

APPENDIX 6

Environmental Impact Assessment of The Project

to the Environmental and Social Management Framework (ESMF)

Climate Resilience in Water Resources Management Project

Legend:

Significance of the Impact	Explanation
High	Impacts that are potentially significant, irreversible, or related to critical habitats or physical/economic displacement. A dedicated ESIA is required, together with the additional instruments (BMP/CHMP/EPP/LARAP) indicated in the relevant rows below, which supplement the standard measures in the ESMP.
Substantial	Impacts that can be controlled using the established mitigation hierarchy and standard management plans (BMP/CHMP/operational plans); may require dedicated studies (e.g., nature surveys) and specialized monitoring.
Moderate	Impacts are predictable, reversible, and limited in scope and duration to the construction phase; fully managed by the measures contained in this ESMP and the C-ESMP.
Low	No detectable negative impacts or positive impacts. Requires no additional measures beyond standard practices.

Component 1: Reduce flood risk in the Upper and Middle Vistula Basin and the Biała Łądecka catchment of the Nysa Kłodzka River

Task I.1 – Flood risk reduction in the Vistula River Basin to protect Kraków

Environmental component	Type of Impact	Phase	Potential Significance	ESS Standard	Required documents and instruments
Soil	Land acquisition and land conversion resulting from earthworks for flood control levees, spillways, and overflow structures	Construction	High	ESS1, ESS3	Preparation of the C-ESMP.
Surface water	Impact on water quality (suspended solids, physicochemical parameters) during construction	Construction	Substantial	ESS3	Preparation of the C-ESMP.
	Risk of flow disruption and water turbidity due to work in the riverbed/along the Vistula River (cofferdams, temporary barriers, water intakes for construction)	Construction	Substantial	ESS3	Preparation of the C-ESMP; plan for hydrotechnical works.
Safety of construction work on embankments	Risk of damage or interruption of work due to flooding during construction	Construction	Substantial	ESS4	Preparation of a Flood Risk Management Plan during construction as part of the C-ESMP; scheduling of work

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Environmental component	Type of Impact	Phase	Potential Significance	ESS Standard	Required documents and instruments
and spillway structures					outside the high-water season; hydrological and meteorological monitoring.
Dam Safety	Risk of failure/damage to impoundment structures	Construction	To be determined in the ESIA	ESS4	Classification of structures in terms of dam safety; Appointment of an Expert Panel—conditional, depending on technical parameters (head, storage capacity); Preparation of the EAP
Groundwater	Lowering of the groundwater table due to local dewatering of excavations in the zone of groundwater level fluctuations	Construction	Moderate	ESS3	Preparation of the C-ESMP.
Aquatic biota	Impact of construction work on macrophytes, benthic invertebrates, and fish in the Vistula riverbed	Construction	Substantial	ESS6	Conducting an ESIA; preparing a BMP.
Protected Areas	Risk of disturbance to protected habitats and species in Natura 2000 sites (Dolina Dolnej Skawy Special Protection Area SPA, Wiślicka Special Area of Conservation SAC)	Construction	High	ESS6	Conduct an ESIA; prepare a BMP.
Riparian forests (91E0*, 91F0) and oxbow lakes (3150)	Risk of disturbance to priority habitats in the Vistula River valley	Construction	High	ESS6	Conduct an ESIA; prepare a BMP.
Fauna	Disturbance and disruption of wildlife during breeding periods and sensitive seasons	Construction	Substantial	ESS6	Work schedule in relation to breeding periods and sensitive seasons; Preparation of a work schedule in the BMP; environmental monitoring.
Biodiversity	Risk of introducing invasive alien species (IAS)	Construction	Moderate	ESS6	Preparation of the C-ESMP and BMP.
Noise	Noise emissions from equipment and construction work, which are a nuisance to the surrounding area	Construction	Moderate	ESS3	Preparation of the C-ESMP.
Air quality	Emissions of dust and pollutants from construction equipment, reducing air quality in the surrounding area	Construction	Moderate	ESS3	Preparation of the C-ESMP.
Generation and management of construction waste	Generation of construction waste (earth and excavated material) and hazardous waste (lubricants, fuels, demolition materials)	Construction	Moderate	ESS3	Preparation of a waste management plan as part of the C-ESMP.

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Environmental component	Type of Impact	Phase	Potential Significance	ESS Standard	Required documents and instruments
Surface waters	Periodic changes in the flow and morphology of the Vistula riverbed during the filling and emptying of the polder in the event of a flood	Operation	Moderate	ESS3, ESS6	Development of reservoir operating rules (Reservoir Operating Rules); preparation of the C-ESMP.
	Deposition of silt and sand on the bottom of the polder during filling	Operation	Moderate	ESS3	Development of reservoir operating rules; preparation of BMPs.
Soil	Changes in soil moisture due to periodic flooding	Operation	Moderate	ESS3	Development of reservoir water management guidelines; preparation of BMPs.
Ecosystem services	Changes in the valley's regulatory and retention functions	Operation	Substantial	ESS6	Conduct an ESIA; prepare BMPs.
Natural and cultural landscape	Landscape changes associated with the presence of embankments and spillway structures, as well as periodic changes in the view during polder filling	Operation	Moderate	ESS6, ESS8	Conduct an ESIA.
Flood safety	Increased flood protection for Kraków – positive impact	Operation	Low	ESS4	—
Cumulative impacts	Potential cumulative impacts on hydrology, water quality, and habitats resulting from multiple Project Tasks located within the same watershed.	Construction and Operation	To be determined in the ESIA	ESS1	Assess cumulative impacts as part of the ESIA; coordinate construction timing across Tasks in the same watershed.

Task I.2 – Flood Risk Reduction from Kraków to Zawichost

Environmental component	Type of Impact	Phase	Potential Significance	ESS Standard	Required documents and instruments
Soil	Land acquisition and land conversion resulting from earthworks for flood control levees, spillways, and overflow structures	Construction	High	ESS1, ESS3	Preparation of the C-ESMP.
Surface water	Impact on water quality (suspended solids, physicochemical parameters) during construction	Construction	Substantial	ESS3	Preparation of the C-ESMP.
Groundwater	Lowering of the groundwater table due to local dewatering of excavations in the zone of groundwater level fluctuations	Construction	Moderate	ESS3	Preparation of the C-ESMP.

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Environmental component	Type of Impact	Phase	Potential Significance	ESS Standard	Required documents and instruments
Aquatic biota	Impact of construction work on macrophytes, benthic invertebrates, and fish in the Vistula riverbed	Construction	Substantial	ESS6	Conducting an ESIA; preparing a BMP.
Protected Areas	Risk of disturbance to protected habitats and species in Natura 2000 sites within the polder's area	Construction	High	ESS6	Conduct an ESIA; prepare a BMP.
Riparian forests (91E0*, 91F0) and oxbow lakes (3150)	Risk of disturbance to priority habitats in the Vistula River valley	Construction	High	ESS6	Conduct an ESIA; prepare a BMP.
Fauna	Disturbing and disturbing wildlife during breeding periods and sensitive seasons	Construction	Substantial	ESS6	Work schedule in relation to breeding periods and sensitive seasons; Preparation of a work schedule in the BMP; environmental monitoring.
Biodiversity	Risk of invasive alien species introduction in disturbed areas	Construction	Moderate	ESS6	Preparation of the C-ESMP and BMP.
Noise and air quality	Noise and air pollution emissions from construction equipment, causing a nuisance to the surrounding area	Construction	Moderate	ESS3, ESS4	Preparation of the C-ESMP.
Generation and management of construction waste	Generation of construction waste (earth, excavated material) and hazardous waste (lubricants, fuels, demolition materials)	Construction	Moderate	ESS3	Preparation of a waste management plan as part of the C-ESMP.
Soil and Water Environment	Short-term disturbance of soil and water associated with the removal of temporary construction site infrastructure	Construction	Moderate	ESS3	Preparation of the C-ESMP.
Surface waters	Changes in flow and riverbed morphology of the Vistula	Operation	High	ESS3, ESS6	Development of reservoir operating rules (Reservoir Operating Rules); preparation of the C-ESMP.
	Deposition of silt and sand on the bottom of the polder during filling	Operation	Moderate	ESS3	Development of reservoir operating rules; preparation of BMPs.
Soil	Changes in soil moisture due to periodic flooding	Operation	Moderate	ESS3	Development of reservoir water

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Environmental component	Type of Impact	Phase	Potential Significance	ESS Standard	Required documents and instruments
					management guidelines; preparation of BMPs.
Ecosystem services	Changes in the valley's regulatory and retention functions	Operation	Substantial	ESS6	Conduct an ESIA; prepare BMPs.
Natural and cultural landscape	Permanent change to the landscape (view) of the Vistula River valley	Operation	Moderate	ESS6, ESS8	Conduct an ESIA.
Safety of construction work on embankments/spillway and overflow structures	Risk of damage or interruption of work due to flooding during construction	Construction	To be determined in the ESIA	ESS4	Preparation of a Flood Risk Management Plan during construction as part of the C-ESMP; scheduling of work outside the high-water season; hydrological and meteorological monitoring.
Dam Safety	Risk of failure/damage to impoundment structures	Construction	To be determined in the ESIA	ESS4	Classification of structures in terms of dam safety; Appointment of an Expert Panel—conditional, depending on technical parameters (head, storage capacity). Preparation of the EAP.
Flood safety	Increased level of flood protection on the Kraków–Zawichost section – positive effect	Operation	Low	ESS4	—
Cumulative impacts	Potential cumulative impacts on hydrology, water quality, and habitats resulting from multiple Project Tasks located within the same watershed.	Construction and Operation	To be determined in the ESIA	ESS1	Assess cumulative impacts as part of the ESIA; coordinate construction timing across Tasks in the same watershed.

Task I.3 – Modernize the Sulejów Water Reservoir

Environmental component	Type of Impact	Phase	Potential Significance	ESS Standard	Required documents and instruments
Soil	Degradation of the soil cover during earthworks	Construction	Moderate	ESS3	Preparation of C-ESMP.
Surface water	Changes in the impoundment level of the Pilica River during modernization works, affecting water supply functions	Construction	Substantial	ESS3, ESS6	Development of reservoir operating rules; preparation of the C-ESMP.
	Reduced downstream flow (Minimum Environmental Flow) in the Pilica River due to reservoir operation	Operation	Substantial	ESS3, ESS6	Determination of the Minimum Environmental Flow (MEF); development of reservoir operating rules.
Groundwater	Local changes in water conditions in the dam area during reservoir drainage and construction work	Construction	Moderate	ESS3	Development of a groundwater level monitoring program; preparation of the C-ESMP.
Aquatic biota	Impact of construction work on macrophytes, benthic invertebrates, and fish in the Sulejów reservoir	Construction	Substantial	ESS6	Preparation of the BMP; preparation of the C-ESMP.
Protected Areas	Risk of disturbance to breeding bird habitats in the Sulejowski Lagoon	Construction	Substantial	ESS6	Preparation of the BMP; preparation of the C-ESMP.
Fauna	Disturbing and disrupting wildlife during breeding periods and sensitive seasons	Construction	Substantial	ESS6	Work schedule in relation to breeding periods and sensitive seasons; Preparation of a work schedule in the BMP; environmental monitoring.
Noise and Air Quality	Noise and air pollution emissions from construction equipment during modernization work	Construction	Moderate	ESS3, ESS4	Preparation of the C-ESMP.
Cultural landscape	Temporary deterioration of the landscape values of a recreational area of regional significance in the vicinity of the reservoir	Construction	Moderate	ESS8	Preparation of the C-ESMP.
Construction waste management	Generation of construction waste (earth and excavated material) and hazardous waste (lubricants, fuels, demolition materials)	Construction	Moderate	ESS3	Preparation of a waste management plan as part of the C-ESMP.
Dam safety	Risk of failure/damage to the modernized dam (dam safety)	Operation	Moderate	ESS4	Establishment of an Expert Panel; preparation of the EAP.

Environmental component	Type of Impact	Phase	Potential Significance	ESS Standard	Required documents and instruments
Ecosystem services	Maintenance of the reservoir's retention functions – positive effect	Operation	Low	ESS3	—

Task I.4 – Enhance nature-based water retention in the Upper Vistula River Basin

Environmental component	Type of Impact	Phase	Potential Significance	ESS Standard	Required documents and instruments
Surface waters	Slowing runoff and increasing valley retention in the Prądnik and Skawinka watersheds	Construction	Moderate	ESS3, ESS6	Preparation of the C-ESMP.
Biodiversity	Risk of invasive alien species introduction during planting and earthwork	Construction	Moderate	ESS6	Preparation of BMP.
Cultural landscape	Risk of impact on the cultural landscape in the vicinity of Ojców National Park (Prądnik Valley)	Construction	Moderate	ESS8	Conduct an ESIA; assess the impact on the Ojców National Park.
Groundwater	Increased infiltration and replenishment of groundwater resources—positive effect	Operation	Low	ESS3	—
Watershed retention	Increased watershed retention due to slowed runoff—a positive effect	Operation	Low	ESS3, ESS6	—
Ecological connectivity	Improved ecological connectivity in the valley – a positive effect	Operation	Low	ESS6	—
Ecosystem services	Enhancement of the valley's ecosystem services (water retention, biodiversity) – positive effect	Exploitation	Low	ESS6	—

Task I.5 – Strengthen the forecasting, warning, and alerting system in the Łkownica and Biała catchments (Little Vistula Basin)

Environmental component	Type of Impact	Phase	Potential Significance	ESS Standard	Required documents and instruments
Physical environment	Short-term, localized land disturbance associated with the installation of hydrometeorological stations (Łkownica and Biała watersheds)	Construction	Low	ESS3	Preparation of the C-ESMP.
Waste management	Generation of construction and installation waste during the construction phase	Construction	Moderate	ESS3	Preparation of a waste management plan as part of the C-ESMP.
Flood safety	Reducing response time by improving the warning system—positive effect	Operation	Low	ESS4	—

Component 2: Reduce drought risk through increased retention capacity to support enhanced regulation for drought mitigation

Task II.1 – Construct the Kamieniec Żąbkowski multifunctional reservoir

Environmental component	Type of Impact	Phase	Potential Significance	ESS Standard	Required documents and instruments
Soil and terrain	Permanent occupation and transformation of land flooded by the reservoir (between the minimum and maximum impoundment levels)	Construction	High	ESS1, ESS3	Conduct an ESIA; prepare a C-ESMP.
Surface waters	Permanent change in the hydromorphological conditions of the Nysa Kłodzka River as a result of the river channel realignment	Construction	High	ESS3, ESS6	Conducting an ESIA; preparing the C-ESMP.
	Impact on water quality (suspended solids, turbidity) during construction and reservoir preparation	Construction	Substantial	ESS3	Preparation of the C-ESMP.
	Reduced downstream flow (Minimum Environmental Flow) in the Nysa Kłodzka River due to reservoir operation	Operation	Substantial	ESS3, ESS6	Determination of the Minimum Environmental Flow (MEF), to be incorporated into the reservoir operating rules.
Groundwater	Local hydrogeological changes during construction and preparation of the wellbore	Construction	Moderate	ESS3	Preparation of the C-ESMP.
	Risk of loss of functionality of drinking water intakes requiring restoration prior to reservoir filling	Construction	High	ESS3	Conducting an ESIA; preparation of the C-ESMP.
Ichthyofauna of the Nysa Kłodzka River	Risk of reduced river passability for migratory fish	Construction	High	ESS6	Conduct an ESIA, including an assessment of the effectiveness of the planned fish passage; prepare a BMP.
Natura 2000 sites in the Bardzkie Mountains	Potential impact on critical habitats within the Bardzkie Mountains Natura 2000 site (to be confirmed in the ESIA)	Construction	Substantial	ESS6	Conduct an ESIA; prepare a BMP.
Priority habitats within the reservoir basin	Loss of priority habitats within the reservoir basin: riparian forests (91E0*), oak-hornbeam forests (9170), and seasonally wet meadows (6410)	Construction	Substantial	ESS6	Conduct an ESIA; prepare a BMP.
Ecological connectivity of the river	Disruption of the ecological continuity of the Nysa Kłodzka Valley by the dam	Construction	Substantial	ESS6	Conducting an ESIA; preparing a BMP.

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Environmental component	Type of Impact	Phase	Potential Significance	ESS Standard	Required documents and instruments
Cultural Heritage	Risk of discovering archaeological sites during work in the project area	Construction	High	ESS8	Conduct an ESIA; prepare a CHMP; ensure archaeological supervision as part of the C-ESMP.
Noise, vibrations, and air quality	Emissions of noise, vibrations, and air pollutants from construction equipment during work on the dam and reservoir basin	Construction	Moderate	ESS3, ESS4	Preparation of the C-ESMP.
Generation and management of construction waste	Generation of construction waste (earth, excavated material) and hazardous waste (lubricants, fuels, demolition materials)	Construction	Moderate	ESS3	Preparation of a waste management plan as part of the C-ESMP.
Surface water	Greenhouse gas emissions (CH ₄ , CO ₂) from the reservoir surface	Operation	Moderate	ESS3	Conduct an ESIA; prepare a C-ESMP.
	Risk of eutrophication and thermal stratification of water in the reservoir, significant for the region's drinking water quality	Operation	Moderate	ESS3, ESS6	Development of reservoir operating rules; preparation of the C-ESMP.
Groundwater	A sustained rise in groundwater levels in areas upstream of the dam that have been flooded by the impoundment	Operation	Substantial	ESS3	Development of a groundwater level monitoring program; preparation of the C-ESMP.
Ecological connectivity of the river	Changes in aquatic plant and fish habitats due to impoundment	Operation	High	ESS6	Development of reservoir water management principles; preparation of BMPs.
Ecosystem services	Permanent change in the regulatory and habitat functions of the valley	Exploitation	High	ESS6	Conduct an ESIA; prepare BMPs.
Natural and cultural landscape	Flooding and permanent alteration of the character of the Nysa Kłodzka Valley	Operation	High	ESS6, ESS8	Conducting an ESIA; preparing the CHMP.
Dam safety	Risks associated with the operation of a Class I dam (dam safety)	Operation	High	ESS4	Appointment of an Expert Panel; preparation of the EAP.
Water retention, flow regulation during droughts, power generation	Increased water retention, flow regulation during droughts, and energy production—positive effect	Operation	Low	ESS3	—
Cumulative impacts	Potential cumulative impacts on hydrology, water quality, and habitats resulting from multiple Project Tasks located within the same watershed.	Construction and Operation	To be determined in the ESIA	ESS1	Assess cumulative impacts as part of the ESIA; coordinate construction timing across Tasks in the same watershed.

Task II.2 – Flood risk reduction in the Biała Łądecka catchment of the Nysa Kłodzka

Environmental component	Type of Impact	Phase	Potential Significance	ESS Standard	Required documents and instruments
Soil and terrain	Land acquisition and the risk of erosion and landslides resulting from earthworks for dam bodies, spillway structures, and overflow structures	Construction	High	ESS1, ESS3	Preparation of the C-ESMP; verification in the ESIA.
Surface waters	Permanent alteration of the channel and banks of the Biała Łądecka River and disruption of sediment transport (stones and gravel)	Construction	High	ESS3, ESS6	Conducting an ESIA; preparing a C-ESMP.
	Impact on water quality—increased turbidity and disruption of coarse sediment transport during construction	Construction	Substantial	ESS3	Preparation of the C-ESMP.
	Disruption of the river channel due to work on bridge structures as part of efforts to increase hydraulic capacity	Construction	Substantial	ESS3	Preparation of the C-ESMP; plan for hydrotechnical works on bridge structures.
Groundwater	Local drainage of excavations in a mountain valley	Construction	Moderate	ESS3	Preparation of the C-ESMP.
Aquatic biota	Impact of construction work on fish and aquatic invertebrates typical of mountain rivers (brown trout, white-finned bullhead, brook lamprey)	Construction	High	ESS6	Conduct an ESIA; prepare a BMP.
Natura 2000 sites	Potential impact on critical habitats in Natura 2000 sites (to be confirmed in the ESIA)	Construction	Substantial	ESS6	Conduct an ESIA; prepare a BMP.
Priority habitats	Risk of disturbance to priority habitats—riparian forests (91E0*) and riparian shrublands (3260) in the mountain valley	Construction	Substantial	ESS6	Conduct an ESIA; prepare a BMP.
Ecological connectivity of the river	Risk of restricting the free migration of fish and organisms along and across the mountain river valley	Construction	Substantial	ESS6	Conduct an ESIA; prepare a BMP.
Biodiversity	Risk of invasive alien species introduction (increased following the 2024 flood)	Construction	Moderate	ESS6	Preparation of the C-ESMP and BMP.
Noise	Noise emissions from construction work, disruptive to neighboring residential areas	Construction	Substantial	ESS3	Preparation of the C-ESMP
Air Quality	Dust and exhaust emissions from construction equipment, which degrade ambient air quality	Construction	Moderate	ESS3, ESS4	Preparation of the C-ESMP.

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Environmental component	Type of Impact	Phase	Potential Significance	ESS Standard	Required documents and instruments
Cultural heritage	Risk of discovering archaeological sites during earthworks	Construction	Moderate	ESS8	Conduct an ESIA; prepare a CHMP.
Construction waste management	Generation of construction waste (excavated soil, spoil) and hazardous waste (lubricants, fuels, demolition materials)	Construction	Moderate	ESS3	Preparation of a waste management plan as part of the C-ESMP.
Surface water	Changes in the flow and transport of debris (rocks, gravel) in the mountain riverbed	Exploitation	High	ESS3, ESS6	Development of reservoir operating rules for the dry polder system; preparation of the C-ESMP.
Ecological connectivity of the river	Restriction of the free migration of fish and organisms along and across the watercourse	Operation	Substantial	ESS6	Development of guidelines for managing the dry polder system; preparation of Best Management Practices (BMPs).
Ecosystem services	Changes in the regulatory functions of the river channel and mountain valley	Operation	Substantial	ESS6	Conduct an ESIA; prepare BMPs.
Cultural heritage	Permanent change to the cultural landscape of the Kłodzko Valley	Operation	Substantial	ESS8	Preparation of the CHMP.
Natural landscape	Permanent change to the landscape of a mountain valley	Exploitation	Moderate	ESS6	Conduct an ESIA.
Dam Safety	Risks associated with the operation of impoundment structures as defined by water law (dam safety)	Operation	Substantial	ESS4	Appointment of an Expert Panel—conditional, depending on the technical parameters of individual water-retaining structures in the system (head, storage capacity). Preparation of the Emergency Action Plan (EAP).
Flood safety	Reduction of flows and water levels at control cross-sections in the Biała Łądecka watershed, as well as a reduction in debris and tree blockages and infrastructure damage—positive effect	Operation	Low	ESS4	—
Cumulative impacts	Potential cumulative impacts on hydrology, water quality, and habitats resulting from multiple	Construction and Operation	To be determined in the ESIA	ESS1	Assess cumulative impacts as part of the ESIA; coordinate construction timing

Environmental component	Type of Impact	Phase	Potential Significance	ESS Standard	Required documents and instruments
	Project Tasks located within the same watershed.				across Tasks in the same watershed.

Task II.3 – Enhance nature-based water retention in the Nysa Kłodzka catchment

Environmental component	Type of Impact	Phase	Potential Significance	ESS Standard	Required documents and tools
Selection of a model watershed and an optimal set of NBS measures	No direct environmental impact—study phase (selection of a model watershed and a set of NBS measures), no construction work	Construction	Low	ESS1	Conducting a feasibility study to select the optimal option.
Soil and water	Risk of disturbance to organic soils during work to restore wetlands and improve the water regime of wetlands	Construction	Moderate	ESS3	Preparation of the C-ESMP; preparation of the BMP.
Surface waters	Temporary disruption of the river channel during the renaturation of rivers and valleys (restoring the natural course of the channel, removing artificial bank reinforcements)	Construction	Moderate	ESS3, ESS6	Conducting an ESIA (screening); preparing BMPs.
Soil	Increasing soil retention (e.g., land-use changes, agrotechnical measures to slow runoff)	Construction	Low	ESS3	Preparation of the C-ESMP.
Soil and Water	Local disturbance of soil and water conditions resulting from earthworks on small water structures (sluices, weirs, palisades) that slow down outflow	Construction	Low	ESS3	Preparation of the C-ESMP.
Biodiversity	Risk of introducing invasive alien species during planting and restoration work	Construction	Moderate	ESS6	Preparation of BMP.
Groundwater	Increased infiltration and replenishment of groundwater reserves—positive effect	Operation	Low	ESS3	—
Climate resilience	Increased water retention capacity of the watershed in response to extreme weather events (droughts, torrential rains) – positive effect	Operation	Low	ESS3, ESS6	—
Biodiversity and ecosystem services	Restoration of wetlands and the natural character of rivers—positive effect	Exploitation	Low	ESS6	—

Task II.4 – Enhance forest retention in the upper part of the Nysa Kłodzka catchment

Environmental component	Type of Impact	Phase	Potential Significance	ESS Standard	Required documents and instruments
Soil and Water	Local disturbance of soil and water conditions resulting from earthworks associated with dams and flow-retardation structures (weirs, small reservoirs, sills, culverts, cascades, ditches)	Construction	Moderate	ESS3	Preparation of the C-ESMP.
Soil	Alteration of the terrain resulting from the regradation of slopes and skid roads/trails after logging, in order to cascade runoff	Construction	Moderate	ESS1, ESS3	Preparation of the C-ESMP; supervision of earthwork on slopes.
Surface water	Temporary risk of soil runoff and transport of suspended solids into forest streams during construction, before new structures are stabilized	Construction	Moderate	ESS3	Preparation of the C-ESMP; scheduling of work outside periods of heavy rainfall.
Soil and Water	Restoration of natural ponds and forest wetlands	Construction	Moderate	ESS3	Preparation of C-ESMP; preparation of BMP.
Forest ecosystems	Interference with the tree stand, understory, and litter during the construction of structures along forest trails and watercourses	Construction	Moderate	ESS6	Preparation of BMPs.
Biodiversity	Risk of introducing invasive alien species during construction work and the use of plant material (brushwood)	Construction	Moderate	ESS6	Preparation of BMP.
Groundwater	Increased infiltration and forest retention—positive effect	Exploitation	Low	ESS3	—
Reduction of water erosion and debris transport in mountainous areas	Reduction of water erosion and debris transport in mountainous terrain – positive effect	Operation	Low	ESS3	—
Forest retention, biodiversity, and ecosystem services	Enhancement of forest retention, biodiversity, and ecosystem services—positive effect	Exploitation	Low	ESS6	—

Task III.1.1 – Strengthen the Forecasting and Early Warning System (FEWS) and Alerting in the Nysa Kłodzka Catchment

Environmental component	Type of Impact	Phase	Potential Significance	ESS Standard	Required documents and instruments
Physical environment	Short-term, localized ground disturbance associated with the installation of hydro-meteorological stations and sensors	Construction	Low	ESS3	Preparation of the C-ESMP.
Surface and groundwater	Risk of water contamination from leaks from machinery and equipment during the installation of measuring devices in the riverbed, and disruption of groundwater flow during the expansion of the piezometer network	Construction	Moderate	ESS3	Preparation of the C-ESMP.
Soil	Degradation of the topsoil during earthworks and permanent exclusion of the soil under the station foundations, containers, and fences	Construction	Moderate	ESS3	Preparation of the C-ESMP.
Noise and air quality	Emissions from machinery and vehicles during the installation of hydro-meteorological stations, sensors, fiber-optic cables, and electrical connections	Construction	Moderate	ESS3	Preparation of the C-ESMP.
Waste management	Generation of construction and installation waste during the construction phase	Construction	Moderate	ESS3	Preparation of a waste management plan as part of the C-ESMP.
Fauna	Disturbance of birds and bats and the risk of habitat destruction for protected species (nests, colonies) due to the installation of sensors and wildlife crossing signs on bridges and existing structures	Construction	High	ESS6	Ornithological and chiropterological surveys prior to the start of work; scheduling of work outside the breeding/hibernation season; species-specific derogations (if required); conducting an ESIA; preparing a BMP.
Tree Flora	Removal of trees interfering with installation work (measuring stations, fiber-optic route)	Construction	Moderate	ESS6	Dendrological inventory; compensatory plantings; preparation of the C-ESMP.
Cultural Heritage	Risk of damage to historic values resulting from the installation of sensors and DWPŻ signs on bridges and structures in the vicinity of conservation zones	Construction	High	ESS8	Conduct an ESIA; prepare a CHMP.

Environmental component	Type of Impact	Phase	Potential Significance	ESS Standard	Required documents and instruments
Landscape	Permanent change in the landscape resulting from the installation of DWPŻ panels and measuring station infrastructure	Operation	Moderate	ESS6, ESS8	Conduct an ESIA.
Flood safety	Shorter flood warning time – positive effect	Operation	Low	ESS4	—

Component 3: Strengthen institutional capacity in mitigating the impact of floods and droughts

Task III.2 – Modernize and develop the RZGW Operational Centers in the Vistula and Odra basins

Environmental component	Type of Impact	Phase	Potential Significance	ESS Standard	Required documents and instruments
Physical environment	Local land disturbance resulting from the construction and modernization of Regional Water Management Authority (RZGW) operational centers	Construction	Low	ESS3	Preparation of the C-ESMP.
Surface and groundwater	Risk of water contamination from leaks from machinery and equipment during work on measuring devices in the riverbed	Construction	Moderate	ESS3	Preparation of the C-ESMP.
Soil	Degradation of the topsoil during earthworks and permanent removal of soil from beneath foundations, containers, and fences	Construction	Moderate	ESS3	Preparation of the C-ESMP.
Noise and air quality	Emissions from construction machinery and vehicles/vessels supporting construction and installation work; noise from maintenance work during the operational phase	Construction	Moderate	ESS3	Preparation of the C-ESMP.
Construction waste management	Generation of construction waste (earth and excavated material) and hazardous waste (lubricants, fuels, demolition materials)	Construction	Moderate	ESS3	Preparation of a waste management plan as part of the C-ESMP.
Fauna	Disturbance of birds and bats associated with buildings and structures at operations centers (nests, colonies, roosts)	Construction	High	ESS6	Ornithological and chiropterological survey prior to the start of work; scheduling of work outside the breeding/hibernation season; species-

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Environmental component	Type of Impact	Phase	Potential Significance	ESS Standard	Required documents and instruments
					specific derogations (if required); conducting an ESIA; preparing a BMP.
Tree Flora	Removal of trees interfering with construction and installation work around the facilities	Construction	Moderate	ESS6	Dendrological inventory; compensatory plantings; preparation of the C-ESMP.
Cultural Heritage	Risk of damage to historic values as a result of work carried out in the vicinity of or on structures under conservation protection (some centers are located near historic hydrotechnical infrastructure)	Construction	High	ESS8	Conduct an ESIA; prepare a CHMP.
Landscape	Improvement of the technical condition and aesthetics of the infrastructure of the operational centers—positive effect	Operation	Low	ESS6, ESS8	—