ENVIRONMENTAL MANAGEMENT FRAMEWORK

Sustainable Croatian Railways in Europe – Održive željeznice Hrvatske u Europi
(P147499)

Abbreviations and Acronyms

AHM - Auxiliary Handling Machine

DEL – Diesel Electric Locomotive

DHL - Diesel Hydraulic Locomotive

EA – Okolišna procjena - Environmental Assessment

EIA – Procjena utjecaja na okoliš - Environmental Impact Assessment

ELLOK - Electric Locomotive

EMF – Okvirni dokument upravljanja okolišem - Environmental Management Framework

EMP – Plan upravljanja okolišem - Environmental Management Plan

EMV - Electric Motor Vehicle

EU – Europska unija – European Union

HZHZ – Hrvatske željeznice - Croatian Railways

HZHZC – Hrvatske željeznice Cargo - Croatian Railways Cargo

HZHZI – Hrvatske željeznice infrastruktura - Croatian Railways Infrastructure

HZHZP –Hrvatske željeznice putnički prijevoz - Croatian Railways Passenger Transport

MMATI – Ministry of Maritime Affairs, Transport and Infrastructure

OG - Official Gazette

PIA – Implementacijska Agencija Projekta - Project Implementing Agency

QAP - Quality Assurance Plan

SUCRE EMF - Okvirni dokument upravljanja okolišem (EMF) za projekt Održive željeznice Hrvatske u Europi - Environmental Management Framework (EMF) for the Sustainable Croatian Railways in Europe project

Table of Contents

1 INTRODUCTION

Environmental Management Framework – EMF of the Sustainable Croatian Railways in Europe (SUCRE) project, financed by a World Bank loan, is aimed at providing support in the process of quality assurance of project activities related to environmental protection. Based on this process, the Bank will guide the client, in this case the Ministry of the Sea, Transport and Infrastructure (MSTI) and the participating public companies Hrvatske željeznice Cargo d.o.o. (HZ Cargo), Hrvatske željeznice Infrastruktura d.o.o. (HZ Infrastructure), Hrvatske željeznice putnički promet d.o.o. (HZ Passenger Transport), through environmental protection procedures, processes and documents that form an integral part of World Bank procedures.

The EMF document for the SUCRE project includes all project components and subcomponents, but the primary focus of SUCRE EMF is on the following components:

Component 2: Support to HZ Passenger Transport Restructuring

Component 3: Support to HZ Cargo Restructuring

Component 4: Support to HZ Infrastructure Restructuring and Enabling investment to increase the system efficiency

Component 4 is in part related to the financing of already ongoing activities requiring an approach that will differ from the usual drafting of the Environmental Management Plan or EMP Checklist, detailed hereafter.

2 PROJECT OBJECTIVE AND COMPONENTS

The **Project Development Objective (PDO)** is to improve service and financial sustainability of the public rail sector.

The project comprises four components:

Component 1: Project Coordination and Sector Policy Support

The objective of this component would be to assist the MMATI in its coordinating role for the project, in the sector reform monitoring and in improving the use of public subsidies allocated to public service. It could comprise the following sub-components**:**

1.1 **Asset Management (EUR 1 million).** Support to MMATI and the companies in finalizing asset management separation between all companies and clarifying the legal status of the main assets through technical assistance and several ancillary services to facilitate assets transfers (mapping, valuation, asset registry).

1.2 **Assistance to the MMATI in project coordination and sector Policy (EUR 1.6 million)** including sector reform monitoring and definition of railway services obligations with HZP (Public Service Obligation) and HZI, and the review of the railway sector development strategy once the national transport strategy prepared with EU Funds is completed in 2016. This would allow to have a fully updated contractual framework with operators in 2017. This may also include support to oversight of operations improvements in HZI and HZP.

Component 2: Support to HZ Passenger Transport Restructuring

The objective of this component is to support HZP in improving its operations efficiency in order to deliver better services in a financially sustainable way. This would include actions on the cost structure (labor, fleet condition) and on its organization (IT improvements, preparation of a logistics center). It would include the following subcomponents:

2.1 **Retrenchment**. Retroactive financing of eligible severance payments made after May 15, 2014, and financing of the implementation of HZP's retrenchment plan for 2015-2018 for a total of EUR 16.1 million (including EUR 4.6 million of retroactive financing). This would include financing retrenchment in some of HZP's subsidiaries which are undergoing restructuring. Support services for retraining and enhancing opportunities for finding alternative employment, including counseling and advisory support and employment intermediation could also be financed under the project.

2.2 **Investment to contribute to the restructuring plan of HZP.** This comprises three main categories of investment:

(i) **Rehabilitation of rolling stock to improve efficiency of the fleet (EUR 23.6 million including EUR 14.1 million WB financing).** The state also subsidizes this activity and the financing of the company's periodic maintenance program would be coordinated between the state and the project especially for the activities for which the use of subsidiaries may be required, such as wagons and diesel locomotive rehabilitation;

(ii) **IT modernization and integration (EUR 10.1 million)**. Including fleet management system, ticketing and commercial management system, and finalization of separation from the HZI IT platform which inherited the systems previously managed by HZ Holding;

(iii) **Studies** and implementation of measures recommended to adapt business processes to reorganized operations (logistics center) and improve energy efficiency of operations (EUR 2.6 million).

Component 3: Support to HZ Cargo restructuring

The objective of this component is to support HZC in improving its operations efficiency in order to deliver better services in a financially sustainable way. This would include actions on the cost structure (labor, fleet condition) and on its organization (IT improvements). It would include the following subcomponents:

3.1 **Retrenchment.** Retroactive financing of eligible severance payments made after May 15, 2014, and financing of the implementation of HZC's retrenchment plan for 2015-2017 for a total of EUR 23.1 million (including EUR 10.6 million retroactive). Support services for retraining and enhancing opportunities for finding alternative employment, including counseling and advisory support and employment intermediation could also be financed under the project.

3.2 **Investment to contribute to the restructuring plan of HZC as presented to the European Commission (EUR 23.9 million, WB contribution 17.8).** This comprises two main categories of investment:

(i) **Periodic maintenance of rolling stock to improve efficiency of the fleet.** For some activities the use of subsidiaries or specific companies may be required and procurement methods would be adjusted and minor financing of already commenced works may be included;

(ii) **IT modernization and integration.** Including fleet management system, commercial management system, and finalization of separation from the HZ Infrastructure IT platform.

Component 4: Support to HZ Infrastructure Restructuring and Enabling investment to increase the system efficiency

The objective of this component is twofold: (i) to support HZI in improving its capacity and reliability in order to deliver better services, and (ii) to restore the physical infrastructure's condition and safety. This would include actions on the cost structure (labor) and financing (including financing already commenced works) of emergency rehabilitations or safety measures, as well as studies to improve network efficiency. It would include the following subcomponents:

4.1. **Retrenchment.** This subcomponent consists of (i) financing retroactively eligible severance payments that were made before May 15, 2014 and (ii) financing the implementation of HZI's retrenchment plan for 2015-2019. Support services for retraining and enhancing opportunities for finding alternative

employment, including counseling and advisory support and employment intermediation could also be financed under the project. The retrenchment component amounts for a total of EUR 13.6 million.

4.2. **Railway Safety Crossings program.** The first tranche of the HZI 10 year plan for the installation of railway safety crossings is based on a prioritization criteria prepared with support from the Bank. The tranche includes rail and road traffic as well as past records of serious accidents. This would include financing of a EUR 2 million existing contract (including financing already commenced works of EUR 1 million) and a new contract of EUR 8.7 million for the 2015-2016 program.

4.3. **Other Rail Safety Investment**. The Project would finance improvement of structures which currently represent a safety risk and the reinforcement of areas prone to landslides or rock falls. The safety improvements will also result in faster and more reliable train operations along the network.

4.3.1 **Cuts and slope reinforcement** on the corridor Vb around Rijeka, which were identified following serious incidents and are required urgently and before the completion of the TEN T network upgrading (which is beyond 2021). The reinforcement will reduce the track maintenance costs deriving from regular inspection missions, ballast and drainage cleaning. The total cost of the subcomponent is EUR 4.6 million;

4.3.2 **Emergency bridges reconstruction** on corridor Vb, which not only pose significant safety threat, but also restrict the operational speed and capacity of trains due to poor condition of steel structures and beds. These rehabilitations are urgently required and they cannot wait until 2021, which is the likely date for upgrading as part of the TEN-T network. The total cost of the subcomponent is EUR 2.2 million.

4.4. **Emergency infrastructure investments to bring back some lines to acceptable operating standards and small capacity improvements.** The component consists in financing emergency rehabilitation works along sections which are not going to receive EU funds under the 2014-2020 programming period, yet should be prioritized based on their levels of traffic, status (priority is given to international corridors) and the condition of the infrastructure. It will mostly consist of rehabilitation of track and electrical systems along international corridors. It will include financing of already commenced works for part of electrical systems renewed in 2014-2015. Those limited investments are however expected to substantially increase the network capacity and operations speed.

4.4.1. **Track rehabilitation along Ogulin-Moravice section.** The rehabilitation started in 2014 and is expected to be completed in 2015. It works are located along the Zagreb-Rijeka section of the corridor Vb. The total cost of this subcomponent is EUR 7.3 million, including EUR 3.8 million financing of already commenced works;

4.4.2. **Signaling upgrade between Moravice and Rijeka,** which**,** started in 2014 and is expected to be completed in 2015. It is carried out in parallel with the above-mentioned rehabilitation (part of the Zagreb-Rijeka section of the corridor Vb). The total cost of this subcomponent is EUR 5.9 million, including EUR 3.5 financing of already commenced works;

4.4.3. **Rehabilitation of the Varazdin-Cakovec line,** which is one of the high priority regional lines having significant passenger traffic as many as 45 trains per day. Rehabilitation will improve the current speed restriction at Varazdin station on the line and secure Cakovec station from closure (as the condition is close to complete deterioration). The total cost of this subcomponent is EUR 13.2 million;

4.4.4. **Replacement of switches, electrical, and support systems (for safety and signaling) on international and national corridors.** This includes the immediate replacement of worn-out

structures, whose either economic life has passed over (their ages are comprised between 30 and 40 year old) or spare parts have become unavailable, such as for IT and telecommunication systems. The total cost of this subcomponent is EUR 14.1 million, including EUR 3 million financing of already commenced works;

4.4.5. **Construction/improvement at Stations/Stops.** One particular project under this component is cargo handling capacity expansion at station Rijeka-Brajdica. It will help increase the railways share in cargo traffic coming to Rijeka port and transiting beyond the borders. This is a complement to the investment prepared under the Rijeka II Gateway Project. Another project, construction of a new stop at Borongaj university campus (Zagreb's suburb) aims at increasing the usage of railways and support daily access to students. It will also help reduce congestions on roads within Zagreb greater area. This subcomponent also includes other improvements at select stations. EUR 4.6 million is the total cost, EUR 2 million of which is financing of already commenced works.

Payment of the first part of the loan is planned for 2016 as part of the ten-year plan for establishing safe railroad crossings in Croatia. Selection shall be based on prioritization criteria including the relevance of rail corridor, importance of the road and road crossing, number of recorded severe incidents, technical conditions, etc.

Areas for urgent rehabilitation in parts that will not be co-financed by EU funds within the 2014-2020 period will be selected based on prioritization criteria including the turnover, status (priority being given to international corridors) and condition of the infrastructure.

2.1 DETAILED DESCRIPTION OF INFRASTRUCTURAL COMPONENTS

2.1.1 HZ PASSENGER TRANSPORT – VEHICLE REPAIR

During their exploitation, railbound vehicles are maintained according to the legally prescribed maintenance schedules. These are defined based on time periods and on operational criteria that include hours of work or kilometres travelled between two maintenance cycles. Maintenance cycles are prescribed in the Railway Safety and Interoperability Act (OG 82/13, 8/15), and the pertaining by-laws.

Upon the passage of the legal deadline of 6 to 8 years, the railway undertaking and rail car owner must perform regular maintenance or check on their passenger vehicles. Traction units shall undergo the same procedure after 12 years of operation or after having travelled a defined number of kilometres.

In addition to regular and obligatory maintenance, due to the time spent in transportation, the conditions of exploitation and the elapsed period of time since the last regular maintenance, or check, vehicles shall undergo modernization. Vehicle modernization means upgrading to the level of currently applicable technical solutions, raising service and comfort levels and improving work conditions.

Furthermore, during exploitation it is necessary to replace crucial parts that can no longer be used in vehicles (damaged wheelsets, elements in the bogies and suspension systems), to revitalize the vehicle powertrain (main engines and power transmitters) and replace obsolete and environmentally unacceptable vehicle systems (multi-systemic Freon cooled transducers, air conditioning systems).

Regular maintenance or repair work is carried out by authorized factories and repair shops possessing the required knowledge and skills, i.e. the necessary staff, tools and facilities as well as traceable technical documentation. The certification of maintenance undertakings is laid down in the Ordinance on the conditions that legal and natural persons that perform authorized rail vehicle maintenance must meet (OG 99/11).

Regular maintenance is followed by a thorough inspection and testing of the electric locomotive while stationary and in motion, and re-commissioning by an authorized representative.

Passenger Rolling Stock

Description of works for passenger rolling stock regular maintenance and modernization

Regular medium maintenance of passenger cars is performed after the expiration of one of the criteria for medium maintenance set out in the Instruction on HZPT railway passenger car maintenance. Regular maintenance includes the following:

- Lifting and untying the passenger vehicle body from the bogies
- Dissembling the bogies to sets, inspection and replacement and worn bogie parts. Measuring bogie frame and base and comparing these to measurement lists, servicing and repair of hydraulic shock absorbers, sand blasting and testing of bogie coils. Assembling the bogie, performing adjustments and measurements under a bogie test press. Delivering a test and measurements list pursuant to the Quality Assurance Plan.
- Inspection of bogies, turning and alignment of brake surfaces, ultrasound axle testing. If necessary, replace elements and parts inadequate for further use.
- Traction and bumper/reflector devices must be dismantled, all elements inspected, serviced and tested.
- Perform second break check (BC2), remove all air brake parts and assemblies from vehicle body (position transmitter, brake cylinders, brake equipment cases, pressurized vessels – reservoirs), perform brake check by replacing rubber elements and all mechanical parts exposed to wear and tear. Following this replacement, all devices shall be tested by a verified tester on a certified test machine, and test and measurements lists shall be delivered pursuant to the Quality Assurance Plan (QAP).
- Inspect and service operation reliability of entrance doors, control devices for door blocks, automatic door shutting and opening, and safety from injury by squashing.
- Inspect and service electricity supply devices (generators and multi-systemic static transducers), service electric heating devices and heating installations, service the air-conditioning system, test and align the thermostat and check heat insulation on the heating channel.
- Perform accumulator battery capacity testing, test high-voltage installations, test electrical installations for lighting, sound and, in vehicles with fire alarms, test gas installations and control systems.
- Check the functioning of internal equipment: seating mechanisms, beds, tables, armrests, worn out passenger seats, backrests, headrests and beds – these are upholstered with new fabric or if necessary refurbished with new stuffing. Fire-extinguishers are tested and if necessary replaced.
- Windows are serviced and adjusted, window panes replaced and toilet facilities refurbished
- Inspection and if necessary repair of external vehicle walls, and repainting of the vehicles and signs on the vehicles.

Regular maintenance is followed by final testing and a test drive of the passenger car, as well as a review of all delivered measurement lists in line with the QAP.

Passenger car modernization

Back in the 1990s static transducers were built into some air-conditioned passenger vehicles. Failures are often recorded on such static transducers during operation, but failure removal is made difficult since existing static transducers are manufactured using obsolete technology – in other words, it is becoming increasingly difficult to obtain spare parts. It is therefore necessary that all static transducers be replaced with the new ones. During the procedure, a new suspension must be made for the passenger vehicle body in order to couple it with the new static transducer, and all remaining electrical components built in the vehicle must be adapted (central electricity box with diagnostics, A/C, etc.).

Crucial parts replacement

The need for replacement of crucial parts arises during the usual passenger car maintenance. This mainly refers to the replacement of wheelset elements: monoblock wheels, brake discs, axel shaft, accumulator batteries, electrical equipment and heating system replacement.

Traction Vehicle – DMV 7 121, DMV 7122

Description of traction vehicles DMV 7 121, DMV 7 122 regular maintenance and modernization works

Regular maintenance includes the dismantiling of DMV-s to assemblies and parts in order to establish their technical condition and wear. The vehicle body and frame of the DMV vehicle are thouroughly protected against rust with partial and comprehensive sand blasting. Bogies are disassembled, their condition established and anti-corrosive protection applied, after which spare parts and rubber-metal elements are replaced.

The drive train consisting of Diesel motor – hydraulic transmitter – axel transmitter is dissembled, larger components are inspected for wear and spare parts are replaced with new ones. Pistons, rings and piston skirts must be replaced on all diesel engines. Other major components are replaced if needed. All sealing material and spare parts are replaced. Diesel engine coolers are removed and their condition is checked. Hydraulic transmitters are dissembled, if necessary the turbine is replaced, while all bearings and sealing material must be replaced. Axel transmitters are dissembled and worn gear, bearings and seals must be replaced. Universal cross joints on driveshafts must be replaced and re-balancing performed.

Parts of the braking system (driver brake valves, distributors, position transmitters, valves, manometers) are removed and fully serviced, which includes mandatory replacement of rubber parts and all mechanical parts exposed to wear and tear (springs, pistons, cylinders, mats). Damaged air installations in the vehicle are repaired or replaced.

The interior of passenger compartments is refurbished – damaged wall panels are replaced and painted. Worn, damaged or missing parts of the interior (lamps, hand rests, hangers, luggage racks) are replaced with new ones. Passenger seats are upholstered with new fabric, and passenger compartment windows are removed, repaired, remounted and sealed. The floor must be taken out in order to remove corrosion and replace or repair electric and air lines.

In order to increase the operational reliability of the train's electric system, parts of the electric installation will be replaced or repaired during regular maintenance, when the need arises. Fuses and relays shall mostly be replaced with new ones. New electric motors for ventilation are installed in the passenger compartment heating system.

Modernization works include changes in DMVs that lead to exploitation and/or maintenance costs reduction, elevated level of services provided by HZ Passenger Transport (HZPT) and safety levels and conditions in which engine staff work, which usually means building new, more comfortable passenger seats, putting up air-conditioning systems, installing metallic window panes, introducing IT systems and modifying and building new, more reliable assemblies. Trains that are not equipped with automatic train protection systems will be adequately equipped and a new registration device installed.

After regular maintenance, the DMV will be finally tested in motion and while stationary.

Electric Motor Vehicles (EMV) 6 111

Description of works on regular maintenance and modernization of electric motor train EMV 6 111

Regular maintenance includes dissembling the EMV to sets and parts in order to determine their technical condition and wear. The vehicle body and frame of an EMV are thoroughly protected against corrosion with

partial and full sand blasting. Bogies are disassembled, their condition established and anti-corrosive protection applied, after which spare parts and rubber-metal elements are replaced.

Periodic maintenance of the drive train consisting of the main transformer-traction motors is performed with the aim of reducing EMV immobilization. Parts are removed, dismantled, major components are analysed for wear and spare parts are replaced with new ones. Other major components are replaced if needed. All bearings and sealing material must be replaced. Axel transmitters are dissembled and worn gear, bearings and seals must be replaced. Main transformer coolers are dismantled and checked. Transformers do not contain PCB. Traction motors are tested and gear unit bearings and seals are replaced. The gear unit is dismantled and all wasted gears, bearings and seals must be replaced.

Parts of the braking system (driver's brake valves, distributors, position transmitters, valves, manometers) are removed and fully serviced, which includes the mandatory replacement of rubber parts and all mechanical parts exposed to wear and tear (springs, pistons, cylinders, mats). Damaged air installations are repaired or replaced.

The interior of passenger compartments is refurbished – damaged wall panels are replaced and painted. Worn, damaged or missing parts of the interior (lamps, hand rests, hangers, luggage racks) are replaced with new ones. Passenger seats are upholstered with new fabric, and passenger compartment windows are removed, repaired, remounted and sealed. The floor must be taken out in order to remove corrosion and replace or repair electric and air lines.

In order to increase the operational reliability of the train's electric system, parts of electric installations and electronic operation cards will be replaced or repaired during regular maintenance, when the need arises. Fuses and relays shall mostly be replaced with new ones. New electric motors for ventilation are installed in the passenger compartment heating system and ventilation systems in the passenger compartments completely renewed.

Modernization works include changes in EMVs that lead to exploitation and/or maintenance costs reduction, changes that raise the level of services provided by HZ Passenger Transport (HZPT) and safety levels and improve working conditions for engine staff, which usually means building new, more comfortable passenger seats, putting up air-conditioning systems, installing metallic window panes, introducing IT systems, introducing new head-end lights, installing a new registration device and remodelling and installation of new, more reliable assemblies.

After regular maintenance, the EMV will be thoroughly tested in motion and while stationary.

Electric Locomotive (ELLOK) 1 142

Description of works on regular maintenance and modernization of electric locomotive 1 142

Regular maintenance includes dissembling the ELLOK to assemblies and parts in order to determine their technical condition and wear. The vehicle body and frame of an ELLOK are thoroughly protected against corrosion with partial and full sand blasting. Bogies are dissembled, their condition established and anti-corrosive protection applied, after which spare parts and rubber-metal elements are replaced.

Periodic maintenance of the drive train consisting of the main transformer-traction motor is performed with the aim of reducing ELLOK immobilization. Parts are removed, dissembled, larger components are analysed for wear and spare parts are replaced with new ones. Other major components are replaced if needed. All bearings and sealing material must be replaced. Main transformer coolers are dismantled and checked. Transformers do not contain PCB. Traction motors are tested and bearings replaced. The gear unit is dismantled and all wasted gears, bearings and seals must be replaced. The drive train cooling system is removed, cleaned and its worn parts replaced. If necessary, worn parts of the electric motor in the ventilator are replaced and the ventilator is re-balanced.

Parts of the braking system (driver brake valves, distributors, position transmitters, valves, manometers) are removed and fully serviced, which includes mandatory replacement of rubber parts and all mechanical parts

exposed to wear and tear (springs, pistons, cylinders, mats). Damaged air installations in the vehicle are repaired or replaced. The braking system may contain asbestos.

In order to improve the operational reliability of the electric system in the locomotive, parts of electric installations and electronic operation cards will be replaced or repaired during regular maintenance, depending on the need. Fuses and relays shall mostly be replaced with new ones.

Modernization works include modifications in ELLOKs that lead to exploitation and/or maintenance costs reduction, changes that raise the level of services provided by HZ Passenger Transport (HZPT) and safety levels and improve working conditions for engine staff, putting up air-conditioning systems in the train operator room, new speed indicators and new, more reliable assemblies.

2.1.2 HZ CARGO – LOCOMOTIVE REPAIR

Locomotive maintenance is laid down in the Ordinance on the conditions for the maintenance of railway vehicles (OG 141/09) and the internal Instructions for the maintenance of traction vehicles.

Following the expiration of the legal deadline, after 12 years of exploitation or after having travelled a defined number of kilometres, regular periodic maintenance must be performed on the locomotives by the railway undertaking.

In addition to regular and obligatory maintenance, due to the time spent in transportation, the conditions of exploitation and the elapsed period of time since last regular maintenance, locomotives shall undergo not only regular maintenance, which is obligatory, but modernization as well. Vehicle modernization means upgrading to the level of the currently applicable technical solutions, raising service and comfort levels and improving work conditions.

Furthermore, during exploitation it is necessary to replace crucial parts that can technically no longer be built into locomotives (damaged wheelsets, elements in the bogies and suspension systems), to revitalize the vehicle powertrain (main engines and power transmitters) and replace obsolete and environmentally unacceptable locomotive systems (air conditioning in train operator rooms).

This loan has been intended for the repair of a total of seventeen locomotives, during (i) medium periodic maintenance on:

- two (2) electric locomotives series 1141,
- five (5) diesel locomotives series 2062, and

(ii) major periodic maintenance on

- seven (7) electric locomotives series 1141,
- one (1) diesel shunter series 2041,
- two (2) shunter series 2132.

Diesel Hydraulic Locomotive (DHL) 2 132

Description of regular maintenance and repair works

Regular maintenance includes dissembling the DHLs to assemblies and parts in order to determine their technical condition and wear. The vehicle body and frame of a DHL are thoroughly protected against corrosion with partial and full sand blasting. Bogies are dissembled, their condition established, anti-corrosive protection applied, and spare parts and rubber-metal elements replaced.

The drive train consisting of Diesel motor – hydraulic transmitter – axel transmitter is dissembled, larger components are inspected for wear and spare parts are replaced with new ones. Pistons, rings and piston skirts must be replaced on all diesel engines or entire engines replaced with new generation diesel engines. Other

major components are replaced if needed. All sealing material and spare parts are replaced. Diesel engine coolers are removed and their condition is checked. Hydraulic transmitters are dissembled, if necessary the turbine is replaced, while all bearings and sealing material must be replaced. Axel transmitters are dissembled and worn gear, bearings and seals must be replaced. Universal cross joints on the driveshaft must be replaced and re-balancing must be performed.

Parts of the braking system (driver brake valves, distributors, position transmitters, valves, manometers) are removed and fully serviced, which includes mandatory replacement of rubber parts and mechanical parts exposed to wear and tear (springs, pistons, cylinders, mats). Damaged air installations are repaired or replaced.

The interior of the locomotive driver workplace is refurbished – damaged wall panels are replaced and painted. Worn, damaged or missing parts of the interior (lamps, control panel, chairs) are replaced with new ones. The workstation in the existing train operator room is not ergonomic and does not meet the current regulations, posing a major threat to safe train operation as well. The floor of the room must be taken out in order to remove corrosion and replace or repair electric and air lines.

In order to increase operational reliability of the electric system, parts of electric installations will be replaced or repaired during regular maintenance, depending on the need. Fuses and relays shall mostly be replaced with new ones.

Modernization: the main objective behind the re-motorization, reconstruction and modernization of locomotives is to extend their "lifecycle" for another 25-30 years during which they would be used for shunting - efficiently, reliably and with low exploitation and maintenance costs.

By installing new, cutting-edge equipment, these railroad locomotives would equal modern shunters from the technical, technological, environmental, safety, ergonomic and economic point of view.

Modernization includes changes in DHLs that lead to exploitation and/or maintenance costs reduction, improvements of HZ Cargo services and safety levels and conditions in which engine staff work, which usually means putting up air-conditioning systems, installing metallic window panes, introducing IT systems and modification and installation of new, more reliable assemblies. Locomotives that are not equipped with automatic train protection systems will be adequately equipped and a new registration device installed.

After regular maintenance, DHLs will be thoroughly tested in motion and while stationary and taken over by an authorized HZ Cargo representative.

Diesel Electric Locomotive (DEL) 2 041, (DEL) 2 062

Regular maintenance includes dissembling the DEL to assemblies and parts in order to determine their technical condition and wear. The vehicle body and frame of a DEL are thoroughly protected against corrosion with partial and overall sand blasting. Bogies are dissembled, their condition established, anti-corrosive protection applied, and spare parts and rubber-metal elements replaced.

The Diesel engine is obsolete and does not meet the basic requirements that today apply to the drive train of traction vehicles, and various auxiliary devices (compressor, wipers, heaters, air equipment, controllers) are also obsolete and no spare parts are available on the market.

The drive train consisting of Diesel motor – main generator – drive motor – axel transmitter is dissembled, larger components are inspected for wear and spare parts are replaced with new ones. Pistons, rings and piston skirts must be replaced on all diesel engines or entire engines replaced with new generation diesel engines. Other major components are replaced if needed. All sealing material and spare parts are replaced. Diesel engine coolers are removed and their condition is checked. Hydraulic transmitters are dissembled, if necessary the turbine is replaced, while all bearings and sealing material must be replaced.

Parts of the braking system (driver brake valves, distributors, position transmitters, valves, manometers) are removed and fully serviced, which includes mandatory replacement of rubber parts and all mechanical parts

exposed to wear and tear (springs, pistons, cylinders, mats). Damaged air installations are repaired or replaced.

The interior of the locomotive driver workplace is refurbished – damaged wall panels are replaced and painted. Worn, damaged or missing parts of the interior (lamps, control panel, chairs) are replaced with new ones. The workstation in the existing train operator room is not ergonomic and fails to meet the requirements laid down in the current regulations, thus also posing a major threat to driving. The floor of the interior must be taken out in order to remove corrosion and replace or repair electric and air lines.

In order to increase electric system operational reliability, electric installations will be partly replaced or repaired during regular maintenance, depending on the need. Fuses and relays shall mostly be replaced with new ones.

Modernization: the main objective behind the re-motorization, reconstruction and modernization of these locomotives is to extend their "lifecycle" for another 25-30 years during which they would be used for heavy shunting - efficiently, reliably and with low exploitation and maintenance costs.

By installing new, cutting-edge equipment, these railroad locomotives would be in line with modern shunters from the technical, technological, environmental, safety, ergonomic and economic point of view.

Modernization includes changes in DELs that lead to exploitation and/or maintenance costs reduction, to improvements of HZ Cargo services and safety levels and conditions in which engine staff work, which usually means putting up air-conditioning systems, installing metallic window panes, introducing IT systems and modification and installation of new, more reliable assemblies. Locomotives that are not equipped with automatic train protection systems will be adequately equipped and a new registration device installed.

After regular maintenance, DELs will be thoroughly tested in motion and while stationary and taken over by an authorized HZ Cargo representative.

Electric locomotive (ELLOK) 1 141

Regular maintenance includes dissembling the ELLOK to assemblies and parts in order to determine their technical condition and wear. The vehicle body and frame of an ELLOK are thoroughly protected against corrosion with partial and full sand blasting. Bogies are dissembled, their condition established and anti-corrosive protection applied, after which spare parts and rubber-metal elements are replaced.

Major periodic maintenance of the drive train, main transformer-traction motors, is performed with the aim of reducing ELLOK immobilization. Parts are removed, dissembled, larger components are analysed for wear and spare parts are replaced with new ones. Other major components are replaced if needed. All seals and spare parts must be replaced. Main transformer coolers are dismantled and checked. Transformers do not contain PCB. Traction motors are tested and bearings replaced. The gear unit is dismantled and all wasted gears, bearings and seals must be replaced. The drive train cooling system is removed, cleaned and its worn parts replaced. If necessary, worn out parts of the electric motor in the ventilator motor are replaced and the ventilator is re-balanced.

Parts of the braking system (driver brake valves, distributors, position transmitters, valves, manometers) are removed and fully serviced, which includes mandatory replacement of rubber parts and all mechanical parts exposed to wear and tear (springs, pistons, cylinders, mats). Damaged air installations are repaired or replaced.

In order to increase the locomotive's electric system operational reliability, parts of electric installations and electronic operation cards will be replaced or repaired during regular maintenance, depending on the need. Fuses and relays shall mostly be replaced with new ones.

Modernization: the main objective behind the re-motorization, reconstruction and modernization of these locomotives is to extend their "lifecycle" for another 25-30 years during which they would be used for cargo traction - efficiently, reliably and with low exploitation and maintenance costs.

By installing new, cutting-edge equipment, these railroad locomotives would be in line with modern shunters from the technical, technological, environmental, safety, ergonomic and economic point of view.

Modernization includes changes in ELLOKs that will lead to exploitation and/or maintenance costs reduction, to improvements of HZ Cargo services and safety levels and working conditions for engine staff, which usually means putting up air-conditioning systems in the train operator room, new speed indicators and installation of new, more reliable assemblies.

Regular repair work is carried out by authorized factories and repair shops possessing the required knowledge and skills, i.e. the necessary staff, tools and facilities as well as traceable technical documentation. The Ordinance on the conditions that legal and natural persons that perform authorized rail vehicle maintenance must meet (OG 99/11) lays down the certification for maintenance undertakings.

After regular maintenance, electric locomotives will be thoroughly tested in motion and while stationary and taken over by an authorized HZ Cargo representative.

2.1.3 HZ INFRASTRUCTURE – EMERGENCY INFRASTRUCTURE INVESTMENT, RAILWAY SAFETY CROSSING PROGRAMME AND OTHER RAIL SAFETY INVESTMENT

Infrastructure investments and safety investments are covered by Component 4 of the project and include a number of subprojects aimed at improving the safety and the level of services provided by the loan beneficiary, in this case HZI. At this stage of project preparation, the list of supported activities is only tentative, i.e. decision on the exact activities to be supported has not been made.

Depending on the type of activity, investments can include:

(i) Cuts and slope reinforcmentWorks on the renewal and remediation of cuts include:

- ensuring overall stability by using the ground (geotechnical) anchors. Anchors are installed in order to achieve sufficient stability of retaining walls and protect form shear and tensile forces. Anti-corrosive coating shall be applied on all elements.

- ensuring stability with a supporting protective net. This type of slope protection is applied on cuttings where falling out of larger blocks of rocks is expected and would interfere with road slope geometry and traffic safety.

- ensuring block stability with a protective net in order to direct landlides, while applying cable or spiral wire mesh reinforcement. Galvanized wire meshes of enhanced tensile strength are planned to be installed to catch chippings. The mesh is additionally reinforced or is to be reinforced with a spiral mesh made of steel wires. All unstable blocks of the rock must be removed prior to safety net installation.

(ii) Remediation of tunnels

According to the planned methodology, the remediation project includes the following analyses and works:

- Determination of defect types,
- Determination of rock block characteristics and categorization according to GSI[1] classification,
- Measures for the rehabilitation of every type of damage,
- Telecommunication cables protection and displacement during and after rehabilitation works,
- Activities aimed at rehabilitating the entrance portal area.

[1] Geological Strength Index

Tunnel remediation includes solutions that must be applied throughout the tunnel and those that are applied only locally: (a) leachate water drainage – throughout the tunnel (further explained in chapter 2.1.3), (b) surface re-profiling with reinforced slurry mix concrete – throughout the tunnel, (c) remediation of rock and surface lining contact points, (d) grouting – throughout the tunnel, (e) remediation of unstable rock lining areas – locally, (f) remediation of holes behind the rock lining – locally, and (g) other works such as the protection of cables, remediation of the exit tunnel portal.

(iii) Construction of train stops and pedestrian flyovers

Construction of train stops and pedestrian flyovers includes civil engineering works necessary to build platforms, pedestrian flyovers (in some cases) spanning the whole railway station, access points and paths (with entrances and exits), fire escapes, pedestrian paths and other minor construction works. These may include land clearing works.

(iv) Track rehabilitation

Prior to any works, land around the trackbed must be cleared from bushes and other obstacles, from the foot of the embankment up to 7 meters in width, where there is enough railway land. Diggings are performed up to 100 cm verticaly measuring from the surface top of sleepers.

Since the trackbed is not always wide enough, works on ensuring additional embankment width must be performed. Existing ballast prism (broken stone) and part of the ground is to be removed with the track renewal train until reaching the level of the new ballast base. Removal of the soil beneath and beyond the railway tracks can be conducted with various machinery : (i) rail machinery such as AHM machine or (ii) machinery that will be transported by road e.g. bagger. The use of machinery depends on work design; in the case AHM machine is used it is very difficult to separately remove top layer of soil, used aggregate and deeper layers of soil. In addition, some locations are not accessible by road and AHM remains the only option.

A new layer of broken stone is to be built onto the consolidated material in order to get at least 30 cm of ballast underneath the lower edge of the sleeper. When necessary, old aggregate will be removed, sent for analysis and disposed of in line with the results of the analysis and HZI's internal ordinance. Depending on the state of aggregate stone material, removed layers will be either crushed and used as tampon/consolidated material for tracks (excess material taken to temporary depot) or it will be taken to temporary depot while tampon material will be separatelly purchased. Material from the temporary depot is sold or donated to various users such as firefighters (using removed soil and aggregate mix for making fire-protecting corridors) or forestry departments (using the mix for forest trails and other purposes). The remaining dug-out material shall be transported to a permanent, licensed, landfill by licensed companies depending on the contamination level of the mix.

On parts of the track necessitating a wider embankment, existing slopes must be cleared of bushes and obstacles and about 15 cm of humus must be dug out. After that, steps shall be cut into the slopes in order to prepare them for the new embankment with a predefined width and grade (trackbed expansion). New materials shall be used for trackbed (embankment) expansion. The new embankment side slopes shall be protected with at least 20 cm of humus and sewn with grass. Adequate protection from rocks that could slide off of unprotected cuttings should be places at the most critical cutting points along the railway.

Drainage structures are constructed in accordance with the catchment area surfaces and in line with precipitation levels and flood flows, based on hydrological and hydraulic calculations. Railway drainage

system must be modified and harmonized with the regional channelling system of Croatian Waters (Hrvatske vode) company.

The existing tracks on wooden sleepers are replaced with new ones, also on wooden sleepers. Existing railroad switches at railway stations are replaced with new ones on wooden sleepers. During the works, the track will be welded into a long track. The long track must be secured to constrain longitudinal movements with rail anti-slip/slide devices ("Mathe"), while the location must be secured from moving sideways with pertaining devices preventing sideways movement of the rail track.

Support buildings, lining walls and grade lining are to be performed only where the implementation of such additional measures on the railway are required.

(v) Renewal of the electrified track section

This operation includes the renewal (comprehensive repair) of railway substructure and superstructure, harmonization of signalling and telecommunications devices and contact network harmonization.

As part of the operation, a part of the railway track will be improved to bear greater loads and higher infrastructural speeds with local limitations due to geometric elements at locations where the required speed cannot be achieved, including:

- New track laying (replacement), replacement of worn out sleepers with prestressed concrete sleepers with elastic pads fitted inside the rock ballast and removal of all aggregate material. Another track line could also be laid.
- Renewal of main transfer track and railroad switches on transfer tracks with rails on prestressed sleepers. Construction of at least 30 cm of consolidation layer is also planned. The project foresees the full renewal of rail ditches, remediation of bridges, culverts, replacement of culverts with new ones, remediation of road and pedestrian subways (underpasses), and construction of synthetic level crossings on five railway road crossings, replacement of existing platforms and facilities with new ones.
- Complete restructuring of the contact network as well as replacement of used up parts of the signalling and traffic monitoring infrastructural subsystem will take place as a part of the electrical infrastructural subsystem renewal (detailed under section 3.1.2).

(vi) Reconstruction of sectioning facilities with neutral sections

These facilities are usually placed in a two-storey buildingabout 40-50 m^2 of size. The first floor of the building contains a 25 kV cell for the house transformer and on the second floor there are seven cells for switch gear and measuring devices.

After reconstruction, the facilities will remain of the same size and design but will be better equipped and have a one line diagram. Its functionality will differ in that according to the original design, the facility had undervoltage protection. With the new design, it will have distance protection of the contact network, enabling the parallel work of the neighbouring railway lines contact networks.

In the operational phase these facilities do not produce emissions or other adverse environmental impacts.Facility reconstruction includes:

- Reconstruction of the slanted roofs, façade renewal, complete internal redecoration and new layout, new doors and windows, testing and recovery of the power transformers oil pits, site rehabilitation . No oils present in the equipment contains PCBs.

- 25 kV medium voltage facility (total cell renewal, door and cabinet replacement, new 25 kV equipment),
- New secondary facility: management, protection, signalization and measurements,
- Control and signalization of the position of the contact network disconnector
- New power supply systems with auxiliary voltage: 230 V (AC) and 110 V (DC),
- Electrical installations and lightning conductor,
- Remote control of the facility from Remote Control Centers
- Preparation of documentation on works performed, testing and commissioning,
- Putting up a fencewhere needed.

No waste is created during normal operation of the facility. Anticorrosion protection is not performed on site.

Noise protection will have been granted with the equipment and devices installed, and these are all static, except for the disconnector and the switch. Noise is produced by the humming that is heard during the operation of the transformer during own consumption and during the connection and disconnection of the disconnector, which is far below the legal limit. The noise that occurs during the shorting ("make") and the disconnection ("break") of the switches, located in the facility building, is short (several tens of milliseconds) and is not heard outside the facility.

There is no ionizing radiation or nuclear material inside the sectioning facility.

The technological process does not include the use of any dangerous chemical. The boiler of the local transformer is filled with around 115 kg of transformer oil. A leak-proof oil pit for the collection of any residue oil from the transformer will be built beneath the transformer, preventing leakage into the environment. Oil from the oil pit will be disposed of by the contractor pursuant to the Contract and the legal regulations, proof of which shall be delivered to the investor in writing as prescribed by the law.

Following the completion of works, the contractor shall deliver to the investor all evidence on due disposal of waste generated during construction and assembly.

In addition to that, the contractor shall remove all tools, machinery and temporary buildings and take care of physical planning and the environment according to the project design.

Some of the locations for sectioning facilities that HZI is considering for financing are:
SFN2 ŽITNJAK – The sectioning facility with neutral section on double-track railway line (SFN2) 25 kV Žitnjak has been in operation since 26th June 1972. The facility is a border facility between traction current converter plants (traction substations) 110/25 kV Resnik and Mraclin.
SFN2 IVANKOVO – This sectioning facility with neutral section on a double-track railway line (SFN2) 25 kV Ivankovo has been in operation since 5th May 1971. It is a borderline facility between traction substations 110/25 kV Andrijevci and Jankovci.
SFN2 SIBINJ - This sectioning facility with neutral section on a double-track railway line (SFN2) 25 kV Sibinj has been in operation since 26th December 1969. It is a borderline facility between traction substations 110/25 kV Nova Kapela and Andrijevci.

(vii) Emergency bridges reconstruction

Works will be done on steel bridges. Works include the remediation of existing abutments and the mounting of steel bridge frame. The span of the new bridge frame is made of solid girders interconnected with cross girders and rigid bottom plate. Existing abutments are to be kept and remediated in order to minimize traffic disruption. Abutments are made of ashlar stone masonry. Abutment structure normally requires rehabilitation due to disruptions between the stones. Structure should be injected onto the abutment and the wing walls, after which drainage should be performed by drilling drains through the homogenized structure behind the face of the structure. The homogenization and connection of embankment ground with the abutment will be

performed by means of pressurized cement suspensions injected as anchor bolts. Furthermore, wing walls should be interconnected with anchor bolts, anchored in the beam set in the body of the wing wall, and these injected into the ground beneath abutment footing. Longitudinally immovable bearings should be placed on the abutment. The bridge structure is made of steel and so are its equipment and abutments.

Works on the railway line of the bridge include the dismantling of the entire track and ballast, materials sorting and loading onto an investor's track train (the investor shall be in charge of transportation and unloading at the landfill). Upon the completion of works on the superstructure, new broken stone ballast and new blanket with rails on impregnated oak sleepers with fasteners shall be laid.

Bridge reconstructions works should be organized so as to be in line with the requirements laid down in this EMF and manuals of HZ Infrastructure and with the least disruptions to railway traffic. Construction works involved in pit digging (manual) and lining placement are done while the railway is open for traffic but with speed restrictions in place. Reinforced concrete works on abutments are to be performed while the railway track is closed for traffic, with concrete vibrator machines. The condition of the abutment and support must continuously be monitored from the onset of the works until their completion and the backfilling of the structure. In case of any sign of soil instability, bridge elements, or struts and support beams, all traffic will immediately be stopped and safety measures implemented according to the instructions given by the main engineer-geomechanic in charge and the structural designer in cooperation with the superintendent engineer. The most important criterion for devising how construction is to be phased is the disruption of railway traffic and shut-down times.

Access to bridges can vary from site to site; some bridges are accessible only by railway, but some are accessible by forest roads (dirt-road or macadam). Due to the size of the steel construction of the bridge it is very unlikely that it can be transported by forest roads without significant and costly interventions thus is very unlikely that bridge constructions will be transported any other way than railways. In addition, HZI does not possess any access roads or on possible locations for bridge rehabilitation thus any construction interventions on the access roads will not be contracted by HZI or included to this subproject, but present an independent decision, cost and responsibility of the constructior.

Anticorrosion protection of the steel bridges construction is performed after the norm determinants HRN EN ISO 129444:1999, Paints and varnishes, HRN EN 8501-2:1999 and HRN EN 8503-2:1999, whilst the preparation of steel bases before applying paint and other similar products is in line with HRN EN ISO 2808:2004, Paints and varnishes - Determining coating thickness.

A system is chosen according to:

- The system parameters for corrosion protection have to be in line with the environmental category
- The durability is determined for the whole system after the works are complete, independent of whether the system was completely or only partially replaced.
- The anticorrosion protection system needs to be chosen in cooperation with the coating manufacturer who also guarantees for his product, as well as according to its compatibility with the existing system in places where the existing coating is not completely removed.
- In principle, the system needs to chosen in cooperation with the coating manufacturer, following one of the available norm arrays. It also needs to be epoxy based like the existing coating, and, if possible, the coating thickness needs to be similar.

For the duration of applying the anticorrosive, it is necessary to constantly keep evidence of the atmospheric parameters, evidence of used materials and proof of their compatibility, as well as keeping in check the thickness and adhesiveness of individual layers.

Anticorrosion protection in the case of bridge reconstruction is partly performed on site; sandblasting and other preparation work as well as application of first layers are performed in the workshops while the second anticorrosion layer is applied on site.

The prospective bridges for rehabilitation include: "Ljuboština" Bridge, located on km 542+931 of the railway line M202 Zagreb GK (Main Railway Station) – Rijeka, and the "Kloštar" Bridge, located on km 550+630 of the railway line M202 Zagreb GK – Rijeka. However, other bridges might be included.

(viii) Introduction of automatic safety devices at railroad crossings - Railway Safety Programme

Construction work on securing railroad crossings covers the following: foundation of all external elements and the construction of cable routes (ditches, channels on culverts) for setting down local cables to connect external elements of level road crossings.

A new cable ditch measuring is planned to be dug out. Manual digging must be performed with manual digging tools (pick and shovel). The setting of cables beneath the track is foreseen with drilling/manual digging and setting PEHD pipes ∅ 110 mm at a depth of about 1 meter beneath the level of the surrounding land.

Foundation of control signals, road signals,assembly plateau, semi-barriers and signals

The basis of the main and auxiliary control signals is constructed from finished concrete segments which are set on the ground or by foundation that is cast on the site.

Construction and foundation of the booth for the safety signal (SS) device

The prefabricated booth will serve solely for the accommodation of the SS device. There will be no construction works involved or staff accommodation inside of it in the operational phase. The facility will be located within the railway belt in a way that it has direct access from the road.

The bearing structure of the facility is planned to be made of a steel skeleton system of closed frames made of cold-formed steel plate profiles, which are welded together. The walls will be made from finished "sandwich" polyurethane panels certified as fire-proof. All steel parts will be protected by hot galvanization from corrosion and the welds with a zinc-rich epoxy primer. The roof structure consists of steel profiles supported on four steel pillars.

In order to construct a dike where the SS device booth will be placed, it is necessary to first clear the terrain and remove the humus layer, after which a truck with a tipper will transport the bulk material and place it in layers to form an embankment. Each layer will be compacted.

Asphalted access road to the booth will be constructed.

(ix) Power supply system replacement

Power supply system replacement is planned mainly for supply of the electric power system which powers the safety signaling devices on the railways. The current condition of the supply system is not in accordance with the standard solution found in other European railways, and according to HZŽH's current regulations, the two way power supply is required as well as a spare power supply, an automated electro aggregate installation in each station.

Works on replacing the power supply include:

- construction of medium-voltage couplings,
- construction of substations,

– electro aggregate installations,
– replacement of train station low-voltage installations and
– replacement of railway low-voltage installations.

Construction of medium-voltage couplings

All medium-voltage couplings have defined points of connection and cadastral parcels for digging a trench in which cables will be laid . All underground crossings with other installations and aboveground crossings with roads and paths will be performed according to the *Technical conditions for the selection and laying of power cables of rated voltage of 1 kV to 35 kV, First amendment, HEP bulletin no. 130 of December 31st 2003.*

Design and construction of substations

The transformer station construction is planned at the railway station with secured transport approach. The building is planned as a reinforced concrete prefabricated housing for accommodating the transformer equipment intended for supplying electrical power to the SS and TK devices. The transformer is installed into the transformer chamber. The installation of the transformer station includes
construction work:

- ground works,
- concrete and reinforced concrete,
- masonry,
- locksmith,
- painting works, along with electronic equipment installation.

Electro aggregate installations

Electro aggregate installations must be designed and constructed in special standardized objects (containers) which, besides satisfactory architectural and structural characteristics, must be acoustically and thermally insulated because the maintenance of aggregates in operation is done at a temperature of 40 C. At some railway stations those objects have already been built.

An electro aggregate installation is planned as a stationary source of electric energy and is intended to automatically supply signaling and telecommunication devices with auxiliary power.
The installation comprises of the following key components:

- the building,
- motoring group (motor, generator, starter accu. battery, common base),
- control and switch cabinet,
- el. power connection,
- fuel tank (protective tub, el. heater of the tank, pipeline fuel, manual gas station),
- ventilation system (automatic suction blinds, self-lifting exhaust blinds, exhaust canal, room fan with a thermostat),
- exhaust system (elastic insert, pipes, silencer, exhaust canal),
- cable distribution,
- electric lighting of the facilities,
- terminal box for portable el. aggregate,
- common facility grounding,
- fire extinguisher.

Also planned is mounting a fuel tank on the carrier, and laying a sheet metal tub underneath it to collect accidentally spilled fuel. The accumulator batteries will be placed on the base unit, next to the drive motor. A

battery charger will be built into the control cabinet. While the electro aggregate is in operation, the battery is charged by an alternator.

Railway low-voltage installations

The works on train station low-voltage installations consist of laying cable lines for power supply, attachment to the grounding and replacing fuses with shortbeams.

On existing railway substations 10/0,22kV, a complete dismantling of existing equipment and installation of new equipment is planned from which the APB, railroad crossing and RD devices will be powered. In some cases in place of railway substations the construction of new housings are planned in which, during the first phase, an el. power installations will be installed to power the existing SS and TK devices and later SS devices of the APB.

Anticorrosion protection during works will be performed on site. None of the equipment contains PCBs in oils or other agents or parts.

(x) Railroad crossings

The railroad crossings will be synthetically filled with concrete or wooden sills.
On the mentioned crossings, the current fillings will be dismantled, a layer of tampon material according to the project will be installed, along with the synthetic fillings, and the connections will be paved.

During the construction work on road crossings the closure of the road with the temporary traffic regulation according to the railroad crossing shall be secured, along with the development of the project of traffic regulation and placement of traffic signs.

Before the organization and installation of the synthetic filling, on certain crossings a drainage system is installed according to a detailed construction plan and pre-measurement.

(xi) Drainage system

In addition to constructing the entire drainage on parts of the open railway track (mostly by installing channels and by decorating ground ditches), the drainage system will be built, if necessary, running along some objects (bridges, tunnels, etc.) and with the installation of profiled drain pipes at the appropriate depth, and all other necessary supporting preparatory work (ensuring streaming to drainage areas, tamping and others). For these works it is necessary to first carry out a proper excavation with the removal of waste materials to an appropriate landfill or site, depending onn the quality of excavated material. . The installation of drainage pipes will also be needed in all station areas under the ruts and switches of the station.

Purpose of the drainage system of the open railway tracks is to protect the tracks from impact of surface run off. It is not expected that this water will be polluted with toxic or hazardous substances thus it will be collected and released directly to the nearby ground with no prior treatment.

Waste water collected by drainage from surfaces around stations and other areas where pollution can occur must be treated accordingly (in the oil separator pits). Quality of the water released from the pits will be monitored and in the case of unfavourable results (montored substances in values exceeding the ones set by the authorized body, Croatian Waters most likely), treated further. Oils, grease and sludge from the oil and grease collecting pits has to be removed from the pits, transported and disposed/recovered by a licensed company only and at the licensed landfills or other licensed facilities in accordance with Sustainable management of Waste Act (OG 94/13) and relevant bylaws.

(xii) Restoration of trunks

The subject of the sub-project is the reconstruction of the 110 kV trunks in areas susessible to landslides, such as substation in Slavonski Brod - EVP Nova Kapela line II)some of them large. If the landslide were re-activated, it would result in the collapse of the columns and it would cause significant material damage to the trunk, as well as present grave danger to the people and their property in the immediate vicinity of and underneath the trunk. That is why it is necessary to transfer a part of the transmission line route to an area not susceptible to landslides.

The proposed works consists of:

- Relocation of the foundation of the column to a new location and the installation of a new tension column to a new location,
- Installation of two new tension columns,
- Dismantling the existing columns,
- Dismantling electrical installation equipment,
- Installation of new electrical installation equipment
- Performing geotechnical investigations (geotechnical boreholes).

The reconstruction is designed in a way to take up as narrow a corridor as possible and would thus minimally affect the expansion of habitats in that area. The chosen transmission line routes will prefere terrain covered with low vegetation, forests and individual trees rather than agricultural land; therefore, impact on the development of agriculture is not expected. The construction of trunks might present a temporary land occupation of the location of the columns. The rutes under the consideration for the trunk relocations are parly in possession of HZI, partly in the process of being purchased and partly will be included in the right of way programme (landowners will be compensated). The route is still not fully defined and none of the permits have been issued. The trunk is a construction in which only the columns are hard points, therefore the visage of the area will minimally change at the location of the columns.

The transmission line is a source of non-ionizing radiation that can be reduced to a minimum level by choosing technical solutions, within the limits of the prescribed maximum levels as evidenced by the calculation in the main project.

The trunk of this voltage level can cause audio noise and radio interference occurring during high air humidity due to the corona, and it is reduced to a minimum by choosing high quality electrical installation equipment and its effect decreases significantly by distancing from the trunk route.

(xiii) Reconstruction of the traction substation (traction current converter plant)

The traction substation (TS) presents a facility for transforming electric energy (transformer). TSs are placed alongside electrified rails and are powered by electric energy from the electric grid, through powering trunks. The subject of the sub-project is reconstructing the existing plants. Reconstruction of the existing TS will not substantially change the existing layout of the environment.

Power transformers and circuit breakers (110 kV) cause noise. Transformers are naturally cooled, i.e. they do not have incorporated fans, so the only sound that occurs is the sound of transformer sheets vibrating. Given that the plant is located in close proximity to a railway line, the noise generated by transformers is negligible in relation to the noise in the environment. Ionizing radiation and nuclear material do not appear in electric traction substation.

Hazardous chemicals are not applied in the technological process. Anticorrosion protection is not performed on site. The transformer boiler is filled with transformer oil, but none of the oils contain PCBs or will be

refilled with PCB oils. Impermeable oil sumps shall be constructed below power transformers to ensure that the entire amount of oil that may leak is collected. Pipes shall connect oil sumps with the oil pit. The pit works on the principle of communicating vessels, so that the oil mass that enters through a manhole in the upper part of the pit forces water (volume weight of water is greater) through a drainpipe whit a grip on the bottom of the pit. The inlet oil pipe and inlet manhole act calmingly on the flow of oil in the pit and prevent mixing of the oily mass with water. Precipitation water that falls onto the capture pads of power transformer foundations flows to collection sumps inside the transformer foundations from where it drains into the oil pit. Rainwater that accumulates in the oil pit sews over the oil separator into a sewer. Regular monitoring of water quality should be performed at outlets of oil and grease separating pits. The water quality has to fulfill demands prescribed by the water management authority (Croatian Waters) and in accordance with Water Act (OG 153/09, 63/11, 130/11, 56/13, 14/14) and related bylaws. Oils, grease and sludge from the oil and grease collecting pits has to be removed from the pits, transported and disposed/recovered by a licensed company only and at the licensed landfills or other licensed facilities in accordance with Sustainable management of Waste Act (OG 94/13) and relevant bylaws.

The house transformer boiler is also filled with transformer oil, in the amount of about 115 kg. An impermeable oil pit shall be constructed below the transformer to ensure the collection of the entire amount of oil that may leak, without the possibility of leakage into the environment. However, regular checks of containers containing toxic and hazardous wastes should be performed as well as above mentioned monitoring of waste water quality at outlets.

(xiv) Replacement of switch point mounting devices with hydraulic devices

The project deals with the replacement of electromechanical switch point mounting devices with hydraulic point mounting devices. The replacement of point mounting devices is scheduled to take place during 2015 and 2016. The hydraulic point mounting devices that HZHZ Infrastructure acquired for another, delayed, project shall be embedded.

The characteristics of the point mounting devices must meet certain prescribed technical conditions.These technical conditions relate primarily to the forces that the point mounting device must produce in order to swing the crossover device in the correct position, and at the same time, this force must not reach a value that would lead to mechanical damage of any switch parts. Another technical requirement refers to the force with which the point mounting device must keep the crossover device in one of the positions where the force also must not exceed a certain value.

Point mounting devices on switches that lead to the admission and dispatch railway-tracks shall be replaced, and on smaller stations the tendency is to replace all the point mounting devices in order to achieve technological unity in the maintenance and operation of signaling-safety devices in these stations. The basic criteria for the replacement are the amount of traffic through the switches, the maximum speed allowed and the state of currently installed equipment.

In addition to switch point mounting devices, the project provides the change of related accessories: control rods, set-poles, connector cable box and a flexible cable 5m long.

Since the replacement of devices takes place mainly on older switches for which it is difficult to achieve the prescribed parameters due to wear of parts (aperture, symmetry point mounting and the allowed gap of the switch blade), some of the structural parts of the switches shall be replaced through the project with new ones: ties, voltage switchgear and shutters, two sleepers for attaching a hard base.

Replaced electromechanical switch point mounting devices, control rods, set-poles and ties, voltage switchgear and shutters are made mostly out of steel. They may contain a small amount of grease. After

dismantling, this equipment is mainly deposited in the storage areas of organizational units responsible for the maintenance of safety-signaling or building components of infrastructure. After carrying out the write-off procedure, the equipment is handed over to companies authorized for the disposal of scrap metal. A part of the equipment, depending on its condition, can be used for spare parts. Regarding the switch point mounting devices, electric motors can primarily be used for such purposes, and individual point mounting devices can entirely be used in a cycle of major repair (reparation) of such a type of setting devices.

Replaced switch sleepers represent hazardous waste due to impregnating agents they contain, and must be disposed of according to the prescribed procedure for this type of waste. After the write-off procedure, replaced sleepers are mainly disposed of by handing them over to licensed companies and, to a lesser extent; the sleepers may still be used for replacing defective sleepers on the sidings.

New hydraulic point mounting devices contain hydraulic oil (0.75 l per device) which is replaced during qualified maintenance along with any major repair on the devices, and after the expiration of the economic cycle of the device, it must be disposed of in the manner prescribed for this type of waste.

(xv) Replacing the balise

Part of the railways under the management of HZ Infrastructure is equipped with an automatic train stop protection, the so-called ATPS. The system for inductive transmission of information "Indusi I-60" is currently being used.

ATPS has an important role in the safe conduct of railway traffic. The main role of ATPS is the transmission of information about the signal sign of a railway signal to the devices in the locomotive that can automatically activate the brakes.

Track side of the ATPS consists of track balise and cords that connect the balise with the safety and signaling devices. On the railways of HZHZ Infrastructure many types of balise are built in, some of which were built in more than 20 years ago. With the replacement of balises, associated cables for connecting the balises with the safety and signaling devices shall also be replaced.

HZI Part of balises acquired through this project shall be assigned to ensure slow rides due to works on the railway, for protection during dangerous points, and the like. Installation of balises to ensure slow ride is stipulated by the Ordinance on technical conditions for railway transport safety that the railways have to meet (OG 128/08). In addition, this project will ensure equipping the not yet equipped main light and control signals on the lines of HZ Infrastructure with balises which is prescribed by Safety and Interoperability of the Railway System Act (OG 82/13 and 18/15).

Track balises do not contain substances dangerous for the environment. Their parts are made of aluminum, steel, copper and plastics. Older types of balises may contain small amounts of precious metals. They are suitable for disposal and recycling. After dismantling, replaced balises and connecting cables are deposited in the storage areas of organizational units responsible for the maintenance of safety and signaling devices. After carrying out the procedure of write-off, the equipment is handed over to authorized companies for the disposal of such waste.

All the equipment will be installed in accordance with the provisions of the Ordinance on general conditions for construction in the protective railway zone (OG 93/10).

(xvi) Adjusting the contact network (CN)

The works on adjusting the contact network (CN) consist of geodetic, construction and electrical works. Geodetic works consist mostly of various surverys, while construction work includes:

- Excavation of land for the construction of new foundations for CN,
- Creating a foundation with concrete C25 / 30 for CN poles and ties,
- Supply, delivery and installation of CN poles in foundations,
- Rehabilitation of existing bad and damaged foundations,
- Upgrading of low foundation up to a height of 30 cm below the level of the tracks,
- Removal of abandoned supporting structures of CN and their foundations,
- Removal and storage of abandoned structures,
- Removal of foundations waste material,
- Arrangement of land in the work area,
- Corrosion protection of CN pipe poles, placing labels on the poles (numbers, place marks, hazard signs), along with the installation of fasteners for metal ropes on concrete sleepers of the railway-track, and the production and installation of the signals for a new neutral section.

Electro technical and installation works include the removal and temporary installation of grounding cables onto the rail tracks that are being replaced, moving the location of the grounding by welding new screws on the CN poles, the supply, delivery and installation of the lashing equipment for tightening devices, consoles, anchors and disconnectors on the new CN poles, production of grounding for the new poles, disassembly and temporary storage of old equipment, along with other, similar works.

(xvii) Switch replacement

Individual switch replacements at stations that are a part of the railway network consist of the following:

- Complete disassembly of old switches with metal sill parts and screen material, along with
- installation of new switches on wooden switch frames with new screen material (crushed stone for the tampon layer), and switch drainage

Switch replacement has been performed at the following stations:

- Čakovec, switches no. 10 and 16,
- Đurđenovac, switch no. 2,
- Osijek, switch no. 80,
- Osijek, Donji grad, crossing K1 - train platform crossing,
- Ploče, switches no 3ab and 16ab - crossing switches.

(xviii) Electric traction system changes

Changing the system of electric traction on railways is and investment project in the scope of which a part of the existing electric traction facility (3 kV direct current) is being reconstructed, along with new facilities being built which are needed to switch over to the single-phase electric traction system /25 kV, 50 Hz).

The facilities being built as part of this type of the investment project can be:

- Trunks and trunk fields,
- Electric traction substations
- Sectioning facilities,
- Contact network encompassing open railways and passable rail platforms,
- Organizational units maintenance building,
- Remote control center,
- Substations and transmission lines

- telecommunications cables and TK systems,
- safety signal subsystem (accustomization).

The works listed above have been separately analyzed earlier in this chapter.

(xix) Reconstruction of railway stations

Reconstruction of railway station encompasses reconstructions of track station which includes the construction of the track extension and connection tracks in order to extend usable lengths.

Some of the existing tracks will be dismantled. All switches will be replaced with the new ones.

Other construction of the works include the construction of facilities for placing new electronic safety signaling system (ESSS), telecommunication equipment and electrical, generator installation, as well as foundations, columns and portals contact network of the reconstructed part of the station.

Electrical part of activities includes placing new electronic safety signaling system (ESSS), telecommunication equipment and electrical, generator installation. Use of buildings is a technical and technological. Building ESSU intended for housing internal signaling safety device elements, power supply unit, battery, cable distributors, and telecommunications equipment. Electrogenerating plant presents a prefabricated container that is transported on the proposed site.

The plan envisages the construction of the contact network on the reconstructed railway station and on the tops of the track. Electronic signaling and safety device will be installed ensuring security station and terminal as one inseparable whole.

Anticorrosion protection during works will be partially performed on site. During the reconstruction of station faciltities there will be no changes of transformers and condensators. In additon PCBs are phased out from all HZI equipment.

2.1.1 FINANCING OF EARLIER ACTIVITIES

A number of activities (sub-projects) under the subcomponent 'investment in emergency repairs', which HZI wishes to finance out of the present loan, has commenced. In terms of approval for financing already commenced works it is necessary to establish the compliance of the implementation with the environmental and social policies of the World Bank and for these purposes Audit Report shall act as an instrument of verification (audit) while sets of mitigation measures and conditions layed in EMP Check lists shall be used as compliance references.

Audits of such subprojects will be carried out by the HZI in cooperation with the World Bank. HZI shall submit the results of the audits for each activity separately to the World Bank in the form of an Audit Report with the policies of the World Bank. If the report reveals discrepancies or they cannot be proven, the financing of this specific subproject may be cancelled. In order to implement compliance audits of the subprojects, the Report on compliance (Audit Report) has been made, and it relies on criteria given on the EMP Check list. Amongst already commenced activities only B- category sub-projects can be assessed for compliance and financed. . A representative of the HZI and an expert of the World Bank shall visit the sites of the already started subprojects that are eligible for funding and shall determine compliance with the World Bank policy, national legislation and good practice in environmental protection. Verification of compliance is carried out by examining the documents (permits and authorizations), visiting the location, conducting interviews with engineers, interviews with local residents, representatives of citizens and national and local offices for environmental protection, and other procedures.

3 PROCEDURES FOR ENVIROMENTAL PROTECTION

3.1 WORLD BANK POLICIES OF ENVIROMENTAL PROTECTION APPLICABLE TO THE PROJECT

Environmental policy and social protection policy of the World Bank represent the basis of its support for the process of sustainable poverty reduction. The aim of these policies is to prevent and reduce the damage that threatens people and the environment in the development process. These policies provide guidance to the Bank and employees of the client in terms of identification, preparation and implementation of programs and projects.

During the evaluation of this project several environmental policies proved to be relevant.

OP / BP 4.01, (Environmental Assessment). A comprehensive Environmental Management Framework Document (EMF) is envisioned for this project, which includes the Bank's policies on public review and publication of the documents. EMF shall be prepared prior to the start of project activities and before project appraisal phase, after which the EMF becomes part of the project documentation.

Category A subprojects will not be financed within this project. For subprojects classified in category B, the Environmental Management Plans, or EMP Check lists shall be made on the basis of pre-existing templates, depending on the degree and scope of potential impact. Concerning requests for funding the already initiated subprojects, all permits and certificates must be submitted with the subproject documentation, or with an Audit Report, such as the environmental permit.

OP / BP 4.12 (Involuntary Resettlement). Project activities are carried out in areas owned by the companies - beneficiaries of the loan, and / or contracted service providers. However, the project Component 4 envisaged little possibility of the need for temporary use and temporary expropriation of private land at the site works.

OP 17.50, (Policies for publication of documents) shall apply to the Environmental Management Framework and documents of Environmental Impact Assessment / Environmental Management Plan (EAs / EMPs) projects.

World Bank Policy OP 4.11 (Cultural heritage) is not included in the policies that apply to this project as the locations where the works are performed do not include heritage of cultural value, however, since it provides for earthwork and excavation, there are measures in case of accidental findings of cultural and archaeological value included in the documentation of environmental protection of the project including the Project documentation.

3.2 CROATIAN LEGISLATION CONCERNING ENVIRONMENTAL PROTECTION RELEVANT TO THE PROJECT

Environmental Protection Act (OG 80/13) represents an umbrella act on environmental protection, which determines the framework for managing, protecting and the attitude towards the environment in the Republic of Croatia for all its components, levels and subcomponents. This Act regulates: principles of environmental protection within the concept of sustainable development, protection of environmental components and protection against environmental stress, subjects of environmental protection, sustainable development and environmental protection documents, environmental protection instruments, environmental monitoring, environmental protection information system, ensuring access to environmental information, public participation in environmental issues, ensuring access to justice, liability for environmental damage, financing and instruments of general environmental policy, administrative and inspection control and other issues in this regard.

An important by-law regulating the approach to the problem of environmental protection and its coverage during major interventions and works is the Regulation on the Assessment of Environmental Impact (OG 61/14). The annexes I - III thereof the Regulation define the procedures that require the preparation of study for environmental impact. With regard to work on the railways and railway infrastructure Annexes I - III stated the following activities as an obligatory ground for the study:

- (Building) Railway lines of importance for international traffic with associated facilities and devices
- (Building) Installations for the production of railway equipment
- (Building) Railways (except for urban and suburban) and railway terminals for inter-modal freight loading and unloading
- (Building) Tram tracks, elevated and underground railways, suspended and other railways which are used for the carrying passengers: (i) in the city - length of 10 km or more, (ii) suburban - length of 15 km and more.

A number of laws and by-laws issued on the basis of the Sustainable Waste Management Act (OG 94/13) determine the operation and handling of loan borrowers, HZ Infrastructure, HZ Passenger Transport, HZ Cargo, when implementing the projects included in the Project;

A) Sustainable Waste Management Act (OG 94/13)

1. Pursuant to the Regulation on Categories, Types and Classification of Waste With the Waste Catalogue and a List of Hazardous Waste (OG 50/05, 39/09) it is necessary to classify the waste generated during the execution of certain works
2. All the waste generated at each location or site should be disposed of in accordance with the provisions of the Sustainable Waste Management Act, and its resulting by-law, the Regulation on Waste Management (OG 23/14, 51/14, 23/07, 111/07) noting that it is necessary to take into account the remaining by-laws relating to special categories of waste. Specifically, during the execution of works on the construction site, special categories of waste might be created, disposal procedures for which are defined by the provisions of these regulations for the management of special categories of waste:
    - Ordinance on Construction Waste Management (OG 38/08)
    - Ordinance on the Method and Procedures for Managing Waste Containing Asbestos (OG 42/07),
    - Ordinance on Waste Batteries and Accumulators (OG 133/06, 31/09, 156/09, 45/12, 86/13),
    - Ordinance on Packaging and Packaging Waste (OG 97/05, 115/05, 81/08, 31/09, 156/09, 38/10, 10/11, 81/11, 126/11, 38/13, 86 / 13)
    - Ordinance on Waste Oil Management (OG 124/06, 121/08, 31/09, 156/09, 91/11, 45/12, 86/13).
3. Following the Pursuant to the Ordinance on Waste Management, it is required to develop and maintain the necessary documentation for all types of waste and act in accordance with the provisions of the by-law the Ordinance on the Pollutant Emission Register (OG 35/08) in accordance with the defined conditions of the tender and the contract with the selected contractor

4. Further, the terms and methods of treatment and management of all types of waste at each site must be in accordance with the provisions of the Ordinance on Waste Management (OG 23/14, 51/14, 23/07, 111/07).

B) Noise Protection Act (OG 30/09, 55/13)

1. Site conditions at the time of performing shall be in accordance with the provisions of the Ordinance on Maximum Permissible Noise Levels in Areas Where People Work and Live (OG 145/04 46/08)

2. Machinery on the site shall be in accordance with the provisions of the Ordinance on Measures to Protect Against Noise With Sources in the Open Area (OG 156/08)

3. Measuring of the noise level shall be conducted in accordance with the Ordinance on Measures to Protect Against Noise With Sources in the Open Area (OG 156/08)

C) The Water Act (OG 153/09, 130/11, 56/13, 14/14)

1. In case of an extraordinary event on the construction site, it is necessary to act in accordance with State Plan of Measures for Emergency and Accidental Water Pollution (OG 5/2011)

2. Ordinance on Special Conditions for Carrying Out Water Research and Other Hydro-Geological Activities, Preventive, Regular and Emergency Flood Defense, and Management of Detailed Structures for Amelioration Drainage and Water Facilities for Irrigation (OG83/2010, 126/12)

3.3 INTERNAL HZ METHODOLOGIES, STANDARDS AND PROCEDURES RELATED TO ENVIRONMENTAL PROTECTION

3.3.1 HZ PASSENGER TRANSPORT - REPAIRS OF LOCOMOTIVES AND TRAINS

HZ Passenger Transport does not have elaborate methodologies or procedures to protect the environment. When contracting repair, periodic maintenance and other services, HZ Passenger Transport obliges the contractor to abide by all procedural codes of environmental protection and waste disposal.

3.3.2 HZ CARGO – LOCOMOTIVE REPAIRS

Department for Security Management and Occupational Safety, Fire Protection and Environmental Protection operates within HZ Cargo. With regard to repairs that are the subject of financing of HZ Cargo, except internal Ordinance on Waste, no other methodology, procedure or practice has been developed.

Common practice dictates that both types of repair comprehensively be agreed upon with one bidder. The selected and arranged contractor carries out all repairs, including washing locomotives, in the area of his operation and no repair is to be carried out on the surfaces of HZ Cargo. Also, it is common practice for the contractor to be liable for the obligation of proper waste disposal and all other actions required by law (including environmental protection). The only exception is scrap metal generated during the repair, which the contractor carrying out the repair then hands over to HZ Cargo to be disposed of. HZ Cargo has a contract for the sale-purchase of scrap metal which also defines the method of disposal. If the contract for investment repair of locomotive does not otherwise define it, then HZ Cargo disposes of the waste material by informing the buyer about the place and the amount of waste after which the buyer takes over the waste and disposes it.

3.3.3 HZ INFRASTRUCTURE - EMERGENCY INFRASTRUCTURAL REPAIRS

The Department of Environmental Protection and Fire Protection exists and works within HZ Infrastructure. With regard to works of repairs that are the subject of financing of HZ Infrastructure, there are a number of internal documents that specify procedures mainly related to waste management and waste disposal:

1. Guidelines on Classification of Used Wooden Railway Sleepers, Official Journal 14/2010. The content of the respective Instruction - Instruction was issued for the purpose of record keeping, which allows for proper planning to obtain new wooden railway sleepers, rational use, re-use and care planning at the end of the economic cycle. Instructions define categories of sleepers for re-installation, sleepers suitable as building material, i.e .sleepers that are not suitable for any of the above mentioned use and they should be treated in accordance with legislation in the domain of environmental protection - waste area.

2. Guidelines on Amendments to the Instruction on Classification of Used Wooden Railway Sleepers

(1 amendment), Official Journal 32/2012

3. Instruction on Dealing with Used Stone Aggregates Obtained on Track Bed Structure HZI-331, Official Journal 2/2015

The content of the respective Guidelines - the same was issued for the purpose of keeping records of used stone aggregates obtained on track bed structure for further reuse, sales, care planning at the end of economic cycle, and it is necessary to carry out the classification of used stone aggregates according to their usability, condition and potential possibility that they represent hazardous waste. Used stone aggregates are obtained after the following works on:

- mass replacement of used stone aggregates as part of the railways maintenance,
- reconstruction (repair) of track bed structure on railway lines,
- reconstruction and upgrading of railway lines,
- elimination of track bed structure for railways and tracks that are being abandoned.

Acquired used stone aggregates differ in quality and properties, which results in different possibilities and conditions of its continued use. Due to determining the suitability of acquired used stone aggregates for their re-use or handling the waste of used stone aggregates, it is essential to carry out the classification according to their usability.

The classification procedure of used stone aggregates acquired on track bed structure is carried out by professional staff belonging to working units for track maintenance of the infrastructure manager along with professional staff of the contractor with whom the contract manager enters into an agreement to do so. Stone aggregates for which there is a suspicion of contamination are removed for analysis in an accredited laboratory. These are mostly stone aggregates from railway stations. In accordance with the finding of the laboratory, stone aggregate is classified into one of four categories of used stone aggregate of which Category I, II, and III (depending on the amount of ingredients of earth or gravel) are suitable for reuse, construction and / or other purposes. Category IV of used stone aggregate potentially represents a hazardous waste, obtained from the switch areas that are lubricated and parts of station tracks containing the ballast and is handed over to companies authorized for disposal of this type of waste.

4. Ordinance on Waste, Official Journal (HZI 620) 7/2012

This Ordinance defines certain rights, obligations and responsibilities in waste management in HZ Infrastructure Ltd. The provisions of the Ordinance apply to all waste generated at HZI locations, and prescribe the management of waste from the place of its origin to the point of collection, temporary storage and disposal.

3.4 ENVIRONMENTAL SCREENING

Based on the description of activities in Chapter 2.1 it was found necessary to prepare the EMP Check list for periodic maintenance and modernization of rolling stock, that is, diesel and electric locomotives, passenger coaches and electromotors (Components 2 and 3). Described activities are carried out in specialized factories and workshops in the factory halls and by predetermined processes and procedures, and with predictable environmental impacts both in strength as well as in scope. Among the potential impacts on the environment that can occur during these activities, one can emphasise generation of larger amounts of oily wastes and other solid hazardous wastes (e.g. generated in the process of blasting), generation of metallic waste suitable for recycling, generation of larger amounts of liquid hazardous waste (degreasing petrol, oil residue, lacquers and paints) and generation of larger amounts of waste water from washing the wagons and the most significant ones.

Within Component 4, subcomponent 4.3 emergency repairs, there is a range of construction and electromechanical interventions that take place at several locations, under different weather conditions, with different scope of work, territorial coverage, and sensitivity of the areas where the activities are carried out. Within this, there are a number of standard and minor activities such as replacing switches, replacing the switch heater, installation of electrical heaters, reconstruction of electric traction substation, replacing power supply and the like, influence of which is linked to the activity, not a location, but also large-scale interventions with potentially larger impact on the environment, such as reconstruction and rehabilitation of cuttings, reconstruction of bridges and tunnels, rehabilitation of crossings, construction of overpass and renovation of shares, where location of works can give the effect of greater or lesser importance. Therefore, the preparation of EMP Check lists is recommended for most of thesubprojects mentioned in Component 4.3, provided that it leaves the possibility for expansion of the the scope of environmental assessment and expansion of mitigation measures within the full EMP (Environmental Management Plan) for the construction of new structures on existing lines.

For projects submitted for financing of already commenced works, an assessment of compliance with the policies of the World Bank, national legislation and good practices on the basis of pre-prepared EMP Check lists and report on compliance is carried out. Only commenced work of category B- will qualify for financing.

3.5 SCREENING CATEGORIES

Depending on the type, location, sensitivity of the level of activity, and the nature and size of its potential impact, sub-projects can be classified into the following four categories:

3.5.1 CATEGORY A

Category A sub-projects will not be financed by this loan.

Sub-projects are classified in this category if it is likely that they might have very significant, diverse and/or long-term impacts on human health and the environment, and their severity is difficult to determine in the identification phase of the project. These impacts may also cover an area larger than the area of the sub-project itself. Environmental impact reduction measures can be complex and expensive.

An Environmental Impact Assessment study (EIA) is required for category A sub-projects in order to determine future impacts connected to the suggested project, identify potential environmental improvements and recommend measures needed to prevent, minimize and reduce negative impacts.

The loan beneficiary is obligated to draft an environmental impact study. Such a study includes cost assessment of implementation of environmental protection measures, and also includes a feasibility study.

3.5.2 CATEGORY B

A sub-project is classified as a category B project if its negative impact on the environment and the human health and population is less adverse than those of the category A sub-projects.

These impacts are location-specific, and only several, or none, of the impacts cause irreversible negative consequences. In the majority of cases, impact reduction measures of category B projects are determined more easily than those of category A projects.

The scope of the environmental impact assessment of category B, as well as the complexity of documents of the environmental impact assessment, may deviate significantly. The impact assessment in this case tests the potentially negative and positive impacts of the sub-project, and recommends measures necessary to prevent, minimize, reduce or compensate negative environmental impacts, and improve the environmental effect.

This category requires that, during the environmental impact assessment, all impacts connected to the sub-project are also assessed, the opportunity for improvement to the environment is recognized, and recommendations are made for measures necessary for successful prevention, minimization and reduction of negative environmental impacts. The scope and the format of the environmental impact assessment depend on the sub-project, but in general they are smaller than the scope of the environmental impact study. Usually it's an Environmental Management Plan (EMP). In case the sub-projects are comprised of simpler activities, such as building reconstruction and/or renovation, the EMP Checklist shall be used.

Category B+

For the subrojects classified as the category B+, within this project, the loan beneficiary is responsible for drafting an Environmental Management Plan (EMP), which includes environmental mitigation measures, operation practice and monitoring. EMP shall be drafted in case construction interventions are made to the existing railroad corridors, such as construction of overpasses and new platforms, and activities on locations that have specific environmental attributes (e.g. near a water stream or protected areas). A template for the site specific EMPs is enclosed in Annex D.

Environmental Management Plan for sub-projects of this category also includes cost assessment for implementation of environmental protection measures, which is included in a prospective project feasibility study, and, subsequently, in the expense list.

Category B-

Sub-projects classified as category B- sub-projects are those whose impact on the environment is smaller, or less negative, than the impact of category A and B+ sub-projects, taking into account their nature, size and location, as well as characteristics of a potential environmental impact.

The EMP Checklist contains identified environmental impact mitigation measures, according to identified potential impacts that are characteristic for the activity type. Two types of EMP Checklist templates have been drafted; (i) an EMP Checklist template indended for activities related to peridoic maintenance of diesel and electic motor locomotives, electric motor trains and passenger wagons, and (ii) an EMP Checklist indended for urgent repairs of the railroad infrastructure, including rehabilitation ofcuts, trackbed, smaller railroad crossings, and smaller construction work, such as construction of pedestrial flayovers and platforms. Templates of EMP Checklists are enclosed in Annex C.

Within this project, the previously commenced sub-projects dealing with urgent railroad infrastructure repairs are also financed. Environmental impacts that can be expected as part of these activities, as well as location of construction, is what classifies these sub-projects as category B-. For this construction work, measures are identified based on estimated impacts characteristic for the commenced activity and are included in the EMP Checklist template meant for urgent railroad infrastructure repairs. For commenced construction work, only B-category will be taken under consideration for financing hence the EMP Checklist will be used as a basis for the drafting of a Compatibility with World Bank Policies and National Legislation Report. A decision regarding financing of a sub-project is made based on this Compatibility Report. A template for application for financing of a commenced project is enclosed in Annex B, and the template for drafting a Compatibility Report in Annex F.

3.5.3 CATEGORY C

Sub-projects classified as Category C are comprised of activities that have little or negligible environmental impact and therefore an environmental impact assessment, Environmental Management Plan or EMP Checklist are not required. Apart from an initial screening of environmental protection needs and an explanation of grounds for category C classification, no further environmental protection activities are required.

3.5.4 TECHNICAL ASSISTANCE

The technical assistance part of the project is also subject to environmental assessment and goes through the project classification procedure. Terms of References and project activities must be in compliance with the Environment Management Framework. Technical assistance activities go through the environmental protection needs screening process and, based on the results, the project is classified into one of the categories and (if need be) an EMP or EMP Checklist is drafted for each of the activities.

3.6 ENVIRONMENTAL IMPACTS

Environmental protection issues typical for periodic maintenance of locomotives and wagons, including diesel and electric motor trains may include:

- handling, warehousing and use of hazardous and toxic materials,
- production of large quantities of waste waters saturated with oils, grease and detergents during the washing of locomotives and wagons that precedes maintenance,
- hazardous and toxic waste created during the cleaning and replacement of locomotive and wagon parts (through use of gasoline and other agents), which includes oily rags, oily work clothes, oily sawdust and other absorption materials, sand blasting sand, oily filters, heavy metals from lights, CFC when old A/C units are being replaced, packaging waste, varnish, cooling agents, acids, electric batteries etc. It is possible to find PBS in transformers and electrical equipment in older locomotives;
- brake systems in locomotives may contain asbestos,
- large quantities of non-hazardous waste from wagon refurbishing,
- base solutions that are frequently used for rust removal,
- engine cooling fluids also count as hazardous waste,
- air emissions during varnishing and painting,
- large quantities of recyclable metals, and
- noise at the construction site.

Mitigation requirements include using a water-based detergent for washing, dry cleaning and recycling of solvents, using lead-free water-based paints, and filtering the air coming out of the varnishing room before it is released into the atmosphere. Regarding reduction of hazardous waste production, parts and equipment that contain asbestos, PCB or CFC should be avoided. Waste water from workshops must be first treated in the oil and grease separator pit and then in the further treated in the waste water treatment plant, before being released into the recipient. All waste must be sorted and disposed of adequately, and only handed over for processing or final disposal to licensed companies. Accompanying papers must be updated and they must follow the waste flow. Toxic and hazardous materials and hazardous waste must be kept in specialized containers and in places that are equipped with double walls or bundwalls and are protected from the elements.

Urgent repairs to the railway infrastructure sub-projects, due to the special nature of their activities and micro-locations (railroad corridors and vicinity), produce a number of typical impacts, but whose scope significantly varies parallel to the sub-projects scope. The potentially largest impacts concern the production of hazardous waste, in particular:

- impregnated wooden threshold waste (impregnation with creosote oils etc.),
- contaminated stone aggregate,

- oily rags, clothes and work material,
- transformer oils,
- old transformers and other parts of infrastructure ,
- electronic waste,
- oily metal waste,
- anti-corrosion agents, paints, hazardous material canisters, etc.

During construction work, production of large quantities of non-hazardous waste is also expected:

- construction waste,
- excavation dirt,
- tracks,
- other metal waste.

Beside waste, impacts that might occur during construction work include:

- soil erosion and landslides,
- accidents (such as fires and electric shocks),
- water contaminations,
- material damage to the infrastructure, etc.

Croatia is signatory to Stockholm Convention and there was an inventory conducted between 2002 and 2004 in which HZI has taken part as well as implemented PCB phasing put activities though the National Plan for phasing out PCBs in Croatia provides 2025 as the deadline year. HZI has already phased out all their PCBs from their transformers, capacitors and any other device.

Within internal procedures and methodologies, HZI accomplished a significant reduction of environmental impacts, especially with regard to accident prevention and disposal of hazardous (old wooden thresholds, contaminated aggregate) and non-hazardous waste (construction waste, metal waste). Further requirements for reduction of impact include separate collection of electronic waste, prevention of construction impact on water and soil, reduction of loss of materials during transport and for meteorological impacts, reduction of impact on the flora and the fauna, etc. All waste must be sorted and disposed of adequately, and only handed over for processing or final disposal to licensed companies. Accompanying papers must be updated and they must follow the waste flow. Toxic and hazardous materials and hazardous waste must be kept in specialized containers and in places that are equipped with double walls or bundwalls and are protected from the elements.

3.7 DRAFTING OF THE DOCUMENTATION RELATED TO THE ASSESSMENT OF ENVIRONMENTAL IMPACT

3.7.1 TYPES OF DOCUMENTS

Loan beneficiaries are responsible for the drafting requested environmental assessment documents, as well as acquiring all documents needed for project implementation from the competent government bodies, in accordance with World Bank procedures described in this Environmental Management Framework.

Upon conducting environmental assesmentis procedural recommendations will be built into the sub-project documentation, including the proposal documentation. Depending on the category the sub-project is classified as, the document to be drafted may be:

a) Environmental Management Plan (EMP),

b) a simplified version of the environmental assessment, the so-called EMP Checklist, or

c) Audit Report.

The purpose of the Environmental Management Plan (EMP) is to, during the implementation of the project, encompass and apply all the procedures that recognize and control the quality of the environment and

proscribe measures to be taken in order to prevent and reduce negative impacts on the environment and human health. The Environmental Management Plan is brought to an individual location. The template for drafting an Environmental Management Plan is enclosed in Annex D.

The EMP Checklist is a simplified version of the Environmental Management Plan. EMP Checklist is drafted for projects that include small construction, reconstruction, rehabilitation etc., where impacts aren't related to specific conditions or state of the location. Thus, this checklist concerns the type of work, and not the location, and can be used for all locations where that type of work is being done. Within this project, the EMP Checklist includes work on notches, bridges, changes to railroad crossings, railroad crossing safety systems, tunnel rehabilitation, corridor rehabilitation, construction of overhangs, power supply reconstruction, modifications of the electric traction system, electric traction sub-station reconstruction, modifications of power supply devices, replacement of balises, renewal of the contact network and renewal of power lines. Part 1 of teh chacklist descibes activity, site and reponsibilities. Part 2 of the Checklist EMP can be used to select typical activities from a "menu" and relate them to the typical environmental issues and mitigation measures. Part 3 is themonitoring plan to be prepared. Although monitoring tables should be prepared based on mitigation measures identified, it is not necessary to come up with a parameter to be monitored for every single mitigation measure listed in Part 2, but to focus only those that can provide a good indication of quality of compliance.The template for drafting an EMP Checklist is enclosed in Annex C.

Although monitoring tables should be prepared based on mitigation measures identified, it is not necessary to come up with a parameter to be monitored for every single mitigation measure listed in Part 2, but to focus only those that can provide a good indication of quality of compliance.

Compatibility with World Bank Environmental Policies and National Environmental Protection Legislation and Good Practice Report is conducted for already commenced projects, for which the possibility of being financed is just being determined. The template for drafting a Compatibility Report is enclosed in Annex F. The Report is the loan beneficiary's document, who fills it out based on an assessment of the compatibility of works with the environmental policies of the World Bank, the national environmental protection legislation and good practices, and it is the basis for the approval of financing of the sub-project in question. The compatibility assessment is carried out for each individual activity and location separately, and the identified impacts and measures that form the expert basis of the compatibility assessment and define demands regarding conducted activities are encompassed in the EMP Checklist template.

3.8 PUBLIC ACCESS, PUBLISHING OF DOCUMENTS AND PUBLIC CONSULTATIONS

3.8.1 ENVIRONMENTAL MANAGEMENT FRAMEWORK (EMF) AND ENVIRONMENTAL MANAGEMENT PLANS (EMPS)

Disclosure and public consultations of Project's environmental due diligence documents (EMF and EMP Checklists) were organized in accordance with the policies of the World Bank regulating public disclosure and consultations with stakeholders and the public. The national law does not foreseen public consultations for this type of activities and investments as stipulated in Regulation on Information and Participation of the Public and Public Concerned in Environmental Matters (OG 64/08) under the Environmental Protection Act. Under the national legislation public consultations are mainly reserved for Environmental Impact Assessment (EIA) and Strategic Environmental Impact Assessments (SEA) projects.

HZC, HZI and HZP have published EMF and EMP Checklists on HZI, HZC and HZP web sites, respectively, on March 5, 2015. The published documents were accompanied by a call for public

participation encompassing call for sending comments and questions as well as invitation for participation on public debate on the Project scheduled for March 17, 2015. Both, documents and calls for participation, were published in English and Croatian language. Contact e-mails and regular post addresses for sending questions and comments were listed in the call. In addition to official web site publishing, the documents were made available in hard copy at reception of relevant institutions (HZI, HZC, HZP headquarters). Both, hard copies and electronic copies, were available to the public for 15 days, or longer.

Public consultations were held commonly for all Borrowers (HZI, HZC and HZP) on March 17, 2015 at HZI headquarters in Zagreb, Mihanoviceva 12, Room 29 starting at 10 am. In addition to HZI, HZP and HZC staff one other person, representative of Deal Company, Mr Putarek participated in the public debate. After presentation of the Project and due diligence documents held by the Borrowers, Mr Putarek stated several observations regarding the development of croatian railways in Croatia and railways in general, however, he had no questions, observations or suggestions related to presented due diligence documents or the Project itself. No questions, comments or suggestions were received by e-mail or regular post related to the Project or due diligence documents. Calls for public participation and commenting as well as public debate minutes of the meeting are provided in the Annex E.

3.9 MONITORING OF THE IMPLEMENTATION OF ENVIRONMENTAL PROTECTION PROCEDURES

3.9.1 REPORTING

Environmental screening, assessments of the impact on the environment, the assessment procedures and sub-project approval described in the previous section of the document are a part of the procedure for selection and approval of sub-projects. During implementation, the loan beneficiaries are responsible for implementation of their every day activities in accordance with environmental assessment reports and implementation of environmental impact reduction measures, as established in the Environmental Management Plan (EMP). The loan beneficiary is expected to oversee the implementation of the measures by the contractors and, per agreement, report back to the World Bank. Reporting on EMF implememtation and environmental impact reduction measures is an integral part of reporting back on the implementation and status of the project. The implementation of environmental impact reduction measures is a subject of regular oversight of the World Bank during project oversight missions.

The World Bank will help the loan beneficiaries with the process of procedure revisions and determination of environmental protection needs in all B+ sub-projects. Depending on the results of the assessment of the loan beneficiary's capacities, which will be conducted by a World Bank environmental protection expert, a plan will be drafted for increasing the loan beneficiary's capacity for monitoring the state and environmental impact during the implementation. The World Bank will help with the audit of the first 5 category B- projects with World Bank policies assessments. However, the loan beneficiary (HZI, HZC, HZPP) is responsible for the final quality of documents and compatibility with World Bank policies.

The loan beneficiaries will report back to the World Bank and MMATI regarding the progress and implementation quality of the implementation of the EMF and Environmental Management Plan (EMP) measures, and EMP Checklists, as part of a regular project implementation progress report. Implementation monitoring is conducted by the supervising construction engineer or another person nominated by the loan beneficiary. Reporting templates are in the Annex C and Annex D of the EMF. The World Bank will conduct periodic checks of the implementation of measures in the field and in case of urgent infrastructure repairs and repairs to the rolling stock. The purpose of these reports is to ensure the work being done is of satisfactory quality, that the public is involved (where it is appropriate and necessary), that the documentation needed for construction is obtained and archived, and that the demands of all competent national, regional and local bodies are being met. For the activities relating to servicing of locomotives and wagons (the rolling stock),

the reporting may be done according to the activity and type of vehicle, e.g. one report for all locomotives in a certain time period, or for all wagons in a certain time period, and EMP Checklists drafted for this purpose will be used. Environmental Management Plans (EMPs) will be used for urgent infrastructure repairs if there are impacts that are location-specific, while for construction with typical impacts and typical activities of reduced potential environmental impact the EMP Checklist will be used for reporting.

A certain number of activities (sub-projects) that fall under the 'urgent rehabilitation investment' sub-component, and which HZI wishes to finances with the loan, were contracted in 2014 and are either in the implementation phase or finished. In those cases, the EMF will be used as an audit instrument of compatibility with World Bank environmental and social policies. In accordance with the audit findings, HZI drafts a Compatibility with World Bank Policies Report for each individual sub-project and submits it to the World Bank. Should the report show incompatibility, or fail to prove compatibility, the financing of the project may be canceled.

3.9.2 INCLUSION INTO CONTRACTS

In the case of regular loan usage, the Environmental Management Plan and the EMP Checklist are included in the tender documentation and contracts with the contractors for each category B- and B+ sub-project.

3.10 ROLES AND RESPONSIBILITIES

Each loan beneficiary is responsible for daily functioning and the administration of its sub-project portfolio. The loan beneficiary manages the project implementation and is responsible for the following: fiduciary activities, project monitoring and oversight, environmental protection and social responsibility, evaluation and reporting. The role of the coordinator has been awarded to MMATI.

Component 1 will be implemented by MMATI. Environmental protection obligations of MMATI include: content of the sub-projects, technical assistance and all other documentation is drafted in accordance with EMF requirements, that environmental protection needs are determined for activities encompassed by the technical assistance, and that appropriate environmental documentation is drafted (when needed).

Component 2 will be implemented by HZPP. Obligations of HZPP include: drafting of the part of the Environmental Management Framework document that relates to large and mid-sized locomotive repairs, passenger wagon repairs and electric motor train repairs, drafting of the templates of EMP Checklists and final versions of EMP checklists after a public tender has been conducted and a contractor has been chosen. With regard to environmental protection obligation implementation, and in accordance with World Bank policies, HZPP will oversee the implementation of measures of impact reduction and impact monitoring and state of the environment, defined in EMP Checklists (see Annex C), and periodically and in agreed upon deadlines (as an integral part of the project implementation report) report back to the World Bank on measures taken. Since there is no special division of HZPP that is responsible for environmental protection activities, persons responsible for environmental protection in this project are recruited from the company's technical divisions.

Component 3 will be implemented by HZC. Obligations of HZC include: drafting of the part of the Environmental Management Framework document that relates to large and mid-sized diesel and electric motor locomotive repairs, drafting of the templates of EMP Checklists and final versions of EMP checklists after a public tender has been conducted and a contractor has been chosen. With regard to environmental protection obligation implementation, and in accordance with World Bank policies, HZC will oversee the implementation of measures of impact reduction and impact monitoring and state of the environment, defined in EMP Checklists (see Annex C), and periodically and in agreed upon deadlines (as an integral part of the project implementation report) report back to the World Bank on measures taken. There is a division within HZC responsible for protection against fire, work safety and environmental protection that, however, doesn't possess the technical knowledge necessary for successful environmental protection management and oversight of environmental protection measures implementation, persons responsible for environmental protection in this project are recruited from the company's technical divisions

Component 4 will be implemented by HZI. Obligations of HZI include: drafting of the part of the Environmental Management Framework document that relates to urgent repairs to the railroad infrastructure, drafting of the templates of EMP Checklists for larger repairs (classified as category B+ projects; see Annex C), EMP Checklists and final versions of EMPs and EMP Checklists after a public tender has been conducted and a contractor has been chosen. With regard to environmental protection obligation implementation, and in accordance with World Bank policies, HZI will oversee the implementation of measures of impact reduction and impact monitoring and state of the environment, defined in EMP Checklists (see Annex C), and periodically and in agreed upon deadlines (as an integral part of the project implementation report) report back to the World Bank on measures taken. For previously commenced projects, HZI prepared a registration form and a template of the Compatibility with World Bank Policies, National Environmental Protection Legislation and Good Practices Report. For each such sub-project HZI will conduct a compatibility assessment and draft a Compatibility Report, with the help of the World Bank. The World Bank will review and confirm the Report. The approval for re-financing of an individual sub-project is based on, among other things, assessment findings, i.e. on the conclusion and recommendations of the Compatibility Report. There are two divisions within HZI responsible for environmental protection; (i) the Development Division, which is in charge of preparing fundamental documents, such as environmental impact studies. Since the Development Division has one employee responsible for environmental protection, most of the environmental protection activities are contracted out, (ii) the Environmental Protection and Protection Against Fire Division mostly deals with environmental issues as they pertain to maintenance and rehabilitation (waste reduction, waste water treatment, employee training and education, etc.). This division has five employees with experience in environmental protection who are continually receiving further education. The person responsible for environmental protection in this project comes from the Environmental Protection and Protection Against Fire Division. Both divisions coordinate their activities on a daily basis.

4 SUB-PROJECT APPROVAL PROCEDURE

All projects proposed for financing shall undergo environmental assessment, i.e. the possibility of project financing shall be assessed from the perspective of environmental protection as described below;

STEP 1: (i) Loan beneficiary prepares technical documentation for the sub-project to be financed including the technical description of the sub-project, permits and approvals issued by competent bodies related to the implementation of the sub-project as well as the time schedule of works. (ii) If the subject sub-project is already underway, the loan beneficiary completes the Financing Questionnaire from Annex B and assembles the technical description of the sub-project, permits and approvals issued by competent bodies related to the implementation of the sub-project and the time schedule of works. These requests are considered as separate, but parallel and the loan beneficiary is solely responsible for completing the requests.

STEP 2: The loan beneficiary is responsible for meeting the requirements prescribed by national legislation regulating the environmental protection and occupational health and safety. (i) For sub-projects and works that have yet to be contracted/commenced, the intervention beneficiary prepares the environmental protection document foreseen by this EMF (Audit Report). If the sub-project falls into Category B+ an EMP is prepared according to the template from Annex D, and for the projects from Category B- the template EMP Checklist from Annex C shall be used. The EMP Checklist consists of two templates, one for the rolling stock (locomotives and railroad cars) and one for emergency responses on the railway infrastructure. For projects in Category C, a statement on non-conducting environmental assessment of the sub-project is prepared (ii) In case of projects with financing of already commenced works the beneficiary of funds for such projects prepares the EMP or the EMP Checklists, in accordance with the project classification and applies them in the environmental inspection (audit) of the sites and of already completed works. Based on the obtained results, an Audit Report is prepared. Among other documents, such report also includes all filed reports made by natural persons, legal entities and competent bodies related to the implementation of the sub-project. The loan beneficiary shall submit all above listed documents to the World Bank.

STEP 3: The EMP or the EMP Checklist and the Audit Reports are to be prepared for each individual sub-project of Category B, respective of the sub-project type. While EMF, including EMP, EMP Checklists and

Audt Report templates was disclosed and consultation meeting took place, the EMP Checklists and the Audit Reports for specific sites will be published on the webpages of the loan beneficiary. Together with these documents, an invitation for comments is also published, with enabled electronic and written submission thereof within a clearly defined time period (two weeks) and dates. All comments and questions shall be processed and published in abbreviated form together with replys in the final version of thethe EMP Checklists. In the case of EMPs, in addition to online publishing and invitation to send comments, hard copy of EMPs will be made available at HZI premises for interested public, and public consultations organised. All comments and questions that occurred in the process shall be processed and published in abbreviated form together with replys in the final version of thethe EMPs.

STEP 4: The EMP and the EMP Checklist are included in the tender documents for the selected sub-projects and in the contracts for their execution to be signed with the selected works contractors.

STEP 5: (i) Based on the submitted documents, the World Bank approves the works on new sites. Commencement of works on sub-projects is approved on the basis of prepared EMP and EMP Checklists. (ii) HZI and the environmental protection specialist from the World Bank shall visit the sites to be financed in order to determine compliance with the environmental protection policies and national legislation. Those sub-projects that already underway for which the Audit Report contains non-compliance with the World Bank policies shall not be financed.

STEP 6: Each individual Audit Report is published on the webpages of the loan beneficiary. Together with the Report, an invitation for comments is also published, with enabled electronic and written submission thereof within a clearly defined time period (two weeks) and dates. All comments and questions shall be processed and published in abbreviated form together with the answer in the final version of the Audit Report.

STEP 7: Loan beneficiaries supervise the implementation of the EMP for mitigation of environmental impact and the EMP Checklist and regularly report to the World Bank thereof.

5 ANNEXES

5.1 ANNEX A - RESPONSIBILITIES OF PROJECT PARTICIPANTS

Participant	Activity	Supporting documents
Loan beneficiary	• Identify the requirements for environmental protection (screening) • Prepare the EMP Checklists and the EMP. Include the above documents in the tender documents and the contracts to be signed with the contractors of works or repairs. • Appoint the supervising engineer or a person responsible for supervising the implementation of the EMP or the EMP Checklist or for the preparation of the Audit Report • Organize and finance the implementation of the EMP and the EMP Checklists • Obtain all required documents and permits from the competent bodies • Report regularly on the implementation of the EMF, the EMP and the EMP Checklists • Assess the audit of the projects underway with the World Bank policies and the national environmental protection legislation and prepare the Audit Report	• Copies of permits and other documents • Copies of tender documents and permits • Periodic reports • The EMP, EMP Checklists or statements on the omission of the above documents in the execution of works • The Audit Reports on complying with the World Bank policies and the national environmental protection legislation for projects underway
Contractor	• Implement measures to mitigate impacts on the environment and human health • Monitoring	• Permits issued by competent bodies • Evidence on compliance of suppliers with the environmental protection standards and requirements • Reports on implementation of environmental protection measures
The World Bank	• Organize training of the employees of Hrvatske Željeznice on environmental and social policies • Periodic assessment of the implementation of the EMF, the EMP and the EMP Checklists • Approve and review the Audit Report on complying with the World Bank policies and the national environmental protection legislation • Visit the sites for assessing the compliance with the WB policies and the national legislation as well as other sites	• Aide-Memoires • Reports • Assessments of projects

5.2 ANNEX B – QUESTIONNAIRE FOR PROJECTS UNDERWAY

To be completed by the loan beneficiary

Name of the company: Hrvatske željeznice infrastruktura
Address: Mihanovićeva 12, 10 000 Zagreb
Phone and fax:
E-mail:
Name and position of the responsible person who completed the form:
Signature of the responsible person:
Date of form completion:

Instructions for completion of the application

The person responsible for the implementation of activities within the framework of the sub-project for which the application is being submitted or a higher ranked officer shall complete the Questionnaire. Please provide complete and detailed answers to all questions.

The Questionnaire is divided into three parts:

Part **1**: General information

Part **2**: Site

Part **3**: Permits/State of the environment

In case of any issues regarding the Questionnaire, please contact Ms. Maja Čeko by e-mail on Maja.Ceko@hzinfra.hr or by phone on 014534209.

GENERAL INFORMATION
Nature of works:
Name of works:
Works site:
Commencement date:
Planned completion date:
Name of the contractor:
Supervision of works:
Nature of planned works as part of the sub-project: o Slope reconstruction o Slope rehabilitation o Reconstruction of sectioning posts o Construction of new station platforms o Reconstruction of existing station platforms o Reconstruction of railway section o Replacement of electric traction system o Upgrade and putting into function of automatic block line o Replacement of points heating system and installation of electric heaters o Construction of canopies o Reconstruction of traction substation o Reactive power compensation o Replacement of points o Power devices o Replacement of electric point machines with hydraulic point machines o Replacement of railway automatic switchboard o Reconstruction of transmission lines o Replacement of power supply system o Reconstruction of catenary o Works on railway crossings o Other, please specify_____
Brief description of the sub-project:

SITE INFORMATION		
Planned activities at the site		
Is the project located near protected areas? (*national park, nature park, nature reserve, natural monument, protected landscape, forest park, etc.*)	○ yes	○ no
Is the project located in or near the Natura 2000 areas?	○ yes	○ no
Is the project located near a historic, archaeological or cultural property?	○ yes	○ no
Is the project located near a forest or does it require felling of trees? If the answer is Yes, please describe the impact.	○ yes	○ no
Site description		
If the specified works are executed on several sites, list all sites: 1. 2. …		
Site classification: ○ Industrial/commercial area ○ Urban area ○ Agricultural area ○ Protected area ○ Natura 2000 ○ Coastal area If the sub-project includes several sites, next to each type of site indicate the number of such planned sites on which this type of intervention will be performed.		
Name the current owner of the area to be included in the works. List the cadastral plots included in the works and specify the owner.		
Is the site of the intervention used by other entities, private or public, not including the owner (under sublease, concession, etc.)? If yes, describe how and by whom.	○ yes	○ no
Are there illegal users of the site of the intervention?	○ yes	○ no

If yes, describe who and how the land is used and if there are any residential structures present.		

PERMITS AND STATE OF THE ENVIRONMENT		
Permits		
Are the listed permits required for the execution of works and activities and when have they been obtained?		
Location permit	○ yes	○ no _____
Construction permit	○ yes	○ no _____
Emissions permit	○ yes	○ no _____
Environmental permit	○ yes	○ no _____
Permit for exploitation of natural resources	○ yes	○ no _____
Water permit	○ yes	○ no _____
Certificates on the origin of material for_____ (e.g. wood, stone aggregate)	○ yes	○ no _____
Permit for import or use of ozone depleting substances	○ yes	○ no
Approval of the commencement of works issued by a competent body	○ yes	○ no
Other. Which?	○ yes	○ no
Indicate the required design documents and which are already completed: ○ Preliminary design ○ Main design ○ Evaluation whether the Environmental Impact Assessment is necessary		
Do you possess permits for the existing structures? Please submit the copies of permits.	○ yes	○ no
Are there any inspection findings or reports related to the site	○ yes	○ no

or the nature of works within the last 5 years?		
State of the environment		
Have there been any environmental or other accidents at the site of the intervention? If the answer is yes, please provide a description.	○ yes	○ no

5.3 ANNEX C – EMP CHECKLISTS

Annex C.1 - Checklist EMP for the emergency rehabilitation works

<table>
<tr><th colspan="4">PART 1: INSTITUTIONAL & ADMINISTRATIVE</th></tr>
<tr><td>Country</td><td colspan="3">Croatia</td></tr>
<tr><td>Project title</td><td colspan="3">Sustainable Croatian Railways in Europe</td></tr>
<tr><td>Scope of project and activity</td><td colspan="3">Reconstruction and maintenance of railway infrastructure and rolling stock</td></tr>
<tr><td rowspan="2">Institutional arrangements
(Name and contacts)</td><td colspan="3">Project management</td></tr>
<tr><td>WB, Republic of Croatia, HZI</td><td>Ministry of Maritime Affairs, Transport and Infrastructure</td><td>Local party and/or beneficiary
HZI
Responsible for the preparation of the Checklist EMP, public consultation of the Checklist EMP and procurement of works and site supervision (the works and supervising contracts/appointments include tabular parts of the Checklist EMP)

Contractor
(name needs to be updated after contracting)
Responsible for the implementation of mitigation measures and monitoring according to Parts 2 and 3 of Checklist EMP</td></tr>
<tr><td rowspan="2">Implementation arrangements
(Name and contacts)</td><td colspan="3">Supervision</td></tr>
<tr><td>WB
Safeguards supervision
(name)</td><td>HZI
(_____)
Responsible for contracted site; supervising engineer or responsible person appointed by the Borrower;
Site supervisor

Site engineer</td><td>Local Inspectorate
Responsible for occasional visits to the site or upon public complaint

HZI
Responsible for supervision of overall project.
(name)</td></tr>
</table>

		(name needed to be updated after contracting) Responsible for implementation of the Checklist EMP from constructor side.	
SITE DESCRIPTION			
Name of site	**XXXXXX**		
Describe site location	Emergency rehabilitation works are carried out in the north, northwest, northeast and southwest of Croatia.		Annex 2: Site information (figures from the site) [] N or [X]Y
Who owns the land?	The land is state owned.		
Geographic description	North, northwest, northeast and southwest of Croatia.		
LEGISLATION			
Identify national & local legislation & permits that apply to project activity	The following Croatian Laws define a legal framework for environmental management: Environmental and Nature Protection Act (OG 80/13), Sustainable Waste management Act (OG 94/13), Regulation on *categories, types and classification of waste* with a hazardous *waste* catalogue (OG 50/05, 39/09), Waste management rulebook (NN 23/14, 51/14, 23/07, 111/07), Waste batteries and accumulators rulebook (OG 113/06, 31/09, 156/09, 45/12, 86/13), Packaging and packaging waste rulebook (OG 97/05, 115/05, 81/08, 31/09, 156/09, 38/10, 10/11, 81/11, 126/11, 38/13, 86/13), Waste oils rulebook (OG 124/06, 121/08, 31/09, 156/09, 91/11, 45/12, 86/13), Electric and electronic equipment waste management rulebook (OG 42/14, 48/14, 107/14, 139/14), Rulebook on environmental Pollutants Register (OG 35/08), Noise Protection Act (OG 30/09, 55/13), Rulebook on the highest levels of noise in human environment (OG 145/04, 46/08), Water Act (OG 153/09, 130/11, 56/13, 14/14), Construction Act (OG 153/13), Act on Architectural and Civil Engineering Work in Physical Planning and Construction (OG 152/08, 49/11, 25/13), Regulation on Classification of constructions, other spatial interventions, and surfaces of national or regional importance (OG 37/14), Rulebook on simple and other constructions and works (OG 79/14), Rulebook on project approval (OG 98/99, 29/03), Rulebook on technical inspection of construction (OG 108/04), Rulebook on granting approval for construction work commencement (OG 43/09), Rulebook on project control (OG 32/14), Rulebook on construction site posting (OG 42/14), Rulebook on content of Contractor's Statement on conducted works and sanitation conditions (OG 43/14), Rulebook on mandatory content of projects (OG 64/14), Technical regulation for steel constructions (OG 112/08, 125/10, 73/12, 136/12), Technical regulation for steel and concrete composite structures (OG 119/09, 125/10, 136/12),Technical regulation for concrete constructions (OG 139/09, 14/10, 125/10, 136/12), Technical regulation for electric installations (OG 5/10), Railways Act (OG 94/13), Safety and Interoperability of Railway System Act (OG 82/13), Rulebook on railway infrastructure (OG 127/05, 121/07), Cultural Heritage Protection and Preservation Act (OG 69/99,		

	151/03, 157/03, 87/09, 88/10, 61/11, 25/12, 136/12, 157/13, 152/14).
PUBLIC CONSULTATION	
Identify when / where the public consultation process took place	EMP Checklist will be disclosed at the company's web site for the two weeks period. Hard copy will be available at the construction site. Variety of stakeholders will be notified including local population and consulted. They will be encouraged to send comments and questions on the EMP checklist. All commentswill be addressed and included to the final version of EMP Checklist. Time of the consultation is not yet identified.
INSTITUTIONAL CAPACITY BUILDING	
Will there be any capacity building?	[] N or [X]Y if Yes, Annex 3 includes the capacity building information

PART 2: ENVIRONMENTAL /SOCIAL SCREENING

Will the site activity include/involve any of the following:

Activity	Status	Additional references
A. General conditions	[] Yes [ ] No	See Section **A** below
B. Reconstruction of railway tracks	[ ] Yes [ ] No	See Section **A, B** below
C. Restoration/rehabilitation of cuts	[] Yes [] No	See Section **A, C** below
D. Safety upgrade at crossings	[ ] Yes [ ] No	See Section **A, D** below
E. Rehabilitation of tunnels	[ ] Yes [ ] No	See Section **A, E** below
F. Construction of platforms and pedestrian flyovers	[ ] Yes [ ] No	See Section **A, F** below
G. Rehabilitation of bridges	[ ] Yes [ ] No	See Section **A, G** below
H. Restoration of railroad crossings	[ ] Yes [ ] No	See Section **A, D** below
I. Reconstruction of sectioning installation with neutral lines (PSN)	[ ] Yes [ ] No	See Section **A** below
J. Replacing railway switches	[ ] Yes [ ] No	See Section **A, J** below
K. Railway balise replacement	[ ] Yes [ ] No	See Section **A** below
L. Replacement of power supply system	[ ] Yes [ ] No	See Section **A,** below
M. Construction of shelters	[ ] Yes [ ] No	See Section **A, F** below
N. Reconstruction of a railway station	[ ] Yes [ ] No	See Section **A, B, F** below
O. Rehabilitation of contact network	[ ] Yes [ ] No	See Section **A** below
P. Installing reactive power compensation	[ ] Yes [ ] No	See Section **A** below
Q. Transmission line rehabilitation	[ ] Yes [ ] No	See Section **A** below
R. Replacing the railway automatic branch exchange	[ ] Yes [ ] No	See Section **A** below
S. Automatic block signaling replacement	[ ] Yes [ ] No	See Section **A** below
T. Reconstruction of electric traction substations	[ ] Yes [ ] No	See Section **A** below

	U. Drainage	[ ] Yes [ ] No	See Section **A** below
	V. Electric traction system replacement – cathodic protection	[ ] Yes [ ] No	See Section **A** below
	W. Replacement of switch point mounting devices with hydraulic devices	[ ] Yes [ ] No	See Section **A, B** below

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
A. General Conditions	Notification and Worker Safety	(a)The local construction and environment inspectorates and communities have been notified of upcoming activities. (b) The public has been notified of the works through appropriate notification in the media and/or at publicly accessible sites. (c) In the case the works are interfering with railway schedule the operator (HZI) needs to take precautions and coordinate works and railway traffic with the constructor and companies using the lines. The operator will take safety measures to prevent accidents. (d) All legally required permits have been acquired for construction and/or rehabilitation. (e) All work will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment. (f) Workers are well trained in using potentially dangerous equipment. (g)Any health and safety incidents should be reported to project manager immediately. This should be well communicated to the construction staff. (h) Workers' PPE will comply with international good practice (obligatory wearing of hardhats at all times, masks and safety glasses as needed and prescribed, harnesses and safety boots). (i) Appropriate signposting of the sites will inform workers of key rules and regulations to follow. (j) All construction sites are equipped with appropriate sanitary facilities and resting places for workers. (k) Construction sites are fenced off or protected by properly designed barricades or tape-marked. (l) Material stockpiles or stacks, such as pipes, are made stable and well secured to avoid collapse and possible injury to site workers. (m) Material stockpiles or stacks do not exceed 2m in height. (n) The construction camp (if required) must remain not accessible to public. (o)Potentially hazardous areas (e.g. trenches, manholes, excavations) must be clearly marked.

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
	Cultural heritage preservation	(a) In the case of chance finding, the site will be fenced (protected) and authorities (Inspectorate Office of the Ministry of Culture) informed. Their instructions will be followed in the further works. (b) The construction related camps, storages and other objects will be located further from archeological sites or archeologically sensitive areas.
	Nature protection	(a) Working site should occupy only the surfaces necessary for works to be carried out. (b) During the construction, workers must be limited to areas under construction and the access to surrounding open area must be strictly regulated. (c) Construction activities are planned carefully so as not to interfere with the important reproduction stages of protected species. (d) Prior to commencement of works the contractor will check the site for presence of wildlife and in case of finding bird nests, bats, dens or young the competent authority must be notified (Ministry of Environmental and Nature Protection, Department for Nature Protection, Nature Protection Directorate). (e) Causing disturbance to wildlife, pouching and removing animals and plants from the vicinity of the site for trade or any other purposes but safety is strictly forbidden. (f) Collection of firewood and traditional medicine plants is strictly forbidden. (g) The terrain at the working site has to return to its pre-works condition, if not possible than it will be adequately rehabilitated. (h) Destroyed greenery has to be rehabilitated with local indigenousness flora typical of the representative botanical unit, amongst which fire resistant species are preferred.
	Waste	(a) Waste collection, separation, transport and further processing is carried out in accordance with the internal 'Waste Rulebook' and national waste legislation (b) Containers for each identified waste category are provided in sufficient quantities and positioned conveniently. (c) Waste collection and disposal pathways and licensed sites will be identified for all major waste types expected from demolition and construction activities. (d) Mineral (natural) construction and demolition wastes will be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and temporarily stored in appropriate containers. Depending of its origin and content, mineral waste and excessive soil will be reapplied to its original location or reused. (e) All construction waste will be collected and disposed properly by licensed collectors. (f) The records of waste disposal (waste manifest) will be regularly updated and archived. (g) Whenever feasible, the contractor will reuse and recycle appropriate and viable materials. (h) Discarding any kind of waste (including organic waste) or waste water to the surrounding

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
		is strictly forbidden. (i) Transport odour wastes in covered vehicles (j) All waste and unused materials are to be removed from the site upon the finalization of works (k) All mechanization and tools are to be removed from the site upon the finalization of works
	Toxic/hazardous substances management	(a) During the temporary storage on site all hazardous or toxic substances will be kept in safe containers labeled with details of composition, properties and handling information. These containers should be leak-proof in order to prevent spillage and leaching. The containers should poses secondary containment system such as bunds (e.g. bunded-container), double walls, or similar. Secondary containment system must be free of cracks, able to contain the spill and be emptied quickly. (b) Fuel will be kept in safe, labeled, containers with information on properties and handling information.. These containers should be leak-proof in order to prevent spillage and leaching. The containers should poses secondary containment system such as bunds (e.g. bunded-container), double walls, or similar. Secondary containment system must be free of cracks, able to contain the spill and be emptied quickly. (c) The containers with hazardous substances must be kept closed, except when adding or removing materials. They must not be handled, opened, or stored in a manner that may cause them to leak. (d) Paints with toxic ingredients or solvents or lead-based paints will not be used. (e) Use of pesticides or herbicides during these works is strictly forbidden. (f) Regular checks of containers containing toxic and hazardous solids and liquids should be performed.
	Toxic/hazardous waste	(a) The containers holding ignitable or reactive wastes must be located at least 15 meters (50 feet) from the working facilities (b) All hazardous wastes, including liquids, contaminated packaging and solids are transported by specially licensed carriers and disposed in a licensed facility. (c) Temporary storage of liquid toxic or hazardous waste on site; all hazardous or toxic liquid substances will be kept in safe containers labeled with appropriate classification code in accordance with the Regulation on *categories, types and classification of waste* with a hazardous *waste* catalogue (OG 50/05, 39/09). These containers should be leak-proof in order to prevent spillage and leaching. The containers should poses secondary containment system such as bunds (e.g. bunded-container), double walls, or similar. Secondary containment system must be free of cracks, able to contain the spill and be emptied quickly.

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
		(d) Solid hazardous waste should be kept in safe containers labeled with appropriate classification code in accordance with the Regulation on *categories*, *types and classification of waste* with a hazardous *waste* catalogue (OG 50/05, 39/09). These containers should be leak-proof in order to prevent spillage and leaching. These containers should be covered and protected from weather impact (rain and other) (e) Oils, grease and sludge from the oil and grease collecting pits has to be removed from the pits, transported and disposed/recovered by a licensed company only and at the licensed landfills or other licensed facilities. (f) Regular checks of containers containing toxic and hazardous wastes should be performed.
	Water and soil	(a) Installation and regular maintenance of proper sanitary facilities for workers is carried out. (b) Water used for construction and other purposes (e.g. sanitary) is taken from the existing water supply sources. No additional water sources are engaged. (c) Waste water collected at the site must not be released to the environment without prior treatment. (d) Operating premises are equipped with waste water collecting system. Water is collected through the system and taken to the waste water treatment. Waste water treatment is minimally equipped with oil and grease separator after which waste water is either released to the municipal water collecting system (that includes further treatment),water treatment system on site or water is collected and taken for treatment elsewhere. (e) Prevent as much as possible, oil and other pollutants leakages to water and soil. (f) If necessary, the stream flow is made to bypass the construction area within drainage lines (g) Surface water at the construction site is diverted away from excavation trenches or areas prone to erosion. (h) Servicing of vehicles and machinery is conducted off-site. (i) Oil changes are conducted off site, on concrete platforms equipped with oil and grease separators. (j) Contaminated soil and aggregate must be stripped and disposed to a licensed landfill. (k) Regular monitoring of water quality should be performed at outlets of oil and grease separating pits. The water quality has to fulfill demands prescribed by the water management authority (Croatian Waters) and in accordance with Water Act (OG 153/09, 63/11, 130/11, 56/13, 14/14) and related bylaws.
	Air	(a) Ensure all transportation vehicles and machinery is regularly maintained and attested. (b) Ensure all vehicles and machinery runs on petrol from official sources (authorized gas

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
		stations) and on fuel determined by the machinery producer. (c) There will be no excessive idling of vehicles and machinery on the site.
	Transport and Materials Management	(a) Construction routes are clearly defined. (b) Distribution of materials and other usages of railway lines need to be announced and coordinated with the operator (HZI). The operator will take safety measures to prevent accidents. (c) All materials prone to dusting are transported in closed or covered trucks or wagons. (d) All materials prone to dusting and susceptible to weather conditions are protected from atmospheric impacts either by windshields, covers, watered or other appropriate means (e) Roads are regularly swept and cleaned at critical points. Spilled materials are immediately removed from a road and cleaned. Access roads are well maintained. (f) Railways are cleaned at critical points. Spilled materials are immediately removed from tracks and cleaned. Tracks are well maintained. (g) Access of the construction and material delivery vehicles are strictly controlled, especially during the wet weather. (h) Topsoil and stockpiles are kept separate. (i) Stockpiles are located away from drainage lines, natural waterways and places susceptible to land erosion. (j) All loads of soil are covered when being taken off the site for reuse/disposal (k) Stockpiles do not exceed 2m in height to prevent dissipation and risk of fall.
	Dust	(a) Washing of road transport vehicles and wheels will be conducted regularly, in previously identified sites equipped with, minimally, oil and grease collector. (b) Excavation and other clearing activities and earthwork must be done during agreed working times and permitting weather conditions to avoid drifting of sand and dust into neighboring area (c) Loading and unloading or dust prone materials will be conducted during the favorable weather and with adequate dust-reduction measures (d) A speed limit of 40km/h must not be exceeded on dirt roads (e) Dust prone materials should be transported in closed or covered trucks (f) Dust prone materials and other bulk materials should be protected from weather conditions, especially wind and rain.
	Fire prevention	(a) Grass left on the site must be regularly cut, especially during the dry periods, to prevent fires. (b) No fires will be allowed on site under any circumstance (c) All cooking on site shell be done in demarcated areas and under constant control.

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
		(d) The contractor shall have operational fire-fighting equipment available on site at all times. Their position is communicated to workers and marked. The level of fire-fighting equipment must be assessed and evaluated through a typical risk assessment. There is an appointed person on the site responsible for the fire protection. Procedures in the case of fire are well known to all employees.
	Noise	(a) Noise levels,at the site, should be kept within acceptable limits and not exceed values set in the national legislation - Rulebook on the highest levels of noise in human environment (OG 145/04, 46/08) (b) Work during the night will be avoided if possible, especially in the vicinity of settlements. In the case there will be night works appropriate permissions should be obtained. (c) Noise suppression measures must be applied to all construction equipment. During operations the engine covers of generators, air compressors and other powered mechanical equipment should be closed. Should the vehicles or equipment not be in good working order,, the constructor may be instructed to remove the offending vehicle or machinery from the site. (d) Mechanical equipment is effectively maintained. (e) Truck traffic should be routed away from noise sensitive areas, where possible.
B. Reconstruction of railway tracks	Waste	(a) In the case any of aggregate comes from the area of higher pollution (e.g. railway stations, etc.) stone aggregate analysis is carried out, selection and classification in accordance with internal 'Instructions on handling used stone aggregate waste resulting from works on railway tracks (HZI-331) '. (b) Reuse or sell categories I, II and III of waste stone aggregate in accordance with internal 'Instructions on handling used stone aggregate waste resulting from works on railway tracks (HZI-331)' and national legislation. (c) Dispose category IV of waste stone aggregate in accordance with internal 'Instructions on handling used stone aggregate waste resulting from works on railway tracks (HZI-331) ' and national legislation using licensed companies. (d) All removed or replaced sleepers are categorized in accordance with internal 'Instructions on selection of used wooden rail sleepers' and national legislation. (e) HDPE residual materials should be separately collected and hand over to be recycled. (a) Metal waste is separated and hand over to licensed company for reuse/recycling.
	Noise	(a) Noise and vibrations should be considered in the design, construction and operation (e.g. through alignment choice, location choice, soundproofing with noise barriers, etc.)
	Material management	(a) New sleepers are not originated from unsustainable harvesting of forest products in a critical habitat (e.g. FSC or FSI labeled are used). Certification of origin should be

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
		presented by the supplier. (b) Where feasible, use of sleepers treated with chromate copper arsenate or creosote oil is avoided and concrete sleepers or ones treated with copper nitrogen are used. (c) Construction material must originate from the licensed companies (e.g. company has to be able to present licenses for excavation of natural minerals, stone, lime, clay, etc.). The company has to present a proof of conformity with all national environmental and H&S legislation. (d) Organization of works is such that construction materials is kept at the site in minimal quantities and for minimal amount of time. (e) Sand and gravel used in construction works should be traceable to licensed companies with valid concessions. (f) Quality of sand and gravel has to fulfill technical requirements and be unpolluted with oils, toxic, corrosive or hazardous substances and free of impurities. (g) Producer of concrete has to obtain/hold all required working and emission permits and quality certifications. (h) The quarry supplying the cement producer with limestone has to prove conformity with all national environmental and H&S legislation and have all operating, environmental and H&S permits. (i) Ensure all transportation vehicles and machinery have been equipped with appropriate emission control equipment, regularly maintained and attested. (b) Water used for production of concrete can be technical water, but free of hazardous and toxic pollutants, heavy metals and other substances hazardous to human health and environment
C. Restoration/rehabilitation of cuts	Waste	(a) Soil excavated during the earthworks should be protected from scattering and dusting and should be reapplied. (b) Construction waste should be handed over to a licensed company or taken to a waste management center licensed for construction waste management
	Hazardous and toxic waste	(a) In the case any of aggregate comes from the area of higher pollution (e.g. railway stations, etc.) stone aggregate analysis is carried out, selection and classification in accordance with internal 'Instructions on handling used stone aggregate waste resulting from works on railway tracks (HZI-331) '. (b) Reuse or sell categories I, II and III of waste stone aggregate in accordance with the internal 'Instructions on handling used stone aggregate waste resulting from works on railway tracks (HZI-331)' and national legislation. (c) Dispose category IV of waste stone aggregate in accordance with internal 'Instructions on

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
		handling used stone aggregate waste resulting from works on railway tracks (HZI-331) ' and national legislation using licensed companies. (c) All removed or replaced sleepers should be categorized, stored, transported and reused or disposed in accordance with internal 'Instructions on selection of used wooden rail sleepers' and national legislation.
	Hazardous substances	(a) Use anticorrosive agents not toxic for the environment
	Land erosion	(a) Phased clearing is planned and areas of land cleared are kept to a minimum and the period of time areas remain cleared to a minimum to avoid erosion. (b) Rehabilitate cleared areas promptly, where possible. (c) Minimize the quantity of water that enters cleared areas (e.g. using drainage canals).
	Accidents prevention	(a) During the works necessary measures preventing erosion and landslides will be taken. (b) Vehicles and machinery manipulation and movement space will be clearly marked. (c) If the works disrupt regular railway traffic, the contractor and HZI will establish safe temporary road regulation with appropriate signalization. Prior to such works all necessary permits would be obtained. (d) Work site should be protected by a fence.
	Soil and water protection	(a) Construction equipment and vehicles (regular maintenance and checkups of oil and gas tanks, machinery and vehicles can be parked (manipulated) only on asphalted or concrete surfaces with surface runoff water collecting system. This water can then be either collected to retention basins or transported to a proper water treatment facility or the water collecting system has to include oil separator and sedimentation tank. (b) Care is taken not to mix topsoil and subsoil during stripping. Topsoil must be reused where possible. Soil stripping is carried out only in necessary areas. (c) In the case galvanization is used as the anticorrosive measure, the provider of service or galvanized goods should present related environmental permits (in accordance with Environmental Permit Regulation (OG 8/14)) (d) Prevent possible contaminants to enter the water body during the excavation or cable lying by isolating nature flows from the area of works. (e) The site will establish appropriate erosion and sediment control measures such as hay bales and / or silt fences to prevent sediment from moving off site and causing excessive turbidity in nearby streams and rivers during works. (f) In the case of any run-off coming from works area possibly contaminated by hazardous substances shall be collected on site to a temporary retention basin and transported to a adequate treatment plant.

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
		(g) Working site run-offs with possible charge with suspended matter should be filtered before spillage to natural flows. (h) Soil work and management will take into account metrological data and conditions when planned and carried out (e.g. avoid works during heavy rains). (i) Prevent hazardous spillage coming from tanks (mandatory secondary containment system, e.g. double walled or bunded containers), construction equipment and vehicles (regular maintenance and check-ups are mandatory), machinery and vehicles can be parked (manipulated) only on asphalted or concrete surfaces with surface runoff water collecting system (this water can then be either collected to retention basins and transported to a proper water treatment facility or the water collecting system has to include oil separator and sedimentation tank).
	Concrete and aggregate production	(a) Producer of concrete has to obtain/hold all required working and emission permits and quality certifications. (b) Producer has to present a proof of conformity with all national environmental and H&S legislation. (c) The quarry supplying the cement producer with limestone has to proof to hold all operating, environmental and H&S permits. (d) The lime quarry has to present a proof of conformity with all national environmental and H&S legislation. (e) The quarry supplying the stone aggregate has to proof to hold all operating, environmental and H&S permits. (f) Ensure all transportation vehicles and machinery have been equipped with appropriate emission control equipment, regularly maintained and attested. (g) Water used for production of concrete can be technical water, but free of hazardous and toxic pollutants, heavy metals and other substances hazardous to human health and environment
	Materials management	(a) Construction material must originate from the licensed companies (e.g. company has to be able to present licenses for excavation of natural minerals, stone, lime, clay, etc.). The company has to present a proof of conformity with all national environmental and H&S legislation. (b) Organization of works is such that construction materials is kept at the site in minimal quantities and for minimal amount of time. (c) Sand and gravel used in construction works should be traceable to licensed companies with valid concessions. (d) Quality of sand and gravel has to fulfill technical requirements and be unpolluted with

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
		oils, toxic, corrosive or hazardous substances and free of impurities.
D. Safety upgrade at crossings	Safety	(a) Canals are kept clear of surface and other water. (b) Canals are protected from collapse or erosion. (c) Mechanical excavations along the underground cable are performed minimally in 2.0m distance from the cable. In the case of the cable being crossed vertically mechanical works are allowed in 0.5m distance or more. (d) Manual excavations are carried out with hand tools (e.g. shovel, hack). In the area around the cables, 30cm or closer, hack and other sharp tools should not be used. Soil, closer than 10cm from the cable can be removed carefully using shovel. (e) The cable should be positioned in a way to avoid bending and damaging. When bending is necessary the radius should be 20 times or more the radius of the cable. (f) Cable lying, manipulation and other works can be performed at temperature of 5 ºC or higher. Exceptionally, works can be carried out at the temperature down to -5ºC however, with great caution and with minimal manipulation of the cables. (g) Cable canal is to be marked at every 100meters of cable line when the cable route is straight as well as at the following points: place of the cable extension – connection; location where the route is changing direction; where the cable is passing under the rail tracks or group of tracks columns are installed on both side; where the cable is passing public traffic surfaces and under the drainage canal or water streams it is marked from both sides. (h) Roads where trucks are transporting materials should be kept clean.
	Concrete and aggregate production	(a) Producer of concrete has to obtain/hold all required working and emission permits and quality certifications. (b) Producer presented a proof of conformity with all national environmental and H&S legislation. (c) The quarry supplying the cement producer with limestone has to prove conformity with all national environmental and H&S legislation and have all operating, environmental and H&S permits. (d) The quarry supplying the stone aggregate has to proof to hold all operating, environmental and H&S permits. (e) Ensure all transportation vehicles and machinery have been equipped with appropriate

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
		emission control equipment, regularly maintained and attested. (f) Water used for production of concrete can be technical water, but free of hazardous and toxic pollutants, heavy metals and other substances hazardous to human health and environment
	Asphalt production	(a) Producer of asphalt has to obtain/hold all required working and emission permits and quality certifications. (b) Producer has to present a proof of conformity with all national environmental and H&S legislation. (c) Ensure the subcontractor has all the necessary skills and experience and precautionary systems in place to prevent a wash off of bituminous materials (primer or primer binder). (d) Water in bitumen emulsion production should not be contaminated with hazardous or toxic chemicals (however, technological water is preferred). (e) Asphalt and bitumen emulsion application will take into account metrological data and conditions when planned and carried out (raining periods, overcast, cooler and dumper weather, etc.) (f) Bitumen emulsion is applied only to adequately compacted and swept surfaces with adequate moisture content. (g) Positioning of the emulsion sprayer should be such so no spraying beyond the area occurs. (h) Ensure that emulsion sprayers are well maintained, operated by trained crew and spray nozzles are operating correctly. (i) Avoid windy conditions when spraying. (j) Equipment is cleaned in areas where there will be no impact to the environment or danger of surface run-off (e.g. areas where water is collected to retention basins and transported to proper water treatment, and waste is separated and appropriately disposed). (k) Asphalt is covered when transported to the site of application. (l) Ensure all transportation vehicles and machinery have been equipped with appropriate emission control equipment, regularly maintained and attested.
	Materials management	(a) Organization of works is such that construction materials is kept at the site in minimal quantities and for minimal amount of time. (b) Sand and gravel used in construction works should be traceable to licensed companies with valid concessions. (c) Quality of sand and gravel has to fulfill technical requirements and be unpolluted with oils, toxic, corrosive or hazardous substances and free of impurities.

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
	Soil and water protection	(a) Prevent possible contaminants to enter the water body during the excavation or cable lying by isolating nature flows from the area of works. (b) The site will establish appropriate erosion and sediment control measures such as hay bales and / or silt fences to prevent sediment from moving off site and causing excessive turbidity in nearby streams and rivers during works. (c) In the case of any run-off coming from works area possibly contaminated by hazardous substances shall be collected on site to a temporary retention basin and transported to an adequate treatment plant. (d) Working site run-offs with possible charge with suspended matter should be filtered before spillage to natural flows. (e) Soil work and management will take into account metrological data and conditions when planned and carried out (e.g. avoid works during heavy rains). (f) Prevent hazardous spillage coming from tanks (mandatory secondary containment system, e.g. double walled or bunded containers), construction equipment and vehicles (regular maintenance and check-ups are mandatory), machinery and vehicles can be parked (manipulated) only on asphalted or concrete surfaces with surface runoff water collecting system (this water can then be either collected to retention basins and transported to a proper water treatment facility or the water collecting system has to include oil separator and sedimentation tank). (g) Cover open pits at the end of the working hours. (h) Prevent anticorrosive spillage to water and soil during application. (i) In the case galvanization is used as the anticorrosive measure, the provider of service or galvanized goods should present related environmental permits (in accordance with Environmental Permit Regulation (OG 8/14))
	Waste	(f) In the case any of aggregate comes from the area of higher pollution (e.g. railway stations, etc.) stone aggregate analysis is carried out, selection and classification in accordance with internal 'Instructions on handling used stone aggregate waste resulting from works on railway tracks (HZI-331) '. (g) Reuse or sell categories I, II and III of waste stone aggregate in accordance with internal 'Instructions on handling used stone aggregate waste resulting from works on railway tracks (HZI-331)' and national legislation. (h) Dispose category IV of waste stone aggregate in accordance with internal 'Instructions on handling used stone aggregate waste resulting from works on railway tracks (HZI-331) ' and national legislation using licensed companies. (a) All removed or replaced sleepers are categorized in accordance with internal 'Instructions

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
		on selection of used wooden rail sleepers' and national legislation. (b) HDPE residual materials should be separately collected and hand over to be recycled.
E. Rehabilitation of tunnels	Concrete production	(a) Producer of concrete has to obtain/hold all required working and emission permits and quality certifications. (b) Producer has to present a proof of conformity with all national environmental and H&S legislation. (c) The quarry supplying the cement producer with limestone has to proof to hold all operating, environmental and H&S permits. (d) The lime quarry has to present a proof of conformity with all national environmental and H&S legislation. (e) Ensure all transportation vehicles and machinery have been equipped with appropriate emission control equipment, regularly maintained and attested. (f) Water used for production of concrete can be technical water, but free of hazardous and toxic pollutants, heavy metals and other substances hazardous to human health and environment
	Land erosion	(a) Planning phased clearing and keeping the areas of land cleared to a minimum and the period of time areas remain cleared to a minimum to avoid erosion. (b) Rehabilitate cleared areas promptly, where possible. (c) Minimize the quantity of water that enters cleared areas (e.g. using drainage canals)
	Water and soil protection	(a) Prevent possible contaminants to enter the water body during the excavation or cable lying by isolating nature flows from the area of works. (b) The site will establish appropriate erosion and sediment control measures such as hay bales and / or silt fences to prevent sediment from moving off site and causing excessive turbidity in nearby streams and rivers during works. (c) In the case of any run-off coming from works area possibly contaminated by hazardous substances shall be collected on site to a temporary retention basin and transported to an adequate treatment plant. (d) Working site run-offs with possible charge with suspended matter should be filtered before spillage to natural flows. (e) Soil work and management will take into account metrological data and conditions when planned and carried out (e.g. avoid works during heavy rains). (f) Prevent hazardous spillage coming from tanks (mandatory secondary containment system, e.g. double walled or bunded containers), construction equipment and vehicles (regular maintenance and check-ups of oil and gas tanks, machinery and vehicles can be parked (manipulated) only on asphalted or concrete surfaces with surface runoff water

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
		collecting system. This water can then be, either collected to retention basins and transported to a proper water treatment facility, or the water collecting system has to include oil separator and sedimentation tank. (g) Cover open pits at the end of the working hours. (h) Prevent anticorrosive spillage to water and soil during application. (i) In the case galvanization is used as the anticorrosive measure, the provider of service or galvanized goods should present related environmental permits (in accordance with Environmental Permit Regulation (OG 8/14))
F. Construction of platforms and pedestrian flyovers	Concrete and aggregate production	(a) Producer of concrete has to obtain/hold all required working and emission permits and quality certifications. (b) Producer presented a proof of conformity with all national environmental and H&S legislation. (c) The quarry supplying the cement producer with limestone has to prove conformity with all national environmental and H&S legislation and have all operating, environmental and H&S permits. (d) The quarry supplying the stone aggregate has to proof to hold all operating, environmental and H&S permits. (e) The stone aggregate quarry has to present a proof of conformity with all national environmental and H&S legislation. (f) Ensure all transportation vehicles and machinery have been equipped with appropriate emission control equipment, regularly maintained and attested. (g) Water used for production of concrete can be technical water, but free of hazardous and toxic pollutants, heavy metals and other substances hazardous to human health and environment.
	Noise	(a) Noise and vibrations should be considered in the design, construction and operation (e.g. through alignment choice, location choice, soundproofing with noise barriers, etc.)
	Water and soil	(a) In the case of any run-off coming from works area possibly contaminated by hazardous substances shall be collected on site to a temporary retention basin and transported to a adequate treatment plant. (b) Working site run-offs with possible charge with suspended matter should be filtered before spillage to natural flows. (c) Soil work and management will take into account metrological data and conditions when planned and carried out (e.g. avoid works during heavy rains). (d) Prevent hazardous spillage coming from tanks (mandatory secondary containment system, e.g. double walled or bunded containers), construction equipment and vehicles

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
		(regular maintenance and check-ups of oil and gas tanks, machinery and vehicles can be parked (manipulated) only on asphalted or concrete surfaces with surface runoff water collecting system. This water can then be either collected to retention basins and transported to a proper water treatment facility or the water collecting system has to include oil separator and sedimentation tank. (e) Cover open pits at the end of the working hours. (f) Prevent anticorrosive spillage to water and soil during application. (g) In the case galvanization is used as the anticorrosive measure, the provider of service or galvanized goods should present related environmental permits (in accordance with Environmental Permit Regulation (OG 8/14))
	Waste	(i) In the case any of aggregate comes from the area of higher pollution (e.g. railway stations, etc.) stone aggregate analysis is carried out, selection and classification in accordance with internal 'Instructions on handling used stone aggregate waste resulting from works on railway tracks (HZI-331) '. (j) Reuse or sell categories I, II and III of waste stone aggregate in accordance with internal 'Instructions on handling used stone aggregate waste resulting from works on railway tracks (HZI-331)' and national legislation. (k) Dispose category IV of waste stone aggregate in accordance with internal 'Instructions on handling used stone aggregate waste resulting from works on railway tracks (HZI-331) ' and national legislation using licensed companies. (a) All removed or replaced sleepers are categorized in accordance with internal 'Instructions on selection of used wooden rail sleepers' and national legislation. (b) HDPE residual materials should be separately collected and hand over to be recycled.
	Asphalt	(a) Producer of asphalt has to obtain/hold all required working and emission permits and quality certifications. (b) Producer has to present a proof of conformity with all national environmental and H&S legislation. (c) Ensure the subcontractor has all the necessary skills and experience and precautionary systems in place to prevent a wash off of bituminous materials (primer or primer binder). (d) Water in bitumen emulsion production should not be contaminated with hazardous or toxic chemicals (however, technological water is preferred). (e) Asphalt and bitumen emulsion application will take into account metrological data and conditions when planned and carried out (raining periods, overcast, cooler and dumper weather, etc.) (f) Bitumen emulsion is applied only to adequately compacted and swept surfaces with

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
		adequate moisture content. (g) Positioning of the emulsion sprayer should be such so no spraying beyond the area occurs. (h) Ensure that emulsion sprayers are well maintained, operated by trained crew and spray nozzles are operating correctly. (i) Avoid windy conditions when spraying. (j) Equipment is cleaned in areas where there will be no impact to the environment or danger of surface run-off (e.g. areas where water is collected to retention basins and transported to proper water treatment, and waste is separated and appropriately disposed). (k) Asphalt is covered when transported to the site of application. (l) Ensure all transportation vehicles and machinery have been equipped with appropriate emission control equipment, regularly maintained and attested.
G.Rehabilitation of bridges and culverts	Land erosion	(a) Planning phased clearing and keeping the areas of land cleared to a minimum and the period of time areas remain cleared to a minimum to avoid erosion. (b) Rehabilitate cleared areas promptly, where possible. (c) Minimize the quantity of water that enters cleared areas (e.g. using drainage canals).
	Accidents prevention	(a) During the works necessary measures preventing erosion and landslides will be taken. (b) Vehicles and machinery manipulation and movement space will be clearly marked. (c) If the works disrupt regular road traffic, the contractor will establish safe temporary road regulation with appropriate signalization. Prior to such works all necessary permits would be obtained. (d) Work site should be protected by a fence.
	Concrete and aggregate production	(a) Producer of concrete and cement has to obtain/hold all required working and emission permits and quality certifications. (b) Producer presented a proof of conformity with all national environmental and H&S legislation. (c) The quarry supplying the cement producer with limestone has to prove conformity with all national environmental and H&S legislation and have all operating, environmental and H&S permits. (d) The quarry supplying the stone aggregate has to proof to hold all operating, environmental and H&S permits. (e) The stone aggregate quarry has to present a proof of conformity with all national environmental and H&S legislation. (f) Ensure all transportation vehicles and machinery have been equipped with appropriate emission control equipment, regularly maintained and attested. (g) Water used for production of concrete can be technical water, but free of hazardous and

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
		toxic pollutants, heavy metals and other substances hazardous to human health and environment.
	Waste	(l) In the case any of aggregate comes from the area of higher pollution (e.g. railway stations, etc.) stone aggregate analysis is carried out, selection and classification in accordance with internal 'Instructions on handling used stone aggregate waste resulting from works on railway tracks (HZI-331) '. (m) Reuse or sell categories I, II and III of waste stone aggregate in accordance with internal 'Instructions on handling used stone aggregate waste resulting from works on railway tracks(HZI-331)' and national legislation. (n) Dispose category IV of waste stone aggregate in accordance with internal 'Instructions on handling used stone aggregate waste resulting from works on railway tracks(HZI-331) ' and national legislation using licensed companies. (a) All removed or replaced sleepers are categorized in accordance with internal 'Instructions on selection of used wooden rail sleepers' and national legislation. (b) HDPE residual materials should be separately collected and hand over to be recycled. (c) Organic waste from clearing the site is separately collected and composted or utilized other way. It is not mixed with municipal or construction waste. (d) Construction waste is separated from recyclable waste and both adequately managed and reused or disposed.
	Materials management	(a) Stockpiles should not be situated such that they obstruct natural water pathways. (b) New sleepers are not originated from unsustainable harvesting of forest products in a critical habitat (e.g. FSC or FSI labeled) (c) Where feasible, use of sleepers treated with chromate copper arsenate or creosote oil is avoided and concrete sleepers or ones treated with copper nitrogen are used. (d) In the case galvanization is used as the anticorrosive measure, the provider of service or galvanized goods should present related environmental permits (in accordance with Environmental Permit Regulation (OG 8/14))
	Water	(a) Isolate nature flows from work flows in order to prevent possible contaminants to enter the water body during works. (b) Filter the uncontaminated work flows (remove silt) before re-entering recipient. (c) The site will establish appropriate erosion and sediment control measures such as hay bales and / or silt fences to prevent sediment from moving off site and causing excessive turbidity in nearby streams and rivers during works. (d) In the case of any run-off coming from works area possibly contaminated by hazardous substances shall be collected on site to a temporary retention basin and transported to an

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
		adequate treatment plant. (e) Working site run-offs with possible charge with suspended matter should be filtered before release to natural flows. (f) Soil work and management will take into account metrological data and conditions when planned and carried out (e.g. avoid works during heavy rains). (g)
J.Replacing railway switches with hydraulic ones	Waste	(a) Metal waste, due to contamination with oil and grease, is temporarily stored in closed or covered spaces, protected from weather conditions. (b) All removed or replaced sleepers are categorized in accordance with internal 'Instructions on selection of used wooden rail sleepers' and national legislation. (c) Oils in hydraulic devices are replaced by a licensed company. Waste oils are handed over to hazardous waste transport and management licensed companies to be disposed or recovered appropriately and in accordance with national legislation.

Annex C.2 - Checklist EMP for the overhaul activities

<table>
<tr><th colspan="4">PART 1: INSTITUTIONAL & ADMINISTRATIVE</th></tr>
<tr><td>Country</td><td colspan="3">Croatia</td></tr>
<tr><td>Project title</td><td colspan="3">Sustainable Croatian Railways in Europe</td></tr>
<tr><td>Scope of project and activity</td><td colspan="3">Reconstruction and maintenance of rolling stock</td></tr>
<tr><td rowspan="2">Institutional arrangements
(Name and contacts)</td><td colspan="3">Project management</td></tr>
<tr><td>WB, Republic of Croatia, HZC, HZP
(_____name_____)</td><td>Ministry of Maritime Affairs, Transport and Infrastructure</td><td>Local party and/or beneficiary
HZC, HZP
Responsible for the preparation of the Checklist EMP, public consultation of the Checklist EMP and procurement of works and site supervision (the works and supervising contracts/appointments include tabular parts of the Checklist EMP)

Contractor
(name needs to be updated after contracting)
Responsible for the implementation of mitigation measures and monitoring according to Parts 2 and 3 of Checklist EMP</td></tr>
<tr><td rowspan="2">Implementation arrangements
(Name and contacts)</td><td colspan="3">Supervision</td></tr>
<tr><td>WB
Safeguards supervision
(name)</td><td>HZC, HZP
(_____)
Responsible for contracted site; supervising engineer or responsible person</td><td>Local Inspectorate
Responsible for occasional visits to the site or upon public complaint

HZC, HZP</td></tr>
</table>

		appointed by the Borrower Site supervisor **Site engineer** (name needed to be updated after contracting) Responsible for implementation of the Checklist EMP from contractor side.	Responsible for supervision of overall project.
SITE DESCRIPTION			
Name of site	Contractor's workshop		
Describe site location	Periodic maintenance and overhaul works on the diesel locomotives, electric locomotives, electro-engine trains and passenger carriages will be carried out on contractor's premises. The works mostly take place in closed industrial halls. Contractors are tender selected and can be located anywhere in Croatia, and further.		Annex 1: Site information (figures from the site) [X] Y
Who owns the land?	The land is a private (contractor's) property.		
Geographic description	Depending on the contractor		
LEGISLATION			
Identify national & local legislation & permits that apply to project activity	The following Croatian Laws define a legal framework for environmental management: Environmental and Nature Protection Act (OG 80/13), Sustainable Waste management Act (OG 94/13), Regulation on *categories, types and classification of waste* with a hazardous *waste* catalogue (OG 50/05, 39/09), Waste management rulebook (NN 23/14, 51/14, 23/07, 111/07), Waste batteries and accumulators rulebook (OG 113/06, 31/09, 156/09, 45/12, 86/13), Packaging and packaging waste rulebook (OG 97/05, 115/05, 81/08, 31/09, 156/09, 38/10, 10/11, 81/11, 126/11, 38/13, 86/13), Waste oils rulebook (OG 124/06, 121/08, 31/09, 156/09, 91/11, 45/12, 86/13), Electric and electronic equipment waste management rulebook (OG 42/14, 48/14, 107/14, 139/14), Rulebook on environmental Pollutants Register (OG 35/08), Noise Protection Act (OG 30/09, 55/13), Rulebook on the highest levels of noise in human environment (OG 145/04, 46/08), Water Act (OG 153/09, 130/11, 56/13, 14/14)		
PUBLIC CONSULTATION			
Identify when / where the public consultation process took	EMP Checklist will be disclosed at the company's web site for the two weeks period. Stakeholders will be notified. The interested public will be encouraged to send comments and questions all of which will be addressed and included to the final version of EMP Checklist.		

place	Time of the consultation is not yet identified.
INSTITUTIONAL CAPACITYBUILDING	
Will there be any capacity building?	[] N or [X]Y if Yes, Annex 2 includes the capacity building information

PART 2: ENVIRONMENTAL /SOCIAL SCREENING			
Will the site activity include/involve any of the following:	**Activity**	**Status**	**Additional references**
	A. General good practice	[] Yes [ ] No	See Section **A** below
	B. Locomotive and electromotor train overhaul and repair	[] Yes [] No	See Section **A, B** below
	C. Passengers carriage overhaul and repair	[ ] Yes [ ] No	See Section **A, C** below
	D. Locomotive modernization	[ ] Yes [ ] No [] Possible	See Section **A, D** below
	E. Passengers carriage modernization	[ ] Yes [ ] No	See Section **A, E** below
	F. Passengers carriage - replacement of vital parts	[] Yes [ ] No	See Section **A, F** below
	G.	[ ] Yes [ ] No	See Section below
	H.	[ ] Yes [ ] No	See Section below

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
A. General Conditions	Permits, Notification and Worker Safety	(p) All legally required permits, licenses and authorizations have been acquired for carrying out operations (e.g. operating permit, waste management permits, health and safety requirements) (q) All work will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment. (r) Workers' PPE complies with international good practice (wearing hardhats at all times, as needed masks and safety glasses, harnesses and safety boots) (s) Appropriate signposting of the sites will inform workers of key rules and regulations to follow (t) Working teams are adequately trained and experienced (in basic profession as well as H&S, emergency procedures, etc.)
	Transportation of rolling stock	(a) Take road safety precautions in transportation of rolling stock to the repair premises and back (obtain necessary permits, ensure police escort, limit the speed, etc.)
	Waste	(a) All wastes generated during works will be separately collected on site and handed over to the waste collection authorized companies. Make sure recyclables (glass, paper, etc.) are sent to recycling units and not disposed together with municipal waste (checking waste manifests). (b) If waste is temporarily stored at site it has to be adequately protected from weather conditions or kept in closed containers

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
		(c) Waste is collected from the site, transported and recycled/recovered/disposed only by authorized companies for waste collection and management (d) Waste management documentation including permits (e.g. copy of contracted waste management company authorization), waste manifests, feedback documentation etc. has to be kept and regularly updated
	Toxic / hazardous substances and waste management	(a) Temporarily storage on site of all hazardous or toxic substances (including anticorrosive agents, dyes, varnishes, solvents, coolants, acids, hydraulic fluids, petroleum based fluids, petroleum contaminated solids such as oil filters and saturated spill absorbent material, alkalis, and other wastes) will be kept in safe containers labeled with details of composition, properties and handling information. These containers should be leak-proof in order to prevent spillage and leaching. These containers should poses secondary containment system such as bunds (e.g. bunded-container), double walls, or similar. Secondary containment system must be free of cracks, able to contain the spill and be emptied quickly. (b) The containers with hazardous substances must be kept closed, except when adding or removing materials/waste. They must not be handled, opened, or stored in a manner that may cause them to leak. (c) The containers holding ignitable or reactive wastes must be located at least 15 meters (50 feet) from the working facilities (d) All hazardous wastes, including liquids, contaminated packaging and solids are transported by specially licensed carriers and disposed in a licensed facility. (e) Paints with toxic ingredients or solvents or lead-based paints will not be used (f) Sludge from oil separator needs to be adequately handled and disposed in accordance with the national regulation (g) Absorbent materials and debris collected in the shop-floor (e.g. oily sand, oily wood-dust) also present toxic wastes thus are transported by specially licensed carriers and disposed in a licensed facility.
	Water	(a) Water used for washing the rolling stock and all other uses in the premises is taken from the existing water supply sources. No additional water sources are engaged. (b) Operating premises are equipped with waste water collecting system. Water is collected through this system and taken to the waste water treatment. Waste water treatment is minimally equipped with oil and grease separator after which waste water is either released to the municipal water collecting system (that includes further treatment), water treatment system on site or water is collected and taken for treatment elsewhere. (c) Waste water collected from the site must not be released to the environment without prior treatment.

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
		(d) Prevent, as much as possible, oil and other pollutants leakages to water (e) Apply dry cleaning before washing the floor, working and other surfaces and rolling stock (f) Use air nozzles for washing if applicable. If washing is conducted manually, contact sprays should be used. Avoid uncontrolled use of water.
	Air	(a) Ensure all transportation vehicles and machinery is regularly maintained and attested (b) Ensure all vehicles and machinery runs on petrol from official sources (authorized gas stations) and on fuel determined by the machinery producer (c) There will be no excessive idling of vehicles and machinery on the site (d) Painting and varnishing is carried out in well ventilated closed spaces. Ventilated air has to be filtered before released to the environment. Ventilation system is regularly maintained and filters are regularly changed.
	Noise	(a) Noise in the overhaul premises should not exceed values set in the national legislation (in Croatia it is set in the Rulebook on the highest levels of noise in human environment (OG 145/04, 46/08)) (b) Work during the night will be avoided if possible (c) During operations the engine covers of generators, air compressors and other powered mechanical equipment should be closed (d) Mechanical equipment to be effectively maintained
B. Locomotive Overhaul	Waste	(b) Adequate collection and storage of residual oils should be in place. Further collection should be carried out by licensed companies and disposed/recovered in a licensed facility. (c) Adequate collection and storage of oil contaminated cloths, clothes, spare parts, other parts (e.g. replaced reservoirs) materials, etc. Further collection should be carried out by licensed companies and disposed/recovered in a licensed facility. (d) Scraped metal, metal debris and other metal parts are separately collected and delivered for recycling. (e) Paint chips and sandblast grit are to be collected separately as potentially toxic waste and disposed adequately. This material, not prone to leaking, does not ned to be contained in double bounded containers, however, needs to be covered and protected from atmospheric influences. Further collection should be carried out by licensed companies and disposed/recovered in a licensed facility. (f) Rubber parts and rubber waste materials are separately collected and delivered for recycling. (g) Electronic parts and equipment (e.g. static converters) is considered toxic waste and need to be handed over to the authorized electronic waste management company and adequately disposed. (h) Accumulators and batteries present toxic waste and need to be handed over to the authorized electronic waste management company and adequately disposed. (i) PCBs might be contained in older transformers, condensers and other parts. Croatia is a signatory to Stockholm Convention thus PCB containing parts must not be refilled or replaced with PCB

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
		containing ones wherever the overhaul or maintenance takes place. All found PCB fillings and contaminated parts must be handed over to the authorized waste management company and adequately disposed. (j) Asbestosis inert, but potentially toxic and need to be handed over to the authorized waste management company and adequately disposed in accordance with the national legislation.(In Croatia this is Rulebook on methods and procedures for asbestos containing waste management (OG 42/07) which stipulates, among other things, (1) asbestos particles entering natural environments, including air and water, must be prevented at all stages of asbestos materials management and life cycle, such as transport (e.g. dusting), handing and final disposal (asbestos disposing sites are clearly marked) (2) asbestos waste can be handed over for further management and disposal only to licensed companies, (3) both asbestos waste producer and waste management company must keep records on asbestos waste (waste manifests).
	Hazardous waste	(a) If mercury can be found in removed equipment (e.g. manometers) and it needs to be treated as toxic waste and handed over to the authorized waste management company and adequately disposed. (b) Replaced lights are handled in accordance with the type. For lights such as fluorescent lights and compact fluorescent lights, since containing mercury, must be handed over to the authorized waste management company and adequately disposed.
	New materials and equipment	(a) Air conditioners installed need to be CFC free (b) Avoid use of toxic dyes (c) Avoid installing manometers containing mercury (d) Avoid toxic anticorrosive agents (e) Avoid lightning containing toxic gasses (e.g. mercury)
C. Passengers carriage overhaul	Waste Management	(i) Adequate collection and disposal of oil contaminated cloths, clothes, spare parts, other parts (e.g. replaced reservoirs), materials, etc. (j) Scraped metal, metal debris and other metal parts are separately collected and delivered for recycling. (k) Paint chips and sandblast grit are to be collected separately as potentially toxic waste and disposed adequately. This material, not prone to leaking, does not ned to be contained in double bounded containers, however, needs to be covered and protected from atmospheric influences. Further collection should be carried out by licensed companies and disposed/recovered in a licensed facility. (l) Rubber parts and rubber waste materials are separately collected and delivered for recycling. (m) Electronic parts and equipment (e.g. static converters) is considered toxic waste and need to be handed over to the authorized electronic waste management company and adequately disposed. (n) Replaced lights are handled in accordance with the type. For lights such as fluorescent lights and

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
		compact fluorescent lights, since containing mercury, must be handed over to the authorized waste management company and adequately disposed.
	Air	(a) In the case of air conditioners replacement if any contain CFC, it must be handed over to the authorized company and adequately disposed.
	Materials management	(a) Avoid use of toxic dyes (b) Air-condition installed to the carriage must not contain CFC or any other ozone depleting gas.
	Toxic / hazardous substances and wastes management	(a) Temporarily storage on site of all hazardous or toxic substances (including anticorrosive agents, dyes, varnishes, solvents, petroleum based fluids, petroleum contaminated solids such as oil filters and saturated spill absorbent material, alkalis, and other wastes) will be kept in safe containers labeled with details of composition, properties and handling information. These containers should be leak-proof in order to prevent spillage and leaching. These containers should poses secondary containment system such as bunds (e.g. bunded-container), double walls, or similar. Secondary containment system must be free of cracks, able to contain the spill and be emptied quickly. (b) The containers of hazardous substances should be placed in an leak-proof container to prevent spillage and leaching (c) The wastes are transported by specially licensed carriers and disposed in a licensed facility. (d) Paints with toxic ingredients or solvents or lead-based paints should be avoided
D. Locomotive modernization	Waste	(a) Electronic parts and equipment (e.g. static converters) is considered toxic waste and need to be handed over to the authorized electronic waste management company and adequately disposed. (e) Replaced lights are handled in accordance with the type. For lights such as fluorescent lights and compact fluorescent lights, since containing mercury, must be handed over to the authorized electronic waste management company and adequately disposed.
	Air	(a) Air-condition installed to the carriage must not contain CFC or any other ozone depleting gas.
E. Passengers carriage modernization	Air	(a) In the case of air conditioners replacement if any contain CFC, it must be handed over to the authorized company and adequately disposed. (b) New air-condition installed to the carriage must not contain CFC or any other ozone depleting gas.
F. Replacement of vital parts	Waste management	(a) Electronic parts and equipment (e.g. static converters) is considered toxic waste and need to be handed over to the authorized electronic waste management company and adequately disposed. A proof of waste disposal should be kept on site. (g) Accumulators and batteries must be separately collected and stored adequately. These items should be then handed over to the authorized waste management company (registered for managing such wastes) and adequately disposed.

PART 3: MONITORING PLAN

Rehabilitation / Works Phase					
What *parameter is to be monitored?*	**Where** *is the parameter to be monitored?*	**How** *is the parameter to be monitored (what should be measured and how)?*	**When** *is the parameter to be monitored (timing and frequency)?*	**By Whom** *is the parameter to be monitored– (responsibility)?*	**How much** *is the cost associated with implementation of monitoring*
1.					
2.					
…					
Operation Phase					
1.					
2.					
…					

5.4 ANNEX D – ENVIRONMENTAL MANAGEMENT PLAN (EMP) TEMPLATE

The Environmental Management Plan (EMP) consists of a number of mitigations and monitoring measures as well as of institutional measures to be enforced during the implementation and works in order to eliminate and neutralize negative environmental and social impacts or to reduce them to acceptable levels. The EMP also includes a list of activities necessary to implement the said measures.

Environmental Management Plans are an essential feature of the Environmental Assessment for projects Category A. For many projects from Category B the Environmental Assessment results only in preparation of the Environmental Management Plan. When preparing the Environmental Management Plan the loan beneficiary and his EA team shall (a) identify a series of responses to potentially adverse impacts, (b) define the requirements that will ensure effective and timely implementation of the said responses i.e. measures and (c) describe how to meet these requirements.

The Environmental Management Plan (EMP) includes the following components:

Impact mitigation

1. The EMP identifies feasible and cost-effective measures that can mitigate potentially significant adverse impacts to the environment to acceptable levels. If the mitigation measures are not feasible, sufficient of cost-effective, the EMP may include compensation measures. The EMP particularly:

(a) identifies and summarizes the adverse environmental impacts (including impacts on the indigenous population and involuntary relocation);

(b) provides detailed technical description of each measure including the type of impact it addresses and the conditions under which the measure is required (e.g. continually or in case of unforeseen events), together with the project design, description of equipment and operative procedures, if necessary.

(c) evaluates all potential impacts of the said measures

(d) provides a reference to other mitigation plans (e.g. for involuntary relocation, indigenous population or cultural property) required by the project.

Monitoring

2. Monitoring the state of environment during the implementation of the project provides information on key environmental aspects of the project, particularly on the impacts of the project on the environment and the efficiency of the mitigation measures. These measures enable the client and the Bank to evaluate the successfulness of the mitigation measures as a part of supervision and enable introduction of corrective action, if needed. Therefore, the EMP identifies the monitoring objectives and specifies the type of monitoring with reference to Environmental Assessment Report and measures described in the EMP. Part of the EMP referring to monitoring provides (a) specific descriptions and technical details of the monitoring measures, including parameters to be monitored, methods to be used, sampling locations, frequency of monitoring, restrictions and defined limit values that are a signal for corrective action, (b) monitoring and reporting procedures to (i) ensure early detection of conditions that require specific mitigation measures and (ii) provide information on monitoring progress and results.

Implementation Schedule and Cost Estimate

3. For all three aspects (mitigation, monitoring and development of capacities) the EMP provides (a) a measure implementation plan that is an integral part of the project, with the plan stages and coordination in line with other project plans and (b) cost estimates and sources of funding for the cost

of capital and recoverable cost arising from the EMP. These values are also a part of the Total Project Cost Table.

Environmental Mitigation Plan

Construction Phase					
Activity	Potential Environmental Impact	Proposed Mitigation Measures	Responsibility for Implementation of Mitigation Measures	Period for Implementation of Mitigation Measures	Mitigation Measures Implementation Costs
1.					
2.					
…					
Operational Phase					
1.					
2.					
…					

Monitoring Plan

Construction Phase					
What *parameter is to be monitored?*	**Where** *is the parameter to be monitored?*	**How** *is the parameter to be monitored?*	**When** *is the parameter to be monitored (time and frequency)?*	**Who** *monitors the parameter (responsibility)?*	**Cost** *of monitoring the parameter*
1.					
2.					
…					
Operational Phase					
1.					
2.					
…					

5.5 ANNEX E - PUBLIC ACCESS – RECORD

DATUM : 17.3.2015. početak 10.05
završetak 10.45

Mojca Čelus

5.5 DODATAK E JAVNI UVID – ZAPISNIK

PRISUTNI :

IME; PREZIME ; SVOJSTVO – PODUZEĆE TEL E MAIL

1. DRAGO IVANJKOVIĆ, HŽ-INFRASTRUKT, 098404423, drago.ivanjkovic@hzinfra.hr
2. MIROSLAV ZAJEC, HŽ-Putnički Prijevoz, 098 3105 069, hrvoje.zajec@hzpp.hr.
3. Putarek Ivica ; DEAL, 6191916
4. Goran Jurišić, HŽ Cargo, 098 404 438 goran.jurisic@hzcargo.hr
5. Marko Kelčec-Šuhove ; HŽ Cargo, marko.kelcec@hzcargo.hr
6. MATKA ŠORIĆ HŽI-KK 098211166 matko.soric@hzinfra.hr
7. MAJA ČEKO, HŽI d.o.o. 098499-755 ~~Zaštita~~ dvoliše
8. INGRID GRBEŠA KKomunikacije HŽ Infrastruktura

Predstavnik tvrtke DEAL, IVICA PUTAREK

→ američke lokomotive → ne udovoljavaju standardima propisanima za emisiju ispušnih plinova
→ premalo lokomotiva na ličkoj traši
→ premali kapacitet ponge prema Rijeci
→ primjedba razdvajanja HŽ-Hrvatskih željeznica d.o.o.
↳ revitalizacije HŽ Cargo d.o.o.

→ rasprava oko potrebe popravka ili zamjene motora
→ primjedba na nepotrebno smanjenje broja radnika

- primjedba na vagone putničkog prijevoza → nisu modernizirani (sjedala i klima-uređaji)
  → odgovor g. Zajeca da će isti modernizirati prema propisanim standardima

→ rekonstrukcija postojeće infrastrukture → pre male brzine
12-17 → na glavnim prugama broj pruga i kuć
20-30 → na sporednim — " —
preko 30 g. → — " —

Zaključak:
Prisutni g. Ivica Patek iz tvrtke DEAL nije davao primjedbe na sam Okvirni dokument koji upravljanje dionicom izrađen za projekt Održive željeznice Hrvatske u Europi, već je njegova generalna primjedba bila na strategiju upravljanja tvrtkama Hrvatskih željeznica i Strategijom MPPI-a.
Također, sve gore navedene teme su gospodin Patek pojašnjenje te je u skladu sa postavljenim pitanjem i dobio odgovore.

HŽ INFRASTRUKTURA	**Zapisnik sa sastanka**	Broj: List: 1 od 2

Tema :	Javni uvid u dokumentaciju „Okvirni dokument upravljanja okolišem“ u svrhu dobivanja kredita WB-a za financiranje „Projekta Održive željeznice Hrvatske u Europi“		
Mjesto	HŽ Infrastruktura d.o.o., Mihanovićeva 12, soba 89, Zagreb	Datum	17.03.2015. 10.05 – 10.45

	Prisutni	
Signatura	Org. cjelina. / Org. Jedinica / Funkcija	Ime i prezime / potpis
	Poslovi zaštite okoliša i ZOP-a	Drago Ivanković
	HŽ Putnički prijevoz d.o.o.	Hrvoje Zajec
	HŽ Cargo d.o.o.	Goran Jurišić
	HŽ Cargo d.o.o.	Marko Kelčec - Suhovec
	Korporativni Kontroling	Vlatka Škorić
	Korporativni Kontroling	Ingrid Grbeša
	Poslovi zaštite okoliša i ZOP-a	Maja Čeko
	Tvrtka Deal	Ivica Putarek

1. DNEVNI RED

Red.br.	Tema
1	Okvirni dokument upravljanja okolišem

2. ODLUKE I POSTUPCI

Red.br.	Aktivnost / zadatak	odgovoran	rok

HŽ INFRASTRUKTURA	**Zapisnik sa sastanka**	Broj: List: 2 od 2

1	Javni uvid u dokument „Okvirni plan upravljanja okolišem“ je započeo 10.05 (zbog manjih tehničkih poteškoća sa projektorom) sa kratkom prezentacijom koja je bila uvod u javnu raspravu. Prezentacija je obuhvaćala pojašnjenje dokumenta izrađenog za sva tri društva, HŽ Infrastrukturu d.o.o, HŽ Cargo d.o.o. i HŽ Putnički prijevoz d.o.o. Nakon prezentacije je otvorena javna rasprava kojo jsu pristustvovali predstavnici gore navedenih tvrtki (popis djelatnika u popisu prisutnih). Od zainteresirane javnosti na uvid je pristupila samo jedna osoba, predstavnik tvrtke DEAL, g. Ivica Putarek. Od strane g. Putareka je izneseno niz sugestija i primjedbi koje nisu imale zajedničke dodirne točke po pitanju dokumenta „Okvirni dokument upravljanja okolišem“. Iste su bile slijedeće: • Kvaliteta američkih lokomotiva i primjena standarada za praćenje emisija • Premali broj lokomotiva na „ličkoj“ pruzi • Premali kapacitet propisnosti „riječke“ pruge • Primjedba na razdvajanje tvrtke HŽ – Hrvatske željeznice d.o.o. i revitalizacija tvrke HŽCargo d.o.o. koja je nosioc željezničkog prijevoza u RH • Rasprava oko potrebe ili zamjene motora lokomotiva HŽ Carga d.o.o. • Primjedba na nepotrebno smanjivanje zaposlenika gore navedenih tvrtki • Primjedbe na vagone Putničkog prijevoza d.o.o. u smislu da isti nisu modernizirani u dostatnoj mjeri (klima uređaji) • Primjedba na dinamiku provođenja rekonstrukcije postojećih pruga Javni uvid je završio u 10.45. U prilogu: Zapisnik-bilješka sastavljena na javnom uvidu

3. OPĆENITO

Zaključak:

Prisutni g. Ivica Putarek je na javnom uvidu iznosio primjedbe koje nisu imale dodirnih točaka sa Dokumentom za koji je održan javni uvid, te na sam dokument nije imao primjedbi niti prijedloga za njegovu nadopunu ili izmjenu.

Generalna primjedba g. Putareka je nepostojanje Razvojne strategije Željeznica u Hrvatskoj, kao i upravljanje tvrtkama HŽ Cargo, HŽ Putnički prijevoz i HŽ Infrastruktura od strane Vlasnika i MPPI-a

Na sva postavljenja pitanja i primjedbe koje je iznio, g. Putarek je dobio odgovore i pojašnjenja koja su bila u domeni odnosno mogućnosti da na iste odgovore prisutni predstavnici navedenih Društava te je isti upućen ukoliko ima potrebe za detaljnijim odgovorima i iznošenju prijedloga po pitanju upravljanja i vođenja željezničkog sektora da se obrati službenim putem na instance koje su za isto zadužene.

Zapisnik	izradio	Maja Čeko	odobrio	Drago Ivanković

Aktualnosti
HŽ Cargo u medijima
Fotoarhiv
Logo
Kontakt

Poziv na javnu raspravu

Prijedlog Zajma Svjetske banke društvu HŽ Cargo d.o.o. ima za primarni cilj pružiti podršku provedbi Programa restrukturiranja i podršku strukturnoj reformi u smjeru daljnjih investicija u mobilne kapacitete, ulaganje u IT sektor, odljev zaposlenika te financiranje ostalih aktivnosti u skladu s poslovnim planom.
U skladu s procedurama Svjetske banke na području zaštite okoliša, tijekom procesa evaluacije, HŽ Cargo d.o.o. treba obaviti konzultacije s potencijalnim korisnicima kredita (poslovnim bankama i krajnjim korisnicima), nevladinim organizacijama te ostalom zainteresiranom javnošću.
Javni uvid u prijedlog Procedure zaštite okoliša za procjenu projekata održat će se u razdoblju **od 5. do 20. ožujka 2015.** godine. Krajnji rok za dostavu mišljenja, primjedbi i prijedloga svih zainteresiranih u vezi s prijedlogom Procedura zaštite okoliša za procjenu projekata je **20. ožujka 2015.** godine.

Sukladno navedenom, pozivaju se svi zainteresirani dostaviti svoja mišljenja, primjedbe i prijedloge u vezi s prijedlogom Procedura zaštite okoliša za procjenu projekata do predviđenog datuma putem:

- elektroničke pošte: info@hzcargo.hr
- na telefaks na broj:01 4577617
- poštom na adresu:

HŽ Cargo d.o.o.
10 000 Zagreb, Trg kralja Tomislava 11/I
(uz napomenu: za poziv na javnu raspravu).

Javna prezentacija prijedloga Procedura i rasprava bit će održana **17. ožujka 2015**. u prostorijama HŽ Infrastrukture d.o.o., Mihanovićeva 12, Zagreb s početkom u 10.00 sati.

Dokumente za javnu raspravu pogledajte ovdje:

On-line pozicija vagona

Karta pružne mreže RH

HŽ INFRASTRUKTURA
10000 Zagreb, Mihanovićeva 12
Ured Uprave

POZIV NA JAVNU RASPRAVU

o prijedlogu Procedura zaštite okoliša za procjenu projekata u okviru predloženog Zajma Svjetske banke HŽ Infrastrukturi d.o.o.

Prijedlog Zajma Svjetske banke HŽ Infrastrukturi d.o.o. ima primarni cilj ojačati i poduprijeti projekt Održive željeznice Hrvtaske u Europi te pružiti podršku provedbi Programa restrukturiranja i podršku strukturnoj reformi u smjeru održavanja i daljnjih investicija u infrastrukturu, odljev zaposlenika i refinanciranje postojećih obveza.

U skladu s procedurama Svjetske banke na području zaštite okoliša, tijekom procesa evaluacije, HŽ Infrastruktura d.o.o. treba obaviti konzultacije s nevladinim organizacijama te ostalom zainteresiranom javnoscu.

Javni uvid u prijedlog Procedura zaštite okoliša za procjenu projekata održat će se u razdoblju od 05. ožujka do 19. ožujka 2015. godine. Krajnji rok za dostavu mišljenja, primjedbi i prijedloga svih zainteresiranih u vezi s prijedlogom Procedura zaštite okoliša za procjenu projekata je 17. ožujka 2015. godine.

Sukladno tome, pozivaju se svi zainteresirani dostaviti svoja mišljenja, primjedbe i prijedloge u vezi s prijedlogom Procedura zaštite okoliša za procjenu projekata do predviđenog datuma putem:

elektroničke pošte: infrasturktura.hr@hzinfra.hr
na adresu na telefaks na broj: 01/378 33 26
poštom na adresu: HŽ Infrastruktura d.o.o.
Mihanovićeva 12,
10 000 Zagreb
(uz napomenu: za poziv na javnu raspravu)

Javna prezentacija prijedloga Procedura i rasprava održat će se dana 17. ožujka 2015. godine u prostorijama HŽ Infrastrukture d.o.o., Mihanovićeva 12, s početkom u 10:00 sati

HŽ PUTNIČKI PRIJEVOZ

Održana javna rasprava

17. ožujka održana javna rasprava o prijedlogu Zajma Svjetske banke HŽ Putničkom prijevozu

U Zagrebu je 17. ožujka održana javna rasprava o prijedlogu Zajma Svjetske banke HŽ Infrastrukturi, HŽ Cargu i HŽ Putničkom prijevozu.
Zainteresirana javnost pozvana je da se informira o projektima koje će taj zajam pokrivati, kao i o procedurama zaštite okoliša za procjenu projekata.

Primarni cilj Zajma jest ojačati i poduprijeti Projekt održivog razvoja hrvatskog željezničkog sektora, provedbu programa restrukturiranja i strukturne reforme u smjeru održavanja i daljnjih investicija u infrastrukturu, odljev zaposlenika i financiranje ostalih aktivnosti u skladu s poslovnim planom u sva tri željeznička društva.

U skladu s procedurama Svjetske banke na području zaštite okoliša, tijekom procesa evaluacije HŽ Putnički prijevoz d.o.o. treba se konzultirati s nevladinim organizacijama te ostalom zainteresiranom javnošću.

Krajnji rok za dostavu mišljenja, primjedba i prijedloga svih zainteresiranih u vezi s prijedlogom Procedura zaštite okoliša za procjenu projekata je **20. ožujka** 2015. godine. Prezentaciju možete pogledati ovdje.

U skladu s time pozivaju se svi zainteresirani da svoja mišljenja, primjedbe i prijedloge u vezi s prijedlogom Procedura zaštite okoliša za procjenu projekata dostave do predviđenog datuma putem:

- elektroničke pošte marketing@hzpp.hr
- na telefaks broj 01/4577 604
- poštom na adresu HŽ PUTNIČKI PRIJEVOZ d.o.o.
  10 000 Zagreb, Strojarska cesta 11
  (uz napomenu: za poziv na javnu raspravu)

Dokumente možete preuzeti na sljedećim linkovima:

Okvirni dokument upravljanja okolišem

Kontrolni popis plana za upravljanje okolišem (PUO) za remont dizel i električnih lokomotiva i vagona HŽ Carga (HŽC) i HŽ Putničkog prijevoza (HŽPP)

Okvirna pravila o preseljenju za Projekt održivog razvoja hrvatskoga željezničkog sektora u Europi (SUCRE)

HŽ PUTNIČKI PRIJEVOZ

Public debate held

A public debate was held on the proposal for a World Bank loan to HZ Passenger Transport

A public debate was held in Zagreb on March 17th on the proposal for a World Bank loan to HŽ Infrastructure, HŽ Cargo and HŽ Passenger Transport.

All those interested were invited to be informed of the projects which would be covered by the loan, as well as the procedures concerning environmental protection for project evaluation.

The primary objective of the loan is to reinforce and support the Sustainable Croatian Railways in Europe Project, the implementation of the restructuring programme and structural reforms aimed at maintaining and investing in the infrastructure, the retrenchment of employees and financing other activities according to the business plans of all three companies.

In accordance with World Bank procedures in regard to environmental protection, HZ Passenger Transport Ltd. is obliged to consult with non-governmental organisations and other interested parties during the evaluation process.

The deadline for submitting opinions, objections and proposals in connection to the Environmental protection procedure for project evaluation is March 20th2015.

We invite public for submission of the opinions and suggestions on proposed Environmental Management Procedures no later than March 20, 2015 on:

- e-mail: marketing@hzpp.hr
- Fax: 01/4577 604
- Postal adress: HŽ Putnički prijevoz
  (for Call for Public Consultation)
  10 000 Zagreb, Strojarska cesta 11

Documents are on following links:

Checklist of the environmental management plan (EMP)

Environmental Management Framework

Resettlement Policy Framework for Sustainable Croatian Railways in Europe Project (SUCRE)

5.6 ANNEX F – COMPLIANCE REPORT TEMPLATE

AUDIT REPORT for the ENVIRONMENTAL MANAGEMENT PLAN (EMP)

for financing of the Croatian Railways Infrastructure (HZI) emergency rehabilitation works already commenced

A. PROJECT DESCRIPTION

The main purpose of the Sustainable Croatian Railways in Europe (SUCRE) Project is to support Ministry of Maritime Affairs, Transport and Infrastructure (MMATI) and Croatian Railways companies (HZ Infrastructure - HZI, HZ Passengers Transport-HZPP and HZ Cargo-HZC) in further restructuring of national railways sector, assisting in achieving its economic sustainability as well as enabling investments in order to increase efficiency of the railway system.

The Project consists of four Components: (i) Component 1 supports Ministry of Maritime Affairs, Transport and Infrastructure (MMATI) in implementation of the overall sector reform and in coordination of the project implementation; (ii) Components 2-4 support the implementation of restructuring programs in HZ Passenger Transport, HZ Cargo and HZ Infrastructure, and include funding for expenses that are critical for the implementation of each restructuring program, such as severances, IT upgrades and rolling stock and infrastructure periodic maintenance.

The overall Project Development Objective (PDO) is to improve the operational and financial sustainability of the public rail sector.

1. Part of activities under the **Component 4:** Support to HZ Infrastructure Restructuring and Enabling investment to increase the system efficiency, under subcomponents 4.3 – 4.5 Financing of emergency rehabilitation, already commenced, but still qualifies for financing. The financing encompasses activities that are either (i) a part of an existing 1 Billion HRK Commercial loan, (ii) included in the first tranche of the 10 year plan for installation of rail crossings in Croatia, based on prioritization criteria including rail and road traffic and past records of serious accidents or (iii) are not eligible for receiving EU funds under the 2014-2020 programming period. The emergency rehabilitation subproject (Component 4) activities may include construction works for cuts and slope reinforcement on the corridors from Rijeka, rehabilitation and various emergency electromechanical and structure works in key parts of the network around the Borongaj station in Zagreb, rehabilitation of the Ogulin - Moravice line, as well as railway crossings installations at various points. Some of the activities have started in 2014 (e.g. Ogulin - Moravice rehabilitation) however will be considered for financing.

2. The prospective works include change of sleepers, electrification, signaling, rehabilitation of drainage, rehabilitation of slopes, concrete and asphalt lining, earth works (removal of earth, asphalt and concrete), reinforcement of tunnels, reconstruction of bridges, etc. Main resulting safeguard issues are related to earthworks, construction and railway reconstruction resulting in generation of large quantities of construction waste and large number of sleepers that need to be adequately disposed/ recovered since considered hazardous waste.

3.

Commenced activities prospective for the financing will undergo the environmental audit for the each site. Purpose of the audit is to establish if works have been carried out following procedures and fulfilling requirements of the World Bank safeguards policies, national legislation and good practices. If the Audit Report shows works have been implemented in environmentally safe manner, in compliance with WB safeguard policies and other relevant requirements, the activities will be considered eligible for financing.

Auditing Procedures

Audit Report follows the guidelines of Environmental Management Framework (EMF), is based on criteria listed in the project's EMP Checklist and will be conducted separately for each sub-project site. Prior to commencement of audits, and site visit, the Audit Report template and EMP Checklist criteria will be sent to supervising engineer of a particular site as well as to the contractor of works if possible. Audits will be conducted by HZI environmental staff with the support of the WB environmental specialist. In addition to site visits, auditing can include interviewing site engineers, local civil groups, local environmental officers, review of construction and work plans, complaints, inspectors' findings, permits and other documents; site inspection, and other activities. Based on audit findings, HZI environmental staff will finalize the compliance assessment report and provide conclusions and recommendations, which will be reviewed by the WB. Based on this assessment and review, the WB will provide its no-objection to financing and the project will be granted eligibility.

After WB review and no-objection, each Audit Report will be disclosed for comments on the HZI web site for the period of at least 2 weeks. Interested parties will be notified of the disclosure. All placed comments and questions will be addressed. Summary of comments will be included in the Audit Report.

Audit Report on potential environmental impacts and applied mitigation measures

Audit Report template presents a part of the environmental due diligence documentation, more specifically project's EMF. Purpose of Audit Report is to confirm compliance of project's activities implementation with WB environmental Safeguards policies, national legislation and best practices. Audit

Report is carried out for activities that commenced in 2014 or 2015 and have been completed or are ongoing in the moment the project becomes effective.

B. AUDITING INFORMATIONAL LIST

Application of the Auditing Report

PART 1: INSTITUTIONAL & ADMINISTRATIVE			
Country	Croatia		
Project title	Sustainable Croatian Railways in Europe		
Project No.	P147499		
Scope of project and activity	Reconstruction and maintenance of railway infrastructure and rolling stock		
Institutional arrangements (Name and contacts)	**Project management**		
	Local party and/or beneficiary **HZI** Responsible for overall project implementation. **Responsible person** (_____*name*_____)	**Contractor** **Representative** (_____*name*_____) Responsible for mitigation measures implementation	**Supervising engineer** (_____*name*_____) Responsible for supervision of mitigation measures implementation
Audit			
Name of the auditor			
Auditing date(s)			
Persons (positions) present at audit			
DESCRIPTION of WORKS			
Contractor's Name			
Site engineer			
Sub-project name/type			
Location of works			
Starting date			
End date			

Technical description		
Permits obtained	**Issuing authority**	**Permit**
SITE DESCRIPTION		
Name of site		
Describe site location		
Who owns the land?		
Geographic description		
If protected or Natura 2000 site provide the protected area name		
LEGISLATION		
Identify national & local legislation & permits that apply to project activity	The following Croatian Laws define a legal framework for environmental management: Environmental and Nature Protection Act (OG 80/13), Sustainable Waste Management Act (OG 94/13), Regulation on ***Categories, Types and Classification of Waste*** With a Hazardous ***Waste*** Catalogue (OG 50/05, 39/09), Waste Management Rulebook (NN 23/14, 51/14, 23/07, 111/07), Waste Batteries and Accumulators Rulebook (OG 113/06, 31/09, 156/09, 45/12, 86/13), Packaging and Packaging Waste Rulebook (OG 97/05, 115/05, 81/08, 31/09, 156/09, 38/10, 10/11, 81/11, 126/11, 38/13, 86/13), Waste Oils Rulebook (OG 124/06, 121/08, 31/09, 156/09, 91/11, 45/12, 86/13), Electric and Electronic Equipment Waste Management Rulebook (OG 42/14, 48/14, 107/14, 139/14), Environmental Pollutants Register Rulebook (OG 35/08), Noise Protection Act (OG 30/09, 55/13), The Highest Levels of Noise in Human Environment Rulebook (OG 145/04, 46/08), Water Act (OG 153/09, 130/11, 56/13, 14/14), Construction Act (OG 153/13), Architectural and Civil Engineering Work in Physical Planning and Construction Act (OG 152/08, 49/11, 25/13), Regulation on Classification of Constructions, Other Spatial Interventions, and Surfaces of National or Regional Importance (OG 37/14), Rulebook on Simple and Other Constructions and Works (OG 79/14), Notification of Projects Rulebook (OG 98/99, 29/03), Rulebook on Technical Inspection of Construction (OG 108/04), Granting Approval for Construction Work Commencement Rulebook (OG 43/09), Project Control Rulebook (OG 32/14), Construction Site Posting Rulebook (OG 42/14), Contractor's Statement on Conducted Works and Maintenance Conditions Content Rulebook (OG 43/14), Mandatory Content of Projects Rulebook (OG 64/14), Technical Regulation for Steel Constructions (OG 112/08, 125/10, 73/12, 136/12), Technical Regulation for Steel and Concrete Composite Structures (OG 119/09, 125/10, 136/12), Technical Regulation for Concrete Constructions (OG 139/09, 14/10, 125/10, 136/12),	

	Technical Regulation for Electric Installations (OG 5/10), Railways Act (OG 94/13), Safety and Interoperability of Railway System Act (OG 82/13), Railway Infrastructure Rulebook (OG 127/05, 121/07), Cultural Heritage Protection and Preservation Act (OG 69/99, 151/03, 157/03, 87/09, 88/10, 61/11, 25/12, 136/12, 157/13, 152/14).			
PUBLIC CONSULTATIONS				
Identify when / where the public consultation process took place				
AUDITING METHODS				
Auditing methods applied				
Documents reviewed	Name of the document	Type of the document	Issuing institution	Finding
Participants	Name	Position	Institution	Method

AUDIT CHECK LIST AND REPORT

Impact category	Activity	Description of the applied mitigation measure (permits obtained)	WB policy requirement – EMP Checklist activitiy code	National legislation requirement	Occured environemntal impacts and other observations (complaints, reports of accidents, inspection findings, etc.)	Compliance assessment
Project phase: Preparation and construction						
Waste						
Water						
Soil						
etc						
Project phase: Operation						
Waste						
Water						
Soil						
etc						

Additional Comments and Observations