projects belonging to Category B.

2. SUMMARY OF STAKEHODER CONSULTATIONS

On March 04, 2015, WB “No objections” on draft ESMF document were delivered to the PIU. Starting from March 05, 2015, PIU started with preparation for stakeholder consultations and disclosure.

On March 06, 2015, on Serbian Water Directorate (SWD) web site PIU disclosed draft ESMF document in order to be transparent and available to the public and all project stakeholders. Public and other interested parties and organizations were allowed to participate in process of stakeholder consultations on draft ESMF document. Prior to announcement on the SWD web site, the ESMF was delivered to the municipalities on which territory Component 3 of the FERP project will be implemented. Public consultations and presentation on draft ESMF document to the Project Affected Persons (PAP) were not held as it was premature at the time to discuss sub-projects details with project-affected persons. However, stakeholder consultation did take place during first half of 2015, in order to finalize the ESMF document, namely with government agencies and the affected municipalities to agree on the terms of the ESMF.

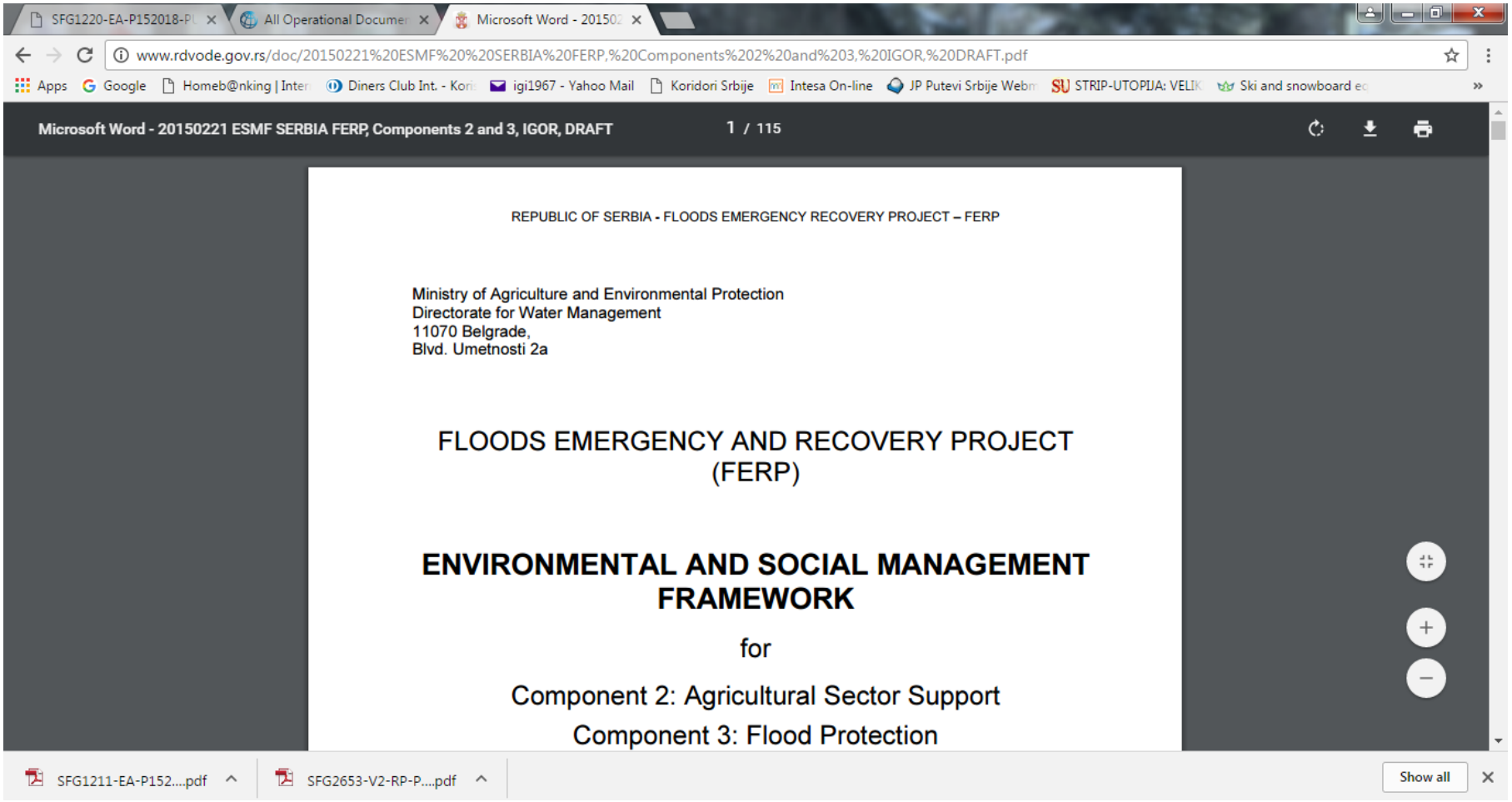
Additionally, insight into the ESMF document was ensured on following addresses:

- the premises of the Negotin, Radujevac, Aleksinac, Nis, Sombor, Novi Sad, Smederevska Palanka, Novi Pazar, Apatin, Backa Palanka and Smederevska Palanka municipalities starting from March 06, 2015. During 2015 PIU representatives visited all municipalities on which territory FERP sub-projects were planned to be implemented and conducted brief presentation of ESMF document to local government representatives.
- on the web site of the Ministry of Agriculture and Environmental Protection: http://www.rdvode.gov.rs/doc/20150221%20ESMF%20%20SERBIA%20FERP,%20Components%202%20and%203,%20IGOR,%20DRAFT.pdf starting from March 06, 2015
- on the World Bank web site : http://documents.worldbank.org/curated/en/914851468333617869/pdf/SFG1220-EA-P152018-PUBLIC-Disclosed-7-8-2015-Box391493B.pdf starting from July 08, 2015
- the premises of the Project Implementation Unit, Bulevar umetnosti 2a, Beograd, every working day from 11:00 to 13:00 hours within 14 days starting from March 06, 2015

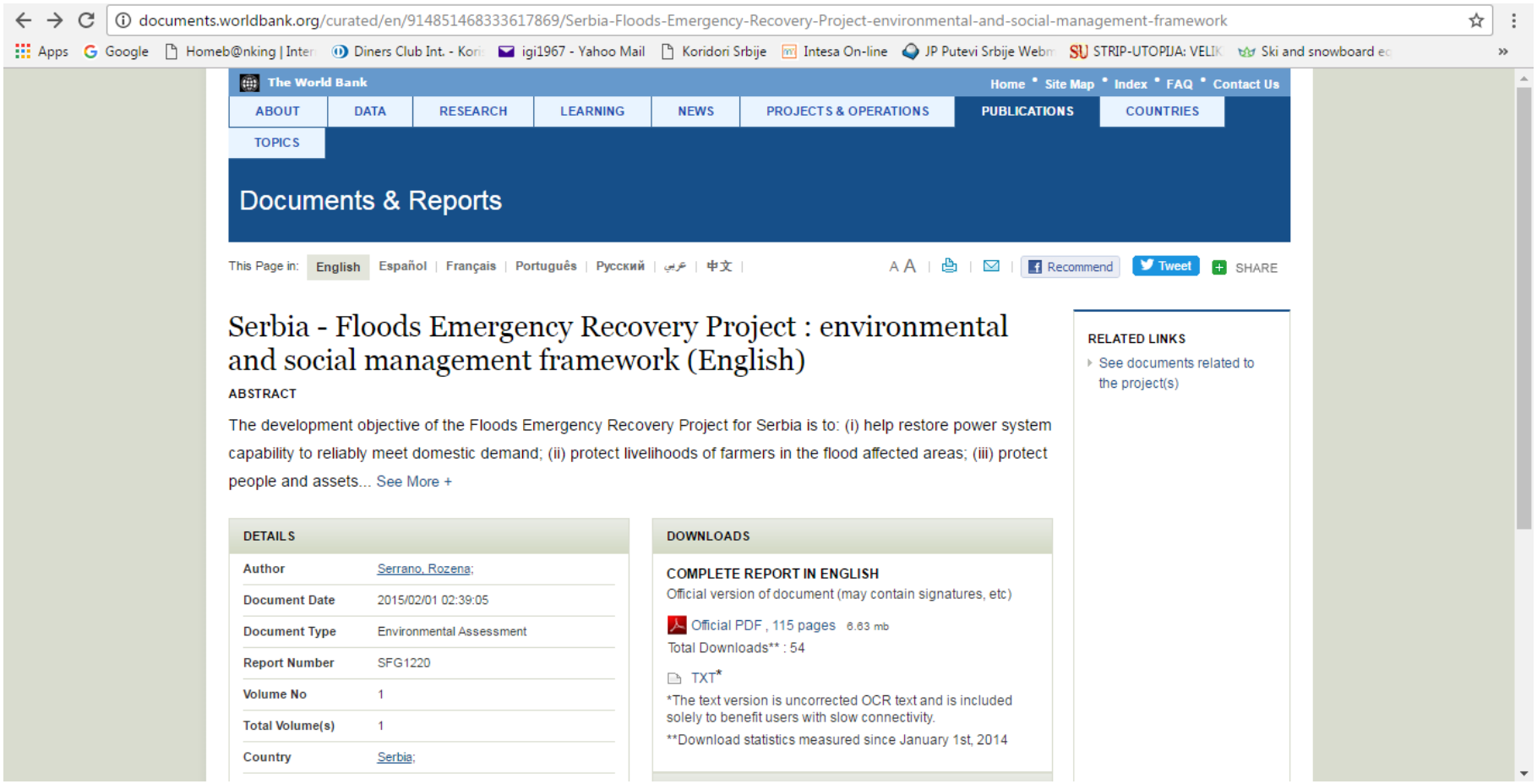
Up to February 23, 2017, during the public disclosure of ESMF document, no comments, remarks or complaints related to issues presented in the ESMF were received, and no environmentally / socially related issues were raised.

3. DOCUMENTATION

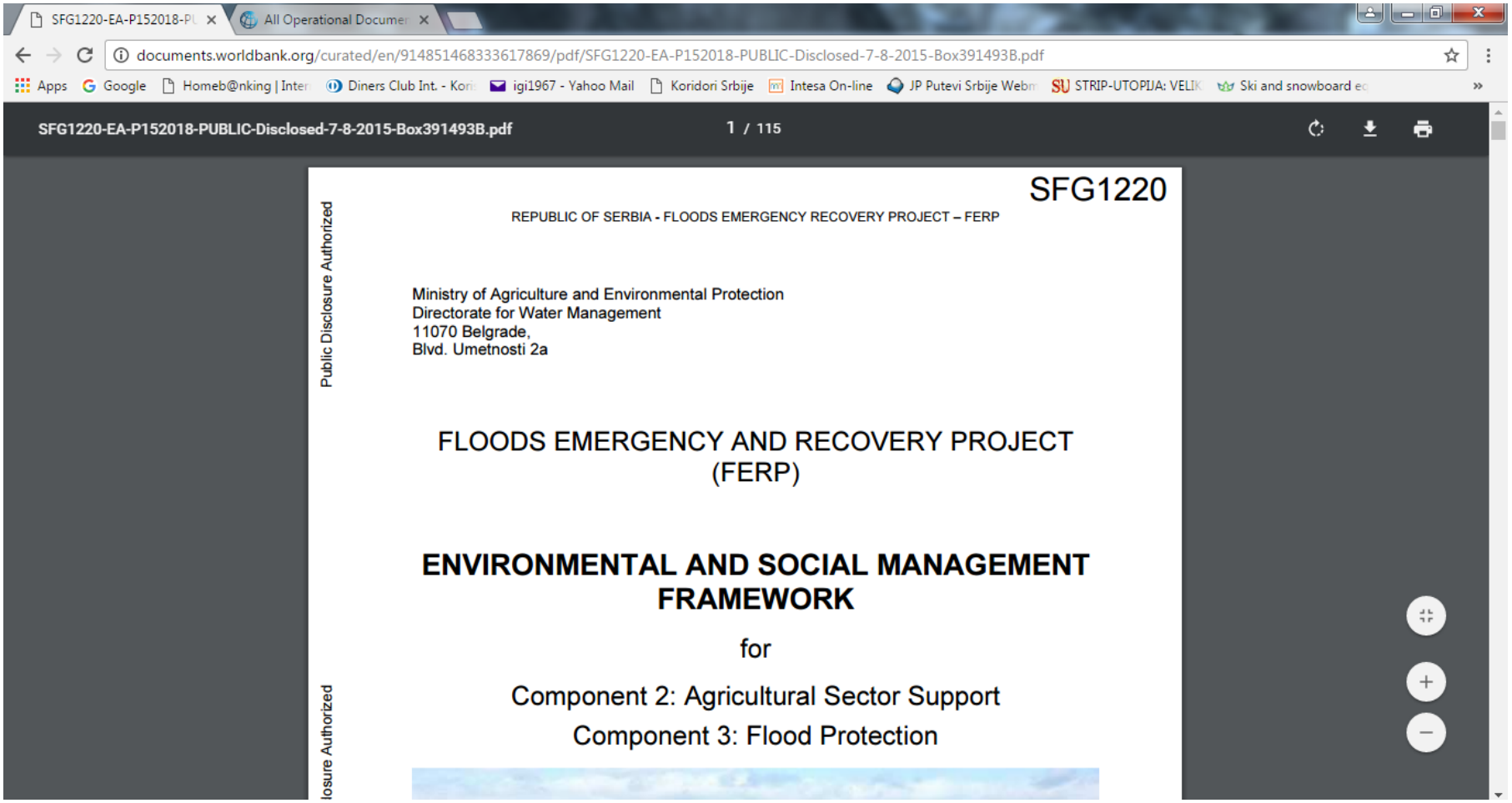
Picture 1: Announcement and public disclosure of DRAFT ESMF document on Ministry web site, March 06, 2015



Picture 2: DRAFT ESMF document disclosed on Ministry web site, March 06, 2015



Picture 3: Announcement and public disclosure of DRAFT ESMF document on the World Bank web site, July 08, 2015



Picture 4: Authorised ESMF document disclosed on the World Bank web site, July 08, 2015

ANNEX 8: SAMPLE CHECK-LIST QUESTIONNAIRE FOR FERP PROJECT

CHECKLIST QUESTIONNAIRE **(to be filled in for every subproject separately)**				
Administrative and institutional data				
1.	Sub-project name	*(Name of rehabilitation sub-project)*		
2.	Sub-Project location	*(Municipality / City, RS/RoS)*		
3.	Proximity to nearest settlement (houses)			
4.	Proximity to nearest river/lake			
5.	Institutional Arrangements (names and contacts)	*WB (Task team leader)*	*Project Management (PIU)*	*Local Counterpart or Recipient*
6.	Implementation arrangements (names and contacts)	*Safeguard Supervision*	*PIU Supervision*	*Contractor*
7.	Project description *(Describe main project features and location of work execution)*			
Project exclusion criteria				
	Issue	Yes/No		Comment
8.	Is the project found of the FERP exclusion list (see the Attachment A)	Yes [ ] No [ ]		[ ] If yes, the project is not eligible for financing. Identify another project.
9.	Is the project found on the list of projects that must undergo environmental assessment based on national legislation (see Attachment B)	Yes [ ] No [ ]		[ ] If yes, the project is not eligible for financing. Identify another project.
10.	Will the project implementation result in the resettlement of population or permanent land occupation	Yes [ ] No [ ]		[ ] If yes, the project is not eligible for financing. Identify another project.
11.	Will the project involve actions which will cause new physical changes in the locality (topography, land use, waterbodies, etc.) compared to the state before reconstruction?	Yes [ ] No [ ]		[ ] Go back to original design and avoid any physical changes in the locality [ ] Develop a site specific EMP [ ] Exclude the project and identify another site
12.	Will the project result in increased use of natural resources such as land, water, materials or energy compared to the state before reconstruction?	Yes [ ] No [ ]		[ ] Go back to original design and avoid increase in natural resources use [ ] Develop a site specific EMP [ ] Exclude the project and identify another site
13.	Is the project satisfying general reconstruction requirements?	All legally required permits for reconstruction from local authorities are acquired. Yes [ ] No [ ] Water acts from responsible authorities are obtained. Yes [ ] No [ ] Reconstruction materials are		[ ] Temporary stop the project until required permits and water acts are obtained [ ] Ensure that Contractor is contractually obliged to purchase material from licensed companies [ ] It is not possible to fulfill all
		purchased from licensed sources/companies only? Yes [ ] No [ ]		general reconstruction requirements. Identify another site.

Environmental screening					
	Possible environmental impacts	Yes/No?	Mitigation measures (circle those implemented upon completion of monitoring)	Monitoring parameters	Responsible Body
14.	Will project activities be implemented in protected areas or they will affect protected endemic plant-, fungi- or animal species or their habitats ?	[ ] Yes [ ] No	(a) A special EMP prepared to include all measures and best environment protection practice. (b) All necessary local permits are acquired. (c) The activity is in accordance with the management regime for the observed location (d) No endemic or protected species will be used.	(a) Visual inspection on site (b) Construction diary (c) Public complaints	(a) Contractor for execution of civil works (b) Supervising engineer on behalf of PIU
15.	Will project activities be implemented at/near archaeological or cultural sights?	[ ] Yes [ ] No	(a) Project will cause no harm to any such sight. (b) Special attention will be paid to the protection of such sights, or they will be incorporated into the EMP for construction works. (c) The project is implemented in cooperation with a person authorised for cultural/archaeological findings and in accordance with regulations	(a) Visual inspection on site (b) Construction diary (c) Public complaints	(a) Contractor for execution of civil works (b) Supervising engineer on behalf of PIU
16.	Are there any areas on or around the location which are important or sensitive for reasons of their ecology, e.g. wetlands, watercourses or other water bodies, mountains, forests or woodland, which could be affected by the project?	[ ] Yes [ ] No	(a) All recognized areas in the immediate vicinity of the activity will not be damaged or exploited (b) Staff will be strictly prohibited from foraging, logging or other damaging activities. (c) A survey and an inventory shall be made of large trees in the vicinity of the construction activity, large trees shall be marked and cordoned off with fencing, their root system protected, and any damage to the trees avoided (d) Adjacent wetlands and streams shall be protected from construction site run-off with appropriate erosion and sediment control feature to include by not limited to hay bales and silt fences (e) There will be no unlicensed borrow pits, quarries or waste dumps in adjacent areas.	(a) Visual inspection on site (b) Construction diary (c) Public complaints	(a) Contractor for execution of civil works (b) Supervising engineer on behalf of PIU

Environmental screening					
	Possible environmental impacts	Yes/No?	Mitigation measures (circle those implemented upon completion of monitoring)	Monitoring parameters	Responsible Body
17.	Are there any areas on or around the location which are used by protected important or sensitive species of fauna or flora, e.g. for breeding, nesting, foraging, resting, overwintering, migration, which could be affected by the project?	[ ] Yes [ ] No	(a) All recognized areas will be completely avoided (b) Staff will be strictly prohibited from hunting, foraging or other damaging activities.	(a) Visual inspection on site (b) Construction diary (c) Public complaints	(a) Contractor for execution of civil works (b) Supervising engineer on behalf of PIU
18.	Will the project lead to risk of contamination of land or water from releases of pollutants onto the ground or in surface/ground waters during construction and operation?	[ ] Yes [ ] No	(a) Set up sediment traps along rivers and/or gabions along banks to filter out eroded sediments (b) Provide slope protection through bank compaction, rip-rapping on critical sections, or vegetative stabilization (c) Designate a Spoils Storage Area, with topsoil set aside for later use and allow maximum re-use of spoils (d) Use material for restoration of degraded areas (e) Provide oil & grease traps in stilling ponds (f) Provide ring canals around fuelling tanks/motor pool/ maintenance areas (g) Collect used oils in containers and hand over to authorized agency for handling (h) Construction vehicles and machinery will be washed only in designated areas where runoff will not pollute natural surface water bodies. (i) The approach to handling sanitary wastes and wastewater from building sites (installation or reconstruction) must be approved by the local authorities (j) Before being discharged into receiving waters, effluents from individual wastewater systems must be treated in order to meet the minimal quality criteria set out by national guidelines on effluent quality and wastewater treatment	(a) Complaints received (b) Visually for presence of turbidity in surface water (c) Analyze surface water quality in case of complaints (for pH, turbidity, conductivity and suspended solids and total mineral oils) (d) If groundwater is used for drinking water supply, analyze tap water for drinking water quality parameters as prescribed in national legislation (e) Appropriate approvals by the local authorities	(a) Contractor for execution of civil works (b) Supervising engineer on behalf of PIU

Environmental screening					
	Possible environmental impacts	Yes/No?	Mitigation measures (circle those implemented upon completion of monitoring)	Monitoring parameters	Responsible Body
19.	Will the project involve actions such as construction/demolition activities, use of machinery and/or transport vehicles, etc. that might release pollutants to air during construction or operation (e.g. exhaust fumes, dust, fire smoke, odors)?	[ ] Yes [ ] No	(a) Regular equipment maintenance (b) Contractor to present proof of compliance with emission standards as part of the annual vehicle registration process (c) Compact spoils storage piles (d) Wet areas of dust sources to minimize discomfort to nearby residents (e) Control of vehicle speed to lessen suspension of road dust (f) Keep the surrounding environment (sidewalks, roads) free of debris to minimize dust (g) During interior demolition debris-chutes shall be used above the first floor (h) No open fire at the site (i) Ensure no pollutants are released originating from building heating system (j) Increase energy performance of buildings	(a) Presence of black smoke from construction vehicles (b) Attestation documentation (c) Visual inspection of dust presence (d) Public complaints received	(a) Contractor for execution of civil works (b) Supervising engineer on behalf of PIU
20.	Will the project cause excess noise generation during construction?	[ ] Yes [ ] No	(a) Schedule equipment movement during non-peak hours of daytime vehicular traffic (b) Avoid night-time construction activities and abide by local laws on construction hours (c) Provide housing for gensets, if near residences (d) Provide silencers/mufflers for heavy equipment	(a) Public complaints received (b) Measure a noise level in case of complaints	(a) Contractor for execution of civil works (b) Supervising engineer on behalf of PIU

Environmental screening					
	Possible environmental impacts	Yes/No?	Mitigation measures (circle those implemented upon completion of monitoring)	Monitoring parameters	Responsible Body
21.	Will the project produce solid waste during construction and/or demolition and operation?	[ ] Yes [ ] No	(a) Whenever feasible the contractor will reuse and recycle appropriate and viable materials (except asbestos) (b) Waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities. (c) Mineral construction and demolition wastes will be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and stored in appropriate containers. (d) Construction waste will be collected and disposed properly by licensed collectors (e) No open burning of wastes on or off site (f) The approach to handling solid wastes from building sites must be approved by the local authorities	(a) Visual inspection of separate waste management piles (b) Written receipts of all separate waste streams handled by the designated authorities (c) Visual inspection of burn marks on site (d) Construction diary (e) Appropriate approvals by the local authorities	(a) Contractor for execution of civil works (b) Supervising engineer on behalf of PIU
22.	Will the project involve use of substances or materials which could be harmful to human health or the environment or raise concern about actual or perceived risks to human health?	[ ] Yes [ ] No	(a) Use renewable construction materials (e.g. use of ECO cement, wood fiber insulation boards, wooden floors and windows, etc.) if economically feasible. (b) Use low VOC paints and varnishes. (c) Do not use asbestos containing materials in construction.	(a) Construction diary (b) Visual inspection on site	(a) Contractor for execution of civil works (b) Supervising engineer on behalf of PIU

Environmental screening					
	Possible environmental impacts	Yes/No?	Mitigation measures (circle those implemented upon completion of monitoring)	Monitoring parameters	Responsible Body
23.	Will there be any risk of accidents during construction which could affect human health?	[ ] Yes [ ] No	(a) Notify the local construction and environment inspectorates of upcoming activities. (b) Notify the public of the works through appropriate notification in the media and/or at publicly accessible sites (including the site of the works). (c) Formally agree with the Contractor that all work will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment. (d) Formally agree with the Contractor that workers health and safety requirements will comply with international good practice (always hardhats, as needed masks and safety glasses, harnesses and safety boots). (e) Appropriate signposting of the sites will inform workers of key rules and regulations to follow and emergency contact numbers. (f) Provide on-site medical services and supplies for any emergency, through institutional and administrative arrangements with the local health unit. (g) Provide portable water & sanitary facilities for construction workers.	(a) Keep written proof of notifications, local permits, and/or media announcement clippings (b) Supervisor to ensure use of PPE (c) Supervisor to visually inspect adequate signage	(a) Site supervisor (b) PIU (c) Contractor for execution of civil works
24.	Are there any (transport) routes on or around the location which are used by public which could be negatively affected by the project?	[ ] Yes [ ] No	(a) Schedule vehicle movement during lean daytime traffic hours or at night. (b) Provide traffic aides/flagmen, traffic signs to help ensure the free and safe flow of traffic. (c) Maintain & Repair temporary alternative route of vehicles & pedestrians.	(a) Presence of traffic signs (b) Public complaints received (c) Occurrence of traffic jams	(a) Contractor for execution of civil works
25.	Are there any facilities on or around the location which are used by public which could be negatively affected by the project (e.g. difficult public access)?	[ ] Yes [ ] No	(a) Designate an alternate route for pedestrian and/or vehicles in coordination with the Municipal Authorities or provide safe passageway through the construction site.	(a) Public complaints received	(a) Contractor for execution of civil works

Environmental screening					
	Possible environmental impacts	Yes/No?	Mitigation measures (circle those implemented upon completion of monitoring)	Monitoring parameters	Responsible Body
26.	Are there existing land uses on or around the location e.g. homes, gardens, other private property, industry, commerce, recreation, public open space, community facility, agriculture, forestry, tourism, mining or quarrying which could be negatively affected by the project?	[ ] Yes [ ] No	(a) Address the issue of expropriation/ economic loss using appropriate resettlement instruments in accordance with the O.P. 4.12 Involuntarily Resettlement and national legislation.	(a) Public complaints received	(a) PIU
Summary of features of project and of its location indicating the need for specific EMP development					
Decision:					
The following subprojects is: **[ ] Approved without additional requirements.** **[ ] Approved with use of readymade EMP.** **[ ] Approved with requirement to produce specific EMP for this subproject.** **[ ] Not approved.**					
Name of the evaluator: **Date:** **Place:** **Signature:**					

ANNEX 9: PROCEDURE FOR OBTAINING WATER MANAGEMENT APROVAL