

# ENVIRONMENTAL MANAGEMENT PLAN

## ODRA-VISTULA FLOOD MANAGEMENT PROJECT – 8524 PL

*Environmental category B – according to OP 4.01 of WB*

### **Component 2:**

*Flood Protection of the Nysa Kłodzka Valley*

### **Sub-component 2A:**

*Active protection*

### **Contract for works 2A.1:**

*Construction of “Boboszów” –  
a dry flood control reservoir on Nysa Kłodzka River  
and*

*Construction of “Roztoki Bystrzyckie” –  
a dry flood control reservoir on Goworówka stream*

### **Task 2A.1/1:**

*Construction of “Boboszów” –  
a dry flood control reservoir on Nysa Kłodzka River*

**FINAL VERSION**

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FLOOD MANAGEMENT PROJECT

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## **ENVIRONMENTAL MANAGEMENT PLAN**

**Component:** *2 – Flood Protection of the Nysa Kłodzka Valley*

**Sub-component:** *2A – Active protection*

**Contract:** *2A.1 –*

*Construction of “Boboszów” – a dry flood control reservoir  
on Nysa Kłodzka River and*

*Construction of “Roztoki Bystrzyckie” – a dry flood control reservoir  
on Goworówka stream*

**Part of Contract:** *Implementation of Task 2A.1/1 –*

*Construction of “Boboszów” – a dry flood control reservoir  
on Nysa Kłodzka River*

**Project Implementation Unit:**

**State Water Holding Polish Waters**

**Regional Water Management Authority in Wrocław**

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Joint Venture of *AECOM I&E UK Ltd, Halcrow Group Ltd, BRL Ingenierie and AECOM Polska Sp. z o.o.*

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**List of basic definitions and abbreviations used in the EMP**

Name	Description
BGW	Body of Ground Water
BP	Bank Procedure <sup>1</sup>
BSW	Body of Surface Water
Consultant / Engineer / Contract Engineer	A company or a legal person providing the service of a Technical Assistance Consultant for the Regional Water Management Authority in Wrocław as part of OVFMP
Contract / Contract for works	Contract for works <i>2A.1 Construction of “Boboszów” – a dry flood control reservoir on Nysa Kłodzka River and Construction of “Roztoki Bystrzyckie” – a dry flood control reservoir on Goworówka stream</i>
Contractor / Task Contractor / Contract Part Contractor	A company or a legal person implementing the Part of Contract for works <i>2A.1 Construction of “Boboszów” – a dry flood control reservoir on Nysa Kłodzka River and Construction of “Roztoki Bystrzyckie” – a dry flood control reservoir on Goworówka stream</i> concerning Task 2A.1/1 <i>Construction of “Boboszów” – a dry flood control reservoir on Nysa Kłodzka River</i>
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
Environmental decision / DEC	Decision on the environmental conditions
ESMF	Environmental and Social Management Framework for OVFMP <sup>2</sup>
EU	European Union
GDOŚ	General Directorate for Environmental Protection
IEOP	Infrastructure and Environment Operational Programme
IMGW	Institute of Meteorology and Water Management
Investor / Employer / PIU	State Water Holding Polish Waters Regional Water Management Authority in Wrocław OVFMP Project Implementation Unit
LA&RAP	Land Acquisition and Resettlement Action Plan
LSMP	Local spatial management plan
OP	Operational Policy (of the World Bank) <sup>3</sup>

<sup>1</sup> The World Bank’s Operational Policies and Procedures are presented in the document entitled *The World Bank Operational Manual*, available on the following website:  
<https://policies.worldbank.org/sites/PPF3/Pages/Manuals/Operational%20Manual.aspx>.

<sup>2</sup> The document is available on the website of OVFMP PCU, at the following address:  
[http://www.odrapcu.pl/popdow\\_dokumenty\\_RPZSiSS.html](http://www.odrapcu.pl/popdow_dokumenty_RPZSiSS.html).  
and on the World Bank’s website, at the following address:  
<http://documents.worldbank.org/curated/en/717671468333613779/Poland-Odra-Vistula-Flood-Management-Project-environmental-and-social-management-framework>.

<sup>3</sup> See the footnote for *BP* (Bank Procedure)

ORBMP	Odra River Basin District Management Plan
PAD	Project Appraisal Document <sup>4</sup> for OVFMP
Part of Contract / Part of Contract for works	Part of Contract for works 2A.1 <i>Construction of “Boboszów” – a dry flood control reservoir on Nysa Kłodzka River and Construction of “Roztoki Bystrzyckie” – a dry flood control reservoir on Goworówka stream</i> concerning Task 2A.1/1 <i>Construction of “Boboszów” – a dry flood control reservoir on Nysa Kłodzka River</i>
PCU / OVFM PCU	Project Coordination Unit / OVFM Project Coordination Unit
PIO	Project Implementation Office – an organisational unit allocated as part of PIU
POM	Project Operations Manual <sup>5</sup> for OVFMP
Project / OVFMP / OVFM Project	Odra-Vistula Flood Management Project
RDOŚ	Regional Directorate for Environmental Protection
Road manager	An organizational unit fulfilling the obligations of managing public roads as defined by the <i>Public Road Act</i> or the obligations of managing a non-public road
RZGW	Regional Water Management Authority
SHP Plan	Safety and health protection plan
Task	Task 2A.1/1 <i>Construction of “Boboszów” – a dry flood control reservoir on Nysa Kłodzka River</i> , constituting a Part of Contract for works 2A.1
UBSW	Unified Body of Surface Water
WMP	Waste Management Programme
World Bank / WB	International Bank for Reconstruction and Development / World Bank
ZMiUW	Board of Amelioration and Hydraulic Structures

<sup>4</sup> The document is available on the World Bank’s website, at the following address:  
<http://documents.worldbank.org/curated/en/320251467986305800/Poland-Odra-Vistula-Flood-Management-Project>.

<sup>5</sup> The document is available on the website of OVFM PCU, at the following address:  
[www.odrapcu.pl/lp.php?plik=doc/POM\\_PL.pdf](http://www.odrapcu.pl/lp.php?plik=doc/POM_PL.pdf).

## List of abbreviated names of legal acts used in the EMP

The names of legal acts cited in the text of this EMP are provided in abbreviated versions. Full names of those legal acts are stated on the list below.

Name in the text	Full name (with publication reference)
<i>Birds Directive</i>	Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (EU OJ L 288 of 06.11.2007)
<i>Construction Law</i>	Act of July 7 <sup>th</sup> , 1994 Construction Law (consolidated text: Journal of Laws of 2018, item 1202)
<i>Environmental Protection Law</i>	Act of April 27 <sup>th</sup> , 2001 Environmental Protection Law (consolidated text: Journal of Laws of 2018, item 799)
<i>EPA Regulation</i>	Regulation of the Council of Ministers of November 9 <sup>th</sup> , 2010 on projects likely to have significant effects on the environment (consolidated text: Journal of Laws of 2016, item 71)
<i>Habitats Directive</i>	Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (EU OJ L 206 of 22.07.1992, as amended)
<i>Inland Fishing Act</i>	Act of April 18 <sup>th</sup> , 1985 on inland fisheries (consolidated text: Journal of Laws of 2015, item 652)
<i>Nature Conservation Act</i>	Act of April 16 <sup>th</sup> , 2004 on nature conservation (consolidated text: Journal of Laws of 2018, item 707)
<i>Public Road Act</i>	Act of March 21 <sup>st</sup> , 1985 on public roads (consolidated text: Journal of Laws of 2015, item 460 as amended)
<i>Waste Act</i>	Act of December 14 <sup>th</sup> , 2012 on waste (consolidated text: Journal of Laws of 2019, item 99)
<i>Water Framework Directive (WFD)</i>	Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (EU OJ L 327 of 22.12.2000, as amended)
<i>Water Law</i>	Act of July 20 <sup>th</sup> , 2017 Water Law Act (consolidated text: Journal of Laws of 2018, item 2268)

## EXECUTIVE SUMMARY

This Environmental Management Plan (EMP) concerns Task 2A.1/1 *Construction of “Boboszów” – a dry flood control reservoir on Nysa Kłodzka River*, which constitutes a part of Sub-component 2A within the Odra-Vistula Flood Management Project (OVFMP) and is implemented as the Part of Contract for works 2A.1.

The EMP presents i.a. the following information:

- a short description of the OVFMP Project and its Component 2, which includes the Task in question (chapter 1.1 and 1.2);
- a description of the Task constituting the subject of this EMP (chapter 2);
- characterization of institutional, legal and administrative conditions of Task implementation, including the current status of EIA procedures for the Task (chapter 3);
- a description of individual elements of the environment in the surroundings of the Task (chapter 4);
- a summary of the Environmental Impact Assessment for the Task (chapter 5);
- a description of mitigation measures aimed at eliminating or limiting the potential negative environmental impact of the Task (chapter 6) together with tables presenting those measures (Appendix 1);
- a description of environmental monitoring measures binding on the Task (chapter 7) together with tables presenting those measures (Appendix 2);
- a description of the course of public consultations conducted at particular stages of developing the environmental documentation for the Task (chapter 8);
- a description of the organizational structure of EMP implementation (chapter 9);
- an EMP implementation schedule and a description of reporting procedures (chapter 10);
- a list of source materials cited in the EMP (chapter 11);
- copies of administrative decisions in the scope of environmental protection issued for the Task (Appendix 4).

### Characterization of the Task

The subject of the Task discussed in this EMP is the construction of “Boboszów” – a dry flood control reservoir on Nysa Kłodzka river, with a maximum flooding area of 21.4 ha and a maximum retention volume of approx. 1.42 mln m<sup>3</sup>. The reservoir dam shall cross the Nysa Kłodzka river valley at chainage km 180+085 of the river, west of Boboszów village (Lower Silesian Province, Kłodzko district, Międzylesie Municipality). The reservoir shall control a basin with a surface area of 17.9 km<sup>2</sup>, which constitutes 1.7% of the Nysa Kłodzka river basin at the cross-section of the city of Kłodzko.

### Scope of the Task

The scope of Task 2A.1/1 *Construction of “Boboszów” – a dry flood control reservoir on Nysa Kłodzka River* includes the following elements:

- construction of a dam for a dry flood control reservoir (approx. 230 m long and maximally 17 m high) with relief devices and instrumentation;
- relocation and regulation of the Nysa Kłodzka river bed;
- development of the upstream and downstream stations;
- construction of a utility building;



- installation of road infrastructure and lighting;
- development of the reservoir basin;
- relocation of Boboszów – Pisary municipality road No. 119952D which collides with the reservoir basin;
- performance of additional activities in the scope of environmental protection.

### **Institutional, legal and administrative conditions**

The Task is implemented in accordance with relevant national provisions of environmental protection in the scope of its characteristics, anticipated potential environmental impact and location in relation to protected areas.

### **The status of EIA administrative procedures**

The following administrative decisions in the scope of environmental protection are among the ones issued for the Task in question in the years of 2015-2019:

- a decision on the environmental conditions for the construction of “Boboszów” dry flood control reservoir;
- decisions changing the decision on the environmental conditions for the construction of “Boboszów” dry flood control reservoir;
- a decision on the environmental conditions for the reconstruction of Boboszów – Pisary municipality road No. 119952D;
- a decision exempting from provisions related to protection of plant and animal species.

### **The status of elements of the environment in the surroundings of the undertaking**

As a result of works related to identifying the values of the natural and cultural environment it has been established that the Task implementation area and its surroundings are characterized by i.a. the following environmental conditions:

- the planned reservoir is located within the boundaries of a Body of Surface Water (BSW) named PLRW60004121169 *Nysa Kłodzka from the source to Różanka* and Body of Ground Water (BGW) No. 125;
- the presence of the following was established in the Task implementation area and its immediate surroundings: 19 protected species of plants, 88 protected animal species and 4 types of natural habitats listed in Annex I to EU *Habitats Directive*;
- in the Task implementation area and its immediate surroundings, there are no Natura 2000 sites nor other areas or objects protected by the *Nature Conservation Act*;
- in the reservoir surroundings there are 3 protection zones related to protection of objects of cultural value (within the Task implementation area) and 2 monuments (beyond the Task implementation area).

### **Summary of the Environmental Impact Assessment**

#### *Earth surface and landscape*

Task implementation is related to permanent transformation of the earth surface for the construction of the reservoir dam and reconstruction of the municipality road, which shall also influence the landscape on a local scale.

#### *Climate*

Task implementation has no influence on the climate status.

### *Atmospheric air*

The influence of Task implementation on the sanitary status of the air is limited in time to the construction stage and is not significant.

### *Soils and grounds*

Task implementation is related to permanent transformation of the earth surface (including soil and grounds) for the construction of the reservoir dam and reconstruction of the municipality road, as well as to the possibility of polluting the substrate at the construction stage. At the operation stage, Task implementation has no influence on the soil and ground status.

### *Surface waters*

At the construction stage, Task implementation shall have an influence on the surface water status (by influencing the biological, hydromorphological and physical-chemical elements of water quality), but the influence shall be local and reversible, so it shall not be significant or constitute a hazard to the achievement of the environmental objective for the Body of Surface Water (BSW). At the operation stage, Task implementation has no influence on surface waters, except the planned reduction of catastrophic flows of the Nysa Kłodzka river downstream of the reservoir.

### *Groundwater*

Instances of short-term, transient, local lowering of the groundwater table may take place at the construction stage in relation to performing the necessary excavation drainages. At the operation stage, in the periods when the reservoir is filled with water, the groundwater level in its surroundings shall increase, but that impact shall be short-term and transient due to the short time of water damming in the reservoir.

### *Acoustic climate*

The influence of Task implementation on the acoustic climate is limited in time to the construction stage and is not significant.

### *Biotic nature*

Task implementation shall have a negative impact on 3 types of natural habitats, 9 protected plant species and several dozen protected animal species (including: 3 butterfly species, 2 species of fish, 5 species of amphibians and reptiles, approx. 60 bird species, 8 species of flightless mammals and 6 bat species) present in the designed reservoir area. That impact stems first and foremost from the necessary scope of land occupation, tree felling and river regulation, and shall be significantly reduced owing to planned mitigation measures. Task implementation does not influence the status of Natura 2000 sites nor other protected areas or natural objects.

### *Cultural monuments and material goods*

Task implementation has no negative influence on cultural monuments. Since a part of the Task implementation area is located within the boundaries of the “K” cultural landscape protection zones and the archaeological observation (“AO”) zone, the planned works have to be arranged with the Lower Silesian Heritage Conservator.

The influence of Task implementation on the status of the remaining material goods is related to the necessity of introducing changes to the existing infrastructural objects (Boboszów – Pisary municipality road, medium and low voltage power lines, residential buildings and other buildings) and to the use of the land located within Task boundaries. Additional impacts relat-

ed to using the existing road network as access roads to the construction site may occur at the construction stage.

#### *Human health and safety*

Task implementation does not generate significant hazards to human health and safety. These may only occur in the case of breakdowns, catastrophes and other random incidents (e.g. pollutant leak, fire, finding unexploded bombs or unfired rounds, flood). The EMP defines appropriate conditions aimed at preventing such events and minimizing their potential effects.

#### **Mitigation and monitoring measures**

Chapter 6 and 7 of and Appendix 1 and 2 to the EMP describe and present in tables a set of mitigation and monitoring measures aimed at eliminating or limiting the negative environmental impact of the Task and ensuring effective implementation of EMP conditions. Those measures contain conditions defined in the issued administrative decisions in the scope of environmental protection and additional conditions established when developing the EMP.

#### **Public consultations**

Chapter 8 of the EMP contains a report of public consultations conducted as part of EIA procedures for the planned Task, including:

- public consultations for the document entitled *Environmental and Social Management Framework (ESMF)* for OVFMP Project (2015);
- public consultations conducted at the stage of issuing environmental decisions for the Task (2012-2016) and changes of an environmental decision of 2019
- public consultations for this Environmental Management Plan (2016) – the final version of the EMP text shall be supplemented with that description after conducting the EMP draft publication procedure and completing its public consultations.

## 1. INTRODUCTION

This Environmental Management Plan (EMP) concerns Task 2A.1/1 *Construction of “Boboszków” – a dry flood control reservoir on Nysa Kłodzka River*, which constitutes a part of Sub-component 2A within the Odra-Vistula Flood Management Project (OVFMP) and is implemented as the Part of Contract for works 2A.1.

### 1.1. ODRA-VISTULA FLOOD MANAGEMENT PROJECT (OVFMP)

The Odra-Vistula Flood Management Project (OVFMP) is aimed at increasing the flood protection level of people living in selected areas of the Odra river basin and the Upper Vistula river basin as well as institutional strengthening of governmental administration in the scope of ensuring more effective protection against summer floods, winter floods and flash floods.

The project has five components (including three investment components and two institutional/organizational components):

**Component 1 – Flood Protection of the Middle and Lower Odra**, including:

- Sub-component 1A – Flood protection of areas in Zachodniopomorskie Voivodship;
- Sub-component 1B – Flood Protection of Middle and Lower Odra;
- Sub-component 1C – Flood protection of Słubice city.

**Component 2 – Flood Protection of the Nysa Kłodzka Valley**, including:

- Sub-component 2A – Active protection;
- Sub-component 2B – Passive protection.

**Component 3 – Flood Protection of the Upper Vistula**, including:

- Sub-component 3A – Flood protection of Upper Vistula towns and Kraków;
- Sub-component 3B – Protection of Sandomierz and Tarnobrzeg;
- Sub-component 3C – Passive and active protection in Raba Sub-basin;
- Sub-component 3D – Passive and active protection in San basin.

**Component 4 – Institutional Strengthening and Enhanced Forecasting**

**Component 5 – Project Management and Studies**

Detailed information and additional documents concerning the OVFM Project are available on the website of the Odra-Vistula Flood Management Project Coordination Unit (<http://www.odrapcu.pl>) and on the website of the World Bank (<http://documents.worldbank.org/curated/en/docsearch/projects/P147460>).

## **1.2. FLOOD PROTECTION OF THE NYSA KŁODZKA VALLEY (COMPONENT 2 OF THE OVFMP)**

Component 2 of the OVFMP Project entitled *Flood Protection of the Nysa Kłodzka Valley* is aimed at providing flood protection for Kłodzko and other smaller towns and villages of the Kłodzko Valley as far as to the city of Bardo, located at the inlet to the Valley from the side of Wrocław.

Two Sub-components shall be implemented within the Component:

### **Sub-component 2A – Active protection**

This Sub-component concerns construction of dry flood control reservoirs located on the Nysa Kłodzka river and its tributaries in the Kłodzko Valley, and includes the following four investment Tasks:

- 2A.1/1 – Construction of “Boboszów”
  - a dry flood control reservoir on Nysa Kłodzka River;
- 2A.1/2 – Construction of “Roztoki Bystrzyckie”
  - a dry flood control reservoir on Goworówka stream;
- 2A.2/1 – Construction of „Szalejów Górny”
  - a dry flood control reservoir on Bystrzyca Dusznicka River;
- 2A.2/2 – Construction of „Krosnowice”
  - a dry flood control reservoir on Duna stream.

### **Sub-component 2B – Passive protection**

This Sub-component concerns protection of the areas along the Nysa Kłodzka river and its tributaries in the Kłodzko Valley using measures of passive flood protection, and includes the following four investment Tasks:

- 2B.1/1 – Flood protection of Nysa Kłodzka River Valley;
- 2B.1/2 – Flood protection of Ścinawka River Valley;
- 2B.2/1 – Flood protection of Biała Łądecka River Valley and Morawka River;
- 2B.2/2 – Flood protection of Bystrzyca Dusznicka River Valley and Kamienny Potok River.

## 2. DESCRIPTION OF THE TASK

The Task constituting the subject of this EMP concerns the construction of “Boboszów” – a dry flood control reservoir on Nysa Kłodzka river. The Project Implementation Unit (PIU) for the Task is the Regional Water Management Authority in Wrocław.

### 2.1. LOCATION OF THE TASK

The Task shall be implemented in the Lower Silesian Province, Kłodzko district, Międzyzlesie Municipality, in two village administration units: Boboszów and Pisary.

The dry flood control reservoir shall be constructed west of Boboszów (approx. 150 m from the village edge), approx. 4 km south-east of Międzyzlesie and approx. 2 km north of the state border with the Czech Republic. The reservoir was designed in the upper part of the Nysa Kłodzka river basin (the reservoir dam is located at chainage km 180+085 of the Nysa Kłodzka river, approx. 9 km downstream of the river source). A section of Boboszów – Pisary municipality road No. 119952D runs through the reservoir basin.

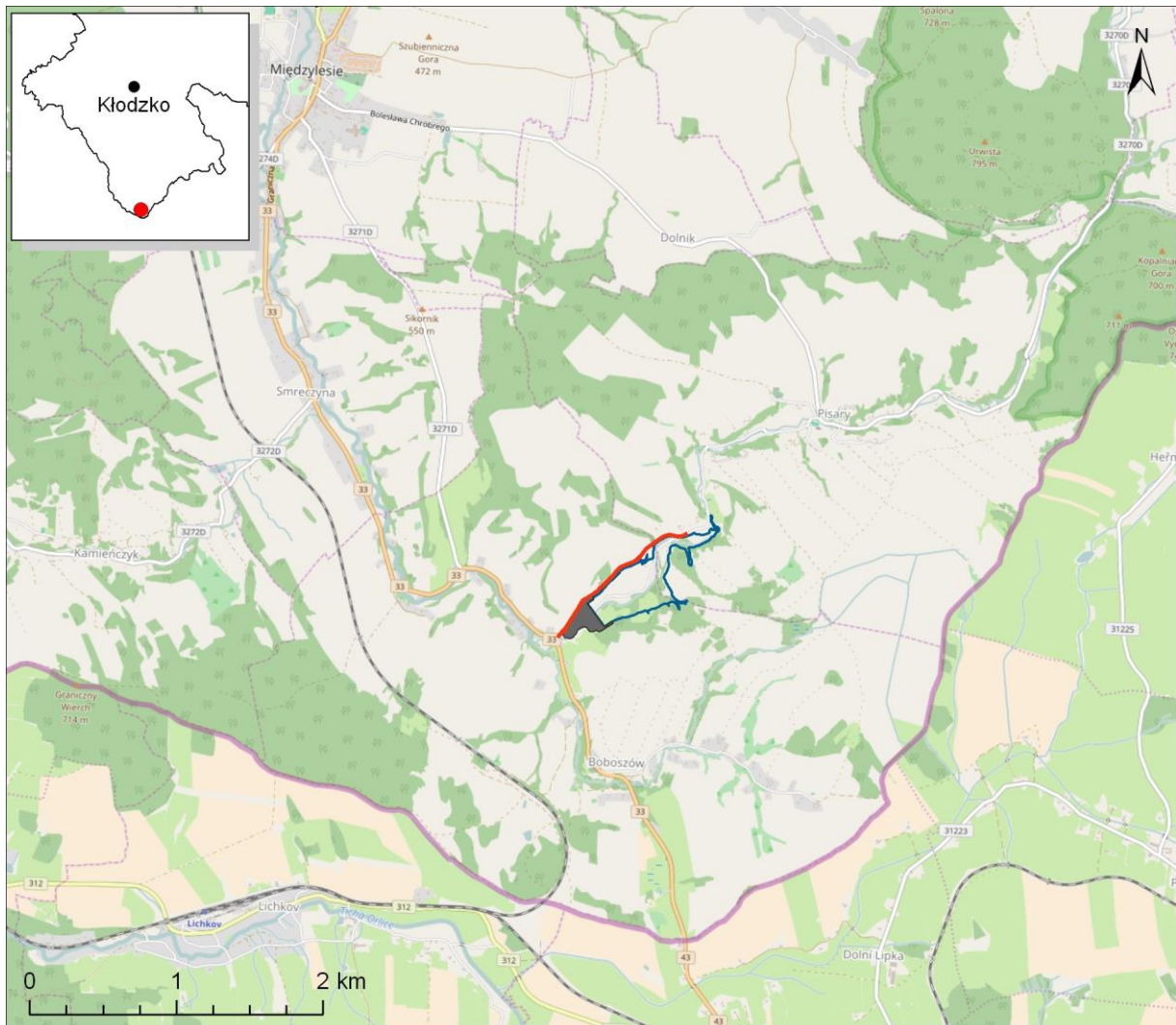


Fig. 1. Task location – an overview map  
(source: © authors of OpenStreetMap; licence: <http://www.openstreetmap.org/copyright>)



## **2.2. CHARACTERIZATION OF THE TASK**

The “Boboszków” dry flood control reservoir shall have a maximum flooding area of 21.4 ha and a maximum retention volume of approx. 1.42 mln m<sup>3</sup>. The main elements included in the Task scope are listed below.

### **Construction of a reservoir dam**

The reservoir dam is located at chainage km 180+085 of the Nysa Kłodzka river, with the crest at an elevation of approx. 500 m AMSL and periodic damming reaching approx. 19.5 m. It is designed as an earth-fill dam.

The basic technical parameters of the designed dam are as follows:

- maximal dam height – 17 m;
- dam length – 230 m;
- dam crest width – 6 m;
- inclination of the upstream and downstream slope – 1:3.

The reservoir relief devices are designed in the form of two independent systems: sluice devices and spillway devices.

The sluice devices shall pass water during normal reservoir operation as well as flood waters. They are designed in the form of an approx. 137 m long and 11.0 m wide reinforced concrete tunnel divided into three openings (width: 4.0 m, 1.7 m and 1.7 m). In normal conditions, the waters in the river shall flow through the opening with a width of 4 m (so-called main tunnel), while in flood conditions they shall flow both through that opening and one of the two narrower openings. The sluice devices shall be equipped with gates in the form of valves with an electrical drive and an emergency manual drive. The assumed width of the tunnel shall make it possible to shape a bed in its channel which shall be similar to the natural Nysa Kłodzka river bed and thus to ensure correct conditions for fish living and migration. Moreover, two vertical chimneys (shafts) shall be built in the dam body; their elevation shall exceed that of the dam slope and they shall allow sunlight to access the main tunnel. 8 chambers for bats shall be installed in those shafts.

The spillway devices are designed in the form of a sloped spillway located along the right dam head.

The reservoir shall be equipped with instrumentation.

### **Relocation and regulation of watercourse beds**

The planned works related to the existing watercourse beds include i.a. the following:

- relocation of the Nysa Kłodzka river bed on the section located in the dam area (on that section, the river shall be directed to an approx. 137 m long tunnel in the reservoir dam);
- relocation of the Nysa Kłodzka river bed on the section downstream of the dam (a new approx. 75 m long bed shall be constructed);
- regulation of the existing Nysa Kłodzka river bed on the section upstream of the dam (an approx. 110 m long section upstream of the section relocated to the tunnel in the reservoir dam) together with construction of a ford across the bed;
- regulation of the existing Nysa Kłodzka river bed on the section downstream of the dam (an approx. 188 m long section downstream of the section relocated downstream of the dam).

When one adds the construction of the Nysa Kłodzka river bed section running in the main tunnel of the reservoir, the total length of relocated and regulated river bed sections shall reach approx. 510 m.

### **Development of the upstream and downstream stations**

The planned scope of works at the upstream station includes i.a. clearing the area after the works related to relocation and regulation of the Nysa Kłodzka river bed as well as construction of an access road to the upstream station.

The planned scope of works at the downstream station includes i.a. clearing the area after the works related to relocation and regulation of the Nysa Kłodzka river bed as well as construction of an access road to the downstream station and to the dam crest.

### **Construction of a utility building**

The utility building was designed next to the downstream station location.

### **Performance of road infrastructure and lighting**

The designed works include i.a.:

- construction of an internal road leading from the new section of the municipality road to the upstream station of the dam;
- construction of an internal road leading from the new section of the municipality road to the downstream station of the dam;
- construction of an internal road leading from the new section of the municipality road to the dam crest;
- installation of lighting for the dam.

### **Development of the reservoir basin**

The designed works in the reservoir basin area include i.a.:

- relocation of a medium voltage overhead power line beyond the reservoir basin area;
- relocation of a low voltage overhead power line beyond the reservoir basin area;
- demolition of buildings in the reservoir basin;
- demolition of technical installations of territorial development in the reservoir basin.

### **Relocation of the road colliding with the reservoir dam**

Due to a collision of the existing Boboszków – Pisary municipality road No. 119952D with the course of the designed reservoir dam, it is necessary to relocate an approx. 1.2 km long section of the abovementioned road, including the demolition of two road bridges over the Nysa Kłodzka river.

### **Performance of additional activities in the scope of environmental protection**

Additional activities in the scope of environmental protection include i.a.:

- performance of plantings (including i.a. natural habitats \*91E0 and \*9180) on Nysa Kłodzka river banks and river valley slopes;
- performance of plantings of trees and shrubs along the new section of the municipality road;
- development of the area in the reservoir basin transforming it into meadows;
- installation of a nest platform for Black stork as well as approx. 260 nest boxes for birds and 42 boxes for bats.



### **3. INSTITUTIONAL, LEGAL AND ADMINISTRATIVE CONDITIONS**

#### **3.1. INSTITUTIONS INVOLVED IN TASK IMPLEMENTATION**

The Task Investor is the Regional Water Management Authority in Wrocław, which acts in the name and on behalf of the State Treasury. Moreover, at the construction and operation stages, Task implementation may require involving public administration bodies on the central, regional and local level. An organizational unit named Odra-Vistula Flood Management Project Coordination Unit was established for the purposes of coordinating Project implementation by the PIU on a day-to-day basis.

#### **3.2. BINDING NATIONAL LEGAL ACTS CONCERNING THE ENVIRONMENT**

Under Polish law, the investment process in the scope concerning the environment is governed by about a dozen of acts and regulations. Appendix 3 presents a list of selected primary legal acts related to the abovementioned thematic scope and binding in the period of the works on the EMP. The number and content of the legal acts listed there may change when the national provisions in the scope of environmental protection are amended. In each case, the Contractor is obliged to observe all legal regulations binding in Poland throughout the Contract term.

#### **3.3. THE EIA PROCEDURE IN POLAND**

A description of the Environmental Impact Assessment procedure binding under Polish law is included in the *Environmental and Social Management Framework (ESMF)*, published i.a. on the website of the Odra-Vistula Flood Management Project Coordination Unit<sup>1</sup> and of the World Bank<sup>2</sup>.

#### **3.4. GUIDELINES OF THE WORLD BANK**

The Task in question is co-financed by the World Bank and its implementation conditions in the scope of environmental protection comply with WB *Operational Policies* and *Bank Procedures* in the scope of environmental protection, including i.a. the following policies and procedures: *OP/BP 4.01* (concerning the Environmental Impact Assessment), *OP/BP 4.04* (concerning natural habitats) and *OP/BP 4.11* (concerning cultural resources).

The source texts of the abovementioned policies and procedures are included in a document entitled *The World Bank Operational Manual*<sup>3</sup> and their descriptions are presented i.a. in the *Environmental and Social Management Framework (ESMF)*.

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<sup>1</sup> On the website: [http://www.odrapcu.pl/popdow\\_dokumenty\\_RPZSiSS.html](http://www.odrapcu.pl/popdow_dokumenty_RPZSiSS.html).

<sup>2</sup> On the website: <http://documents.worldbank.org/curated/en/717671468333613779/Poland-Odra-Vistula-Flood-Management-Project-environmental-and-social-management-framework>.

<sup>3</sup> On the website: <https://policies.worldbank.org/sites/PPF3/Pages/Manuals/Operational%20Manual.aspx>.

### 3.5. CURRENT STATUS OF EIA PROCEDURES FOR THE TASK

The following decisions in the scope of environmental protection have been obtained for the Task in question:

#### A) A decision on the environmental conditions for reservoir construction

According to the classification included in the *EPA Regulation*, the undertaking concerning construction of a dry flood control reservoir (which covers the primary scope of the Task) belongs to group I, i.e. to undertakings which might always have a significant impact on the environment and for which conducting an Environmental Impact Assessment is required before issuing a decision on the environmental conditions.

The proceedings concerning issuing a decision on the environmental conditions for reservoir construction, during which the Environmental Impact Assessment was carried out, was concluded by issuing a decision of the Regional Director for Environmental Protection in Wrocław of February 27<sup>th</sup>, 2015 on the environmental conditions (ref. No.: WOŚ.4233.8.2012.ŁCK.47 – Appendix 4a to the EMP).

Upon the application of the Investor on 04.06.2019 the General Director for Environmental Protection in Warsaw issued a decision (reference number: DOŚ-WDŚ/zoo.420.238.2018.is.14) – Appendix 4e - EMP) changing in the part the decision of the Regional Director for the Environmental Protection in Wrocław of 27<sup>th</sup> February 2015 on environmental conditions (reference number: WOŚ.4233.8.2012.ŁCK.47, revoked in the part to which a new wording was decided, and in the remaining part the decision of the Regional Director for the Environmental Protection in Wrocław of 6<sup>th</sup> April 2016 was sustained).

#### B) A decision on the environmental conditions for the reconstruction of a municipality road

The undertaking concerning reconstruction of Boboszków – Pisary municipality road No. 119952D (constituting a part of the Task) belongs to group II, i.e. to undertakings which might have a potential significant impact on the environment and for which conducting an Environmental Impact Assessment may be required before issuing a decision on the environmental conditions.

In the course of the conducted proceedings concerning issuing a decision on the environmental conditions, the conducting body obtained a decision of the Regional Director for Environmental Protection in Wrocław expressing an opinion about lack of the necessity for conducting an Environmental Impact Assessment. The proceedings concerning issuing a decision on the environmental conditions were concluded by issuing a decision of the Mayor of Międzylesie City and Municipality of February 17<sup>th</sup>, 2015 on the environmental conditions (ref. No.: ITiG.603.1-D.2015 – Appendix 4c to the EMP), stating lack of the necessity for conducting an Environmental Impact Assessment.

#### C) A decision exempting from provisions related to protection of species

Scaring and disturbing as well as destruction of specimens and habitats of protected plant and animal species may take place during Task implementation, so the Regional Water Management Authority in Wrocław, as the Investor, submitted an application for issuing a decision exempting from bans related to specimens of plants and animals covered by species protection to the Regional Directorate for Environmental Protection in Wrocław. The administrative proceedings in this case were ended by a decision issued by the Regional Director for the Environmental Protection in Wrocław of 8th January 2016 allowing deviations from the bans

binding in relation to plants and animals covered by species protection (reference number: WPN.6401.266.2015.IW.2). Upon the motion of the Investor, the said decision was revoked by the Decision of the Regional Director for the Environmental Protection in Wrocław of 5<sup>th</sup> March 2019 (reference number: WPN.6400.6.2019.MH) with simultaneous issuance of a permit for deviations from the bans binding in relation to plants and animals covered by species protection (a decision included in the Appendix 4f to EMP).

In relation to discovering new positions of protected plants within the works area (new positions of species indicated earlier from the area of the Boboszków reservoir), the Contractor received a relevant decision of the Regional Director for the Environmental Protection in Wrocław, allowing deviations from the bans binding in relation to plants covered by species protection (decision WPN.6400.27.2018.IL of 29<sup>th</sup> June 2018, changed by the decision WPN.6400.27.2018.MH.1 of 5<sup>th</sup> March 2019 – included in the Appendix 4g to EMP).

The copies of the above mentioned administrative decisions, issued in the years 2015-2019, are presented in the appendix 4 to EMP.

Regardless of the above, the Contractor is obliged to obtain any further administrative decisions, in case during the Task's implementation such a need occurs.

## **4. DESCRIPTION OF ELEMENTS OF THE ENVIRONMENT IN THE SURROUNDINGS OF THE TASK**

This chapter describes the status of elements of the environment in the surroundings of the Task on the basis of the information contained in the EIA Report (2014) with supplementations.

### **4.1. EARTH SURFACE AND LANDSCAPE**

Considering the physical-geographical division of Poland, the planned investment is located within the Kłodzko Valley mesoregion, which borders on the Śnieżnik Massif in the east and on the Bystrzyckie Mountains in the west. That mesoregion belongs to the Middle Sudety macroregion.

The landscape surrounding the area of the planned Task is dominated by wavy relief of the upland type. The upland areas located on two sides of the Kłodzko Valley are small, slightly wavy uplifts with an average height of approx. 500 m AMSL, crossed by shallow valleys of numerous streams. This area has the nature of a denuded upland with local hills and, due to surrounding mountain massifs, is a typical mid-mountainous depression. Eastern slopes of that area gradually rise towards the Śnieżnik Massif, while its eastern slopes (which are much gentler) rise towards the Bystrzyckie Mountains.

The area has a cultural-cultivation landscape. Most of the area is occupied by spacious farmlands and semi-wild mountain meadows situated mainly on the slopes of hills. Tree stands are found on the slopes and tops of hills and along watercourses.

### **4.2. CLIMATE**

There is moderate Central European mid-mountainous climate in the area of the Task in question. It is determined by two factors: the altitude above mean sea level and the orographic system. Seasons of the year are easily recognizable and identified by temperature changes (warm and humid spring, warm and often dry summer, cool and humid autumn and frosty winter with significant snowfall). The cloud cover is medium in autumn and winter and is the smallest in summer.

### **4.3. ATMOSPHERIC AIR**

In the region of the planned reservoir construction, there are no industrial plants or production and breeding plants which could significantly deteriorate the sanitary status of the air. The only major source of air pollution is Kłodzko-Boboszów district road No. 33, running approx. 300 m west of the designed reservoir dam. Emission from so-called low sources (mainly home furnaces) may also determine air pollution in the discussed region. The planned reservoir is located approx. 100 m to several kilometres away from buildings of nearby villages or larger city centres, so one can expect that concentrations of the discussed pollution in the region of the planned investment should be much lower than the concentrations of background pollution measured in Międzyzylesie city.

#### 4.4. SOILS AND GROUNDS

The discussed area features mainly brown soils and acid brown soils, while the Nysa Kłodzka river valley features mainly alluvial soils. Most of the soils are used as farmlands (pastures and meadows) in valuation class IV and V.

#### 4.5. SURFACE WATERS

The area in which the construction of Boboszów reservoir is designed lies in the river basin of Nysa Kłodzka – a left-hand side tributary of the Odra river. This area has a dense and well-developed hydrographic network. The biggest watercourse is the Nysa Kłodzka river, the sources of which are located below the Jasiń peak (935.0 m AMSL), approx. 1 km south of the Trójmorski Wierch peak (1145.0 m AMSL). The source streams of Nysa Kłodzka flow out at a height of approx. 900 m AMSL. The source section of Nysa Kłodzka, together with its numerous tributaries, drains the western slopes of the Śnieżnik Massif. Significant tributaries of Nysa Kłodzka upstream of the designed reservoir are: the Jodłówka stream (a right-hand side tributary) as well as the Bagnica and Potoczysko streams (left-hand side tributaries). A significant tributary of Nysa Kłodzka downstream of the designed reservoir is the Bobosz stream (a left-hand side tributary). All the abovementioned tributaries of Nysa Kłodzka are typical small mountainous streams with big inclinations and fast flows. Moreover, there are four small unnamed watercourses entering into the Nysa Kłodzka river (two left-hand side tributaries and two right-hand side tributaries) in the area between Boboszów and Pisary.

Nysa Kłodzka is characterized by sudden freshets in this region and the flow ratio of the 100-year water to the average annual water is very high (approx. 220).

The designed reservoir is located within the boundaries of a Body of Surface Water (BSW) named PLRW60004121169 *Nysa Kłodzka from the source to Różanka*.

The values of characteristic flows for Nysa Kłodzka at the cross-section of the “Boboszów” reservoir dam (calculated using the values recorded at the Międzyzylesie water-gauge cross-section on the Nysa Kłodzka river) are as follows:

Characteristic flow	Flow intensity Q [m <sup>3</sup> /s]
NNQ (absolutely lowest flow)	0.016
SNQ (average low flow)	0.05
SSQ (average lowest flow)	0.25
SWQ (average highest flow)	5.22
WWQ (absolutely highest flow)	57.7

#### Arrangements stemming from the *Odra River Basin District Management Plan (ORBDMP)*

The designed reservoir is located in the Middle Odra water region, in the Nysa Kłodzka balance basin, in the basin of a Body of Surface Water (BSW) named PLRW60004121169 *Nysa Kłodzka from the source to Różanka*, which belongs to Unified Body of Surface Water (UBSW) code SO0901.

*Nysa Kłodzka from the source to Różanka* BSW is 44.73 km long and its basin surface area is 130.31 km<sup>2</sup>. The basin of this BSW includes the Nysa Kłodzka river on the section from the source to the Różana river estuary together with its main tributaries.

According to the binding *Odra River Basin District Management Plan*, the BSW in question belongs to type 4 – an upland silicate stream with coarse-grained substrate. *Nysa Kłodzka from the source to Różanka* BSW is a natural water body the status of which was assessed as bad. Thus, the environmental objective for this BSW is the achievement of a good water status by obtaining a good ecological status and a good chemical status. The BSW in question is threatened with a risk of failure to achieve the environmental objective according to the WFD, and therefore it received a derogation under Article 4(7) of the WFD with the following justification: “due to the planned activities in the scope of implementing investments which cause changes in BSW physical characteristics and are of overriding public interest, i.e. flood protection, and the implementation of those plans prevents the achievement of assumed environmental objectives by the BSW”.

Moreover, the area of *Nysa Kłodzka from the source to Różanka* BSW features detailed environmental objectives, set out due to the presence of protected areas included in the lists referred to in Article 113 Par. 4 of the *Water Law*, such as:

- bodies of water intended for water uptake for the purposes of providing the population with water for consumption, i.e. BSW code RW60004121169 and BGW with the following codes: PLGW5100110, PLGW6220111 and PLGW6220112,
- areas sensitive to eutrophication caused by pollution coming from municipal sources (the entire area of Poland),
- water bodies intended for recreational purposes, including bathing, i.e. BSW code RW60004121169,
- areas intended for protection of natural habitats or species for which maintenance or improvement of water status is an important protection factor (i.a. a Natura 2000 site – SCI: “Góry Bialskie i Grupa Śnieżnika” – PLH020016).

The planned Task, consisting in the construction of “Boboszów” – a dry flood control reservoir on Nysa Kłodzka river, was included in a supplementary study for the *Odra River Basin District Management Plan* (so-called *MasterPlan*) under No. 1\_501\_O (Annex No. 2, List No. 1) and was classified there as an investment which does not have a negative impact on achieving a good water status or does not deteriorate water status.

## 4.6. GROUNDWATER

The factors shaping the hydrogeological conditions in the surroundings of the planned investment are: geological structure, tectonics, significant lithofacies diversification as well as varying and limited distribution of aquifers. There are shallow, subsoil waters in the alluvial sand-gravel Quaternary deposits, which fill the valley bottoms of Nysa Kłodzka and its tributaries. These normally lie directly on the eluvium (rock rubble) of Cretaceous or crystalline rocks. The waters of that layer usually occur at a depth of 1.0-2.0 m BGL. They are characterized by small efficiency and low stability of the water table, which usually depends on the water level in the watercourses and on precipitation. Waters of the Quaternary layer are locally present in slope covers and flat piedmont cones. This layer is related to numerous leaks and seeps.



The aquiferous Cretaceous layer is the main source of providing the population with water in this area. Two aquifer levels were determined in it: an upper one and a lower one. Both levels are characterized by much diversified hydrogeological conditions, especially uneven formation of permeable layers and their varying thickness. Waters with a confined table prevail in the valley region.

The impact area of the planned reservoir is located within the boundaries of BGW code PLGW6220\_110, which belongs to the Middle Odra water region and to Odra river basin area code 6000. The groundwater quantitative status and chemical status was assessed as good and the groundwater is not threatened with a risk of failure to achieve the environmental objectives. According to a new division of bodies of ground water, the Task implementation area is located in the area of BGW No. 125.

#### **4.7. ACOUSTIC CLIMATE**

There are no significant noise generators in the region of the planned Task. The biggest source of noise here is so-called traffic noise, generated by mechanical vehicles moving along national road No. 33 (from Kłodzko to Boboszów-Dolna Lipka border crossing). That road is approx. 300 m west of the designed dam. The second source of traffic noise is railway line No. 276 (from Wrocław to the state border with the Czech Republic in Lichkov and then to Prague), running approx. 1.2 km west of the designed dam. Less significant sources of noise shaping the acoustic climate in this region are: vehicle traffic along Boboszów – Pisary municipality road No. 119952D and seasonal agricultural works.

The nearest acoustically protected areas, in the form of homestead residential buildings in Boboszów and Pisary villages, are situated along the municipality road connecting Boboszów with Pisary and along Kłodzko – Boboszów national road No. 33 (north and south of the designed reservoir). The nearest household is located approx. 160 m west of the designed dam crest. After the liquidation of that household as part of preparing the area for reservoir construction (demolition of buildings), the nearest homestead residential buildings shall be those in a household located approx. 280 m west of the dam crest. The nearest homestead residential buildings in Pisary are located approx. 800 m of the designed dam.

#### **4.8. BIOTIC NATURE**

##### **4.8.1. Protected natural habitats and species**

###### **Natural habitats from Annex I to the *Habitats Directive***

4 types of natural habitats from Annex I to the *Habitats Directive* were determined in the area of the planned Task. They are:

- 6430 – mountain herbs (*Adenostylion alliariae*) and riparian herb growths (*Convolvuletalia sepium*). 5 habitat swathes were determined in total (surface area: 0.43 ha). The habitat occurs mainly on flooding terraces of watercourses and on wide stony banks within beds. The habitat conservation status is favourable (FV).
- 9170 – *Galio-Carpinetum* and *Tilio-Carpinetum* oak-hornbeam forests. 1 habitat swathe was determined (total surface area: 0.3 ha). Due to the small surface area and a loosened structure of the tree stand with a spruce share of anthropogenic origin, the habitat conservation status was determined as unfavourable inadequate (U1).

- 9180\* – Tilio-Acerion forests of slopes, screes and ravines (*Tilio platyphyllis-Acerion pseudoplatani*). 1 habitat swathe was identified (surface area: 0.54 ha): it is located on the left-bank slope of the Nysa Kłodzka river above a flooding terrace. The habitat occurs there as subtype 9180-4 – Sudetian sycamore maple forests with perennial honesty (*Lunario-Aceretum pseudoplatani*). Due to lack of large amounts of snags and woody debris and due to the share of invasive plants in the undergrowth, the habitat conservation status was determined as unfavourable inadequate (U1).
- 91E0\* – riparian mixed forests of willow, poplar, alder and ash tree (*Salicetum albo-fragilis*, *Populetum albae*, *Alnenion glutinoso-incanae*) as well as alder forests on percolating mires. 3 habitat swathes were identified (total surface area: 2.87 ha): they are located along the Nysa Kłodzka river bed. The habitat occurs there as subtype 91E0-5 – submontane riparian forests of ash tree (*Carici remotae-Fraxinetum*). Due to a strong deformation of the tree stand, the habitat conservation status was determined as unfavourable bad (U2).

A detailed description of occurrence of the abovementioned natural habitats is presented in the EIA Report prepared in 2014 for the purposes of obtaining a decision on the environmental conditions.

### Protected species of plants

Occurrence of 19 plant species considered as rare (including 17 species protected in Poland) was determined in the area of the planned Task.

A list of rare and protected plant species determined in the area of the designed reservoir is presented in Table 1 in Appendix 5. That table includes species protected under currently binding national provisions of law and the remaining rare species (those included in *Polish Plant Red Data Book* or put on the *Red List of Vascular Plants of Lower Silesia*). The table does not include species that lost their protected status in relation to changes to the list of species protected in Poland but were subject to protection in the EIA Report preparation period (and were listed in the Report as protected species).

### Protected species of animals

A total of 88 protected animal species was identified within the impact area of the planned Task.

5 protected invertebrate species were determined in the area of the designed reservoir; they include 3 butterfly species (two species of Large blue *Phengaris sp.* and Large copper *Lycaena dispar*), which occur on meadows featuring Great burnet *Sanguisorba officinalis* and Common sorrel *Rumex sp.* Beside the abovementioned butterfly species, the protected species include 2 further invertebrates identified here: Large earth bumblebee *Bombus terrestris* and Roman snail *Helix pomatia*.

3 species representing fish fauna were identified in the waters of streams flowing within the designed reservoir basin. Two of them are subject to species protection (Bullhead *Cottus gobio* and Siberian bullhead *Cottus poecilopus*), while the third species (Brown trout *Salmo trutta*) is subject to protection under the regulations concerning fishing.

Amphibians and reptiles in the Task implementation area are represented by 5 species subject to partial protection (1 frog species, 1 toad species, 2 newt species and 1 snake species).



The most numerous group of protected animals in the area in question is birds. 61 bird species covered by species protection were determined here, including 6 species from Annex I to the *Birds Directive*. The presence of birds in this area is favoured by habitat diversification within the planned reservoir: the presence of riparian forests, oak-hornbeam forests and shrubs, as well as the closeness of the river bed create good conditions for breeding, feeding and resting for many birds. Some of those species are open area birds: their mosaic is present in the agriculturally used area in the surroundings of tree stand areas.

Flightless mammals constitute a relatively small percentage of species determined in the analysed area. 8 species subject to partial protection were identified here; one of them, Eurasian otter *Lutra lutra*, is listed in Annex II to the *Habitats Directive*. Beside flightless mammals, 6 protected bat species were determined in the Task implementation area, including Greater mouse-eared bat *Myotis myotis* and Barbastelle *Barbastella barbastellus* – the species listed in Annex II to the *Habitats Directive*.

A list of protected species of animals determined in the area of the designed reservoir is presented in Tables 2-6 in Appendix 5. Detailed descriptions of occurrence of individual species are presented in the EIA Report (2014).

#### **4.8.2. Protected areas and objects**

##### **Natura 2000 sites**

There are no Natura 2000 sites in the designed reservoir area or its immediate vicinity. In the further vicinity of the reservoir (up to 30 km away), there are three Natura 2000 sites belonging to a category of so-called habitat areas:

- 1) “Góry Bialskie i Grupa Śnieżnika” (PLH020016) – approx. 2.2 km SE of the reservoir;
- 2) “Dzika Orlica” (PLH020061) – approx. 8 km NW of the reservoir;
- 3) “Góry Orlickie” (PLH020060) – approx. 30 km NW of the reservoir.

##### **Other protected areas and objects**

In the area of the designed reservoir and in its immediate vicinity, there are no area forms or spot forms of nature protection as defined by the *Nature Conservation Act*. In the further vicinity, approx. 3.2 km NE of the reservoir, there is a boundary of the Śnieżnik Landscape Park, while “Góry Bystrzyckie i Orlickie” protected landscape area is located approx. 2.8 km W of the reservoir.

#### **4.9. CULTURAL MONUMENTS**

In the area of the designed “Boboszków” reservoir, there are two objects included in the register of architecture and construction of the Lower Silesian Heritage Conservator, which are subject to the conservator’s protection. Both objects are located beyond the Task implementation zone. They are:

- St. Anne’s church of 1811 in Boboszków (register No.: 1966 of 22.12.1971), located approx. 1 km S of the designed reservoir;
- and St. Michael the Archangel’s wooden church of 1710 in Kamięczek (register No.: 471 of 26.07.1958), located approx. 4 km W of the designed reservoir.

In Boboszów and Pisary village administration units, which are the nearest ones to the designed reservoir, the following protection zones were created (partially covering the Task implementation area):

- 2 cultural landscape protection zones (“K” zones) – they include areas of landscape integrally related to a monument complex located in its vicinity and areas with a characteristic appearance shaped as a result of human activity. These zones were set in Boboszów and Pisary;
- an archaeological observation (“AO”) zone for cities and villages of medieval origin and for archaeological sites. This zone was set in Boboszów.

#### **4.10. POPULATION AND MATERIAL GOODS**

A large part of the area in the designed “Boboszów” reservoir area and its immediate vicinity is occupied by spacious farmlands, mountain meadows on the slopes of hills, as well as riparian and oak-hornbeam forests in river valleys. There are four villages near the reservoir: Boboszów (approx. 240 residents), Pisary (approx. 130 residents), Kamińczyk (approx. 60 residents) and Smreczyna (approx. 180 residents). There are no industrial plants or (usually) production and breeding plants in those villages. There is only a petrol station, a wood processing plant and a transport company in Smreczyna, as well as a Customs Office and a Border Guard watchtower in Boboszów. There are 16 buildings in the boundaries of the planned Task, 5 of which are residential buildings. Those buildings are supplied with electrical energy via overhead low voltage (LV) lines. A medium voltage (MV) line runs along the western part of the designed reservoir basin area and through the designed reservoir dam area. Moreover, a telecommunications line runs through the southern part of the designed reservoir area. Furthermore, an approx. 1.2 km long section of Boboszów – Pisary municipality road No. 119952D runs through the reservoir area, with two bridges over the Nysa Kłodzka river. Two important communication routes run west of the designed reservoir. The abovementioned national road No. 33 runs approx. 300 m away from the reservoir dam (from Kłodzko to Boboszów – Dolna Lipka road border crossing). Railway line No. 276 of international significance (from Wrocław to the state border with the Czech Republic in Lichkov and then to Prague) runs approx. 1200 m away from the designed dam.

## **5. SUMMARY OF THE ENVIRONMENTAL IMPACT ASSESSMENT**

### **5.1. EARTH SURFACE AND LANDSCAPE**

#### **Earth surface**

The impact exerted on the earth surface shall be related to temporary and permanent land occupation. At the construction phase, temporary exclusion of land from its previous use in the Task area shall be related to establishing a construction site backyard and access roads. After construction completion, the construction site backyard and the access roads shall be demolished and the land shall be reinstated.

Permanent exclusion of land from its previous use related to the construction phase shall concern dam body foundation together with the upstream and downstream stations, construction of internal roads and construction of a new section of municipality road No. 119952D. Construction of a new section of the Nysa Kłodzka river bed shall also cause permanent exclusion of land from its use. The surface area of the land excluded from use shall reach approx. 12 ha.

On the other hand, the land presently occupied within the reservoir basin boundaries by 16 buildings together with infrastructure shall be recovered. All those facilities shall be demolished and the land occupied by them shall be reinstated by turfing.

#### **Landscape**

The constructed dam in the form of an earth-fill embankment (230 m long and 17 m high), crossing the Nysa Kłodzka river valley and bed, shall be a dominant element of landscape and at the same time an alien one in the natural river valley (that effect shall be additionally strengthened by the presence of internal roads and lighting systems). Adopted technical solutions, including construction of an earth-fill dam with turfed slopes, shall reduce investment impact exerted on the landscape. Additional elements connected with landscape protection shall be: limitations on area occupation at the works stage, limitation on the scope of tree felling and planting trees and shrubs.

### **5.2. CLIMATE**

#### **Modification of climatic conditions**

The designed reservoir shall be a dry one, filled with water only for a short time during flooding risk periods. Due to the short time of filling the reservoir with water, it shall have no influence on any climatic phenomena at the operation stage and the microclimate in its region shall not change.

#### **Greenhouse gas emission**

Exhaust fumes (including carbon dioxide, classified as a greenhouse gas) shall be emitted at the construction stage as a result of fuel combustion by vehicles and construction machinery. Moreover, demand for electrical energy shall occur in connection with using the construction site backyard, operating machines and devices and lighting the construction site (electrical energy consumption is related to greenhouse gas emission during its production in power plants).

The demand for electrical energy at the reservoir operation stage shall be mainly related to lighting the dam and using the utility building.

### **Making the Task resistant to negative phenomena accompanying climate changes**

The planned reservoir was designed in accordance with binding hydraulic provisions, which take into account extreme phenomena taking place in the environment in connection with climate changes (this is governed by appropriate provisions concerning design, construction and operation of flood control reservoirs). On the other hand, construction of new dry flood control reservoirs (including the “Bobosów” reservoir) shall improve flood protection of numerous towns and villages located in the Kłodzko Valley and thus contribute to limiting the effects of negative phenomena accompanying climate changes.

### **5.3. ATMOSPHERIC AIR**

At the construction stage, unorganized emission of exhaust fumes generated in connection with operating vehicles and construction machinery shall be the source of pollution emission to atmospheric air. The primary pollutants emitted to the air due to diesel oil combustion in machine and car engines shall be: SO<sub>2</sub>, NO<sub>2</sub>, CO, aliphatic hydrocarbons, soot and dust rising during the passage of cars and during earthworks, especially in long rainless periods. Since the construction site covers a relatively spacious area and the vehicles and construction machinery emitting the pollution shall not work on its entire surface area simultaneously (the works shall be performed section by section, according to their progress), one should not expect a significant influence of the works on the air pollution status beyond the Task area. One should expect local, short-term, increased concentration values of the abovementioned pollutants in the neighbourhood of operating vehicles and machines, which is a typical phenomenon of construction works and withdraws after completing the works.

The reservoir shall not require human operation at the operation stage, so car traffic and tiresomeness related to road transportation impact (emission of pollutants to the air) shall be limited only to periodic passage of cars carrying technical supervision staff arriving to inspect the dam.

### **5.4. SOILS AND GROUNDS**

The impact exerted on the soils at the construction stage shall be first and foremost related to direct transformations of the earth surface (excavations), permanent exclusion of a part of the land from its previous use, changes to earth structure on temporarily occupied land (access roads, construction site backyards) and the possibility of soil pollution as a result of a petroleum derivative leak caused by a breakdown.

After completing the construction stage and performing correct soil reinstating, one should not expect significant changes in the soil-water conditions or soil productivity in the areas of temporary occupation.

## **5.5. SURFACE WATERS**

### **Biological elements of water quality**

#### *Macrophytes, benthic macroinvertebrate fauna and phytobenthos*

An approx. 170 m long fragment of the present Nysa Kłodzka river bed shall be backfilled at the construction stage in relation to the necessity for relocating a section of the Nysa Kłodzka river at the dam body location and downstream of the dam body. The aquatic and shore flora (phytobenthos, macrophytes) as well as a part of the aquatic fauna (especially species of small size and limited locomotion abilities, including benthic macroinvertebrate fauna) present on that section shall be destroyed. Additional losses of the resources of the abovementioned organisms shall be related to the planned works consisting in the regulation of further sections of the Nysa Kłodzka river bed (approx. 110 m of the river bed upstream of the dam and approx. 190 m of the river bed downstream of the dam).

Owing to the considerable length of flowing water beds located within the boundaries of the body of surface water (BSW) in question (approx. 45 km of the Nysa Kłodzka river plus its numerous tributaries), the abovementioned losses of the resources of macrophytes, phytobenthos and macroinvertebrates shall not be significant and shall not cause failure to achieve the environmental objective set for that BSW.

At the operation stage, the groups of benthic macroinvertebrates, phytobenthos and macrophytes destroyed earlier shall be gradually restored (in regulated and newly constructed sections of the Nysa Kłodzka river bed). In the case of phytobenthos, this process shall take several months, while in the case of macrobenthos and macrophytes it shall last up to 2-3 years.

#### *Fish fauna*

At the construction stage, as in the case of the abovementioned benthic organisms and macrophytes, habitats and the food base of fish shall be destroyed on the liquidated section of the Nysa Kłodzka river bed and the status of habitats and the food base of fish on the sections subject to regulation shall deteriorate. This impact shall be of local nature, so it shall not constitute a hazard to the achievement of the environmental objective.

At the operation stage, the fish habitats destroyed or degraded earlier shall be gradually restored (in regulated and newly constructed river bed sections) in the periods described in the previous clause.

To sum up, the negative impact on the abovementioned biological elements of waters at the construction stage shall concern relatively short (several hundred metre long) sections of the Nysa Kłodzka river bed, which constitute less than 2% of the length of significant water-courses in the BSW. Morphological continuity of the river shall be preserved at the reservoir construction and operation stages. Reservoir construction and operation shall not cause deterioration of the BSW ecological status.

### **Hydromorphological elements of water quality**

#### *Hydrological conditions*

Reservoir construction and functioning shall not influence the hydrological conditions of Nysa Kłodzka in the scope of normal flows. At the operation stage, the reservoir shall reduce catastrophic flows, occurring once every 10 years or rarer and significantly exceeding normal high water levels. Beside the planned limitation of catastrophic flows, the designed reservoir shall not influence the hydrological regime of the river.

### *Morphological conditions*

The approx. 170 m long backfilled section of the Nysa Kłodzka river bed shall be replaced with a new (approx. 150 m long) bed at the construction stage, which shall shorten the Nysa Kłodzka river by approx. 20 m. The width and inclination of the new bed shall correspond to the natural width and inclination of the bed on that section. Regulation of the Nysa Kłodzka river bed shall cover a total of approx. 300 m. The abovementioned transformations shall cover a bed section with a total length of approx. 530 m (along the present course), which constitutes approx. 2% of the length of significant watercourses in the discussed BSW. After the accumulation with existing transformations (assessed in 2007 to constitute approx. 19%), one obtains M4 regulation ratio<sup>1</sup> of approx. 22% (the critical value is 50%). Physical transformations of the BSW which change the morphological conditions are not significant enough to cause lowering of the ecological status/potential assessment result. In this respect, implementation of the planned Task does not cause a hazard to the achievement of WFD environmental objectives in the next planning cycle (the year of 2021). Reservoir construction shall not have a negative influence on river continuity, either.

### **Physical-chemical elements of water quality**

Periodic, short-term, insignificant impact on selected physical-chemical elements of water quality shall occur at the construction stage. It shall be related only to the suspension concentration increase in the water depths on the sections downstream of the performed regulation works in the Nysa Kłodzka river bed. The described impact does not occur at the operation stage. The quantity of suspensions penetrating into the water shall be insignificant and shall not constitute a hazard to the achievement of the environmental objective.

### **Assessment of the impact on the BSW covered by the Task and on the neighbouring BSW**

The impact of the planned works (including the works performed in the Nysa Kłodzka river bed) on the aquatic environment quality of *Nysa Kłodzka from the source to Różanka* BSW, including the impact on its biological, physical-chemical and hydromorphological elements, shall be insignificant. The planned Task shall not cause status deterioration of the BSW covered by the Task or the neighbouring BSW and does not constitute a hazard to WFD environmental objectives.

## **5.6. GROUNDWATER**

### **The influence on the groundwater status**

The designed “Boboszów” reservoir is located beyond the Major Ground Water Reservoirs (MGWR) and beyond direct protection zones of drinking water intakes.

Instances of short-term, transient, local lowering of the groundwater table may be caused by the works related to reservoir construction in connection with performing the necessary excavation drainages at the works stage. The possibility of contaminant transfer together with rain waters from the terrain surface to the groundwater largely depends on the layer thickness of

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<sup>1</sup> M4 ratio = total length of watercourse sections on which regulation works were performed (longitudinal structures and a documented change of river course) compared to the total length of significant watercourses. It is corrected depending on the type and age of regulation: [M4 = sum of regulated L / sum of watercourse L (km/km); threshold value: 0.50 (50%)]



low permeability formations insulating the aquifer. The biggest threat concerns the locations where outcrops of cracked rocks of the Cretaceous stage are uncovered as well as areas consisting of permeable alluvial layers in the direct neighbourhood of the Nysa Kłodzka river. In general, after implementing the minimizing measures in the scope of limiting the possibility of water and soil pollution, the construction works shall not cause a negative impact on the quantitative or qualitative status (changes in water chemism and hydrodynamism) of the Cretaceous layer waters.

At the operation stage, surface water damming in the reservoir shall be a periodic and short-term phenomenon. However, even short-term water damming in the reservoir shall influence groundwater by elevating the groundwater drainage base in the reservoir basin area and by periodically changing the hydrogeological conditions in the immediate vicinity of the reservoir. As a result of surface water damming in the reservoir, one should expect a groundwater table level increase by approx. 1.0-2.0 m in the immediate vicinity of the reservoir. Then, natural directions of groundwater flow (currently towards the Nysa Kłodzka river) shall change. Reservoir damming shall cause an approximately double increase of the water flow speed under the dam and a groundwater flow increase in the areas surrounding the dam. However, that impact shall be short-term and transient due to the short time of water damming in the reservoir.

#### **Assessment of the impact on the achievement of BGW environmental objectives**

The planned Task, consisting in the construction of a dry flood control reservoir damming the water only in flood periods, shall not infringe WFD objectives, i.e. shall not cause deterioration of the groundwater quantitative status or chemical status within the boundaries of the body of ground water (BGW) covered by the Task.

### **5.7. ACOUSTIC CLIMATE**

The anticipated scope of works shall be related to periodic noise emission at the construction stage. The sources of noise shall be the work of individual construction machines and the traffic of vehicles, including trucks. Given that the nearest buildings are situated over 100 m away from the works performance locations, as well as taking into account the influence of local land configuration in the dam construction area (the works shall be performed in a river valley the high slopes of which shall constitute natural acoustic barriers limiting noise distribution to surrounding areas), one should assume that the noise level related to works performance shall not cause significant troublesomeness to the surroundings. This shall be favoured by limiting the works performance time to daytime and by the Contractor's care for the technical state of machines and devices operating on the construction site.

After completing the construction stage, reservoir operation is not related to noise emission.

## 5.8. BIOTIC NATURE

### 5.8.1. Protected natural habitats and species

#### Natural habitats from Annex I to the *Habitats Directive*

Implementation of the planned Task shall cause a negative impact on 3 types of natural habitats occurring in the designed reservoir area. They are:

- 6430 – mountain herbs (*Adenostylion alliariae*) and riparian herb growths (*Convolvuletalia sepium*). In relation to Task implementation, it is necessary to remove 0.06 ha of the surface area of this habitat (i.e. approx. 14% of 0.43 ha of this habitat determined here).
- 9180\* – Tilio-Acerion forests of slopes, screes and ravines (*Tilio platyphyllis-Acerion pseudoplatani*). In relation to Task implementation, it is necessary to remove 0.2 ha of the surface area of this habitat (i.e. approx. 37% of 0.54 ha of this habitat determined here).
- 91E0\* – riparian mixed forests of willow, poplar, alder and ash tree (*Salicetum albobfragilis*, *Populetum albae*, *Alnenion glutinoso-incanae*) as well as alder forests on percolating mires. In relation to Task implementation, it is necessary to remove 0.47 ha of the surface area of this habitat (i.e. approx. 16% of 2.87 ha of this habitat determined here).

This impact shall be of permanent nature (the liquidated habitat swathes shall not be restored in those locations after works completion) and its joint influence shall be reduced i.a. owing to the planned planting of trees and shrubs in determined locations.

#### Protected species of plants

Occurrence of 19 plant species considered as rare (including 17 species protected in Poland) was determined in the area of the planned Task. The following 9 plant species shall be affected by a negative influence of the planned Task at the construction stage: Stemless carline thistle *Carlina acaulis*, Common twayblade *Listera ovata*, True oxlip *Primula elatior*, Spring snowflake *Leucoium vernalis*, Mezereon *Daphne mezereum*, Autumn crocus *Colchicum autumnale*, Eurhynchium angustirete *Eurhynchium angustirete*, Springy turf-moss *Rhytidiadelphus squarrosus* and Red-stemmed feathermoss *Pleurozium schreberi*.

The loss of sites of the abovementioned protected plant species shall not be of significant nature. The population resources of the abovementioned protected species shall not be significantly reduced on a regional or local scale. The protected species determined here are locally frequent or relatively frequent and are not significantly endangered.

The investment impact on the flora was also considered in terms of the influence on tree and shrub species not subject to protection. Task implementation is related to the necessity of felling approx. 1500 trees and approx. 150 shrubs.



## Protected species of animals

### *Invertebrates*

The implementation of the planned Task shall cause a negative impact on 3 butterfly species (Large copper *Lycaena dispar*, Dusky large blue *Phengaris nausithous* and Scarce large blue *Phengaris teleius*) in connection with occupying the surface fragments of meadows constituting their habitat for construction purposes. Therefore, a mitigation measure was planned in the form of a requirement to conduct meadow cultivation in the reservoir basin area during the operation period in order to ensure long-term maintenance of habitats of the abovementioned species.

### *Fish and lampreys*

The implementation of the planned Task shall cause a negative impact on 3 species of fish (Bullhead *Cottus gobio*, Siberian bullhead *Cottus poecilopus* and Brown trout *Salmo trutta*) in connection with the planned relocation and regulation of the Nysa Kłodzka river bed sections (loss or periodic deterioration of habitat quality, periodic deterioration of the food base). The effects of this impact shall be limited owing to a range of mitigation measures concerning i.a. shaping the newly constructed river bed section in a manner favouring the presence of fish fauna and limiting the spatial scope of bed regulation.

### *Amphibians and reptiles*

The planned construction works may pose a danger of trapping amphibians or reptiles in performed excavations. Vehicle and machine traffic is also a hazard as it may deteriorate the conditions of their living and breeding or pose a direct hazard to the life of their specimens. Potential pollution of the aquatic-soil environment may also be a danger to this group of animals. All the above impact is of potential nature and performing the works in accordance with the conditions determined in Appendix 1 to the EMP shall significantly reduce the risk of its occurrence.

### *Birds*

The main forms of the negative impact of the planned Task on the bird fauna include the following:

- destruction of potential breeding grounds (groups of trees and shrubs as well as swathes of herb growths) and feeding grounds – this impact shall not cause a significant influence on the populations of individual species due to the availability of other areas of similar nature in the surroundings of the construction site;
- increased penetration of the area by humans as well as intense vehicle and construction machine traffic (scaring and disturbing of specimens) – this impact is local, short-term and limited to the period and time of works performance.

### *Flightless mammals*

In the case of species of small land mammals, the planned construction works pose hazards analogous to those mentioned in the case of amphibians and reptiles (see above). In the case of Eurasian otter *Lutra lutra*, those hazards are supplemented with the impact related to loss or deterioration of habitat quality in the bed and on the banks of the Nysa Kłodzka river as a result of the planned hydraulic works. As in the case of fish and lampreys, the planned mitigation measures concerning shaping the watercourse beds shall lead to a significant reduction of the unfavourable effects of this impact.

### *Bats*

The hazards to this group of animals are analogous to those in the case of birds, but the bats living in tree hollows are additionally more vulnerable to death during tree felling. This type of hazards was minimized owing to appropriate mitigation measures described in Appendix 1 to the EMP.

## **5.8.2. Protected areas and objects**

### **Natura 2000 sites**

The implementation of the planned Task (both at the construction and operation stages) does not cause a negative impact on Natura 2000 sites located in its surroundings (lack of a negative influence on Natura 2000 site integrity or network coherence).

### **Other protected areas and objects**

The implementation of the planned Task (both at the construction and operation stages) does not cause a negative impact on protected areas and objects (other than Natura 2000 sites) located in its surroundings.

## **5.9. CULTURAL MONUMENTS**

Certain Task elements shall be implemented within the boundaries of 3 protection zones listed in chapter 4.9, including:

- within the boundaries of the “K” cultural landscape protection zone in Boboszów village and within the boundaries of the archaeological observation (“AO”) zone in Boboszów village, it is planned i.a. to construct a new Nysa Kłodzka river bed downstream of the dam, regulate the river bed between the dam and the bridge in the course of national road No. 33, demolish the existing municipality road and construct a new municipality road, demolish the buildings of one household and perform earthworks related to terrain leveling;
- within the boundaries of the “K” cultural landscape protection zone in Pisary village, it is planned to demolish the existing municipality road and construct a new section of that road.

According to the guidelines concerning cultural heritage and monument protection, the construction works performed in the abovementioned zones have to be arranged with the Lower Silesian Heritage Conservator.

## **5.10. POPULATION AND MATERIAL GOODS**

In connection with the implementation of the planned Task, it shall be necessary to introduce the following changes to the existing infrastructural objects: relocation of a section of the existing municipality road (including liquidation of 2 bridges over the Nysa Kłodzka river and replacing them with fords), demolition of 16 buildings located within the boundaries of the Task implementation area (5 of which are residential buildings), demolition of technical installations of territorial development serving the households to be liquidated and relocation of overhead medium and low voltage power lines.

The issues related to land purchase or changing land use, as well as possible problems connected with the influence of reservoir construction and operation on temporary occupation

areas and their surroundings, are discussed in detail in the *Land Acquisition and Resettlement Action Plan* (LA&RAP) for the Task in question.

The potential negative influence on material goods at the construction stage is related to using the existing road network as access roads to the construction site. Introduction of mitigation measures in this scope shall enable limiting this impact category.

### **5.11. HUMAN HEALTH AND SAFETY**

The implementation of the planned Task may be related to the following impact on human health and safety:

- Increase of air pollution emission  
At the construction stage, the pollution level of atmospheric air may locally and periodically increase in connection with using vehicles and construction machinery (emission of exhaust fumes). Since this impact is dispersed, local and not too intense, and owing to the distance between the construction site and the nearest buildings, the impact should not cause significant effects in relation to the health of the Contractor's staff or residents from the vicinity (see also chapter 5.3).
- Increased noise emission  
At the construction stage, the noise level related to performing the works and using vehicles and construction machinery may locally and periodically increase. Taking into account the circumstances discussed in chapter 5.7, this phenomenon should not cause significant effects in relation to the health of the Contractor's staff or residents from the vicinity.
- Petroleum derivative pollution hazard  
Bad organization of works or failure to observe appropriate standards could lead to water and soil pollution with fuels at the construction stage, which could constitute a direct or indirect hazard to the health of the Contractor's staff or residents from the vicinity. To prevent such hazards, Appendix 1 to the EMP introduces a number of conditions aimed at limiting the risk of petroleum derivative pollution at the construction stage (see also chapter 6.11).
- The possibility of a reservoir breakdown or catastrophe at the operation stage  
The issues related to the potential influence of a reservoir breakdown or catastrophe on the health and safety of the residents of towns and villages located downstream of the dam are discussed in chapter 5.12.

### **5.12. SPECIAL HAZARDS (CRITICAL AND EMERGENCY SITUATIONS)**

The implementation of the planned Task is related to the possibility of occurrence of the following critical or emergency situations which could cause special environmental hazards:

- Uncontrolled emission (leak) of petroleum derivatives  
An emergency situation may take place at the construction stage, resulting in a leak of petroleum derivatives from vehicles, construction machinery, tanks etc. polluting surface waters or the earth surface (including soil). The risk and effects of this type of events are limited by appropriate organization of the construction site backyard, care for the appropriate technical condition of vehicles, machines and equipment used on the construction

site as well as, if those events do occur, strict observance of procedures concerning emergency and critical situations, described in Appendix 1 to the EMP.

- Fire or explosion of flammable substances

An emergency situation may take place at the construction stage in relation to a fire (e.g. as a result of an equipment breakdown, staff negligence, an explosion of flammable substances, a lightning strike etc.). The risk and effects of this type of events are limited by strict observance of OSH provisions, appropriate organization of the construction site backyard, care for the appropriate technical condition of vehicles, machines and equipment used on the construction site as well as, if those events do occur, strict observance of procedures concerning emergency and critical situations, described in Appendix 1 to the EMP.

- Finding unexploded bombs or unfired rounds

Hazardous materials of military origin, such as unexploded bombs or unfired rounds, may be found at the construction stage. Potential hazards related to this type of situations are limited by pre-emptive sapper examination of the construction site before commencing the works, ensuring sapper supervision over the works on a running basis as well as, if such materials are found, strict observance of procedures concerning situations related to the presence of unexploded bombs or unfired rounds, described in Appendix 1 to the EMP.

- Sudden freshets, flood

A sudden water level increase in the Nysa Kłodzka river on the construction site or a flood may take place at the construction stage, threatening the staff's health and life and causing material losses on the construction site. In order to minimize the possible effects of this type of events, the Contractor shall take into account the flooding risk when organizing the construction site backyard and the remaining part of the works area as well as develop a *Construction site flood management plan* and strictly observe the conditions contained in it.

- The possibility of a reservoir breakdown or catastrophe at the operation stage

The operation of a dry flood control reservoir is related to a potential risk of water spillway above the dam crest or a dam break, e.g. as a result of long-term torrential precipitation, a breakdown of relief devices and other causes. The occurrence risk of this type of catastrophes is limited by specific design and technical solutions applied in the planned reservoir: increasing the reservoir dam crest elevation above the level required in the provisions binding on this type of hydraulic structures (the effectiveness of that measure was examined in model tests performed at the reservoir design stage), replacing the soils under the planned reservoir dam with soils ensuring dam stability, applying an anti-filtering membrane in and under the dam body, equipping the dam with two types of relief devices (sluices and spillways), equipping the reservoir tunnel with an emergency opening and increasing the efficiency of the reservoir spillway devices above the level required in the provisions. Given the abovementioned protections and the fact that the reservoir design takes into account the hydrological data characterizing the scale of flows in the water-courses of this area during calculation periods, one can state that the discussed hazard is very much of a potential nature and its probability of occurrence is slight.

## **6. DESCRIPTION OF MITIGATION MEASURES**

In order to limit the negative environmental impact of the planned Task, Appendix 1 to the EMP defines a set of mitigation measures binding on the Task Contractor. Those measures were developed on the basis of the conditions contained in the binding administrative decisions in the scope of environmental protection issued for the Task, which were supplemented with additional conditions determined at the EMP preparation stage. A list of main categories of the mitigation measures is presented below, dividing them into the environment components discussed in chapters 4 and 5 of the EMP.

### **6.1. EARTH SURFACE AND LANDSCAPE**

The primary forms of the negative impact of the planned Task on earth surface and landscape are presented in chapter 5.1.

To limit that impact, Appendix 1 to the EMP introduces mitigation measures aimed i.a. at:

- limiting the influence related to land occupations on the status of earth surface and landscape (item 4, 6, 67 and 75);
- limiting the landscape value losses related to tree and shrub felling (item 108, 109, 110 and 111).

### **6.2. CLIMATE**

Due to lack of a negative impact on the climate (see the description in chapter 5.2), it was considered as unnecessary to introduce mitigation measures.

### **6.3. ATMOSPHERIC AIR**

The primary forms of the negative impact of the planned Task on atmospheric air are presented in chapter 5.3.

To limit that impact, Appendix 1 to the EMP introduces mitigation measures aimed i.a. at:

- limiting the electrical energy consumption at the works stage (item 87);
- limiting air pollution with exhaust fumes, dusts etc. (item 88 and 89).

### **6.4. SOILS AND GROUNDS**

The primary forms of the negative impact of the planned Task on soils and grounds are presented in chapter 5.4.

To limit that impact, Appendix 1 to the EMP introduces mitigation measures aimed i.a. at:

- limiting the soil resource losses related to land occupations (item 4, 5, 67, 73 and 75);
- limiting the topsoil layer loss (item 10 and 67);
- ensuring an appropriate chemical quality of grounds in the area of works (item 7 and 9);
- limiting the ground pollution risk at the works stage (item 5, 6, 72, 73, 75, 76, 77, 78, 79, 80, 81, 82, 83, 91, 92, 93 and 94).

## **6.5. SURFACE WATERS**

The primary forms of the negative impact of the planned Task on surface waters are presented in chapter 5.5.

To limit that impact, Appendix 1 to the EMP introduces mitigation measures aimed i.a. at:

- limiting the water pollution risk at the works stage (item 5, 6, 49, 50, 51, 52, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 91, 92, 93 and 94);
- ensuring an appropriate chemical quality of grounds in the area of works (item 7 and 9);
- limiting the negative influence on the biological elements of water quality (item 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 57 and 58).

## **6.6. GROUNDWATER**

Due to lack of a significant negative impact on groundwater (see the description in chapter 5.6), it was considered as unnecessary to introduce mitigation measures. Groundwater protection is indirectly related to a part of the mitigation measures listed in chapter 6.5 concerning protection of surface waters against pollution.

## **6.7. ACOUSTIC CLIMATE**

The primary forms of the negative impact of the planned Task on atmospheric air are presented in chapter 5.7.

To limit that impact, Appendix 1 to the EMP introduces mitigation measures aimed at:

- limiting the noise generated at the works stage (item 84, 85, 86 and 87).

## **6.8. BIOTIC NATURE**

The primary forms of the negative impact of the planned Task on biotic nature resources are presented in chapter 5.8.

To limit that impact, Appendix 1 to the EMP introduces mitigation measures aimed i.a. at:

- limiting the natural resource losses related to land occupations (item 5, 6, 10, 30, 67, 76, 108, 109, 110, 111, 113, 114, 115 and 117);
- limiting the natural resource losses related to the felling of trees and shrubs (item 11, 12, 13, 14, 15, 16, 17, 108, 109, 110, 111, 115, 116 and 117);
- eliminating or limiting the natural resource losses related to accidental deaths of specimens of protected species on the land (item 30, 32, 34, 36, 37, 38, 39, 40 and 42);
- eliminating or limiting the natural resource losses related to accidental deaths of specimens of protected species in the aquatic environment (item 44, 45, 46, 47, 49, 50, 51, 52 and 54);
- eliminating or limiting the influence of works implementation on the breeding results of protected animal species (item 11, 12, 18, 21, 27, 30, 42, 43, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 57, 58 and 61);
- eliminating or limiting the influence of works implementation on the migration conditions of protected animal species (item 39, 40, 53, 55, 57, 58 and 61);
- limiting the influence of works implementation on the status of natural habitats and habitats of protected species on the construction site and in its immediate vicinity (item 30,

31, 42, 43, 48, 53, 55, 57, 58, 61, 67, 69, 70, 108, 109, 110, 111, 113, 114, 115, 116 and 117);

- limiting the influence of works implementation on the status of trees and shrubs not anticipated for felling (item 20, 21, 22, 23, 24, 25, 26 and 42);
- eliminating or limiting the influence of works implementation on the spreading of invasive plant species of foreign origin (item 41).

## **6.9. CULTURAL MONUMENTS**

In order to prevent a negative influence of Task implementation on cultural resources, (see the description in chapter 5.9), Appendix 1 to the EMP introduces three mitigation measures aimed at ensuring the arrangement of works performance conditions with a relevant heritage conservator and implementing appropriate procedures in the case of discovering movable monuments or archaeological sites at the works stage (item 105, 106 and 107).

## **6.10. POPULATION AND MATERIAL GOODS**

In accordance with the information provided in chapter 5.10, the issues related to land purchase or changing land use, as well as possible problems connected with the influence of reservoir construction and operation on temporary occupation areas and their surroundings, are discussed in detail in the *Land Acquisition and Resettlement Action Plan (LA&RAP)* for the Task in question. The impact related to using the existing road network as access roads to the construction site shall be limited by implementing the conditions of access road use, described in item 8 of Appendix 1 to the EMP.

## **6.11. HUMAN HEALTH AND SAFETY**

The primary forms of the negative impact of the planned Task on human health and safety are presented in chapters 5.11 and 5.12.

To limit that impact, Appendix 1 to the EMP introduces mitigation measures aimed i.a. at:

- limiting the influence of the planned Task on the sanitary status of atmospheric air (listed in chapter 6.3);
- limiting the influence of the planned Task on the acoustic climate (listed in chapter 6.7);
- eliminating or limiting the risk of chemical pollution of water and ground at the works stage (listed in chapters 6.4 and 6.5);
- ensuring safety on the construction site and in its surroundings (item 96, 97, 98, 99, 100 and 101);
- ensuring appropriate response in situations of special hazards (item 102, 103 and 104).



## **6.12. SPECIAL HAZARDS (CRITICAL AND EMERGENCY SITUATIONS)**

The primary types of special hazards (with characteristics of a critical situation) that may potentially occur in connection with Task implementation are presented in chapter 5.12.

To limit the possible effects of this type of events, Appendix 1 to the EMP introduces mitigation measures aimed i.a. at:

- eliminating or limiting the risk of chemical pollution of water and ground at the works stage (listed in chapters 6.4 and 6.5);
- ensuring safety on the construction site and in its surroundings (item 96, 97, 98 and 99);
- ensuring appropriate response in situations of special hazards (item 102, 103 and 104).

## **6.13. REQUIREMENTS IN THE SCOPE OF DEVELOPMENT AND IMPLEMENTATION OF THE CONTRACTOR'S SELECTED DOCUMENTS**

In order to ensure appropriate organization of works performance and implement correctly the conditions determined in Appendix 1 and 2 to the Environmental Management Plan, the Contractor is obliged to develop the following documents, obtain the Engineer's approval for them and then implement them:

- 1) A construction site organization design, which should include i.a. the following elements:
  - backyard location;
  - backyard management;
  - backyard protection;
  - access roads;
  - environmental protection in the backyard.
- 2) A waste management plan, which should include i.a. the following elements:
  - found and anticipated types and quantities of waste;
  - manners of preventing the negative environmental impact of the waste;
  - the waste management manner taking into account collection, transportation, recovery and treatment;
  - the type of generated waste and the manner of its storage.
- 3) Quality assurance plans for individual categories of works and other types of the Contractor's measures (as needed, including as required by the Engineer), which should contain i.a.:
  - information about the planned organization of performing a given category of works or measures;
  - information about the conditions of implementing a given category of works or measures contained in the EMP;
  - information about other possible manners of preventing the negative environmental impact of a given category of works.



- 4) A construction site flood management plan, which should include i.a. the following elements:
  - monitoring of the hydrological-meteorological situation;
  - conditions of passing freshet flows in the works performance period;
  - rules of the Contractor's staff work during the flooding risk period;
  - primary obligations of key members of the company flood management team;
  - a list of officers during the flooding risk period;
  - a list of equipment and means of transport needed to conduct rescue actions.
- 5) A Safety and Health Protection Plan, which should include i.a. the following elements:
  - indication of plot/site development elements which could pose a hazard to human safety and health;
  - information about the hazards anticipated during the implementation of construction works, specifying the scale, types, place and time of the hazards, including the relation to the natural environment;
  - information about designating and marking the construction works implementation location in a manner appropriate for the hazard type;
  - information about the manner of instructing the employees before commencing the implementation of particularly dangerous works;
  - specification of the manner of storing and moving hazardous materials, products, substances and preparations on the construction site;
  - indication of technical and organizational means preventing the dangers stemming from the performance of construction works in zones of special hazard to health or in their neighbourhood, including means ensuring safe and effective communication enabling quick evacuation in case of a fire, breakdown or another hazard;
  - indication of the storage location of construction documentation and documents necessary for correct operation of machines and other technical devices.

When developing the abovementioned documents, the Contractor shall take into account relevant Operational Policies and Bank Procedures of the World Bank concerning health protection, environmental protection and safety rules.

#### **6.14. MEASURES AT THE OPERATION STAGE**

A part of the mitigation measures specified in the EMP goes beyond the construction stage and shall also be implemented in the reservoir operation period. Those measures include i.a.:

- maintenance of tree and shrub plantings on a running basis  
(item 67, 108, 109, 110, 111, 113, 114, 115, 116 and 117 in Appendix 1 to the EMP and item 129 in Appendix 2 to the EMP);
- performance of agricultural practices related to restoration of meadows  
(item 67 and 113 in Appendix 1 to the EMP);
- performance of maintenance and possible repairs of nest boxes and platforms for birds on a running basis  
(in relation to the content of item 114, 115 and 116 in Appendix 1 to the EMP and item 130 and 131 in Appendix 2 to the EMP);

- performance of maintenance and possible repairs of boxes for bats on a running basis (in relation to the content of item 117 in Appendix 1 to the EMP and item 132 in Appendix 2 to the EMP);
- performance of measures aimed at ensuring the reservoir tunnel passability for two-way migration of fish (in relation to the content of item 133 in Appendix 2 to the EMP);
- ensuring reservoir area lighting in accordance with the conditions of the environmental decision (item 66 in Appendix 1 to the EMP);
- ensuring the minimum acceptable flow in the watercourses (item 47 in Appendix 1 to the EMP).

In the Defect Notification Period, the Contractor is the party responsible for implementation of the abovementioned measures (in the case of the last two measures – together with the Investor). After Contract completion, the Investor is responsible for implementation of all of the abovementioned measures.

## **7. DESCRIPTION OF MONITORING MEASURES**

Appendix 2 to the EMP defines a set of monitoring measures binding on the Task Contractor. Those measures were developed on the basis of the conditions contained in the binding administrative decisions issued for the Task, which were supplemented with additional conditions determined at the EMP preparation stage.

The monitoring measures listed in Appendix 2 to the EMP belong to three main categories:

- monitoring of implementation of the mitigation measures listed in Appendix 1 to the EMP (item 1-128 in Appendix 2 to the EMP);
- monitoring of the status of selected elements of the environment defined in the decision on the environmental conditions (item 129-133 in Appendix 2 to the EMP);
- monitoring of implementation of the abovementioned measures monitoring the status of selected elements of the environment (item 134 in Appendix 2 to the EMP).

## 8. PUBLIC CONSULTATIONS

### 8.1. PUBLIC CONSULTATIONS FOR THE *ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK FOR THE OVFMP (2015)*

The draft of the document entitled *Environmental and Social Management Framework (ESMF)* for the OVFM Project (including Component 2, which covers the present Task) was subject to the procedure of public consultations conducted in accordance with *OP 4.01* Operational Policy of the World Bank. Their aim was to enable the public to familiarize itself with the content of that document and ensure the possibility of submitting remarks, questions and motions concerning the content.

The documentation of the public consultation process for the abovementioned document is available on the website of the Odra-Vistula Flood Management Project Coordination Unit<sup>1</sup>.

### 8.2. PUBLIC CONSULTATIONS AT THE STAGE OF ENVIRONMENTAL PROCEDURES FOR THE TASK (2012-2016)

In terms of national administrative procedures in the scope of EIA, Task 2A.1/1 *Construction of “Boboszów” – a dry flood control reservoir on Nysa Kłodzka River* consists of two undertakings subject to separate EIA procedures, i.e.: (1) construction of “Boboszów” – a dry flood control reservoir on Nysa Kłodzka River and (2) reconstruction of municipality road No. 119952D.

A full EIA according to Polish legislation was conducted for the undertaking concerning reservoir construction. With regard to the undertaking concerning municipality road reconstruction, the relevant local body determined lack of the need for conducting an environmental impact assessment (see chapter 3.5). However, one has to indicate here that the municipality road reconstruction was an element of the environmental documentation for the reservoir, but it was excluded from the EIA procedure due to formal reasons.

#### A) **Public consultations concerning the decision on the environmental conditions for reservoir construction**

In the scope concerning issuing the decision on the environmental conditions for the construction of “Boboszów” reservoir, the consultations with the public’s participation were conducted by a relevant local body issuing the decision, i.e. the Regional Director for Environmental Protection in Wrocław.

In an announcement of November 28<sup>th</sup>, 2012 (ref. No.: WOOŚ.4233.8.2012.ŁCK.7), the Regional Director for Environmental Protection in Wrocław published the required information concerning the planned undertaking. That announcement was placed on the notice board and the website of the Regional Directorate for Environmental Protection in Wrocław and on the notice board of the Międzylesie City and Municipality Office as well as handed over to Boboszów and Pisary village leaders.

Within the deadline provided by the law (and after its expiration), the conducting body received no remarks or motions related to the undertaking in question.

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<sup>1</sup> On the website: [http://www.odrapcu.pl/popdow\\_dokumenty\\_RPZSiSS.html](http://www.odrapcu.pl/popdow_dokumenty_RPZSiSS.html).

On January 31<sup>st</sup>, 2013, the Regional Director for Environmental Protection in Wrocław issued a decision on the environmental conditions for the construction of “Boboszów” reservoir (ref. No.: WOOŚ.4233.8.2012.ŁCK.9). That decision was published via an announcement.

An appeal was lodged with the General Director for Environmental Protection in March 2013, i.e. two months after issuing the abovementioned decision. The General Director for Environmental Protection did not agree with most of the remarks contained in the appeal, but considered a part of them as justified and, by a decision of December 6<sup>th</sup>, 2013 (ref. No.: DOOŚ-oa1.4233.15.2013.IS.13), overruled the abovementioned decision and handed the case over to the Regional Director for Environmental Protection in Wrocław for re-review.

During case re-review, the Regional Director for Environmental Protection in Wrocław conducted public consultations for the second time. In an announcement of December 12<sup>th</sup>, 2014 (ref. No.: WOO.4233.8.2012.ŁCK.39), the Regional Director for Environmental Protection in Wrocław published the required information concerning the planned undertaking. That announcement was placed on the notice board and the website of the Regional Directorate for Environmental Protection in Wrocław and on the notice boards of the Międzylesie City and Municipality Office and the Bystrzyca Kłodzka City and Municipality Office as well as handed over to Boboszów and Pisary village leaders and published in a local extra to *Gazeta Wyborcza* newspaper. Within the deadline provided by the law, the conducting body received no remarks or motions related to the undertaking in question. The Regional Director for Environmental Protection in Wrocław received one remark after concluding the public consultation period. The remark was not reviewed, but it was referred to in the content of decision justification.

On February 27<sup>th</sup>, 2015, the Regional Director for Environmental Protection in Wrocław issued a decision on the environmental conditions for the construction of “Boboszów” reservoir (ref. No.: WOOŚ.4233.8.2012.ŁCK.47). That decision was published via an announcement.

An appeal was lodged with the General Director for Environmental Protection in March 2015, i.e. one month after issuing the abovementioned decision. After reviewing the case, the General Director for Environmental Protection issued a decision on April 6<sup>th</sup>, 2016 (ref. No.: DOOŚ-oa1.4233.21.2015.is.15), maintaining in force the abovementioned decision of the Regional Director for Environmental Protection in Wrocław and introducing a number of changes to its sentence. The decision by GDOŚ was published via an announcement.

Upon the motion of the Investor of 18<sup>th</sup> December 2018 (supplemented on 4<sup>th</sup> January and 15<sup>th</sup> February 2019) after the end of the procedure, during which the public participation was ensured, on 04.06.2019, the General Director for the Environmental Protection in Warsaw issued a decision (reference number: DOOŚ-WDŚ/zoo.420.238.2018.is.14) changing in part the environmental decision for the investment. During the course of the procedure GDOŚ informed the parties (notifications of 23<sup>rd</sup> January 2019 and 1<sup>st</sup> March 2019) on the possibility to comment the collected materials in the pending procedure. On 1<sup>st</sup> March 2019, information was publicly disclosed that there is a possibility to get acquainted with the documentation of the case, as well as about the possibility to lodge comments and motions within the term from 4<sup>th</sup> March to 2<sup>nd</sup> April 2019. Within the specified term, nor during earlier stages of the procedure, none from the interested community or parties to the procedure lodged any comments or motions in the case.

## **B) Public consultations concerning the decision on the environmental conditions for municipality road reconstruction**

In the scope concerning issuing the decision on the environmental conditions for the reconstruction of municipality road No. 119952D, the consultations with the public's participation were conducted by a relevant local body issuing the decision, i.e. the Mayor of Międzylesie City and Municipality.

In an announcement of January 12<sup>th</sup>, 2015 (ref. No.: RGG.603.1.2015), the Mayor of Międzylesie City and Municipality published the required information concerning the planned undertaking. That announcement was placed on the notice board of the Międzylesie City and Municipality Office and in the Bulletin of Public Information of the Międzylesie City and Municipality Office.

Within the deadline provided by the law (and after its expiration), the conducting body received no remarks or motions related to the undertaking in question.

On February 17<sup>th</sup>, 2016, the Mayor of Międzylesie City and Municipality issued a decision on the environmental conditions for reconstruction of municipality road No. 119952D (ref. No.: ITiG.603.1-D.2015). That decision was published via an announcement.

### **8.3. PUBLIC CONSULTATIONS FOR THE EMP (2016)**

The draft of the present document is subject to the public consultation procedure conducted in accordance with the Operational Policies of the World Bank (*OP 4.01*).

After developing the draft of the EMP document, its electronic version is placed on publicly accessible websites and its printed version is made available for browsing by interested persons. Detailed information about the possibility of familiarizing oneself with this document and submitting motions and remarks, together with the indication of detailed contact data (e-mail address, address of the place where one can familiarize oneself with the draft, opening hours, telephone number), is published in local press and on the websites of the entity implementing the Task being the EMP subject. After the document publication period (10 business days), a meeting for interested persons is organized to present the EMP draft and then conduct a discussion concerning all environmental issues related to Task implementation. All previously reported (by e-mail and phone) questions, remarks and answers are also read aloud at that meeting. The participants' questions and remarks are collected during the meeting as well. If providing an answer requires time, the person's contact data are written down and the answer is sent by e-mail or by post within 7 days. A protocol of the meeting is prepared and sent to the World Bank. Remarks from the society that have to be taken into account are introduced into the EMP document and its final version is prepared. The EMP in this form is also sent to the World Bank to obtain a "no objection" approval.

## **9. ORGANIZATIONAL STRUCTURE OF EMP IMPLEMENTATION**

The Task being the subject of this EMP is implemented within the Odra-Vistula Flood Management Project (see chapter 1.1), co-financed using the World Bank's funds. Therefore, the EMP implementation supervision structure has to comply with both the provisions of Polish law and the requirements of the World Bank.

### **9.1. ODRA-VISTULA FLOOD MANAGEMENT PROJECT COORDINATION UNIT (OVFM PCU)**

The entity responsible for overall coordination of implementing the individual parts of the EMP within the OVFM Project is the Project Coordination Unit (PCU), which is currently a state budgetary unit responsible to the President of the National Water Management Authority.

OVFM PCU tasks include i.a.:

- cooperation with the Minister of Finance, the Minister of the Interior and Administration, the Minister of the Environment, the National Water Management Authority and other government and local government administration bodies related to OVFM Project implementation;
- coordination of activities of individual Project Implementation Units and supporting those units in the scope of EMP implementation;
- monitoring and assessment of EMP implementation progress;
- cooperation with the World Bank on a running basis, including development of quarterly reports on OVFM Project implementation.

### **9.2. PROJECT IMPLEMENTATION UNIT (PIU) AND PROJECT IMPLEMENTATION OFFICE (PIO)**

The entity directly responsible for implementing the EMP for the Task and monitoring EMP implementation progress is the Project Implementation Unit (PIU), i.e. RZGW in Wrocław, as a state budgetary unit responsible to the President of the National Water Management Authority.

In relation to OVFM Project implementation, the Project Implementation Office (PIO) was established as a separate organizational unit directly responsible to the Director of RZGW in Wrocław and supervised by him/her. Such a structure is transparent and its decision-making level is situated very high, which increases EMP implementation efficiency.

As part of EMP implementation supervision, the PIO performs the following tasks:

- monitoring of EMP implementation progress;
- financial management and account management;
- preparation of the necessary reports for the purposes of EMP implementation monitoring and for the purposes of coordination of EMP implementation by all the involved services.

The scope of duties of PIO employees related to EMP implementation supervision is as follows:

- management and coordination of as well as supervision over EMP monitoring implemented by the Consultant/Engineer and the Contractor;



- direct supervision over correct Task implementation;
- cooperation with the PIU;
- administrative and legal supervision over EMP implementation;
- verification of EMP implementation reports and accounts prepared by the Consultant/Engineer and the Contractor;
- financial supervision over EMP implementation;
- supervision over the correctness of applying formal procedures concerning EMP implementation which stem i.a. from the requirements of the Contract for works, *the Construction Law*, *the Environmental Protection Law* and other documents.

#### **9.4. CONSULTANT/ENGINEER**

The role of the Consultant/Engineer is supporting the PIU (RZGW in Wrocław) in effective implementation of the entire investment process, from undertaking preparation to its settlement.

The Consultant/Engineer shall be selected using the QCBS (Quality- and Cost-Based Selection) method, in accordance with *Guidelines: Selection and Employment of Consultants by World Bank Borrowers*. The Consultant/Engineer shall be obliged to supervise EMP implementation, in accordance with the scope defined in the Consultant/Engineer's contract, which shall include i.a.:

- monitoring of EMP implementation by the Contractor;
- monitoring the Contractor's actions;
- checking the quality of the construction works performed and the construction products used to build by the Contractor, in particular preventing the use of construction products which are defective or are not allowed for use in civil engineering;
- representing RZGW in Wrocław on the construction site by controlling the compliance of construction implementation with the project, the building permit, the provisions in the scope of environmental protection and the principles of technical knowledge;
- supervising all issues related to environmental protection by experienced specialists in the scope of environmental protection and by the Engineer's remaining staff;
- constant monitoring of the correctness of implementing the measures mitigating the negative environmental impact;
- performance of additional examinations if it becomes necessary to verify the Contractor's accounts;
- identification of problems stemming from the adverse environmental impact of construction works implementation and submitting proposed solutions to those problems;
- checking and accepting the construction works to be covered up and temporary construction works, participation in tests and technical acceptance of technical devices and systems as well as preparation of and participation in acceptance activities of ready structures and commissioning them;
- confirmation of actually performed works and removed defects as well as, on the Investor's request, inspection of construction settlement.

## **9.5. CONTRACTOR**

A Contractor shall be selected to implement the construction works. The Contractor shall be responsible i.a. for EMP implementation. The Contractor's duties in this scope include:

- performance of construction works in accordance with the rules defined in the EMP, Contract conditions, design documentation, binding provisions of law and requirements of administrative decisions issued for the Task;
- implementation of the Engineer's recommendations (including those of the environmental supervision specialists and the Investor's supervision inspector) concerning EMP implementation;
- ensuring the preparation of i.a. the following documents before construction commencement: a safety and health protection plan, a waste management plan, a quality assurance plan, a construction site flood management plan for the works implementation period and a construction site organization design;
- maintenance of construction documentation;
- preparation of monthly accounts and reports on inspections;
- preparation of accounts concerning environmental protection;
- applying to RZGW in Wrocław for changes in design solutions if this is justified by the necessity of increasing the implementation safety of construction works or streamlining the construction process in the scope concerning EMP implementation.

## **10. EMP IMPLEMENTATION SCHEDULE AND REPORTING PROCEDURES**

EMP implementation enables the parties involved in the preparation, implementation and supervision of the Contract for works to do the following:

- identify various environmental aspects which significantly influence the environment status so that they can be controlled, corrected and reduced but, consequently, produce economic effects;
- correct unfavourable consequences of conducted works during their implementation, which is beneficial to the environment and the financial results;
- define the objectives and tasks implemented within the adopted environmental policy, which are included in the EMP, require outlays and yield measurable effects;
- identify and eliminate potential hazards and breakdowns as well as prevent and remove environmental effects which may be related to them and cause losses disproportionate to prevention costs;
- use natural goods rationally with minimal environmental losses and optimal generation of costs.

Moreover, implementation of the recommendations and measures stemming from the EMP may reduce or even eliminate contractual risks, in particular:

- the risk of the Contractor skipping the environmental protection issues in the task implementation process;
- the risk of escalation of protests by the local community as a result of the Contractor's failure to observe the works implementation technologies and the environmental procedures approved by the Engineer;
- the risk of additional environmental penalties;
- the risk of bearing additional environmental losses.

Bearing in mind the significance of the issues determining the environmental and social conditions, the following EMP implementation procedures are anticipated:

- a) before selecting the Contractor of works, the Employer shall submit the draft of this EMP to the World Bank in order to receive an opinion;
- b) after receiving a positive opinion from the Bank, the EMP shall undergo public consultations;
- c) after conducting the public consultations (and supplementing the document with consultation results), the EMP shall be supplemented and its final version shall be submitted to the World Bank for approval;
- d) after EMP approval by the World Bank, the final document shall be included in the bidding documents concerning Contractor selection;
- e) all actions of the Contractor of works shall be reported regularly (once a month) in terms of the obligations stemming from the EMP and other contract documents. They shall be reported in Polish and English, both in a printed version and in an electronic version. Those reports shall require the Engineer's and the Employer's approval.

Moreover, appropriate units involved in Task implementation are obliged to meet additional obligations in the scope of monitoring and reporting the issues related to environmental pro-

tection, which are defined in the administrative decisions issued for the Task in question (see chapter 3.5) and presented in Appendix 1 and Appendix 2 to the EMP.

It is planned that the Contractor shall prepare collective reports on environmental monitoring at the works implementation stage. The reports shall be confirmed by environmental supervision specialists from the Contractor's team, approved by the Engineer's nature supervision staff and submitted to the RDOŚ via the PIU. A detailed scope of the report shall be determined by the Engineer (the commencement report, the periodic (monthly) report, the quarterly report, the ad hoc report, the closure report). The Engineer shall also define their preparation deadlines.

The OVFM Project reporting system shall be based on monthly reports submitted by Contractors to the PIO via the Engineer and on the Engineer's monthly reports. Monthly reports on EMP implementation shall also be prepared (by the Contractor and the Engineer) – as part of the monthly reports or as separate documents. Collective quarterly reports shall also be developed on this basis.

The PIU shall submit quarterly reports concerning its implemented tasks to the PCU. They shall contain the required set of information and descriptions enabling the PCU to prepare the OVFM Project quarterly report. Moreover, especially in the case of problems with implementation of the Contract for works, the PCU shall expect the PIO to submit information sets and data every month.

The following reporting procedures were defined:

- 1) Reporting:
  - a) reports (the commencement, monthly, quarterly and final ones) prepared by the Contractor of works;
  - b) report overview by the Engineer;
  - c) submitting the report to the Employer (for information purposes);
  - d) submitting the report to the RDOŚ in Wrocław (only in the scope stemming from the issued administrative decisions);
  - e) submission of a quarterly report by the PIU to the PCU.
- 2) Archiving:
  - a) Contractor: 1 copy of each report in the electronic version, for 5 years after the Contract completion date;
  - b) Engineer: 1 copy of each report in the electronic version, for 5 years after Contract completion;
  - c) Employer: 1 copy of each report in the electronic version, for 5 years after the Contract completion date.
- 3) Evaluation:
  - a) assessment (on a running basis) of implementation results of the planned actions stemming from the EMP;
  - b) analysis (on a running basis) of documentation (the Contractor's reports) by the Engineer;
  - c) submission of reliable information on the course of the construction process to the Employer, with special consideration for the implementation of the measures limiting

the negative environmental impact and the recommendations stemming from the environmental decisions;

d) preparation and submission of quarterly reports by the PCU to the World Bank.

The following are planned:

- *ex-ante* evaluation: a report before commencing Contract implementation (the Engineer's report);
- evaluation on a running basis: the Engineer's quarterly reports;
- *ex-post* evaluation:
  - a report after completing Contract implementation (final reports on EMP implementation prepared by the Contractor and the Engineer);
  - a report on EMP implementation after the Defect Notification Period, prepared by the Engineer.

## 11. LIST OF SOURCE MATERIALS

- 1) *Project Operations Manual (POM) for the Odra-Vistula Flood Management Project.* OVFM Project Coordination Unit. Wrocław, October 2015.
- 2) *Environmental and Social Management Framework for the Odra-Vistula Flood Management Project – a final document.* RZGW in Szczecin, RZGW in Wrocław, RZGW in Kraków, ZMiUW of the Lubuskie Province in Zielona Góra, West-Pomeranian ZMiUW in Szczecin, ZMiUW of the Świętokrzyskie Province in Kielce, Lower-Silesian ZMiUW in Wrocław, ZMiUW of the Małopolskie Province in Kraków, ZMiUW of the Podkarpackie Province in Rzeszów, IMGW – National Research Institute. April 2015.
- 3) *The environmental impact report for the designed undertaking entitled: “Construction of “Boboszków” – a dry flood control reservoir on Nysa Kłodzka River”.* Water Service Sp. z o.o. and Hydroprojekt Wrocław Sp. z o.o. Wrocław, August 2014.
- 4) *Project Information Card for the undertaking entitled: “Construction of “Boboszków” – a dry flood control reservoir on Nysa Kłodzka River; Facility: Reconstruction (demolition and construction in a new location) of Boboszków-Pisary municipality road together with construction of the necessary exits to private real properties”.* Water Service Sp. z o.o., Hydroprojekt Wrocław Sp. z o.o. Wrocław, January 2015.

## 12. LIST OF APPENDICES

- Appendix 1. Plan of mitigation measures
- Appendix 2. Plan of monitoring measures
- Appendix 3. List of national legal acts related to environmental protection
- Appendix 4. Copies of administrative decisions in the scope of environmental protection issued for the Task:
- a. Decision of the Regional Director for Environmental Protection in Wrocław of February 27<sup>th</sup>, 2015 on the environmental conditions for the construction of “Boboszków” dry flood storage reservoir (ref. No.: WOOŚ.4233.8.2012.ŁCK.47)
  - b. Decision of the General Director for Environmental Protection in Warsaw of April 6<sup>th</sup>, 2016, partially changing the decision on the environmental conditions of February 27<sup>th</sup>, 2015 issued by the Regional Director for Environmental Protection in Wrocław (ref. No.: DOOŚ-oa1.4233.21.2015.is.15)
  - c. Decision of the Mayor of Międzyzlesie City and Municipality of February 17<sup>th</sup>, 2015 on the environmental conditions for the construction of “Boboszków” dry flood storage reservoir in the scope of the reconstruction of municipality road No. 119952D (ref. No.: ITiG.603.1-D.2015)
  - d. The decision of the General Director for the Environmental Protection of 4<sup>th</sup> June 2019 changing in part the decision of the Regional Director for the Environmental Protection of 5<sup>th</sup> March 2015 (reference number: WOOŚ.4233.8.2012.ŁCK.47, on environmental conditions for the investment entitled ” Construction of "Boboszków" - a dry flood control reservoir on the Nysa Kłodzka River”, revoked in part as to which a new wording was decided and in the remaining part sustains as valid the decision of the General Director for the Environmental Protection of 6<sup>th</sup> April 2016 (reference number: DOOŚ-oa1.4233.21.2015.is.15);
  - e. The decision of the Regional Director for the Environmental Protection in Wrocław of 5<sup>th</sup> March 2019 allowing deviations from the bans binding in relation to plants and animals covered by species protection (reference number: WPN.6400.6.2019.MH);
  - f. The decision of the Regional Director for the Environmental Protection in Wrocław of 5<sup>th</sup> March 2019 changing the decision of the Regional Director for Environmental Protection in Wrocław of 29<sup>th</sup> June 2018 (reference number: WPN.6400.27.2018.IL) allowing deviations from the bans binding in relation to plants and animals covered by species protection (reference number: WPN.6400.27.2018.MH.1).
- d.
- Appendix 5. Tables presenting the information about the resources of protected species of plants, fungi and animals in the surroundings of the Task
- Appendix 6. Map presenting the location of main elements of the Task



Appendix 7. Map presenting Task location in relation to protected areas