

A screenshot of a web browser window. The browser's address bar is empty. The main content area displays the GEF Portal logo, which consists of a green circle followed by the text "GEF Portal" in a green serif font. The browser's interface includes a small red 'x' icon in the top left corner, a vertical scrollbar on the left, and a small green square icon below the logo.

● GEF Portal

● Meral Ozler

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0. [RoadMap](#)

0. CEO Endorsement Form

Fostering Multi-country Cooperation over Conjunctive Surface and Groundwater Management in the Bug and Neman Transboundary River Basins and the Underlying Aquifer Systems



- Project Identification Form
 - GEF Secretariat Reviewer
 - PIF Clearance
- CEO Endorsement Request
 - GEF Review
 - CEO Endorsed

CEO Endorsement (CEO) entry – Full Sized Project – GEF - 6



Part I: Project Information

GEF ID

9767

Project Type

FSP

Type of Trust Fund

GET

Project Title

Fostering Multi-country Cooperation over Conjunctive Surface and Groundwater Management in the Bug and Neman Transboundary River Basins and the Underlying Aquifer Systems

Countries

Regional, Belarus, Ukraine

Agency(ies)

UNDP

Other Executing Partner(s):

UNESCO IHP

Executing Partner Type

Multilateral

GEF Focal Area

International Waters

Taxonomy

Transform policy and regulatory environments, Influencing models, Strengthen institutional capacity and decision-making, Demonstrate innovative approaches, Focal Areas, Capacity, Knowledge and Research, Beneficiaries, Stakeholders, Civil Society, Community Based Organization, Academia, Non-Governmental Organization, International Waters, Freshwater, River Basin, Aquifer, Gender Equality, Gender Mainstreaming, Sex-disaggregated indicators, Women groups, Gender-sensitive indicators, Knowledge Exchange, Enabling Activities, Capacity Development, Knowledge Generation, Learning, Innovation

Rio Markers**Climate Change Mitigation**

Climate Change Mitigation 0

Climate Change Adaptation

Climate Change Adaptation 1

Duration

48

In Months

Agency Fee(\$)

259,450.00

A. Focal Area Strategy Framework and Program

Objectives/Programs	Focal Area Outcomes	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
IW-1_P1	Foster cooperation for sustainable use of transboundary water systems and economic growth	GET	303,450.00	1,890,000.00
IW-2_P3	Advance Conjunctive Management of Surface and Groundwater through Effective Institutional, Legal, and Policy Measures	GET	2,225,300.00	6,720,000.00
IW-2_P4	Addressing the Water/Food/Energy/Ecosystem Security Nexus	GET	202,300.00	840,000.00
Total Project Cost(\$)			2,731,050.00	9,450,000.00

B. Project description summary

Project Objective

The project aims to advance transboundary water governance through the conjunctive management of surface and groundwater in the Central European adjoining Bug and the Neman river basins as a means to improve water security and sustainability of freshwater ecosystem services, balance competing water uses, and mitigate the expected impacts of climate variability and change.

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 1.: Improve and harmonize the countries' knowledge of the transboundary water resources, and of the expected impacts of increased climate variability and change increased climate variability and change.	Technical Assistance	<p>Outcome 1.1 Countries recognize the transboundary and interlinked nature of the surface waters, aquifers and their dependent ecosystems in the two basins, and their high vulnerability to anthropogenic and climatic impacts.</p> <p>Outcome 1.2 Countries reach agreement on the key issues of transboundary</p>	<p>Output 1.1.1. Science based assessments of the current state of freshwater resources and dependent ecosystems in the two basins leading to agreement on a Transboundary Diagnostic Analyses (TDA) in line with GEF, the EU WFD and national legislation.</p> <p>Output 1.2.1. Agreed report</p>	GET	1,059,667.00	3,000,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
		<p>concern and their immediate and root causes, including climate change, and decide to take steps to deal with them.</p> <p>Outcome 1.3 The countries explore and reach consensus on the application of ecohydrogeology for addressing imbalances in the aquatic environment for the conjunctive management of surface and groundwater</p>	<p>on baseline conditions (TDAs), agreement on designation and classification of water bodies according to EU WFD standard, and on environmental and socioeconomic status indicators</p> <p>Output 1.3.1. Methodology for application of ecohydrology in the two basins, to address mechanisms that will lead to moderated imbalances.</p>			
Component 2.: Facilitating the establishment of	Technical Assistance	Outcome 2.1. Strengthened	Output 2.1.1: Establishment or	GET	289,000.00	1,800,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
<p>cooperation mechanisms and institutions among countries sharing the basins and their water resources</p>		<p>institutional cooperation, coordination and information sharing among riparian countries in each basin, and between the two basins, improves sustainability of the shared resources.</p> <p>Outcome 2.2.:</p> <p>Overall cross-sectoral coordination of actions and information exchanges at the national level improve cooperation and defuse nexus conflicts in the two basins.</p>	<p>straightening of the Transboundary River Commissions in the two project basins and defining coordination and information sharing mechanisms between the two Commissions</p> <p>Ouput 2.2.1: Mechanisms in form of National Basin Councils will be established for coordination and information exchanges at the national level, coordination with other relevant projects and initiatives put in place in both</p>			

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
			basins..			
Component 3.: Testing of conjunctive surface and groundwater management approaches, through the application of the principles of eco hydrogeology.	Technical Assistance	Outcome 3.1.Successful testing and application of conjunctive surface and groundwater management options and nature-based solutions (eco-hydrology) for balancing water nexus conflicts and adapting to climate change and variability identified through the TDAs or other similar processes build country and regional Institutions capacity and commitment to reforms and investments..	Output 3.1.1: Implementation of pilot projects and policy measures in the two basins (GEF support will concentrate in Belarus and Ukraine)	GET	674,333.00	1,400,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 4.: Facilitating countries' commitment to joint priority actions	Technical Assistance	<p>Outcome 4.1 Policy makers in countries, having improved their understanding of (i) the surface, groundwater and ecosystems interactions in the two basins, (ii) the implications of expected climatic changes, and (iii) the existing and/or potential water nexus conflicts, commit to develop effective conjunctive water resources management strategies.</p> <p>Outcome 4.2 Political commitment reached among countries on</p>	<p>Output 4.1.1: Operational Basin councils of inter-ministerial nature established in each beneficiary country, focused on harmonization of existing frameworks, adoption of conjunctive water resources management approaches, and the identification of priority reforms.</p> <p>Output 4.2.1: The Strategic Action Programs (SAPs) for the two basins - prepared by the</p>	GET	385,333.00	2,000,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
		implementing priority legal, institutional and policy reforms for the protection and equitable utilization of shared waters and dependent ecosystems of the two basins through conjunctive surface and groundwater management.	countries based on the TDA findings - submitted for endorsement at high ministerial level. In addition to the SAPs, the project will also develop Flood Risk Management Plans for both basins			
			Output 4.2.2.: Environmental quality targets defined and adopted.			
			Harmonization of environmental status indicators and monitoring procedures agreed upon.			

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 5.: Communication, Dissemination and Replication Activities	Technical Assistance	Outcome 5.1 Long term sustainability of achievements enhanced through public and political awareness campaigns, stakeholder involvement and replication mechanism	<p>Outputs 5.1.1: Selected media events highlighting project's progress and achievements.</p> <p>Output 5.1.2: Communication and Capacity Building Strategies including gender mainstreaming, stakeholder analysis and engagements plans.</p> <p>Output 5.1.3: Participation in activities of</p>	GET	192,667.00	800,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
			<p>IW:LEARN and of the UNECE Water Convention (including the global network of basins working on climate change), relevant congresses of the IAH Commission on Transboundary Aquifers and establishment of website.</p> <p>Output 5.1.4 Awareness and fundraising donor/partner conference for SAPs implementation</p>			
Sub Total (\$)					2,601,000.00	9,000,000.00

Project Management Cost (PMC) □

GET

130,050.00

450,000.00

Sub Total(\$)

130,050.00

450,000.00

Total Project Cost(\$)

2,731,050.00

9,450,000.00

C. Sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount(\$)	Evidence
GEF Agency	UNDP	In-kind	200,000.00	
Government	Belarus, Ukraine	In-kind	4,400,000.00	
Donor Agency	UNECE	In-kind	1,200,000.00	
Donor Agency	Government of Lithuania	In-kind	1,000,000.00	
Others	Government of Poland	In-kind	1,000,000.00	
Others	UNESCO	In-kind	1,650,000.00	
Total Co-Financing(\$)			9,450,000.00	

D. Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	NGI	Amount(\$)	Fee(\$)
UNDP	GET	Regional	International Waters		No	2,731,050	259,450
Total Grant Resources(\$)						2,731,050.00	259,450.00

E. Non Grant Instrument

NON-GRANT INSTRUMENT at CEO Endorsement

Includes Non grant instruments?

No

Includes reflow to GEF?

No

F. Project Preparation Grant (PPG)

PPG Required

PPG Amount (\$)

100,000

PPG Agency Fee (\$)

9,500

Agency	Trust Fund	Country	Focal Area	Programming of Funds	NGI	Amount(\$)	Fee(\$)
UNDP	GET	Regional	International Waters		No	100,000	9,500
Total Project Costs(\$)						100,000.00	9,500.00

CEO Endorsement (CEO)

Core Indicators

To calculate the core indicators, please refer to [Results Guidance](#)

Indicator 1 Terrestrial protected areas created or under improved management for conservation and sustainable use

Indicator 2 Marine protected areas created or under improved management for conservation and sustainable use

Indicator 3 Area of land restored

Indicator 4 Area of landscapes under improved practices (hectares; excluding protected areas)

Indicator 5 Area of marine habit under improved practices to benefit biodiversity (excluding protected areas)

Indicator 6 Greenhouse Gas Emissions Mitigated

Indicator 7 Number of shared water ecosystems (fresh or marine) under new or improved cooperative management

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Indicator 8 Globally over-exploited fisheries moved to more sustainable levels

Indicator 9 Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials and products (metric tons of toxic chemicals reduced)

Indicator 10 Reduction, avoidance of emissions of POPs to air from point and non-point sources(grams of toxic equivalent gTEQ)

Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

[View](#)

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided

PART II: Project JUSTIFICATION

1. Project Description

- a. The global environmental and/or adaptation problems, root causes and barriers that need to be addressed;**
- b. The baseline scenario or any associated baseline projects;**
- c. The proposed alternative scenario, GEF focal area strategies, with a brief description of expected outcomes and components of the project;**
- d. Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, CBIT and co-financing;**
- e. Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF);**
- f. Innovation, sustainability and potential for scaling up.**

A.1. *Project Description*. Elaborate on: 1) the global environmental and/or adaptation problems, root causes and barriers that need to be addressed; 2), the baseline scenario or any associated baseline projects 3) the proposed alternative scenario, GEF focal area[1]¹ strategies, with a brief description of expected outcomes and components of the project, 4) **incremental/additional cost reasoning** and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and **co-financing**; 5) **global environmental benefits** (GEFTF) and/or **adaptation benefits** (LDCF/SCCF); and 6) innovativeness, sustainability and potential for scaling up.

- 1). The global environmental and/or adaptation problems, root causes and barriers that need to be addressed.**
-

The Bug River Basin and Related Aquifers:

PRESSURES

The consequence of land drainage for agriculture is a decrease of surface and ground water levels, decline of recharge to aquatic ecosystems, progressive separation of floodplain lakes, as well as eutrophication and decline of biodiversity. The river is characterized by large water level fluctuation and to protect appropriate conditions for aquatic life, it is necessary to have certain minimum levels of water. Over 20 species of vertebrates have become extinct in the region. Swamp draining, effectively lowering groundwater level, significantly affects populations of small mammals, living both in swamps and adjacent forests. The numbers of waterfowl and waders have decreased, especially during the last 20-30 years.

The main watercourse of the Bug River is only regulated in its upper stretch in Ukraine (Dobrotvirsk and Sokalsk dams), but its tributaries are heavily regulated, in particular in Ukraine (more than 218 dams) and Poland (more than 400 dams). As a consequence, there are persistent changes in the population of migrating fish. Such species as eel, trout and vimba are now very rarely seen in the Bug. The impact of these hydro-morphological changes is assessed by Ukraine as widespread and severe, and Poland also reports them as a pressure. Draining has reduced the extent of wetlands.

Flood events are frequent in all parts of the basin. Frequently, lack of sufficient finances for maintenance of existing hydraulic infrastructure has resulted in economic losses for the population and the economy. Flood protection is achieved by the system of canals and protective river embankments. Flooding occurs most frequently during snow melting in March and April.

Main wastewater discharges to surface waters are from urban sources, making up 40% of all point discharges. Downstream from Lviv wastewater discharges and as far as the border section, bacteriological pollution of the river is high and recreation activities are not recommended. Discharges of polluted communal wastewater in surface waters are due to outdated treatment technologies and insufficient funds for repair and reconstruction.

Pollution from agriculture and the food-processing industry are widespread pressure factors. With the closing of large animal husbandry farms, the impact of the agricultural sector has been significantly reduced in Ukraine in past years while such farms remain a problem in Belarus. In Volyn Oblast, Ukraine, the main polluter is “Europatsukor” – a sugar production plant.

Other sources of pressure are: construction materials production (in Poland), metal industry and wood processing (in Belarus), light industry, mining and energy production (in Ukraine). Otherwise, the impact of industrial wastewater discharges seems to be insignificant.

Landfills and their drainage waters are significant polluters of surface waters and groundwaters. In Ukraine, many operating landfills are not in line with sanitary conditions, have exceeded their planned capacities, and do not have equipment for processing trash. In Poland, landfills are also a pressure factor. Accumulation of waste may also be a problem in streams and lakes.

The upper reaches of the Bug River in Ukraine are rich in mineral springs and suitable for recreational purposes. In Belarus and Poland many sites in the river basin are also important for recreation. The development as a tourist destination with recreational services as river canoeing, hiking and camping in the forested areas may become a pressure where infrastructure and tour operators are not considering the need for protection. Eco-tourism is on the rise but further efforts to apply principles of sustainability would be welcome.

The Lviv-Volynskiy deposit of coal in the Ukrainian part of the Bug river basin is one of the three big coal basins in Ukraine. At present only 12 coal mines are in operation in the Ukraine part of the basin. In closed mines in Lviv and Volyn Oblasts (Novovolynsk town and Zhovtneve village (Ivanchivsky rayon), Chervonograd, Girnyk village (Sokal rayon), one can observe inundation by groundwater. To prevent hazardous pollution especially by heavy metals, the groundwater should be pumped out of the mines.

At present, the depth of Khotyslav quarry in Belarus is not significant (down to 15 m) and only silicate sand is being extracted. No significant impact on water level has been registered yet. However, there are plans for extraction of chalk that will increase the depth to 50 m. This may lead to a negative impact on water levels in the Shatski Lakes Ramsar site which will require additional research and protected measures. Regular monitoring of groundwater water levels is done by laboratory of Volyn Oblast Water Management Board.

There are plans to restore the “E40 Waterway” which connect the Baltic Sea and Black Sea through the river Vistula, Dnieper-Bug canal, and the rivers Pripyat and Dnieper. The Polish Ministry of Maritime Economy and Inland Navigation continues works on the preparation of the program for the waterway of the Vistula River (along with E-40 Warsaw-Brest). The results of analyses and studies will provide specific information with regards to the scope of investments necessary for the development of inland waterway transport and the detailed costs and benefits associated with their implementation. The draft program will be subject to an Environmental Impact Assessment, in accordance with the requirements of Polish and EU law. Public participation will be ensured in consultations.

DEGRADATION TRENDS

The land surface of the basin has been extensively utilized for agriculture, though there remain important replanted and primeval forested natural areas – many in the low-lying lands where groundwater discharges to flood plains, swamps and peri-glacial lakes. The consequence of land drainage for agriculture is a decrease of surface and ground water levels, decline of recharge to aquatic ecosystems, progressive separation of floodplain lakes, as well as eutrophication and decline of biodiversity. The river itself is beginning to be a tourist destination with such recreational services as river canoeing, hiking & camping in the forested areas. Land degradation is gradually increasing due to the intensity of agriculture. Recharge takes place through infiltration over all agricultural lands, and the whole of the exposed surface of the Cretaceous formations. The natural vegetation includes coniferous forest, broad-leaved forest, derivative broad-leaved forest, small-leaved derivative forest, mossy and grassy swamps and meadows. The forested lands include mature plantations. In spite of the fact that there are some relatively intact natural values in the Bug river basin, this area is still endangered from numerous threats. A considerable amount of engineered swamp draining has taken place – as a result over 20 species of vertebrate have become extinct in the region. Swamp draining, effectively lowering groundwater level, significantly affects populations of small mammals, living both in swamps and adjacent forests. As the range of species of small animals is decreasing in swamps, this reduced biodiversity is counterbalanced by the population increase in fewer species. The range of species at the bottom of the food chain is reducing, while the range of species higher up the food chain is increasing.

Arable land covers 45 % of the river basin area, and a further 18 % is grassland. Forests cover 27% of the area. Pollution from agriculture (affecting potentially groundwater) and the food-processing industry are additional pressure factors, ranked as widespread but moderate in impact. With the closing of large animal husbandry farms, the impact of the agricultural sector has been significantly reduced in Ukraine in past years (to local and moderate level). Other sources of pressure are: construction materials production (in Poland), metal industry and wood processing (in Belarus), light industry, mining and energy production (in Ukraine). Otherwise, the impact of industrial wastewater discharges is insignificant according to Ukraine, making up about 4% of the discharges to water bodies in the country. Main wastewater discharges to surface waters are from urban sources, making up 40% of all point discharges. Landfills and their drainage waters are significant polluters of surface waters and groundwaters. In Ukraine, many operating landfills are not in line with sanitary conditions, have exceeded their planned capacities, and do not have equipment for processing trash. In Poland, landfills are also a pressure factor.

The main watercourse of the Bug River is only regulated in its upper stretch in Ukraine (Dobrotvirsk and Sokalsk dams), but its tributaries are heavily regulated, in particular in Ukraine (more than 218 dams) and Poland (more than 400 dams). The impact of these hydro-morphological changes is assessed by Ukraine as widespread and severe, and Poland also reports them as a pressure. Draining has reduced the extent of wetlands,

and there is a risk of groundwater table decrease due to abstraction from the Cretaceous aquifer in Belarus. Intensive erosion is observed in the border segment of the Bug in Ukraine, and this pressure is assessed as widespread but moderate. Of comparable impact is flooding, with the highest water levels in spring. As a minor factor, the Bug Basin is reported to be affected by transboundary atmospheric pollution from the industrial regions of Western Europe.

Due to the inter-dependence between surface ecosystems and groundwater it is important to take into consideration all the threats affecting the whole water system of the basin. Among basic threats are:

- Over abstraction of groundwater in urbanized centres;
- Excessive engineered drainage of swamplands, rather than the use of such soft solutions as eco-hydrology;
- Increasing use of the lakes, rivers and the banks and forested plains for tourism and recreation – tour operators unaware of eco-tourism and sustainable principles;
- Untreated wastewater discharge from poorly operating communal and industrial sewage treatment plants;
- Agriculture and application of agrochemical and the related threats, including land degradation;
- Accumulation of polluted waters in the low lands, especially swamp lands;
- Untreated sewage from rural and urban areas – waste disposal to streams accumulate in lakes and reservoirs where it can generate toxic algae blooms;
- Climate change and the associated increase in variability is causing groundwater level decline, increased surface water hydrological regime variability and destabilization, shifts of species ranges and biodiversity changes.

The above processes not only directly impact the quality of the environment, but by decreasing hydrological and ecological stability of the entire system, they also diminish resistance and resilience of basic encompassed ecosystems, and reduces their carrying capacity against the stress. In the

project area groundwater is fundamental, as it provides 68% of the annual base flows, and in times of climatic stress, it is the 'buffer' source of water, to the aquatic eco-systems in the Bug basin. The volume of groundwater in storage within the aquifer, being equivalent to multi-annual flows, provides good opportunities of its use to relieve stress, but also requires serious management that secures its natural replenishment. Good management, including enhanced aquifer recharge, implies sustainable land management and the prevention of land degradation. The aquifers are the basic source of water supply for local industry, agriculture, human requirements and they greatly support the surface waters system. However poor resource management, coupled with their unconfined nature, means that the resources are threatened by surface contamination, from land degradation and in places, from excessive groundwater table lowering.

An additional critically important barrier hinders the rational water management and protection of the groundwater dependent ecosystems in the Bug basin area: its transboundary character, and the lack of transboundary cooperation agreements on shared water management. Uncoordinated management at the national level of this shared aquifer system could have far reaching impacts. The absence of joint monitoring of transboundary waters, in particular groundwater, is noted as a gap.

The Neman River Basin and Related Aquifers:

PRESSURES

Changes in flow characteristics and disruption of river continuity due to physical barriers and also hydro-morphological alterations of channels contribute to pressures.

A substantial part of point source pollution comes from industry. Industry in Lithuania is mainly located in Alytus, Kaunas and Vilnius; in Belarus mainly around Grodno (assessed as local and moderate pollution in Belarus). The dominating industrial sectors are food and beverages production, wood and wood products, textiles, chemicals and chemical products, metal products, equipment and furniture production.

Landfills and navigation also contribute to pollution. Oil and other pipelines are further potential sources of water pollution.

The most important anthropogenic pressures in the Belarussian part of the basin are discharges of municipal wastewater from the Neris river, downstream from Smorgon, and on the Neman River, downstream from Grodno, Mosty and Stolbbtsy (assessed as local but severe). The main pollutants are suspended solids, phosphates, BOD5, ammonium-nitrogen, petroleum products and

total iron. In the Russian part of the basin, urban wastewater discharges from Sovetsk into the Neman River and from Krasnoznamensk to its tributary – the Sesupe River. The Russian Federation estimates that the total volume of industrial wastewater discharged into the Neman is about 5.25×10^6 m³/year, but licenses to discharge have been issued only for a volume of 2.86×10^6 m³/year. The Russian Federation assesses the impact of discharges of both urban and industrial wastewaters as widespread and severe.

In Belarus 103 pollution point sources are preliminary identified in the Neman river basin in Belarus. Twenty-four of these contribute with more than 90% of total sewage. Four enterprises in the housing and utilities sector, account for over 60 % of the discharge. These are “Grodnovodo canal” Grodno city municipal production enterprise, “Grodno Azot” joint-stock company, Baranovich “Vodo canal” in the city of Baranovich and Lida Utilities state enterprise in the city of Lida.

Agriculture significantly influences the status of water bodies in the Neman Basin in Belarus. Its importance as a pressure factor is local but severe, even if the highest levels of fertilizer use were observed in the 1980s - early 1990s. Agricultural facilities and fish ponds are major sources of pollution. In Lithuania, agricultural pollution is mainly from the leakage of nitrogen compounds from soil due to the use of mineral fertilizers and manure. Pollution of the Neman river basin from non-point sources may be estimated to be between 40 % and 90 % of the total pollution loads.

Point and non-point sources of pollution have an impact not only on water in the basin but also on the water in the Curonian Lagoon where algae accumulation and hyperbloom of potentially toxic blue-green algae are sometimes observed.

Statistically significant increases in annual, winter and summer temperature 1961-2010 and a slight increase of precipitation have been recorded as possible effects of climate change[2]². As a result of climate change annual precipitation is likely to increase with more significant changes in the first half-year expected. As the most significant air temperature rise may be in the winter season and given the change of the amount and composition of precipitation, the snow cover is likely to be reduced. A slight increase in the average annual flow across the Neman river basin is projected, which will result in an increase of the runoff to the maximum in winter seasons and earlier onset of spring floods.

There are various pressures possible as a result of climate change including for sectors such as hydropower, transport, municipal and industry water supply. An increase in the frequency and intensity of adverse meteorological and hydrological phenomena is a probable effect. Runoff reduction during specific seasons of the year and low average annual flows may make small rivers vulnerable including with respect to pollution loads. A higher water temperature may lead to a lower content of dissolved

oxygen and deterioration of the hydrobiological indicators. The highest level of vulnerability to climate change are found in the lower reaches of the basin.

Agriculture significantly influences the status of water bodies in the NemanBasin (total surface: 98,200 km²), especially in the sub-basins of the Sesupe and Nevezis rivers. Its importance as a pressure factor, according to Belarus, is local but severe. Chemicals are transported to the river from agricultural facilities, and pond fisheries are a major source of pollution. Concerning Lithuania, agricultural pollution is mainly created by the leakage of nitrogen compounds from soil because of the use of mineral fertilizers and animals manure.

The greatest human-induced pressures from urban wastewater discharges in the Belarusian part occur on the river Vilia downstream from Smorgon, and on the river Neman downstream from Grodno, Mosty and Stolbtsy (assessed as local but severe). The main pollutants are suspended solids, phosphates, BOD₅, ammonium-nitrogen, petroleum products and total iron. Iron and manganese concentrations are naturally elevated in groundwater, as is fluorine, to a lesser degree. The impact of this factor is assessed as widespread but moderate by Belarus.

Urban areas cover only some 1% of the Polish part of the river basin (mainly around Suwalki, the largest city in the region, with a population of approximately 71,000 inhabitants). About 74 % of the population is served by municipal wastewater treatment (5 large plants providing biological treatment). Due to on-going modernization, the share of wastewater volume treated with improved nutrients removal is increasing. However, a diffuse load from the scattered settlements not served by public networks remains a matter of concern, as well as agriculture and tourism.

2). The baseline scenario or any associated baseline projects.

Baseline scenario:

In the North Eastern European region draining into the Baltic Sea Basin, Belarus, Lithuania, Poland and Ukraine share a post-glacial depositional morphology and extensive transboundary freshwater resources, both surface and groundwater. The present project focuses on two adjacent and artificially interconnected basins of high regional and global significance: the Bug River Basin shared by Belarus, Poland and Ukraine, and the Neman River Basin shared by Belarus, and Lithuania.^[3] These rivers are little regulated, and show diversified channel depth and width along the river course, characterized by many intermittently flooded areas and shallow ponds, which host rich aquatic biodiversity.

Various aquifers, from shallow unconfined to deeper largely confined ones, including part of the very large Baltic Artesian Groundwater Basin along the northern flank and the regionally extensive Mesozoic Aquifer System, underlie the region. This regional aquifer system closely interacts with lakes and surface water – bringing the surface-groundwater linkage into prominence - and supports diverse and rich terrestrial and aquatic ecosystems in the four riparian countries, including one of the richest forested wetlands in the region. The transboundary aquifer system underlies the Bug Basin Ecological Corridor as well as one of the European Transboundary Biosphere Reserve, extending beyond the surface catchment of the Bug. Groundwater contribution to the flow of the two rivers is high, estimated to over 60%.

Within an overall governance context characterized by initial efforts to establish basin-wide transboundary water resources management frameworks, weak national groundwater governance and monitoring, and lack of recognition of the intimate interlinkages between surface and groundwater characterizing the region, the following are the key issues of transboundary concern:

- The land surface of the basins has been extensively utilized for agriculture, though there remain important replanted and primeval forested natural areas – many in the low-lying lands where groundwater discharges to flood plains, marsh, boggy lands and glacial lakes. The consequence of excessive engineered drainage of swamplands and land reclamation for agriculture is a lowering of both surface and groundwater levels, decline of recharge to aquatic ecosystems, progressive separation of floodplain lakes, as well as eutrophication and decline of biodiversity;
- Mine water discharges from Lublin–Lviv coal fields, usually untreated and disposed to retention basins or to streams;
- Hotspots of over abstraction of groundwater in urban centers;
- Increasing use of the lakes, rivers and the banks and forested plains for tourism and recreation by tour operators unaware of eco-tourism and sustainable principles;
- Untreated wastewaters discharge from poorly operating communal and industrial sewage treatment plants;
- Agriculture and application of agrochemical and the related threats, including land degradation;
- Accumulation of polluted waters in the low lands, especially swamp lands;

- Waste accumulating in streams, lakes and water bodies;

The region has been so far only mildly affected by extreme climatic events. However, medium and long-term projections show that the situation may rapidly change: for example, the length of droughts is expected to increase in the major part of the Neman basin. The following are the main observed and expected impacts of climate variability and change:

- Statistically significant increase in annual, winter and summer temperature (largest changes observed in January);
- Statistically significant increase in winter precipitation;
- Decrease in maximum spring flood discharge and increase of the minimum winter flow in large part of the region;
- Possible increase of the risk for eutrophication during the summer season, notably in those parts of the basin where runoff is expected to decrease during this season. Notably pollution with phosphorus compounds could be critical;

Baseline projects and plans:

International projects:

In 2010-2013 the EU/UNDP project “Support to the development of a comprehensive framework for international environmental cooperation in the Republic of Belarus” was implemented. The project component “Water management legislation is progressively approximated with relevant EU regulations” supported the development of the new version of Water Code of the Republic of Belarus (entry into force in 2014). 12 technical legal acts in the field of river basin management principle implementation and surface water quality assessment were developed, approved and put into force.

In 2011-2015 the international project “Management of the Neman River Basin with Account of Adaptation to Climate Change” was implemented with the assistance of the Environment and Security International Initiative (ENVSEC) and United Nations Development Program (UNDP) in the Republic of Belarus. The Strategic Framework for Adaptation to Climate Change in the

Neman River Basin was developed within this project. In 2015 – 2018 support to Lithuanian and Belarusian Transboundary cooperation in the Neman RB with support from UNECE and other organizations.

The EU-funded project “Support to Ukraine in approximation of the EU environmental acquis” for the period 2015-2018. This project is focusing on support to the Ministry of Ecology and Natural Resources (MENR) and other institutions responsible for implementation of environmental requirements under the Association Agreement’s Chapter 6 “Environment”. The Project focuses on three areas — horizontal, water and nature management. Besides legal assistance to the MENR in drafting laws and bylaws, the project works on raising MENR’s and other stakeholders’ capacity and public awareness.

The EU Water Initiative +, East (2016 - 2019) supports Armenia, Azerbaijan, Belarus, Georgia, Moldova, and Ukraine to bring their legislation closer to the EU policy in the field of water management, with a focus on the management of trans-boundary river basins. It supports the development and implementation of pilot river basin management plans for the Dnieper and Pripyat river basins regarding activities in Belarus and in Ukraine, building on the improved policy framework and ensuring a strong participation of local stakeholders. In Belarus, it works on development of the Dnieper RBMP.

A LIFE project planned to be implemented by Regional Water Management Board in Warsaw is titled “Implementation of River Basin Management Plan in the Vistula basin on the example of upper and middle catchment of Pilica river”. In this project (in case it will be selected), transboundary knowledge transfer on RBMP implementation and monitoring is planned to be arranged with the stakeholders in the Bug basin.

National plans (Belarus):

The National Strategy for Sustainable Social and Economic Development of the Republic of Belarus for the period until 2030 states that the main challenges for the sustainable development of the world economy are the threat of global climate change and biodiversity reduction, the risk of disruption of the ecological balance and water balance of the territories. The goal of safeguarding the water resources in Belarus as reflected in the strategy is to be reached by increasing the efficiency of the use and protection of water resources, improving their quality in accordance with public needs and adapting to climate change. A focus on minimizing pollution of surface water bodies, restoring disturbed aquatic ecosystems, assessing the impact of possible climate change on water resources and providing effective environmental education of the population would contribute to achieving this goal.

The main objectives identified in the Water Strategy of the Republic of Belarus for the period until 2020 are also the achievement of a good status of surface water by reducing the flow of sewage into water ecosystems, reducing the negative consequences of floods and droughts by means of restoring the hydrological regime and expanding the use of water bodies for recreational purposes.

In 2017, the draft Strategy of water resources management under the conditions of climate change for the period until 2030 was developed. The main strategic goal of this document is to achieve long-term water security for Belarus for its current and future generations. It focuses on:

sustainable water supply of economic branches in the required volumes and safe disposal of treated industrial wastewater, protection of life and property of the population and economy branches from the negative impact of water,

ensuring a good ecological status of water bodies.

This Strategy establishes the basic principles of the state policy in the use and protection of water bodies. It also focuses on the prospects for the development of international water management cooperation, including collaboration in the framework of European water and environmental initiatives and application of the international agreements on water resources protection and use which were signed and ratified by the Republic of Belarus.

National plans (Ukraine):

The regional environmental program “Ecology 2016-2020”, approved by Volyn Oblast Council in 2016 is a source of funding. The total amount of financial resources needed to implement the Program is 415 million UAH. In 2017 financing for this program were 7.2 million UAH from state budget and 2,4 million UAH from the local budget for construction and reconstruction of water management infrastructure including water supply and wastewater treatment facilities. In 2017 no funds for riverbed cleaning and actions against erosion at the transboundary reach of the Bug were allocated.

In 2017 flood protection actions, funded from local budgets and other sources of funding (in total 1.7 million UAH), were implemented in Lviv Oblast, resulting in cleaning of 7.9 km of riverbeds and improvement of their hydrological regime.

3). The Proposed Alternative scenario.

CONJUNCTIVE SURFACE AND GROUNDWATER MANAGEMENT:

The increasing acuteness of water scarcity problems, worldwide, requires the adoption of a double approach of water supply management and water demand management. Governments tend to consider river basins as water resources management units and as a spatial basis for the formulation of water management strategies integrating all cross- sectoral issues such as water resources conservation, environment, water

resources allocation, water demand management, etc. This is well justified, and is increasingly becoming common practice. The conjunctive management of surface and groundwater is one of the strategies of water supply management best suited to optimize the water resources development, management and conservation within a basin.

Conjunctive Water Management is intended as the efficient utilization of all freshwater resources existing in a specific basin – surface waters, groundwater shallow and deep, but also rainfall, treated wastewaters and other non- conventional sources – according to an overall strategy aimed at improving water availability and reliability. It is crucial for integrated water resources management and helpful to reduce vulnerabilities of water supply systems and mitigate the water supply stress in responding to climate change.

Conjunctive management means using resources in harmony to maximize and stabilize long-term supplies. It does not mean maximizing the use of two separate but interrelated resources for unsustainable short-term gains. Conjunctive management includes two main practices: (i) integrating surface water diversions and groundwater withdrawals to maximize efficiency and minimize impacts on other resource users and ecological processes; (ii) capturing surplus or unused surface water and injecting or infiltrating that water into groundwater aquifers in order to increase recharge rates.

Surface water and groundwater are inextricably linked; understanding of their interactions is essential for developing effective conjunctive water resources management strategies, especially for adaptation to growing climate variability and change that can result in significant impacts on regional and global surface water and groundwater resources. Using groundwater as a complementary source of water has provided an effective means to satisfy the ever- increasing water demands and deal with surface water shortages problems due to the robust capability of groundwater in responding to climate change.

Conjunctive management can involve a variety of water management components and different operational approaches that may cross-political or institutional boundaries. There clearly is no “one-size-fits-all” approach to conjunctive water management. It requires balancing recharge with recovery and monitoring to validate the conjunctive water management. Management should occur at the basin level where the unique set of conditions is well understood and where interested water users can participate and remain informed. Institutional constraints, environmental concerns, economic considerations, and the political climate are also important when implementing conjunctive water management.

ECOHYDROLOGY / NATURE BASED SOLUTIONS:

Ecohydrology promotes the integration of a catchment and its biota into a single entity where the use of ecosystem properties becomes a management tool within which ecohydrology can address fundamental aspects of water resources management.

It provides a sound scientific basis for adopting a watershed (and in some cases the “groundwatershed”, when the underlying aquifers play a significant role in the hydrological system) as the basic planning unit. By incorporating the concept of improved ecosystem resilience as a management tool, ecohydrology strengthens the rationale for adopting a preventive and holistic approach to the watershed – as opposed to the reactive, sectoral and site-specific approach typical of present practices in water resources management. At the same time, ecohydrology stresses the importance of eco-technological measures as an integral component of water management, complementing standard engineering approaches (Zalewski, 2002), e.g. the management of wetlands for water purification from excessive nutrient loads based on ecological interconnection between surface and groundwater and mathematical modelling.

The principles of Ecohydrogeology are expressed in three sequential components:

- H1: Hydrological processes generally regulate biota
- H2: Biota can be shaped as a tool to regulate hydrological processes
- H3: These two types of regulations (H1&H2) can be integrated with hydro-technical infrastructure to achieve sustainable water and ecosystem services

Ecohydrology is concerned with the effects of hydrological processes on the distribution, structure, and function of ecosystems, and with the effects of biotic processes on elements of the water cycle. Ecohydrology uses the understanding of relationships between hydrological and biological processes at different scales to improve water security, enhance biodiversity and further opportunities for sustainable development by lessening ecological threats and maximizing greater harmony within catchment processes.

In both agricultural landscape and urban space, ecohydrological biotechnologies have to be developed in order to increase water availability, food /bioenergy productivity, reduce diffuse pollutant emission, enhance biodiversity and serve human health and quality of life by development system approach toward regulation the complexity of interactions between the water cycle, ecosystems and societies.

The concept of ecohydrology is at the core of the so-called Nature-Based Solutions (NBS) for water management. They are inspired and supported by nature and use, or mimic, natural processes to contribute to the improved management of water. “An

NBS uses ecosystem services to contribute to a water management outcome. An NBS can involve conserving or rehabilitating natural ecosystems and/or the enhancement or creation of natural processes in modified or artificial ecosystems.”[4]⁴

NBS/the principles and methods of ecohydrology will play a central role in the context of the pilot projects to be implemented under project Component 3 and will also be considered and developed under Component 1 (identification and adoption of NBS through the application of the principles and methods of ecohydrology, as part of the TDA process). The concept of ecohydrology has particularly been developed by the European Regional Centre for Ecohydrology of the Polish Academy of Sciences (ERCE, Water-related Category II Centre under the auspices of UNESCO, Lodz), the International Center for Ecology of the Polish Academy of Sciences, UNESCO-IHP, UNEP, and the UN Environment International Technology Centre (Osaka, Japan). In this context, ERCE, in particular, will be a key project partner in the development and implementation of Components 3 and 1.

EXPECTED RESULTS:

The proposed project intends to assist Belarus and Ukraine in (i) joining forces with Poland and Lithuania to reach a common understanding of the water resources of the shared basins, of the existing pressures and drivers of change impacting the sustainability of the resources and of the dependent ecosystems, in particular increasing climatic variability and change and to move towards joint planning and management of the basins, (ii) to come to an agreement on the policy, legal and institutional reforms, and the investments that will be needed to improve water security and resilience to the impacts of climatic variability and change, and to enhance the sustainability of the transboundary freshwater resources and dependent ecosystems in the Bug and Neman basins, and (iii) accelerate the transformative processes by pilot testing of conjunctive management solutions, and by consolidating transboundary coordination and cooperation. To do so, the project will adopt the TDA – SAP approach and methodology, expanded to include an assessment of the present and likely future impacts of climatic variability and change, an attempt to unravel conflicts at the water nexus, the characterization in terms of quantity and quality of the groundwater resources of the region, both confined and unconfined, and of the conditions regarding gender roles and equality in water resources management. The project will also support countries in implementing the European Union Water Framework Directive, the Flood Directive and the UNECE Water Convention as well as the guidance given in the Draft Articles on the use of transboundary aquifers.

4.4. The project

The project will be developed through five Components and is expected to achieve nine Outcomes through the production of thirteen Outputs. The project covers the Bug basin (including the San sub-basin district in Ukraine) and the Neman basins.

Beneficiary countries have expressed interest and the need to develop RBMPs in accordance with WFD. There is a possibility and a methodology for developing TDAs and SAPs in a way that they are integrated into one final document at the end which would be an analogue of a transboundary RBMP for the two rivers with elements that can be used for national RBMPs. In this relation, a few relevant RBMPs will be analyzed and one of them will be selected as an example of the final output of the document that would include TDAs and SAPs. The existing national RBMPs for the two basins will be taken into account. Climate change will be seen as a cross-cutting issue related to other key issues in the basins.

Component 1: Improve and harmonize the countries' knowledge of the transboundary water resources, and of the expected impacts of increased climate variability and change.

Outcome 1.1: Countries recognize the transboundary and interlinked nature of the surface waters, aquifers and their dependent ecosystems in the two basins, and their high vulnerability to anthropogenic and climatic impacts.

Output 1.1.1: Science based assessments of the current state of freshwater resources and dependent ecosystems in the two basins linked by the underlying aquifer system, leading to agreement on a Transboundary Diagnostic Analyses (TDA) for each Basin - in line with GEF, the EU WFD, the UN Draft Articles, and national legislation. **In addition to the TDA document, this component will also produce the following outputs:**

- **typology and delineation of water bodies in transboundary sections**
- **surface and groundwater water quantity and water quality programs**
- **inventory of protected areas**
- **conceptual Models of the aquifers**

In all areas of the assessments the experts compiling the diagnostic analysis will consider the current and potential future impacts of the COVID-19 global pandemic on communities in the participating countries and differentiated effects by gender, age, and other characteristics

Activities:

The Transboundary Diagnostic Analyses (TDA)[5]⁵ will gather and analyze all the key elements necessary for establishing of coordinated national River Basin Management Plans, and will include:

On a country level (BY, UA):

- Data availability survey (assessment procedure aimed at all data necessary for planning processes in water management) with gap analysis;
- Characterization of the existing monitoring system (surface waters, groundwaters, incl. water quantity measurements) incl. availability of appropriate methodologies for biological quality elements and hydromorphological quality elements;
- Delineating surface and ground water bodies and typology and identification of reference conditions for the surface water body types

On a basin level (BY, UA):

- Harmonization of typology and delineation of water bodies in transboundary section
 - Development of surface and groundwater quantity and water quality monitoring programs, and their implementation; considering the capacity of national monitoring network and the ability of transboundary monitoring setting;
 - Pressures and impact analysis of the water bodies and assessment of ecological status of selected water bodies incl. harmonization of methodologies and joint research;
-

- Analysis of significant national and transboundary water management issues / drivers, rootcauses and indicators;
- Inventorying protected areas (areas designated for the abstraction of water intended for human consumption), areas, designated for the protection of economically significant aquatic species, bodies of water designated as recreational waters, nutrient sensitive areas and areas designated for the protection of habitats or species);
- Characterization of water bodies incl. preliminary status assessment, results of pressures and impact analysis, etc.
- preliminary flood risk assessment followed by modeling and mapping of selected flood risk areas;
- Conducting gender analyses in both basins;
- Transboundary coordination and cooperation;
- Accounting for climate change future scenarios.

During development of the afore-mentioned TDA components, the results of the previous projects as well as of the research and activities on the national level will be used and, where necessary, extended.

TDA's will explore in particular on the lesser known characteristics and behavior of the groundwater resources of the two basins:

- a) Identification of the territorial extent of the transboundary aquifers to be included. This is an important step and is required so that a consistent hydrological and hydrogeological balance may be carried out.
- b) Development of a consistent sequence of the stratigraphy and lithology from the perspective of the aquifer systems. The preliminary presentations made treat the aquifer system as a series of disconnected sub systems, while they operate a logical continuum in which some parts have very slowly moving ground water flow – while the shallower section may have more rapid movement due to annual recharge and discharge to nearby streams.
- c) Identification of the primary aquifer system/systems that interact with superficial waters– both in stream and lakes characterizing their eco-hydrogeological relationship. The conceptual understanding of the aquifer system suggests that deeper

Mesozoic waters have an upward flow component at the junction with the overlying Tertiary / Quaternary aquifers, thus recharging the lake district.

d) Indicative flow systems in the primary aquifer systems – directions, potential recharge and discharge areas. Data is available for the groundwater levels in much of the area and this can be used to develop the flow direction analysis- data may be missing for the deeper parts of the aquifer, so some postulations might be needed and data mining will be required to search for such information.

e) Indicative areas where groundwater flows converge to discharge areas, creating wetlands, base flows and closed lakes.

Preparation of the maps needed for the River Basin Management Plans:

- Overview of the river basin district;
- Ecoregions
- Delineated surface water bodies
- Delineated groundwater bodies
- Monitoring network
- Protected areas
- Preliminary chemical and ecological status of surface water bodies
- Preliminary chemical and quantitative status of ground water bodies etc.

Outcome 1.2: Countries reach agreement on the key issues of transboundary concern and their causes, including effects of climate change, and decide to take steps to deal with them.

Output 1.2.1: Agreed report on baseline conditions (TDAs), agreement on designation and classification of water bodies according to EU WFD standard, and on environmental and socioeconomic status indicators. .

Activities:

Consultative processes and dialogues, both at the national and transboundary levels, for the definition and adoption of environmental objectives, and the harmonization of environmental and socioeconomic status indicators and monitoring protocols.

Creation of a list of main municipal industrial wastewater treatment plants in the Bug river basin, establishing priority projects, and discussion between parties on possible financing sources.

The project will also contribute to inter-sectoral cooperation in Belarus and Ukraine during preparation of TDAs by involving the relevant sectoral authorities and other stakeholders.

Preparation of maps of the project region delineating/displaying:

- The groundwater systems, addressing in the particular the mismatch between the surface catchments and the underlying groundwater systems; maps will show features related to topography, geology, hydrogeology, at an appropriate scale given the extent of the data and information available.
- Municipal and industrial wastewater treatment plants which have a negative influence on the water quality of the Bug river. Locations of wetlands, lakes, streams and rivers, with indicative baseflow conditions (ie dry weather conditions – when groundwater discharge is expected to predominate over the surface flows)
- Primary hydrogeological conditions (transmissivity, storage, EC, TDS, major cations and anions) incl. their typology.

Outcome 1.3: The countries explore and reach consensus on the application of eco-hydrology for addressing imbalances in the aquatic environment for the conjunctive management of surface and groundwater.

The principles of Ecohydrology are expressed in three sequential components:

- H1: Hydrological processes generally regulate biota
- H2: Biota can be shaped as a tool to regulate hydrological processes
- H3: These two types of regulations (H1&H2) can be integrated with hydro-technical infrastructure to achieve sustainable water and ecosystem services (Zalewski 1997)

The concept of ecohydrology is at the core of the so-called Nature-based solutions (NBS) for water management. They are inspired and supported by nature and use, or mimic, natural processes to contribute to the improved management of water. “An NBS uses ecosystem services to contribute to a water management outcome. An NBS can involve conserving or rehabilitating natural ecosystems and/or the enhancement or creation of natural processes in modified or artificial ecosystems.” (WWDR 2018)

The application of water management solutions inspired by eco-hydrology is strictly interlinked with the conjunctive management of surface and groundwater approach that the project will promote in the Bug and Neman basins region.

Output 1.3.1: Methodology for application of ecohydrology in the two basins, to address mechanisms that will lead to moderated imbalances.

Activities:

The application of the methodology will be promoted through:

- workshops on application of ecohydrology with the participation of decision-makers and water managers,
- technical visits to UNESCO-IHP demo sites, such as at the Pilica river catchment (focus in diffuse pollution, EKOROB project demo site), and Lodz (urban area; SWITCH and EHREK project demo sites).

This will enable the translation of experiences from SWICTCH/EHREK/EKOROB projects to the context and specific conditions of the Bug and Neman basins, namely based on an in-depth analysis of the pressure and water status in small demonstration catchments.

Component 2: Facilitating the establishment of cooperation mechanisms and institutions among countries sharing the basins and their water resources.

Outcome 2.1: Strengthened institutional cooperation, coordination and information sharing among riparian countries in each basin, and between the two basins, improves sustainability of the shared resources.

Output 2.1.1: Establishment or straightening of the Transboundary River Commissions in the two project basins and defining coordination and information sharing mechanisms between the two Commissions.

Activities:

In close cooperation with existing bilateral water commissions the following activities will be implemented:

- drafting guidelines, legal documents and information material to support deepening of bilateral as well as basin-level cooperation.
- Support the further broadening of the legal structure and institutional frameworks for water cooperation in the two basins.
- Support for strengthened cooperation on the Neman river between Belarus and Lithuania.
- Building on the current bilateral agreements (Belarus-Russia, Ukraine-Poland and Ukraine-Belarus) options for a trilateral cooperation on the Bug river will be reviewed.
- Update the bilateral Protocol on the Neman basin between Belarus and Lithuania and its operationalization through continuing consultations and dialog.
- Twinning with other transboundary basin commissions/organizations, i.e. in the form of visit/s and/or participation in their meetings.
- An analysis will be made of the national surface water and groundwater quality and quantity monitoring networks with WFD and needs for coordination of these networks in the two basins.
- Recommendations for national as well as coordinated transboundary networks will be worked out for their harmonization and the requirements of WFD. Information on the monitoring networks should be part of the TDA and RBMP
- Promotion of the data and information sharing mechanisms.

Outcome 2.2: Overall cross-sectoral coordination of actions and information exchanges at the national level improve cooperation and defuse nexus conflicts in the two basins.

Output 2.2.1: Mechanisms in form of National Basin Councils will be established for coordination and information exchanges at the national level, coordination with other relevant projects and initiatives put in place in both basins

Activities:

During project implementation, National Basin Councils ensuring cross-sectoral coordination will be established. During project meetings, representatives of other on-going projects in the basins will be invited to share experience and lessons learned.

Component 3: Testing of conjunctive surface and groundwater management approaches, through the application of the principles of ecohydrology.

Outcome 3.1: Successful testing and application of conjunctive surface and groundwater management options and nature-based solutions (eco-hydrology) for balancing water nexus conflicts and adapting to climate change and variability identified through

the TDAs or other similar processes build country and regional Institutions capacity and commitment to reforms and investments

Output 3.1.1: Implementation of pilot projects and policy measures in the two basins (GEF support will concentrate in Belarus and Ukraine).

Activities:

During the implementation phase, when the TDA draft is ready, the project stakeholders will select two or more demonstration pilot projects at least one in each basin and according to GEF criteria for the selection of pilot projects. The selection criteria will include: previous studies, regional importance, co-finance, availability, government / local interest, the ability of the pilots to inform the SAP formulation in a timely fashion For each pilot a plan will be developed defining actions and interventions to be adopted by the project partners and to be implemented together with the Partner Countries. The pilots will be presented for approval to the PSC meeting. The budget will rely mostly on national co-financing, with limited GEF contributions (USD 674k).

The *Table 3* below illustrates the possible concepts, techniques, modelling approaches that will be piloted to address major transboundary problem and concern, identified during the TDA development process.

Environmental problem/concern	Nature Based Solutions (Eco-hydrology), and Conjunctive Surface and Groundwater Management options
Excessive engineered drainage of swamplands and land reclamation for agriculture results in a decrease of both surface and groundwater levels, decline of recharge to aquatic ecosystems.	Protect and restore water-related ecosystems, including forested wetlands, wetlands, river and lake banks, aquifer recharge areas, and protect aquifer recharge zones.
Untreated wastewaters discharge from poorly operating communal and industrial sewage treatment plants.	Constructed wetlands, riparian buffers, vegetated waterways and wetlands. Sequential Sedimentary/Biofiltration System for urban storm water purification
Agriculture and application of agrochemical and the related threats, including	Promote sustainable consumption of resources (chemicals, fertilizers and land)

land degradation.	in farming. Improve soil water availability for rainfed crops (conservation agriculture).
Untreated sewage from rural and urban areas – waste accumulating in streams, lakes and water bodies. Excess nutrients (N, P) in surface and groundwater.	Nutrient retention in catchments by Enhancement of landscape diversity; Engineered wetlands, Buffer strips, Sedimentation ponds.
Climate change: possible increase of the risk for eutrophication during the summer season, notably in those parts of the basin where runoff is expected to decrease during this season. Notably pollution with phosphorus compounds could be critical.	Enhance phosphorus retention efficiency by floodplain vegetation restoration. Conjunctive surface and groundwater use.
Climate change: length of droughts is expected to increase in the major part of the Neman basin.	Water harvesting, conjunctive uses of groundwater and surface water (MAR), enhanced groundwater recharge through improved land management.

It is foreseen that successful pilot testing (on the ground) of innovative approaches to conjunctive management in the region, will strengthen the countries' ability to build institutional capacity and make a better (science-based) 'case' for investments and reforms that would not have been viable beforehand. In addition, proposed pilot projects must address and/or accommodate risks and impacts of the COVID-19 global pandemic, particularly in areas related to livelihoods.

Component 4: Facilitating countries' commitment to joint priority actions.

Outcome 4.1: Policy makers in countries, having improved their understanding of (i) the surface, groundwater and ecosystems interactions in the two basins, (ii) the implications of expected climatic changes, and (iii) the existing and/or potential water nexus conflicts, commit to develop effective conjunctive water resources management strategies.

Output 4.1.1: Operational Basin councils of inter-ministerial nature established in each beneficiary country, focused on harmonization of existing frameworks, adoption of conjunctive water resources management approaches, and the identification of priority reforms.

Activities:

Supporting inter-ministerial committees in Belarus and Ukraine: The Ukrainian water authorities chair an inter-sectoral group (hydropower, fisheries, hydro-meteorological, etc.) which makes decisions on water management issues. Both countries are also in the process of establishing permanent river basin councils and need support for their further efficient functioning after the end of the GEF project. It is an alternative that a national Steering Committee of the EU-funded regional project EUWI+ on national water policy dialogue (2016-2020) is used as an effective coordination mechanism among the various governmental sectors which have direct or indirect relevance for water resources management and protection (UNECE Water Convention Secretariat takes part in the European Union Water Initiative which is an additional opportunity to provide an advisory support to the harmonization process).

Outcome 4.2: Political commitment reached among countries on implementing priority legal, institutional and policy reforms for the protection and equitable utilization of shared waters and dependent ecosystems of the two basins through conjunctive surface and groundwater management.

Output 4.2.1: The Strategic Action Programs (SAPs) for the two basins - prepared by the countries based on the TDA findings - submitted for endorsement at high ministerial level. In addition to the SAPs, the project will also develop Flood Risk Management Plans for both basins

Output 4.2.2: Environmental quality targets defined and adopted. Harmonization of environmental status indicators and monitoring procedures agreed upon

The project will also seek to identify areas where the SAPs may reduce social and economic vulnerabilities that have been exacerbated by the COVID-19 global pandemic, and to ensure that programs to support economic relief and recovery leverage opportunities to support sustainable resource use.

Activities:

These SAPs will: (i) be in line with national legislation, consider provisions of the EU Water Framework and Flood Directives, and represent the equivalent of River Basin Management Plans (RBMP); (ii) adopt conjunctive surface and groundwater management options; (iii) define environmental quality targets and harmonized environmental status indicators and monitoring procedures; (iv) include measures for reaching the environmental quality targets and to promote gender equality; (v) support the development of bilateral basin agreements and related policy and institutional arrangements for transboundary cooperation and joint sustainable management.

Drafting and approval of the SAPs - The findings of the TDAs will serve as a basis for the formulation of coordinated RBMPs and Flood Risk Management Plans, that is operational documents meeting the expectations of a GEF SAP (negotiated, ministerial endorsed etc.). The existing national RBMP for the Bug basin will be considered and updated where needed and possible. The RBMP for those parts of the Bug and Neman basins not covered by RBMPs are to be developed (within corresponding national basin districts). The SAP/RBMP will take climate change into account as a cross-cutting issue related to other key issues in the basins. Results from the pilot demonstration activities (Component 3) will guide the formulation of the management actions in the SAPs. The documents will be developed jointly with the range of the stakeholders involved in the TDA formulation, and will be submitted for approval at the highest possible (e.g. ministerial) level.

UNECE Water Convention Secretariat will be contributing to the SAP/RBMP focusing on surface waters, climate change, inter-sectoral/nexus cooperation and transboundary aspects, especially the requirements of the EU Water Framework Directive and the Water Convention.

In accordance with GEF IW:LEARN best practices, the SAP will address:

- Environmental objectives in the two basins,
- Management actions (measures) to reach these objectives,
- Cost/benefit analysis of alternative measures,
- Future governance and management of the transboundary river basins and related aquifers.
- Monitoring and Evaluation criteria (indicators, targets, timescale, etc.) for the implementation of the SAP/RBMP.

Component 5: Knowledge management, Communication, Dissemination and Replication Activities.

Knowledge management is an important aspect of the project, directly incorporated into several of the project outputs. In particular, the knowledge enhancement process leading to the formulation of the TDA will ultimately produce a number of knowledge tools and communication / dissemination materials. These materials produced will be widely shared in the region, including through the opportunities for dissemination provided by the UNECE Convention activities and website. The project will establish its website, following IW LEARN standards, and populate it with progress reports, documents, webinars and other project products. In particular, at least 1% of total project budget will be set aside for knowledge management and information exchange activities organized by IW LEARN and the UNECE Water Convention (e.g. IWC participation, information dissemination through IW LEARN platforms and networks, twinning exercises). Knowledge exchange will include the participation in relevant regional and international workshops and conferences (such as GEF International Waters Conferences, World Water Forum, World Water Week). The project's legacy will be consolidated in the Project Final Report.

Twinning activities and knowledge exchanges will adhere to UNDP guidance on travel and precautions related to the COVID-19 global pandemic, and the project will develop virtual or on-line activities to support these exchanges where possible.

Outcome 5.1: Long-term sustainability of achievements enhanced through public and political awareness campaigns, stakeholder involvement and replication mechanism.

Outputs 5.1.1: Selected media events highlighting project's progress and achievements.

Activities:

Media engagement activities for journalists from the basins (e.g. a press tour): As a powerful instrument on environmental policy, the mass media can encourage and support responsible environmental action, and in a broader context also contributes to transparency and democratic governance. The objective of this activity is to improve the coverage of environmental issues, as well as increasing interest on environmental issues among the public, environmental authorities and mass media themselves. The participants will be selected from central and local state and non-state media (including electronic / Internet-based media) on a competitive basis, depending on their interest, qualifications and submitted work samples. Local and international journalists together will interview experts and other sources, prepare and analyze each other's publications, to improve their standards and quality. After the end of the tour the journalists are expected to publish their materials in the respective media.

Output 5.1.2: Communication and Capacity Building Strategy including gender mainstreaming, stakeholder analysis and engagement plans.

Activities: As part of its initial phase the project will develop targeted communication and capacity building activities to encourage achievement of consensus in countries, disseminate results and findings, foster replication of new practices and gender equality.

Output 5.1.3: Participation in activities of IW:LEARN and of the UNECE (including the global network of basins working on climate change), relevant congresses of the IAH Commission on Transboundary Aquifers and establishment of website.

Activities:

Key representatives from beneficiary countries will be given opportunities to participate in relevant IW:LEARN events and IAH meetings.. The project will contribute to IW:LEARN through the participation to the biannual International Waters conferences, the production of Experience Notes and implementation highlights. A project website will be established following IW:LEARN standards. Funding dedicated to IW: LEARN related activities will amount to 1% of the total GEF project allocation.

Output 5.1.4 Awareness and fundraising donor/partner conference for SAP implementation

Activities:

During the third year of project implementation, after the development and endorsement of the two regional SAPs an awareness and fundraising and partnership conference will be organize to attract co-financing, partnership and support for the SAPs implementation in the two basins.

4). Incremental cost reasoning and expected contributions from the baseline, the GEFTF, and co-financing.

The project aims at adding the multi-country, regional dimension needed to reform and/or harmonize present national policies and physical plans, and address the transboundary implications of the shared nature of the resource. This regional dimension will involve and bring about the shared recognition of the system boundaries (in line with the ecosystem approach), the establishment of multi-country mechanisms for cooperation, and the enhancement of regional awareness and stakeholder involvement, all of which is incremental with respect to the “baseline” represented. The countries are open to transboundary water cooperation but the framework and dialogue needs further development in terms of a basin-wide and integrated approach. The participating countries are at present not ready to fully appreciate the international and domestic benefits that would eventually be accrued from the integrated, conjunctive management of surface and groundwater. With the facilitation of the GEF and other

development partners it is likely that water resources exploitation policies would be taking into account the advancements in scientific understanding of the characteristics of these transboundary systems, and the transboundary implications of their interconnected and shared nature, thereby avoiding conflicts among users, threatening water security and the integrity of dependent ecosystems. Transboundary cooperation would without this support remain insufficient for tackling basin challenges and implementing the SDGs. The project will also point out required specifications/adjustments of EU Water Framework Directive (WFD) when applied on the regional scale between an EU and a non-EU country. Hence, the regional benefit that the project will accrue will be threefold: the improved protection and sustainability of a significant transboundary freshwater resources and related ecosystems, reflecting in improvements in the overall stability and water security in the region.

* The GEF International Waters Tracking Tool will be used to monitor global environmental benefits.

* Please also see **Section C: ‘Confirmed Sources of Co-financing’**

5). Global environmental benefits.

- **Corporate Results:** Promotion of collective management of transboundary water systems and implementation of the full range of policy, legal, and institutional reforms and investments contributing to sustainable use and maintenance of ecosystem services
- **Replenishment Targets:** Water-food-ecosystems security and conjunctive management of surface and groundwater in at least 10 freshwater basins
- **Project Targets:** 2 Freshwater basins

6). Innovativeness, sustainability and potential for scaling up.

While the project follows the well tested TD –SAP methodology for IW Foundational projects, it will also integrate and consider the WFD and Flood Directive’s goals, and will particularly emphasize two innovative approaches in the project region: Conjunctive surface and groundwater management, and Ecohydrology as a means to identify highly sustainable nature-based solutions to some of the anthropogenic and climate related issues affecting the freshwater ecosystems in the two basins. Successful pilot testing of these approaches (Component 3), and effective dissemination (Component 5) will enhance their scaling up potential and promote broader adoption. Responding to the need highlighted by the relevant countries, the project will

contribute to attaining goals under the EU WFD and Flood Directives, thus playing a role in raising the EU water policy response of the countries, with impacts past the life of the project.

[1] For biodiversity projects, in addition to explaining the project's consistency with the biodiversity focal area strategy, objectives and programs, please also describe which [Aichi Target\(s\)](#) the project will directly contribute to achieving.

[2] Korneev, Volchak et al. 2015 provides information on climate change and its possible pressures.

[3] Very small parts of the Neman Basin are shared by the Russian Federation and Poland

[4] WWDR 2018

[5] TDA for Bug should reflect the structure of the RBMP set in the EU WFD and in Resolution of the CMU "On Approving the Procedure for the Development of a River Basin Management Plan" of 18 May 2017 # 336.

A.2. Child Project?

If this is a child project under a program, describe how the components contribute to the overall program impact.

- N/A – This is not a child project under a programme.

A.3. Stakeholders

Please provide the Stakeholder Engagement Plan or equivalent assessment.

Roles and responsibilities of main stakeholders are described in the Table 4 below

More information on national and regional stakeholders is available in sections 2.2 – 2.6 of the Project Document, overview of the meetings conducted with relevant stakeholders during the PPG phase is available in Annex H of Project document.

Table 4 Roles and responsibilities of key government ministries, agencies and NGO stakeholders

Institution	Description	Role and responsibilities within the project
Belarus Ministry of Natural Resources and Environmental Protection of the Republic of Belarus	The Ministry is in charge of developing and implementing national policy in the field of environmental protection and rational use of natural resources, use and protection of subsoil resources, as well as hydrometeorological activities. The Ministry of Natural Resources is responsible for international cooperation, and studies and summarizes international experience in the field of environmental protection and rational use of natural resources.	The Ministry will be the main beneficiary of the project from the Republic of Belarus. It will be in charge of identifying all priorities for further support within the project in relation to surface and ground waters as well as transboundary cooperation and climate change. The Ministry will be responsible for aligning the project activities with the priorities of the national legislation and international commitments of the Republic of Belarus. The Ministry will review the main project outcomes such as TDA and SAP (to serve as a basis for river basin management plan), will provide comments to them and will approve them once finalized respectively. The Ministry will also provide guidance to all other project activities e.g. to cooperation with riparian countries, basin councils, demonstration projects and communication of project results. The Ministry together with the project team and other stakeholders will work on ensuring sustainability of the project results. The Ministry will contribute to important project-related meetings and events by making decisions, providing overall guidance and as a member of the PSC. As a member of the PSC the Ministry will appraise the Annual Work Plan for the following year, review project results and will take corrective action as needed to ensure the project achieves the desired results.

The state institution "Republican Center for Hydrometeorology, Control of Radioactive Pollution and Environmental Monitoring" (Belhydromet)

The Centre is responsible for surface water monitoring, hydrology and related fields aimed at the production of hydrometeorological and environmental information.

The Centre will provide guidance and will be consulted on TDA and SAP development in relation to monitoring, sharing data and climate change impacts. In addition, the Centre will provide ideas and will be consulted on development and implementation of the demonstration projects. It will also review the TDA and SAP and will provide comments respectively.

The Republican Unitary Enterprise "Central Research Institute for the Integrated Use of Water Resources" (RUE "CRICUWR")

The organization is responsible for the State water Cadastre (water use) and the preparation of an interagency annual publication, forecasting changes in the status of water resources and assessing impact on water resources.

The CRICUWR will be actively involved in development of the TDA and SAP to serve as a basis for the river basin management plans for the Bug and Neman rivers. The CRICUWR under the leadership of the Ministry will also provide ideas for demonstration projects and will contribute to climate change-related activities as well as development of the basin councils and transboundary cooperation.

The state institution "Republican Center for Analytical Control in the Area of Environmental Protection"

The organization is responsible for collecting, summarizing and presenting local monitoring data.

The Centre will be consulted on TDA and SAP development in relation to monitoring from the perspective of the local level.

The Institute of Geology of the State Enterprise "Research and Production Centre for Geology"

The organization is responsible for groundwater monitoring and assessment in the framework of the National Environmental Monitoring System.

The Institute will provide guidance and will be consulted on all project activities related to groundwaters as well as conjunctive surface and groundwater management. The activities will cover TDA and SAP development as well as implementation of demonstration projects.

The Brest, Grodno and Minsk regional committees of natural resources and environmental protection

These organizations are the main organizations of the Ministry of Natural Resources at the regional level.

The Brest, Grodno and Minsk regional committees of natural resources and environmental protection will be consulted on local priorities and situation in the Bug and Neman basins. If needed, they will provide on-the-ground support to project activities incl. for demonstration projects. They will provide inputs and comments to the TDA and SAP and will support engagement of the relevant

Ministry of Housing and Communal Services of the Republic of Belarus;

Ministry of Health of the Republic of Belarus;

Ministry of Transport and Communications of the Republic of Belarus;

Ministry of Agriculture and Food of the Republic of Belarus;

Ministry of Energy of the Republic of Belarus;

National Academy of Sciences of the Republic of Belarus including the Institute for Nature Management, the Scientific and Practical Center on Bioresources

National Statistical Committee of the Republic of Belarus.

Ukraine

The Ministry of energy and environment protection of Ukraine

The Ministry is the main authority which shapes and enforces the state environmental policy. It defines and co-ordinates the activities of the State Service of Geology and Subsoil of Ukraine (SSGSU), the State Water Resources Agency of Ukraine, and the State Environmental Inspectorate of Ukraine.

stakeholders on the local level into development of the TDA and SAP.

These institutions will be consulted with regards to their area of expertise during TDA and SAP development (if there is such a need). TDA and SAP will be available for commenting.

The Ministry will be the main beneficiary of the project from Ukraine. It will be in charge of identifying all priorities for further support within the project in relation to surface and ground waters as well as transboundary cooperation and climate change. The Ministry will be responsible for aligning the project activities with the priorities of the national legislation and international commitments of Ukraine. The Ministry will review the main project outcomes such as TDA and SAP (to serve as a basis for river basin management plan), will provide comments to them and will approve them once finalized respectively. The Ministry will also provide guidance to all other project activities e.g. to cooperation with riparian countries, demonstration projects and communication of project results. The Ministry together with the project team and other stakeholders will work on ensuring sustainability of the project results. The Ministry will contribute to

The State Water Resources Agency of Ukraine

The State Water Resources Agency of Ukraine implements state policy in the field of water management and land reclamation, management, use and restoration of surface water resources. The main tasks of State Water Resources Agency of Ukraine include formulating and implementing policy on water management, land reclamation, hydraulic structures, irrigation, drainage, etc.

State Emergency Service of Ukraine, Ministry of Interior

State Emergency Service of Ukraine, Ministry of Interior is responsible for flood management and implementation of the EU Flood Risk Directive.

important project-related meetings and events by making decisions, providing overall guidance and as a member of the PSC. As a member of the PSC the Ministry will appraise the Annual Work Plan for the following year, review project results and will take corrective action as needed to ensure the project achieves the desired results.

The State Water Agency of Ukraine will be actively involved in development of the TDA and SAP to serve as a basis for the river basin management plan for the Bug river. The State Water Agency of Ukraine under the guidance of the Ministry of energy and environment protection of Ukraine will contribute to identifying proper priorities for support by the project. It will also provide and together with the Ministry will select proper ideas for demonstration projects. Since the State Water Agency of Ukraine is involved in transboundary bilateral cooperation with Belarus (under the Institute of Plenipotentiaries) and Poland (under the Commission on Cross-border Waters), it will also contribute to enhancing cooperation between the riparians in the Bug basin. The Agency will contribute to important project-related meetings and events by providing guidance, inputs to decision-making and as a member of the PSC. As a member of the PSC the Agency will appraise the Annual Work Plan for the following year, review project results and will take corrective action as needed to ensure the project achieves the desired results.

State Emergency Service of Ukraine will provide guidance to development of the TDA and SAP in relation to flood and drought management. In addition, the State Emergency Service of Ukraine will be consulted while preparing preliminary flood risk assessment followed by modeling

Ukrainian Hydrometeorological Centre, State Emergency Service of Ukraine, Ministry of Interior

At present the Ukrainian Hydrometeorological Centre under State Emergency Service of Ukraine performs hydrological, hydro-chemical, hydro-biological, hydro-morphological monitoring and meteorological monitoring in the country.

and mapping of selected flood risk areas and development of the flood risk management plan for the Bug basin.

Ukrainian Hydrometeorological Centre will provide guidance and will be consulted on TDA and SAP development in relation to monitoring, climate change impacts and disaster risk reduction. In addition, the Ukrainian Hydrometeorological Centre will provide ideas and will be consulted on development and implementation of the demonstration projects. It will also review the TDA and SAP and will provide comments respectively.

The State Service of Geology and Subsoils of Ukraine (SSGSU)

The State Service of Geology and Subsoils of Ukraine (SSGSU) is responsible for groundwater resources qualitative and quantitative evaluation and depletion control, performs and maintains groundwater monitoring and control.

The State Service of Geology and Subsoils of Ukraine will provide guidance and will be consulted on all project activities related to groundwaters as well as conjunctive surface and groundwater management. The activities will cover TDA and SAP development as well as enhancing of transboundary cooperation and implementation of demonstration projects.

The Ministry of Justice

The Ministry of Justice is the leading ministry in the legislative EU approximation process in Ukraine.

The Ministry of Justice will be consulted in relation to development of any legal documents e.g. on establishment of cooperation mechanisms and institutions among countries sharing the basins and their water resources.

The Ministry for Communities and Territories Development of Ukraine

The Ministry for Communities and Territories Development of Ukraine is a key stakeholder for action taken by municipalities and regional bodies and for municipal utilities, including water supply and wastewater management infrastructure (the responsibility for

The Ministry for Communities and Territories Development of Ukraine will be consulted in relation to water supply and wastewater management infrastructure in municipal areas during TDA and SAP development (if there is such a need).

wastewater treatment in rural areas lies with the State Agency of Water Resources). It is also responsible for implementation of the EU Wastewater treatment directive.

The Ministry for Development of Economy, Trade and Agriculture

The Ministry for Development of Economy, Trade and Agriculture is responsible for the policy in agriculture, animal husbandry, horticulture, technical support for agriculture, agricultural engineering and other areas, which may contribute to water pollution by nitrates, chemicals etc.

The Ministry for Development of Economy, Trade and Agriculture will be consulted in relation to agricultural issues during TDA and SAP development (if there is such a need). TDA and SAP will be publicly available for commenting.

The Ministry of Health

The Ministry of Health is responsible for drinking water quality standards and responsible for implementation of the EU Drinking Water Directive.

The Ministry of Health will be consulted in relation to health issues during TDA and SAP development (if there is such a need). TDA and SAP will be publicly available for commenting.

Ministry of Infrastructure, State Service of Ukraine for Geodesy, Cartography and Cadastre, State Agency for Fishery, State Agency for Forest Resources, State Agency of Ukraine on the Exclusion Zone Management (Chernobyl), and the Parliamentary Committee on Environmental Policy and Nature Resources.

Those institutions will be consulted with regards to their area of expertise during TDA and SAP development (if there is such a need). TDA and SAP will be publicly available for commenting.

The Bug & San Basin Management Administration

The Bug & San Basin Management Administration with its main office in Lviv ensures the implementation of State policy related to the management, use, protection, regeneration, and development of

The Bug & San Basin Management Administration will be in close contact with the project team (every two weeks) and will be actively involved in implementation of all project activities related to the Bug basin. They will provide on-the-ground support to project activities, contribute to transboundary cooperation mechanisms with

	water resources, and to the management of water facilities and waterworks at the local level.	Belarus and Poland and will ensure engagement of the relevant stakeholders through the Basin Council into development of the TDA and SAP.
Basin Council for the Bug & San	Basin Councils have been established and work on development of the River Basin Management Plans consisting of representatives of state and local authorities, water users and scientists, NGOs/CSOs.	The Basin Council for the Bug & San will be providing inputs and comments to the TDA and SAP. Their involvement will be facilitated by the Bug & San Basin Management Administration.
Key private sector groups	Key private sector groups include farmers and farmers' associations, fisherfolks, agro-chemical industry will need to be involved in project implementation.	Key private sector groups will provide comments and inputs to the TDA and SAP through the Basin Council for the Bug & San. TDA and SAP will be publicly available for commenting.
Academia		Representatives of the academia will be involved in development of the TDA as well as other activities according to their expertise.
NGO Mama-86, All-Ukrainian Ecological League, Coalition Clean Baltic, Clean Environment of Volyn, Volyn youth organization "Ecoresource", Lviv city NGO "Ecoterra", Euroregion "Bug", Eco PravoLviv, the Aarhus Centre in Kyiv		NGOs will provide comments and inputs to the TDA and SAP through the Basin Council for the Bug & San. TDA and SAP will be also publicly available for commenting.
Lithuania		
The Ministry of Environment of the Republic of Lithuania		The Ministry will provide suggestions for implementation of the project activities and will share its experience in development and implementation of the river basin management plan in the Neman basin and transboundary cooperation. It will also contribute to establishment/development of cooperation mechanisms

Main relevant institutions subordinated to the Ministry of Environment:

Environmental Protection Agency

Lithuanian Geological Survey

Environmental Protection Department

Lithuanian Hydrometeorological Service

Poland

The Ministry of Maritime Economy and Inland Navigation

National Water Management Authority and its regional authorities

Polish Geological Institute

and institutions in the Neman basin. In addition, the Ministry will provide the necessary information for the Neman basin and will be consulted during TDA and SAP development so that they fully address transboundary issues.

Those institutions will be consulted during development of the TDA and SAP under the leadership of the Ministry of Environment with regards to their area of expertise.

The Ministry will provide suggestions for implementation of the project activities and will share its experience in development and implementation of the river basin management plan in the Bug basin and transboundary cooperation. It will also contribute to establishment/development of cooperation mechanisms and institutions in the Bug basin. In addition, the Ministry will provide the necessary information for the Bug basin and will be consulted during TDA and SAP development so that they fully address transboundary issues.

The National Water Management Authority and its regional authorities will be consulted during development of the TDA and SAP under the leadership of the Ministry with regards to management of surface waters, flood and drought management and regional cooperation.

Polish Geological Institute will be consulted during development of the TDA and SAP under the leadership of the Ministry with regards to management of groundwater.

One of the main project principles - introduced to ensure a future cooperation in assessing and managing of shared water resources - is building a partnership among project executing parties and (other) stakeholders. An effective public involvement is seen as crucial for a sustainable surface and groundwater management in transboundary areas. In line with the project outreach goals, a participation of the key stakeholders as well as to general public in the project will enhance dissemination of vital surface-ground water-related issues. The project activities will be conducted in consultation with responsible ministries, national and regional water authorities, geological surveys, environmental protection inspectorates as well as with various other organizations, including NGOs and academic and research institutions in the both beneficiary countries. Some of the main stakeholders and the future beneficiaries of the project are listed below.

- **Belarus:** Ministry of Natural Resources and Environmental Protection, Belarusian Geological Prospecting Research Institute (now, State Enterprise "SPC for Geology", "Institute of Geology" branch). Central Research Institute for Complex Use of Water Resources and universities;
- **Ukraine:** Ministry of Ecology and Natural Resources, State Agency of Water Resources, Western Bug and San Basin Authority, Western Bug and San Basin council, State Hydrometeorological Service and its regional units in Volyn and Lviv, Oblast Regional Ecological Inspectorates, State Geological and Subsurface Survey of Ukraine (SGSSU) and regional divisions, National Parks and universities;
- **Lithuania:** Ministry of Environment, Environmental Protection Agency, Vilnius University, Lithuanian Hydro-meteorological Service, Lithuanian Geological Survey, Center for Environmental Policy, Baltic Environmental Forum.
- **Poland:** Ministry of Marine Economy and Inland Navigation, Ministry of Environment, General Directorate for Environmental Protection, Chief and Regional Inspectorate for Environmental Protection, State Water Holding – Polish Waters Institute of Meteorology and Water Management – National Research Institute (hydrological and meteorological services), National Fund for Environmental Protection and Water Management, The Polish Geological Institute – National Research Institute (geological and hydrogeological survey), The Polish Academy of Sciences and universities.

Some important public stakeholders (NGOs) active in the Neman basin are: WWF Baltic Ecoregion Programme, and Birdlife International – all international organizations. Belarusian NGOs engaged are the Center for Environmental Solutions, Ecohome and their branch office – Neman Environment Group, Ecopartnership, Nerush and Bagna.

Important NGOs active in the Bug basin are: Coalition Clean Baltic and Birdlife International – both international organizations. Local NGOs engaged are Western Center of the World Laboratory and Ecoterra, both in Lviv, Center for Environmental Solutions, Ecology – Law – People (EPL) Ecohome and their branch office – Ecohome Brest, Nerushand Bagna.

Documents

Title

Submitted

In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement.

Select what role civil society will play in the project:

Consulted only; Yes

Member of Advisory Body; Contractor;

Co-financier;

Member of project steering committee or equivalent decision-making body;

Executor or co-executor; Yes

Other (Please explain)

A.4. Gender Equality and Women's Empowerment

Please briefly include below any gender dimensions relevant to the project, and any plans to address gender in project design (e.g. gender analysis).

Men and women have differentiated access to natural resources and, as a result, they are affected differently by changes to these resources and dependent livelihoods. Gender inequality and social exclusion increase the negative effects of environmental degradation on women and girls. Despite recent promising policy and legal reforms, and the full appreciation in the region that women in decision-making spaces can promote sustainable water resource use and management, persistent gender-discriminatory social and cultural norms, unequal access to land, water and productive assets, and unequal decision-making power continue to constrain women and men from equally participating in, contributing to, and benefitting from environmental projects and programs.

No water management assessment or diagnostic can be realistic without a gender perspective. And no decision-making is inclusive unless both women and men participate in the process. In line with the GEF Gender Equality Action Plan, the project will conduct a gender analysis as part of the TDA(s) process and of the preparation of the SAPs, in order to systematically introduce gender responsive results frameworks and foster women's empowerment. Gender consideration will inform all activities and products of the proposed project, in particular fostering women's participation to all working groups, dialogues, consultations and awareness raising activities. The project will conduct national training courses to familiarize stakeholders in all project countries on gender analysis and indicators, and on sex disaggregated data collection, in order to assist countries in overcoming one of the key stumbling blocks to achieving a more robust gender-integrated national policy regime: the lack of comparable national data on gender-sensitive water indicators. International as well as national policy mechanisms are driven first and foremost by data. Without sex-disaggregated data, it is not possible to fully measure progress towards Sustainable Development Goals (SDGs). Without sound, scientifically collected data, it is difficult to make effective analytical assessments of the comparative situation of women and men in different communities, countries, or parts of the world. If data are not available on a topic, no informed policy will be formulated; if a topic is not evident in standardized databases, then, in a self-fulfilling cycle, it is assumed to be unimportant. IW:LEARN has promoted the indicator-based

methodology for collection and analysis of key sex-disaggregated water data developed by UNESCO World Water Assessment Programme, with the purpose of creating a baseline knowledge related to water, from which gender progress can later be evaluated. Priority gender- sensitive indicators fall under five broad topics:

1. Water governance;
2. Safe drinking water, sanitation and hygiene;
3. Decision-making and knowledge production;
4. Transboundary water resources management; and
5. Water for income generation for industry and agriculture.

More specifically, the indicators relate to women's empowerment and participation in water decision- making, income generation, and unaccounted-for water-related working hours ('time poverty').

It should be noted that the knowledge management dimension of the project will also serve to:

- Document, promote, publicize, and disseminate good practices when addressing gender issues in the mapping and analysis of water uses.
- Create or build upon synergies identified through addressing gender issues among the largest possible number of stakeholders in the water management sector (i.e. representatives of networks, governments, civil society, also beyond the project countries).

A major objective of the project will be the development of supportive policy and frameworks, and of monitoring protocols harmonized across beneficiary countries. These efforts will also be aimed at ensuring that the gender perspective is successfully incorporated into all activities. It is expected that this objective will be achieved by:

- Identifying gaps in equality and developing strategies and policies to close those gaps (TDAs);
- Considering gender issues in the mapping and analysis of water uses (TDAs);
- Promoting women's participation in awareness raising and training activities, while raising gender awareness and contributing to 'male sensitization' to these issues (Output 5.1.2);
- Supporting educational activities, on topics such as the environment, energy, and decision-making in general (output (5.1.2));
- Involving women's organizations: while the responsibility for implementing a gender approach does not rest solely with women's organizations, they are natural vehicles for promoting gender equality at the local as well as the national level (TDAs, SAPs).

Balanced gender participation in project execution activities will be ensured, including in working groups, the Project Coordinating Unit, text drafting teams, etc. Gender consideration will be mainstreamed in all documents produced by the project, and particular attention will be paid to gender balance in monitoring and reporting activities. The project will work to ensure a balanced participation among men and women in the overall stakeholder involvement strategy and in consultation workshops and training programmes, and will support both women and men contribution individually, rather than assuming that both groups will benefit equally from gender-neutral development interventions.

1) did the project conduct a gender analysis during project preparation?	YES
2) did the project incorporate a gender responsive project results framework, including sex-disaggregated indicators?	YES
3) what is the share of women and men direct beneficiaries (women X%, men X%)?	NA

Baseline conditions (Gender Equality):

Belarus :

Universally recognized international standards are the basis of the gender policy in the Republic of Belarus. Belarus signed and ratified a number of UN documents, assuming the responsibilities to implement decisions aimed at protecting women's interests and ensuring gender equality. Belarus ranks 30th in the gender equality index (in the ranking among 144 countries) according to the Global Gender Gap Report for 2016, presented by the World Economic Forum. On February 17, 2017, the Council of Ministers of the Republic of Belarus approved the fifth National Action Plan on Gender Equality in the Republic of Belarus for 2017-2020, which is the main unified document on the implementation of the gender policy in the country. The aim of the National Plan is to develop mechanisms for the introduction of a gender approach in the process of developing and implementing measures for national policy in various spheres of society.

Table 1 - Gender equity indexes of Belarus in 2016 in comparison with 2007



Sphere / Rank	2016	2007
Global Gender Gap Index	30 out of 144	23 out of 128
Economic participation and opportunity	5	20
Educational attainment	29	74
Health and survival	40	37
Political empowerment	80	39



One of the specific features of Belarus is the high level of women's employment, which is 65%, including 83% for women of employable age. More often, women are invited to hold management positions. In accordance with the results of the 2016 elections for the National Assembly of the Republic of Belarus, the ratio of women increased and amounted to 33.7 percent of the total number of deputies of the House of Representatives and members of the Council. Meanwhile, according to the data of Inter-Parliamentary Union, in the region of the participating countries of the Organization for Security and Cooperation in Europe (OSCE), with due regard to the Nordic countries, the representation of women in bicameral parliaments is 25.6 percent (as of August 1, 2016), and

22.8 percent is the world.

Among public servants, women make up 70.1 percent, including 54.7 percent as head of the organization and his deputies. Women also make up about 68 percent of public servants, which are employed in the law enforcement authorities.

In the system of water resources management in the Republic of Belarus, the number of women is at least 50 percent. Along with the National Plan, gender issues are also recorded in other national programs and projects, such as "Main Directions of the State Family Policy", "National Action Plan for Improving the Children Position and Protecting Their Rights", "National Program of the Demographic Security", Presidential Program "Children of Belarus ", the state employment program. The government's employment programs, adopted annually by the Government, foresee special measures to ensure the employment of women. Thus, in 2005 the ratio of unemployed women in the total number of unemployed people was 69 percent, and then in 2016 this ratio decreased and reached 32 percent.

Ukraine :

According to the Global Gender Gap Report for 2016, presented by the World Economic Forum, Ukraine ranks 69th in the gender equality index (in the ranking among 142 countries). Comparing these data with the indicators of the past years, it is obvious that the condition of gender equality in Ukraine has become worse. Ukraine showed the best result in 2006, taking the 48th place. That time, according to some of the four measured parameters, Ukraine approached the 1.00 mark, which means full gender equality in this area. Quite significantly Ukraine's positions also declined during the period from 2014 (56th place) to 2015 (67th place) (Table 1).

Gender equity index of Ukraine in 2016 versa 2006

Table 2

	2016	2006

Documents

Title

Submitted

Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment?

Yes

If yes, please upload document or equivalent here

If possible, indicate in which results area(s) the project is expected to contribute to gender equality:

Closing gender gaps in access to and control over natural resources; Yes

Improving women's participation and decision making Yes

Generating socio-economic benefits or services or women Yes

Will the project's results framework or logical framework include gender-sensitive indicators?

Yes

A.5. Risks

Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.

The only major risk identified by the project proponents that may prevent the full success of the project is the lack of sustained political support for this cooperative effort in the countries and states sharing the aquifers and river basins and institutional fragmentation at the national level. The project proponents, fully aware of this challenge, have focused practically all project activities to the strengthening of this commitment through improved science and understanding, exchanges and consultations, awareness campaigns and capacity building, policy-level work, etc. It is also expected that non GEF recipient countries participating to the project (Poland and Lithuania) will help improve conditions for cooperation, they were fully engaged and consulted during the project development. Finally, the EU accession political objective of some of the countries will also help in moving the project successfully forward.

Given the nature of the project, oriented at improving science, establishing processes and creating enabling political environments, climate change will not have any impact on the project likelihood of success. On the other hand, climate change and increased climatic fluctuations will have to be taken into full consideration as part of the technical components of the project, from the diagnostic analysis, to the identification of needed priority actions in the SAPs, so that future management of the aquifer will include measures and provisions to face this new challenge to sustainability.

Description	Type	Impact & Probability	Mitigation Measures	Owner
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<p>Not all four countries sharing the two basins remain fully committed to project objectives</p>	<p>Political</p>	<p>Low</p>	<p>Cooperation and coordination of the Executing Agency and the PCU with partners in all countries will allow to anticipate and respond to political developments with implications to project support.</p>	<p>UNESCO IHP, UNDP</p>
<p>Institutional fragmentation at the national level.</p>	<p>Regulatory</p>	<p>Medium</p>	<p>The facilitation of the establishment of Basil Councils of inter-ministerial nature will promote integration and ease nexus conflicts</p>	<p>UNESCO IHP</p>
<p>Lack of support for the establishment of transboundary cooperation mechanisms</p>	<p>Regulatory</p>	<p>Low</p>	<p>Trust building through the TDA - SAP process, and incentives provided by the EU approximation process will minimize this risk</p>	<p>UNESCO IHP</p>

Political instability	Political	Low	Adaptive approach to project management; Open line of communication between co-executing partners, UNDP, and Ukrainian project stakeholders	UNESCO IHP, UNDP, project Focal Points
Project delays, constraints, or capacity-related risks related to the COVID-19 global pandemic	pandemic	Moderate	Short-term constraints on travel and group gatherings will be taken into account in project planning, and on-line or remote learning and communication options will be used where necessary. Longer-term economic impacts will be analyzed in the diagnostic analysis where relevant and factored into efforts to finance the continued implementation of the NAPs, the SAP, and monitoring activities following the conclusion of the project.	UNESCO IHP, UNDP, project Focal Points

Social and environmental safeguards (SESP): The project is rated as a ‘Category **Medium**’ from an environmental and social safeguard perspective, with small scale, site-specific and manageable environmental and social impacts. No adverse long-term impacts are anticipated. During the project inception phase, the PCU will develop an Environmental and Social Management Framework (ESMF) that will provide guidance and measures with clear roles and responsibilities, along with capacity strengthening measures for effective implementation and monitoring.

A.6. Institutional Arrangement and Coordination

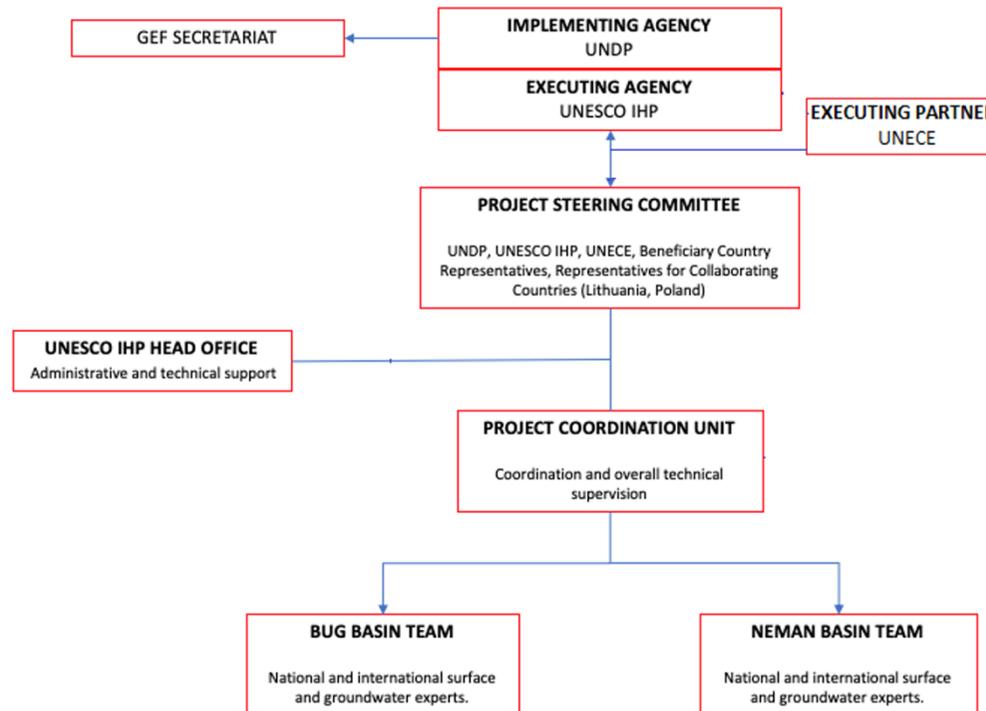
Describe the Institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.

Project management and governance:

UNDP will be the Implementing Agency (IA), and will be responsible for the overall supervision of the project. UNESCO IHP will serve as the Executing Agency (EA). The EA will ensure that all activities are carried out in strict compliance with the rules and procedures of UNDP and GEF (and according to agreed annual work plans and budgets). UNECE will act as executing partner, contributing to the project execution. Execution at national level will be led by National Focal Points, to be designated during the inception phase of the project. NFPs will be fully involved in the selection of the national consultants and experts that will support the execution of activities. The PSC will carry out the function of a Project Board, and will consist of: 1) beneficiary countries, other participating countries, the IA and the EA representatives; and 2) the PCU acting as Secretariat for the PSC. Finally, the lead CO (Belarus) will act as the lead UNDP Office and Principal Project Representative. Further details on governance and management arrangements can be found below.

In order to successfully reach the objectives and outcomes of the project, it is essential that the progress of the different project components be closely monitored, both by the key local stakeholders and authorities as well as by the project's international experts, starting with the finalisation of the detailed, component-specific work plans and implementation arrangements, and continuing throughout the project's implementation phase. The purpose of this monitoring is to facilitate early identification of possible risks to successful completion of the project, together with adaptive management and early corrective action, when and as needed.

**The Republic of Lithuania and Poland, as full Member States of the European Union are no longer GEF beneficiary countries. However, in the 'Bug and Neman' project, they will actively continue to participate as partner countries (Donor Governments).*



Coordination/interactions with other projects and initiatives:

The project will build upon and take advantage of the numerous efforts being undertaken by the countries within the contexts of the implementation of the EU Framework Directive and of the UNECE Water Convention, and establish links with ongoing similar projects in the region, including GEF funded.

UNDP has a long record of activities in this region and of the comparable activities (i.e. transboundary groundwaters) in other regions. Among others, UNDP implemented a project “Improved management of water resources in the upper Pripyat basin” (2008-2009). This project aimed to define a practical solution for some (surface) water transboundary management issues in the Pripyat river water basin. The project strengthens the culture of a transboundary dialogue between the involved countries, making it easier to new transboundary initiatives to be adequately accounted and further developed.

The project especially builds on the past project “River Basin management and climate change adaptation in the Neman river basin (2011-2015)” implemented by UNECE and UNDP Belarus in the framework of the Environment and Security initiative (ENVSEC, www.envsec.org). The project led to a joint understanding of future climate change impacts by preparing a transboundary vulnerability assessment and numerous studies, as well as agreement on how to address them through the development of a basin-wide adaptation strategy. It also addressed monitoring and information exchange. It resulted in a revival of transboundary cooperation both at the expert and political level, culminating in the negotiation of a bilateral Protocol on transboundary water cooperation between Belarus and Lithuanian ministries.

In 2016-2018, within the EUWI+ project, UNECE supported Belarus and Lithuania to elaborate of the priority components of the Transboundary Neman River Basin Management Plan. A comprehensive technical report containing results of the WFD compliant overview of the Belorussian part of the basin including delineation of water bodies, comparative analysis of monitoring and assessment of water bodies and status of water bodies in the Belorussian part of the basin was prepared and will guide further work under the GEF project.

The new project can also rely on a very relevant experience about transboundary groundwaters in Europe that has been gained in DIKTAS project (Protection and Sustainable Use of the Dinaric Karst Transboundary Aquifer System). DIKTAS is a full-size GEF project, implemented by UNDP and executed by UNESCO. The project started in 2010 and include regional objectives similar to the objectives of the proposed project.

This project will be carried out in close cooperation with with the ongoing NATO Pilot Study Project "Sustainable Use and Protection of Groundwater Resources Transboundary Water Management". This project creates an expert platform for discussion about sustainable groundwater management and the efficient way of protection of transboundary water resources. Attention will be paid to the legacy of recently completed projects and possible post project activities. There are about dozen relevant INTERREG and TACIT projects conducted in the recent years together with some UN related projects such as:

- The Bug River Pilot Project on monitoring and assessment of transboundary rivers established under the UNECE Water Convention (1998-2003);
- Integrated Environmental Evaluation Western Bug River Basin (Ukraine and Poland) - PHASE I: Baseline Assessment and Analysis, financed with UNIDO (2008). Development of transboundary polder system “Beregowo” in Cisa River Basin;

- EU/UNDP project "Support to the development of a comprehensive framework for international environmental cooperation of the Republic of Belarus".

The project will establish coordination links with two ongoing relevant GEF funded initiatives: The Forestry Development Project, World Bank; and the “Conservation-oriented management of forests and wetlands to achieve multiple benefits”, UNDP, both of them targeting Belarus.

Any other potentially important initiative recognized during the project execution phase will be considered with due attention.

The project will also benefit from the experience and lessons of many GEF International waters project in Europe, including, but not limited by WB and UNDP projects in Drin river basin, DiKtas, Dnipro river, etc.

During the project implementation it is envisioned that the project stakeholders will learn from experience of the well-established river conventions (e.g, ICPDR) who can advise and guide the establishment and/or strengthening of proposed institutional structures in the Bug and Neman river basins.

Additional Information not well elaborated at PIF Stage:

A.7. Benefits

Describe the socioeconomic benefits to be delivered by the project at the national and local levels. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptaion benefits (LDCF/SCCF)?

The Bug and Neman river basins support rich and diverse ecosystems, spanning an area of significant regional environmental importance which provides a wide range of ecosystems services and sustains local economies. By contributing to mitigate the expected impacts of climate variability and change in the project region, balance competing water uses, and improve water

security and the sustainability of freshwater ecosystem services, it is also expected that the project will bring (inter alia), the following main socioeconomic benefits to the people and the environment of the region:

- An improved science-based understanding of the current state of transboundary surface and groundwater resources (and the dependent ecosystems) in the two basins, contributing to more efficient and well-informed decision-making processes regarding the use and management of the shared resources in face of current and foreseen water stressors (including climate change). In this line, a major project objective will be the development of supportive policy/legal/institutional frameworks, and of harmonized monitoring protocols across beneficiary countries.
- The project will also integrate and consider the WFD and Flood Directive's goals, and will particularly emphasize two innovative approaches in the project region: Conjunctive surface and groundwater management, and Ecohydrology as a means to identify highly sustainable nature-based solutions to some of the anthropogenic and climate related issues affecting the freshwater ecosystems in the two basins. Successful pilot testing of these approaches (Component 3), and effective dissemination (Component 5) will enhance their scaling up potential and promote broader adoption. Responding to the need highlighted by the relevant countries, the project will contribute to attaining goals under the EU WFD and Flood Directives, thus 1) playing a role in raising the EU water policy response of the EU project countries, with impacts beyond the life of the project, and 2) fostering the dissemination of knowledge, best practices, and lessons learned with non-EU project countries (EU approximation).
- Enhanced women's empowerment and the promotion of gender equality at local and national level; improved presence and participation of women in water-related consultative, decision-making, awareness-raising, and capacity building activities and processes; and more robust gender-integrated national policy regimes. This will be achieved by (inter alia): 1) dedicating systematic attention to the balanced participation of women and men in the execution of all project activities (i.e. working groups, dialogues, consultations, awareness-raising activities); 2) An improved understanding of gender roles and equality regarding water resources management in the project region (as part of the TDA-SAP); 3) Training courses to familiarize stakeholders of all project countries on gender analysis (including gender sensitive indicators, and sex-disaggregated data collection).

The project will also specifically contribute to the following Sustainable Development Goals: (SDGs and Targets): 5.5, 6.3, 6.5, 6.6, 15.1, 15.5, 13.

A.8. Knowledge Management □

Elaborate on the Knowledge management approach for the project, including, if any, plans for the project to learn from other relevant projects and initiatives (e.g. participate in trainings, conferences, stakeholder exchanges, virtual networks, project twinning) and plans for the project to assess and document in a user-friendly form (e.g. lessons learned briefs, engaging websites, guidebooks based on experience) and share these experiences and expertise (e.g. participate in community of practices, organize seminars, trainings and conferences) with relevant stakeholders.

Knowledge management is an important aspect of the project, directly incorporated into several of the project outputs. In particular, the knowledge enhancement process leading to the formulation of the TDA will ultimately produce a number of knowledge tools and communication / dissemination materials. These materials produced will be widely shared in the region, including through the opportunities for dissemination provided by the UNECE Convention activities and website. The project will establish its website, following IW LEARN standards, and populate it with progress reports, documents, webinars and other project products. In particular, at least 1% of total project budget will be set aside for knowledge management and information exchange activities organized by IW LEARN and the UNECE Water Convention (e.g. IWC participation, information dissemination through IW LEARN platforms and networks, twinning exercises). Knowledge exchange will include the participation in relevant regional and international workshops and conferences (such as GEF International Waters Conferences, World Water Forum, World Water Week). The project's legacy will be consolidated in the Project Final Report.

B. Description of the consistency of the project with: □

B.1. Consistency with National Priorities

Describe the consistency of the project with nation strategies and plans or reports and assessments under relevant conventions such as NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.

The Project is fully consistent with the national priorities in the water and environmental sectors in the two beneficiary countries:

BELARUS:

The Republic of Belarus is supplied with water resources sufficiently to meet the current and future consumption needs. The rivers of the Black Sea (Dnieper, Sozh, Pripyat) and Baltic Sea (Western Dvina, Nieman, Vilia, Bug) basins collect on average 55% and 45% of the accumulated river runoff, respectively. The Water Code of the Republic of Belarus was adopted in 1998 and didn't include the basin principle. The new Water Code of April 30, 2014 indicates river basin planning as one of its key principles. Chapter 17 of the Water Strategy (adopted in August 11, 2011) includes provisions on stepwise introduction of basin principles in the water resources management practice of the country. The Strategy and Water Code also provide steps towards harmonization of the water management principles with the ones of the EU WFD. Improvement of the ecological status is defined as the aim in new Water Code and hydro biological, hydrochemical and hydro morphological indicators are to be applied.

Article 15 of the new Water Code determines the main river basins of the country as follows: Dnieper, Western Dvina, Bug, Nieman and Pripyat. The same article requires the Ministry of Natural Resources and Environmental Protection to develop RBMPs over a period of 5 to 10 years. RBMPs are to be approved by the joint decisions of the corresponding regional executive committees in the territory of which the watershed of respective river is located. Currently two RBMPs were under development: for Dnieper Basin and for Bug Basin.

The Dnieper RBMP was approved on the second meeting of the Dnieper Basin Council in Gomel on 25 of October, 2018. The Dnieper RBMP was sent on March 13, 2019 for approval to regional executive committees. The Western Bug RBMP was approved at the second meeting of the Western-Bugsky Basin Council in the city of Kobrin, Brest Region, on November 30, 2018. In accordance with Article 19 of the new Water Code, basin councils are being established to develop recommendations for the protection and rational use of water resources for river basins. They are interdepartmental and inter-territorial advisory bodies. The decisions of basin councils are taken into account when developing plans for managing river basins, as well as when developing programs and measures for the protection and use of waters within river basins. In September 2018, basin councils of

the Dnieper, Pripyat and Western Bug rivers were created. Groundwater is under the responsibility of the authorities responsible for mineral resources.

UKRAINE:

Ukraine is divided into nine major river basin districts , all of them discharging into the Black Sea except the Vistula , which flows towards the Baltic Sea: Dnipro basin (covering 49 % of the country); Dniester basin (9 %); Southern Bug, which is an internal basin; Danube basin (5%); the coastal basin grouping all the small rivers that flow directly into the Azov Sea; the coastal basin grouping all the small rivers that flow directly into the Black Sea; the basin of the Crimea rivers, Don basin (9%); and Vistula basin (2%) which is the focus area of this project and includes two sub-basins: Western Bug and San. Ukraine has a formal state policy on approximation with the EU WFD, including development of WFD compliant RBMPs. Thus, on September 17, 2014 the Cabinet of Ministers of Ukraine adopted Resolution No 847-p “On Action Plan for Implementation of the Association Agreement between Ukraine and the EU for the period of 2014-2017”. According to the Resolution, Ukraine will develop and approve provisions on RBMPs and the methodology for their development, and also develop RBMPs and FRMPs for all river basin districts of the country by 2024.

At present, the provisions of the Water Framework Directive are included in the Water Code by adoption of the law “On Amendments to Some Legal Acts of Ukraine regarding the introduction of integrated approaches in water resources management following the river basin principle” No 3603. The goal of the document is to ensure integrated management of water resources within river basin districts using River Basin Management Plans, as well as introduction of the preliminary flood risk assessment, modelling and mapping followed by Flood Risk Management Plans. In 2014, with the assistance of SIDA, the draft RBMP for Southern Bug River Basin was developed. Currently further RBMPs are in the process of development: for the Tisza River Basin (Integrated Plan within ICPDR), the Dnieper River Basin, the Dniester RBD, and the Don RBD.

There are 12 water basin management administrations (WBMAs) and 14 regional water management administrations established in Ukraine. These WBMAs are subordinate to the State Water Resources Agency of Ukraine, and the relevant river basin councils established to implement MENR Order #25 of 26 January 2017 “On Approving the Model Regulation on River Basin Councils”. The WBMAs are in charge of the management of the relevant basin districts as well as development of the river basin management plans. The first meeting of the Basin Council of the Bug and San in Ukraine was in December 2018.

***THE 2030 AGENDA:** The Project will also foster compliance with a number of global agreements, including the UN Resolution on Transboundary Aquifers, and support country efforts to achieve numerous targets of the Sustainable Development Goals, with focus on Goals 6, 13 and 15. The following table summarizes the project’s contributions to the Agenda 2030 process.

Sustainable Development Goals	Targets
1. End Poverty in all its forms everywhere	Targets 5, 1. A
5. Achieve gender equality and empower all women and girls	Target 5
6. Ensure availability and sustainable management of water and sanitation for all	Targets 1, 2, 3, 4, 5,6, 6.a, 6. b
12. Ensure sustainable consumption and production patterns	Target 2
13. Take urgent action to combat climate change and its impacts	Targets 1, 2, 3, 13. A
15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation and halt biodiversity loss	Targets 1, 3, 5

C. Describe The Budgeted M & E Plan: □

*The project results, corresponding indicators and mid-term and end-of-project targets, as outlined in the project results framework will be monitored annually and evaluated periodically during project implementation to ensure the project effectively achieves its results. If baseline data for some of the results indicators is not yet available, it will be collected during the first year of project implementation. The Monitoring Plan below provides details on roles, responsibilities, and frequency of monitoring project results.

Project-level monitoring and evaluation will be undertaken in compliance with UNDP requirements as outlined in the [UNDP POPP](#) and [UNDP Evaluation Policy](#). The UNDP Country Office is responsible for ensuring full compliance with all UNDP project monitoring, quality assurance, risk management, and evaluation requirements. Additional mandatory GEF-specific M&E requirements will be undertaken in accordance with the [GEF Monitoring Policy](#) and the [GEF Evaluation Policy](#) and other [relevant GEF policies](#). The costed M&E plan included below, will guide the GEF-specific M&E activities to be undertaken by this project.

In addition to these mandatory UNDP and GEF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management will be agreed during the Project Inception Workshop and will be detailed in the Inception Report. **These activities may include UNDP guidance regarding adopting remote monitoring approaches and for M&E procedures as a whole during the COVID-19 global pandemic.** This will include the exact role of project target groups and other stakeholders in project M&E activities including the GEF Operational Focal Point and national/regional institutes assigned to undertake project monitoring. The GEF Operational Focal Point will strive to ensure consistency in the approach taken to the GEF-specific M&E requirements across all GEF-financed projects in the country. The Executing Agency (UNESCO IHP) and key project partners (national government representatives, UNECE representatives) will have an important role in overall project governance.

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget ¹⁴ (US\$)		Time frame
		GEF grant	Co-financing	

Inception Workshop	UNESCO IHP including PCU	15,000	3,000	Within two months of project document signature
Inception Report	UNESCO IHP, including PCU	None	None	Within two weeks of inception workshop
Standard UNDP monitoring and reporting	UNESCO IHP, including PCU	None	None	Quarterly, annually
Monitoring of indicators in project results framework	UNESCO IHP, including PCU	2,000	4,000	Annually[1]
GEF Project Implementation Report (PIR)	UNESCO IHP, including PCU	None	None	Annually
Lessons learned and knowledge generation	UNESCO IHP, including PCU	None	None	Annually
Monitoring of environmental and social risks, and corresponding management plans as relevant	UNESCO IHP, including PCU	None	None	On-going
Project Steering Committee meetings	UNESCO IHP, including PCU UNECE	14,000	28,000	Annually

Knowledge management	UNESCO IHP, including PCU	1% of GEF grant = 20,000 USD			On-going
Independent Mid-term Review (MTR)) including Mid-term GEF Core indicator and management response	UNESCO IHP, including PCU Consultant	20,000		40,000	Between 2nd and 3rd PIR.
Independent Terminal Evaluation) including Mid-term GEF Core indicator (TE)	UNESCO IHP, including PCU Consultant	22,000	44,000		At least three months before operational closure
TOTAL indicative COST		93,000	119,000		
Excluding project team staff time, and UNDP staff and travel expenses					

[1] There will be one yearly face to face supervision mission, complemented by several virtual oversight arrangements.

PART III: Certification by GEF partner agency(ies)

A. GEF Agency(ies) certification

GEF Agency Coordinator	Date	Project Contact Person	Telephone	Email
Pradeep Kurukulasuriya, UNDP-GEF Executive Coordinator	5/23/2019	Mr. Vladimir Mamaev Regional Technical Advisor		vladimir.mamaev@undp.org

ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found). □

The Project Results Framework can be found in **pages 76-82** of the project documents:

This project will contribute to the following Sustainable Development Goal (s): (SDGs and Targets): 5.5, 6.3, 6.5, 6.6, 15.1, and 15.5
This project will contribute to the following country outcome included in the UNDAF/Country Programme Document: 3.1: By 2020, policies have been improved and measures have been effectively implemented to increase energy efficiency and production of renewable energy, protect landscape and biological diversity and reduce the anthropogenic burden on the environment.
This project will be linked to the following output of the UNDP Strategic Plan: <ul style="list-style-type: none"> • Primary Output 1.3: Solutions developed at national and sub-national levels for sustainable management of natural resources, ecosystem services, chemicals and waste. • Indicator 1.3.1: Number of new partnership mechanisms with funding for sustainable management solutions of natural resources, ecosystem services, chemicals and waste at national and/or subnational level. • Secondary Output 2.5: Legal and regulatory frameworks, policies and institutions enabled to ensure the conservation, sustainable use, and access and benefit sharing of natural resources, biodiversity and ecosystems, in line with international conventions and national legislation. • Output Indicator 2.5.2: Number of countries implementing national and local plans for integrated Water Resource Management.

	Objective and outcome indicators	Baseline[1]	Mid-term target[2]	End of project target	Data collection methods and risks/assumptions[3]
Project objective: Advance transboundary water governance through the conjunctive management of surface and groundwater in the Central European adjoining Bug and the Neman river basins as a means to improve water security and sustainability of freshwater	Mechanisms for transboundary cooperation in the management of the shared freshwater resources of the Bug and the Neman river basins and aquifers, prepared for government level adoption. Conjunctive surface and groundwater management and nature-based solutions to balance competing water uses and	Despite a number of bilateral agreements related to water and environmental resources, there is a lack of comprehensive international instruments for the governance of complex transboundary water bodies such as the	Mechanism for information exchanges established in the two basins. Transboundary Diagnostic Analyses (TDAs) for the two basins prepared and agreed upon by the four	Terms of reference and other legal provisions for the establishment of the two River Commissions of the Bug and the Neman prepared and submitted for governments' adoption, and presented for consideration to interested government bodies.	Strong political commitment to foster transboundary waters cooperation. Data collection*: <ul style="list-style-type: none"> ●Data availability survey and gap analysis ●Water quality (biological and hydromorphological) ●/and quantity measurements

<p>ecosystem services, balance competing water uses, and mitigate the expected impacts of climate variability and change.</p>	<p>increase resilience to climate change, agreed upon by the countries at the national and transboundary levels.</p>	<p>Bug and the Neman basins and aquifers.</p> <p>The abundant water resources of the two basins suffer from conflicts at the food, energy, environment and climate nexus.</p>	<p>countries.</p>	<p>The Strategic Action Programs for the two basins including conjunctive water management and nature-based solutions, agreed upon and endorsed at high ministerial level.</p>	<ul style="list-style-type: none"> ●Surface and GW body delineation ●Analysis of impacts and pressures on water bodies ●Inventory of protected areas ●Modelling and mapping of flood risk areas ●Gender analysis in both basins ●Stratigraphy and lithology sequencing (GW) ●Postulations and data mining as needed ●Historical climate data <p>Risks/assumptions:</p> <ul style="list-style-type: none"> ●Lack of sustained political support ●Institutional fragmentation
<p>OUTCOME 1.1:</p> <p>Countries recognize the transboundary and interlinked nature of the surface waters, aquifers and their dependent ecosystems in the two basins, and their high vulnerability to anthropogenic and climatic impacts.</p>	<p>River Basin Assessments (RBA) endorsed by project Steering Committee (SC).</p>	<p>Lack of a comprehensive assessment of the freshwater resources and dependent ecosystems of the two basins.</p>	<p>The two RBAs endorsed by the SC.</p>	<p>The RBAs published in languages and widely disseminated.</p>	<p>Countries agree to create joint technical teams.</p> <p>Data collection:</p> <ul style="list-style-type: none"> ●Data availability survey and gap analysis ●Water quality (biological and hydromorphological) ●/and quantity measurements ●Surface and GW body delineation ●Analysis of impacts and pressures on water bodies ●Inventory of protected areas ●Modelling and mapping of flood risk areas ●Gender analysis in both basins ●Stratigraphy and lithology sequencing (GW)
<p><u>Output 1.1.1</u> Science based assessments of the current state of freshwater resources and dependent ecosystems in the two basins linked by the underlying aquifer system, leading to agreement on a Transboundary Diagnostic Analyses (TDA) for each Basin - in line with GEF, the EU WFD, the UN Draft Articles, and national legislation.</p>	<p>RBAs submitted to the SC for endorsement</p>		<p>RBAs completed</p>		

<p>OUTCOME 1.2:</p> <p>Countries reach agreement on the key issues of transboundary concern and their immediate and root causes, including climate change and gender equality issues, and decide to take steps to deal with them.</p>	<p>Transboundary Diagnostic Analyses (TDA), including consideration of gender aspects, endorsed by SC</p>	<p>The two basins lack a comprehensive diagnostic discriminating issues of pure national concern from those that will require international mitigation action.</p> <p>Both Belarus and Ukraine have general gender policies setting standards and equality objectives. No attempt so far to apply these to river basin management frameworks.</p>	<p>The TDAs completed and endorsed by the SC</p>	<p>TDAs published in languages and widely disseminated</p>	<ul style="list-style-type: none"> ● Postulations and data mining as needed ● Consultative processes and dialogues ● Relevant maps of the project region ● Historical climate data ● Risks/assumptions: ● Lack of sustained political support ● Institutional fragmentation
<p>Output 1.2.1 Agreed report on baseline conditions (TDAs), agreement on designation and classification of water bodies according to EU WFD standard, and on environmental and socioeconomic status indicators</p>					
<p>OUTCOME 1.3:</p> <p>The countries explore and reach consensus on the application of eco-hydrology for addressing imbalances in the aquatic environment for the conjunctive management of surface and groundwater</p>	<p>Riparian countries adopt nature-based solutions</p>	<p>The application of eco-hydrology is new to the two basins.</p>	<p>The assessment of the nature-based solutions that might apply to the project area completed and endorsed part of the TDA.</p>	<p>Countries' agreement on the adoption of nature-based solutions as part of the Strategic Action Program</p>	<p>The results of the assessment identify convincing applications of the eco-hydrology approaches.</p> <p>Data collection:</p> <ul style="list-style-type: none"> ● TDA findings ● Literature review ● Assessment of applicable nature-based solutions <p>Risks/assumptions:</p> <ul style="list-style-type: none"> ● Lack of sustained political support ● Institutional fragmentation
<p>Output 1.3.1 Methodology for application of ecohydrology in the two basins, to address mechanisms that will lead to moderated imbalances.</p>	<p>Review of nature based solutions that might apply to the project areas submitted to the SC for endorsement as part of the TDA.</p>				
<p>OUTCOME 2.1:</p>	<p>The TORs, including Information</p>				

Strengthened institutional cooperation, coordination and information sharing among riparian countries in each basin, and between the two basins, improves sustainability of the shared resources.	Exchange Protocols, for two transboundary River Basin Commissions (RBC) adopted by riparian countries.	Countries have expressed interest in joining forces in the management of the two basins, but no action has been taken as yet.	The draft TORs for the RBCs and for the information sharing mechanism submitted to the countries for technical approval.	Information Exchange Protocols, technically cleared and established.	Sustained political commitment to the creation of joint basin management bodies. Data collection: <ul style="list-style-type: none"> ●Literature review ●Legal and institutional gap analysis ●TDA findings Risks/assumptions: <ul style="list-style-type: none"> ●Lack of sustained political support ●Institutional fragmentation
Output 2.1.1 Establishment or straightening of the Transboundary River Commissions in the two project basins and defining coordination and information sharing mechanisms between the two Commissions	TORs for the two RBCs and Information Exchange Exchange Protocols submitted for technical clearance				
OUTCOME 2.2: Overall cross-sectoral coordination of actions at the national level improves cooperation and defuse nexus conflicts in the two basins.	The TORs of national Basin Councils ensuring cross-sectoral coordination, adopted by riparian countries.	Cross sectoral exchanges among different initiatives impacting water resources in the basin are nonexistent.	TORs submitted to the countries for technical approval.	Basin Councils TORs submitted to the relevant government bodies for approval and establishment.	Sustained political commitment to the creation of joint basin management bodies Data collection: <ul style="list-style-type: none"> ●Literature review ●Legal and institutional gap analysis ●Data gathered from visits and RBC meetings ●TDA findings Risks/assumptions: <ul style="list-style-type: none"> ●Lack of sustained political support ●Institutional fragmentation
Output 2.2.1 Mechanisms in form of National Basin Councils will be established for coordination and information exchanges at the national level, coordination with other relevant projects and initiatives put in place in both basins.					
OUTCOME 3.1: Successful testing and application	Number of pilot projects field testing nature-based solutions and conjunctive	The application of eco-hydrology and	Pilot projects under implementation	At least two pilot projects, one in each beneficiary	Countries agree on the identification of pilot projects during the first year of

<p>of conjunctive surface and groundwater management options and nature-based solutions (eco-hydrology) for balancing water nexus conflicts and adapting to climate change and variability identified through the TDAs or other similar processes build country and regional Institutions capacity and commitment to reforms and investments.</p>	<p>management approaches implemented.</p>	<p>conjunctive surface and groundwater management approaches are new to the two basins</p>		<p>country, implemented.</p>	<p>the project. Data collection: Risks/assumptions: <ul style="list-style-type: none"> ●Lack of sustained political support ●Institutional fragmentation </p>
<p>Output 3.1.1 Implementation of pilot projects and policy measures in the two basins (GEF support will concentrate in Belarus and Ukraine).</p>	<p>Design and Final reports of each pilot project.</p>				
<p>OUTCOME 4.1: Policy makers in countries, having improved their understanding of (i) the surface, groundwater and ecosystems interactions in the two basins, (ii) the implications of expected climatic changes, and (iii) the existing water nexus conflicts, commit to develop effective conjunctive water resources management strategies.</p>	<p>The two River Basin Commission approve the priority actions needed to address major transboundary issues of concern within a conjunctive water resourcesmanagement framework.</p>	<p>No such prioritization exists</p>	<p>Basin Councils identify priority actions.</p>	<p>The national Basin Councils submit lists of strategic priority actions to the two RBCs for harmonization and adoption.</p>	<p>National Basin Councils of inter-ministerial nature, or equivalent bodies, established and functioning in all countries. Data collection: <ul style="list-style-type: none"> ●Legal and institutional gap analysis and baseline assessment ●Data gathered from visits and inter-ministerial council/committee meetings ●TDA findings as basis for SAP Risks/assumptions: <ul style="list-style-type: none"> ●Lack of sustained political support ●Institutional fragmentation </p>
<p>Output 4.1.1 Operational Basin councils of inter-ministerial nature established in each beneficiary country, focused on harmonization of existing frameworks, adoption of conjunctive water resources management approaches, and the</p>	<p>Reports containing priority reforms and investmentsinvestments in the two basins prepared by the national Basin Councils for submission to the transboundary RBCs</p>				

identification of priority reforms.					
<p>OUTCOME 4.2:</p> <p>Political commitment reached among countries on implementing priority legal, institutional and policy reforms for the protection and equitable utilization of shared waters and dependent ecosystems of the two basins through conjunctive surface and groundwater management.</p>	SAPs for the two basins endorsed at high ministerial level by the riparian countries.	A number of bilateral agreements so far regulate transboundary water management in the two basins, but comprehensive commitments of all riparians are missing.	Two SAPs, including the consideration of the priority actions identified by the RBCs, prepared and technically cleared.	The Strategic Action Programs for the two basins submitted and endorsed at high ministerial level.	
<p>Output 4.2.1 The Strategic Action Programs (SAPs) for the two basins - prepared by the countries based on the TDA findings - submitted for endorsement at high ministerial level. In addition to the SAPs, the project will also develop Flood Risk Management Plans for both basins</p>	The two SAPs prepared by the RBCs				
<p>Output 4.2.2. Environmental quality targets defined and adopted. Harmonization of environmental status indicators and monitoring procedures agreed upon</p>	As part of the SAP development process, the environmental quality targets will be agreed and approved	No agreed environmental quality targets available, environmental status indicators only at the national level	A number of environmental targets and environmental status indicators proposed by the technical working group for the countries approval	A number of environmental targets and status indicators approved by the countries	Countries establish a technical working group to develop environmental targets and environmental status indicators for both basins.

<p>OUTCOME 5.1: Long term sustainability of achievements enhanced through public and political awareness campaigns, stakeholder involvement and replication mechanism.</p>	<p>Number of gender balanced capacity building and stakeholders engagement events</p>	<p>Beneficiary countries not familiar with innovative approaches promoted by the project.</p>	<p>Training modules on the TDA-SAP process, and on Gender Mainstreaming conducted in beneficiary countries (2 in each country)</p>	<p>Dialogues and awareness raising events on conjunctive surface and groundwater management, and on eco-hydrology (2 in each country)</p>	<p>Broad participation of stakeholders ensured.</p>
<p>- Output 5.1.1 Selected media events highlighting project's progress and achievements.</p>			<p>At least 5 media events held</p>	<p>At least 15 media events held</p>	<p>Data collection: ● Knowledge base established through implementation of technical components (knowledge-management data)</p>
<p>- - - Output 5.1.2 Communication and Capacity Building Strategies including gender mainstreaming, stakeholder analysis and engagements plans.</p>			<p>Draft Strategy prepared and shared with countries and approved by the PSC</p>	<p>Strategy implemented</p>	<p>● Data gathered from capacity-building activities ● IW-LEARN tools and services Risks/assumptions: ● Lack of sustained political support ● Institutional fragmentation</p>
<p>Output 5.1.3 Participation in activities of IW:LEARN and of the UNECE (including the global network of basins working on climate change), relevant congresses of the IAHR Commission on Transboundary Aquifers and establishment of website.</p>			<p>Project fully engaged with IWLearn website established and least 2 experience notes and participating in major UNECE events</p>	<p>Project actively involved in all IWLearn events and participating at major UNECE events and networks</p>	
<p>Output 5.1.4 Awareness and fundraising donor/partner conference for SAPs implementation</p>	<p>Comprehensive awareness, partnership and fundraising campaign</p>	<p>Limited bilateral partnership and local awareness activities</p>	<p>Draft road map</p>	<p>Conference organized. Resulting in new partnerships for the SAPs implementation</p>	

[1] Baseline, mid-term and end of project target levels must be expressed in the same neutral unit of analysis as the corresponding indicator. Baseline is the current/original status or condition and need to be quantified. The baseline must be established before the project document is submitted to the GEF for final approval. The baseline values will be used to measure the success of the project through implementation monitoring and evaluation.

[2] Target is the change in the baseline value that will be achieved by the mid-term review and then again by the terminal evaluation.

[3] Data collection methods should outline specific tools used to collect data and additional information as necessary to support monitoring. The PIR cannot be used as a source of verification.

*Including but not limited to

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF). □

REVIEW/ADVISORY ELEMENT <i>(STAP, GEF Secretariat, GEF Council Members)</i>	RESPONSE (Executing Agency) / Relevant ProDoc section/Chapter
<p>A. It would be very helpful to include [expected] results of at least a few recently completed [ongoing] efforts/projects in the Baseline Scenario section to allow a better assessment of the importance and incremental value of the proposed activities in this project.</p>	<p>*ProDoc Section 4.1. Partnerships: ‘The development challenge will also be addressed by leveraging, learning from, and seeking complementarities and co-benefits, as possible, with relevant past and ongoing projects and initiatives in the region’</p> <p>*ProDoc Section 2.1.2. (Neman river basin and related aquifers - Status): The main conclusions drawn by an Assessment of the ecological status of surface waters in the Neman River Basin as part of the Project “River Basin Management and Climate Change Adaptation in the Neman River Basin” (UNECE and UNDP, 2012-2015) and the work on elaboration of the priority components of the Transboundary Neman River Basin Management Plan (supported by UNECE Water Convention Secretariat through funding from</p>

the EU (EUWI+ Programme) and the Netherlands, 2016-2018) are:

In Belarus, ammonium nitrogen content is high and the waters of some water bodies (Neman, Viliya, Zelvyanka, Usha, Servech) have a high biological oxygen demand.

In Lithuania, high biological oxygen demand concentrations and high total phosphorus and phosphate phosphorus content is characteristic of some water bodies, however significant number of water bodies remain under pressure from water pollution by nitrates.

Overall the results of observations over recent years indicate an improvement in the quality of surface waters with regard to priority pollutants. In the tributaries of the Neman, shared by Poland and Belarus, the levels of most priority pollutants also decreased.

***ProDoc Section 2.1.2. (Neman river basin and related aquifers – Transboundary cooperation):** Additional details on the Strategic Framework for **Adaptation to Climate Change in the Neman River Basin** developed jointly by experts from Belarus and Lithuania 2012-2014 in the framework of the project “River Basin Management and Climate Change Adaptation in the Neman River Basin”).

***ProDoc Section 2.6. (Relevant international projects and national projects in Belarus and Ukraine)**

***ProDoc Section 4.5. (Coordination with other projects):** *Summarized >>*

- The project will build upon and take advantage of the numerous efforts being undertaken by the countries within the contexts of the implementation of the **EU Framework Directive** and of the **UNECE Water Convention**, and establish links with ongoing similar projects in the region, including GEF funded.

- **UNDP project on “Improved management of water resources in the upper Pripyat basin” (2008-2009):** (...) The project strengthens the culture of a transboundary dialogue between the involved countries, making it easier to new transboundary initiatives to be adequately accounted and further developed.
- The project especially builds on the past project **“River Basin management and climate change adaptation in the Neman river basin (2011-2015)”** implemented by UNECE and UNDP Belarus (...).
- **EUWI+ project:** In the context of this project, UNECE supported Belarus and Lithuania to elaborate of the priority components of the Transboundary Neman River Basin Management Plan (...)
- The new project can also rely on a very relevant experience about transboundary groundwaters in Europe that has been gained in **DIKTAS project (Protection and Sustainable Use of the Dinaric Karst Transboundary Aquifer System)**. DIKTAS is a full-size GEF project, implemented by UNDP and executed by UNESCO. The project started in 2010 and include regional objectives similar to the objectives of the proposed project.
- The project will be carried out in close cooperation with **NATO Pilot Study Project "Sustainable Use and Protection of Groundwater Resources Transboundary Water Management"** (...)

B. It would be appreciated if a more precise definition of some of the outcomes could be provided. In general, the presentation of the Outcomes and Outputs in the Proposed Alternative Scenario is rather terse; a sentence or two explaining the content behind these generic statements would be useful. For example: Outcome 1.1 ‘countries recognize...’, would be hard to measure. Is this assumed implicit in publication of a TDA anyway? Outcome 2.1, what is the level of attainment or measure to be reached to satisfy ‘strengthened institutional cooperation...’?

Expanding on the PIF, **ProDoc Section 4.4.** ‘The Project’ (Under Chapter IV ; Expected Results) outlines all Outcomes and Outputs (as they appear in the approved/final PIF), and ‘operationalises’ them by detailing the proposed project activities under each Component (pp.48-56).

It can also be noted that the Results Framework (ProDoc Chapter VI), develops (also on the basis of the approved PIF) each project outcome via outcome indicators; baseline, mid-term and end of project targets; and data collection methods and risks/assumptions.

C. Regarding Outcome 3.1 ‘testing of conjunctive management options...’; surely this is not testing per se, but has tested and reported on the results of the pilots, so the outcome should read something along the lines of, ‘A strategy published containing options to manage water conjunctively’. However, what is really confusing is the second part of the outcome statement which appears to refer to a completely different output, presumably resulting in the building of country and regional institutions. It does not seem to relate to the Overall Component 3 description which is all about testing approaches. STAP suggests moving that part of Outcome 3.1 to Component 2, within sub-component 2.1.

During its early implementation phase, the project will select two or more demonstration pilot projects (at least one in each basin and according to GEF criteria for the selection of pilot sites) and present these for approval to the first PSC meeting.

It is foreseen that successful pilot testing (on the ground) of innovative approaches to conjunctive management in the region, will strengthen the countries’ ability to build institutional capacity and make a better (science-based) ‘case’ for investments and reforms that would not have been viable beforehand.

It can also be highlighted that throughout the PPG phase (inception and validation), country representatives have expressed their agreement with the wording used to describe project Outcomes and Outputs, and with their placement and pertinence under each project Component.

D. Moreover, and as an example of the need for a bit more detail, the plan to use ecohydrology and hydrogeology in Component 3 is welcome and

***ProDoc Section 3.1.2 (dedicated to ecohydrology and nature based**

promising, but it should be more specific about what concepts, techniques, modelling approaches, etc. are appropriate for which aspects of the integrated surface and groundwater system and its analysis

solutions):

Ecohydrology promotes the integration of a catchment and its biota into a single entity where the use of ecosystem properties becomes a management tool within which ecohydrology can address fundamental aspects of water resources management.

It provides a sound scientific basis for adopting a watershed (and in some cases the “groundwatershed”, when the underlying aquifers play a significant role in the hydrological system) as the basic planning unit. By incorporating the concept of improved ecosystem resilience as a management tool, ecohydrology strengthens the rationale for adopting a preventive and holistic approach to the watershed – as opposed to the reactive, sectoral and site-specific approach typical of present practices in water resources management. At the same time, ecohydrology stresses the importance of eco-technological measures as an integral component of water management, complementing standard engineering approaches (Zalewski, 2002), e.g. the management of wetlands for water purification from excessive nutrient loads based on ecological interconnection between surface and groundwater and mathematical modelling.

The principles of Ecohydrogeology are expressed in three sequential components:

- H1: Hydrological processes generally regulate biota
- H2: Biota can be shaped as a tool to regulate hydrological processes
- H3: These two types of regulations (H1&H2) can be integrated with hydro-technical infrastructure to achieve sustainable water and ecosystem services

Ecohydrology is concerned with the effects of hydrological processes on the distribution, structure, and function of ecosystems, and with the effects of

biotic processes on elements of the water cycle. Ecohydrology uses the understanding of relationships between hydrological and biological processes at different scales to improve water security, enhance biodiversity and further opportunities for sustainable development by lessening ecological threats and maximizing greater harmony within catchment processes.

In both agricultural landscape and urban space, ecohydrological biotechnologies have to be developed in order to increase water availability, food /bioenergy productivity, reduce diffuse pollutant emission, enhance biodiversity and serve human health and quality of life by development system approach toward regulation the complexity of interactions between the water cycle, ecosystems and societies.

The concept of ecohydrology is at the core of the so-called Nature-Based Solutions (NBS) for water management. They are inspired and supported by nature and use, or mimic, natural processes to contribute to the improved management of water. “An NBS uses ecosystem services to contribute to a water management outcome. An NBS can involve conserving or rehabilitating natural ecosystems and/or the enhancement or creation of natural processes in modified or artificial ecosystems.”^[1]

NBS/the principles and methods of ecohydrology will play a central role in the context of the pilot projects to be implemented under project Component 3 and will also be considered and developed under Component 1 (identification and adoption of NBS through the application of the principles and methods of ecohydrology, as part of the TDA process). The concept of ecohydrology has particularly been developed by the European Regional Centre for Ecohydrology of the Polish Academy of Sciences (ERCE, Water-related Category II Centre under the auspices of UNESCO, Lodz), the International Center for Ecology of the Polish Academy of Sciences, UNESCO-IHP, UNEP, and the UN Environment International Technology Centre (Osaka, Japan). In this context, ERCE, in particular, will be a key project partner in the

	<p>development and implementation of Components 3 and 1.</p> <p>Expanding on the PIF, ProDoc Section 4.4:</p> <p>The application of water management solutions inspired by eco-hydrology is strictly interlinked with the conjunctive management of surface and groundwater approach that the project will promote in the Bug and Neman basins region.</p> <p>Shared knowledge and experience on the implementation of NBS/eco-hydrology will be facilitated through the organization of workshops with the participation of decision-makers and water managers, as well as through technical visits of UNESCO-IHP demo sites, such as at the Pilica river catchment (focus in diffuse pollution, EKOROB project demo site), and Lodz (urban area; SWITCH and EHREK project demo sites). This will enable the translation of experiences from SWICTCH/EHREK/EKOROB projects to the context and specific conditions of the Bug and Neman basins, namely based on an in-depth analysis of the pressure and water status in small demonstration catchments.</p> <p>(...)Based on the findings of the TDAs and on a literature review of the application of ecohydrology in environments similar to the one in the Bug & Neman regions, conduct of an assessment of the types of nature-based solutions that might apply to the project area.</p>
<p>E. Component 5 is welcomed and is essentially about knowledge management (KM). But it entirely omits the need for a sub-component dealing with the KM strategy of the project itself, to allow adaptive management and to learn lessons for transfer, and also to inform the GEF about the implementation of TDA/SAP type projects. This lack is also evident in the KM section at the end of the PIF. Please improve this topic, it is really important given the increased</p>	<p>As described in the Project Document, knowledge management will revolve around three main approaches, which constitute the project's knowledge management strategy:</p> <p>1) the knowledge enhancement process leading to the formulation of the TDA that will ultimately produce a number of knowledge tools and</p>

attention to KM in the GEF; see for further advice:
<http://www.stapgef.org/knowledge-management-gef>

communication/dissemination materials. These materials will be widely shared in the region, including through the opportunities for dissemination provided by the UNECE Convention activities and website.

2) Knowledge exchange: the project will aim to leverage and capitalize on the wealth of knowledge and services made available via IW-LEARN, while sharing its lessons learned and results achieved within the IW portfolio. It will also include the participation in relevant regional and international workshops and conferences. The project's legacy will be consolidated in the Project Final Report.

3) Dissemination and awareness raising: the project will include media engagement activities for journalists from the basins (e.g. a press tour) to improve the coverage of environmental issues, as well as increasing interest on environmental issues among the public, environmental authorities and mass media themselves.

Component 5 is therefore fully dedicated to: knowledge management, communication, dissemination, and replication.

Furthermore, knowledge management is a key aspect of the project, and it is directly incorporated into several of the project Outputs. In particular, the knowledge enhancement process leading to the formulation of the TDA will ultimately produce a number of knowledge tools and communication / dissemination materials. These materials produced will be widely shared in the region, including through the opportunities for dissemination provided by the UNECE Convention activities and website. The project will establish its website, following IW LEARN standards, and populate it with progress reports, documents, webinars and other project products. In particular, at least 1% of total project budget will be set aside for knowledge management and information exchange activities organized by IW LEARN and the UNECE Water Convention (e.g. IWC participation, information dissemination through IW LEARN platforms and networks, twinning exercises). Knowledge

	<p>exchange will include the participation in relevant regional and international workshops and conferences (such as GEF International Waters Conferences, World Water Forum, World Water Week). The project’s legacy will be consolidated in the Project Final Report</p> <p>It can also be highlighted that throughout the PPG phase (inception and validation), country representatives have expressed their agreement with project Components, Outcomes, and Outputs, as stated in the PIF and as devolved and expanded in the ProDoc. With regards to STAP comment E for instance, the inclusion of a ‘sub-component’ dedicated to KM was not deemed necessary (i.e. the consensus is the that under Component 5, the Outcomes and Outputs as stated in the PIF and developed in the ProDoc will suffice to fully implement the Component).</p>
<p>F.Please consider revising and extending the Risks section. In addition to the political risk (the only one alluded to), the inclination of various stakeholders to contribute and collaborate may vary across participating countries. Moreover, there are considerable scientific uncertainties (data about the status, knowledge about the response of the involved ecological and hydrological systems to various kinds of interventions/management actions, and others); these may affect the outcomes of the project, and may need suitable risk management strategies. The best option might be to use a simple risk–rating–management strategy table to provide a more adequate risk assessment.</p>	<p>*ProDoc Chapter X dedicated to Risk Management (including risk matrix). PP 84-87.</p> <p>Vis a vis the PIF, the risk section in the ProDoc was expanded.</p> <p>However, scientific uncertainty has not been taken into account as a noteworthy ‘project risk’, in particular given the high level of technical and scientific knowledge and expertise present in the region, and at the disposal of the project. This has been evidenced by the outputs (and profiles) of the experts and practitioners that have contributed to the advancement of PPG phase and to the drafting of the Project Document. In addition, it has been taken into account that sub-surface geology already entails a certain level of intrinsic ‘scientific uncertainty’. This assumption is is well known and understood by the relevant project/PPG stakeholders.</p> <p>Key risks (further developed in Section X of the Project Document) identified by the project proponents are: 1) The potential lack of support to the</p>

	<p>establishment of transboundary cooperation mechanisms, 2) Political instability and institutional fragmentation at national level, and 3) lack of full and sustained political commitment from the four project countries (sharing the relevant aquifers and river basins) in attaining the objectives of the project. No potential ‘social and environmental risks’ as listed in the ‘Social and Environmental Risk Screening Checklist’ (ANNEX E) have been identified by the proponents of the project. Mitigation measures for the risks identified will require: 1) Strong coordination between the Executing Agency and the PCU with national partners in order to anticipate and respond to political developments with potential implications to project support, 2) Trust building through the TDA-SAP process and incentives/opportunities provided by the EU approximation process, and 3) an adaptive approach to project management, and an open line of communication between all key project stewards.</p>
<p>G.Please rework the stakeholders section (best presented as a table), it is important to know what each stakeholder's role and commitment is beyond the obvious ones for the four main ministries cited. There are a number of significant stakeholders alluded to in this section which need to be made more explicit. Key scientific advisory stakeholders are of particular interest to identify when conducting a TDA so that potential gaps can be identified</p>	<p>*Expanded ProDoc Section (4.8) on Stakeholder Engagement: pp 64-71</p> <p>*A detailed account of relevant regional and national institutional stakeholders is also included in the ProDoc (pp: 30-40).</p>
<p>H.In addition to the projects mentioned in the coordination section, STAP recommends that the project includes collaboration with the West Balkans Drina River Basin Management Project (World Bank, GEF ID 5556), which has useful technical design lessons to offer within a parallel watershed EU/non-EU governance context. Additionally STAP suggests that the project seeks not only to foster communication between the two emerging river basin commissions, but in consultation with the participating governments formally invites observers from the Danube ICPDR to participate, at a suitable review</p>	<p>>> Co-benefits, lessons learned, and best practices from a wide range of past and ongoing relevant GEF and non-GEF funded projects will be extracted and mainstreamed into the ‘Bug and Neman’ project, including the WB ‘Drina’ project.</p> <p>>> Project Component 2 (Facilitating the establishment of cooperation mechanisms and institutions among countries sharing the basins and their water resources), the Output 1 of which includes the ‘Preparation of</p>

point, to comment on drafts of technical and governance-related findings generated by the project.

guidelines, outreach documents and awareness raising tools, and terms of reference for the creation and functioning of River Basin Commissions' foresees the following: 'Twinning with other transboundary basin commissions/organizations could be organized, i.e. in the form of visit/s and/or participation in their meetings'.

Germany requests that the following requirements are taken into account during the design of the final project proposal:

- 1) Some of the outcomes should be revised with regard to a precise description of measurable goals (i.e. Outcome 1.1, 2.1, 3.1). Furthermore, it should be ensured that each outcome is matched with a least one output, demonstrating how it shall be achieved (i.e. Outcome 4.1). Generally, the proposed alternative scenario could be elaborated a little further to improve the understanding of the proposed concept (i.e. introduction to ecohydrogeology).
- 2) The section on key stakeholders needs to be revised in order to clearly describe the roles and responsibilities of the main actors.
- 3) The brief risks section should be reassessed to ensure that all risks are addressed.

Please refer to review items (and Executing Agency responses) B, F and G above.

Throughout the PPG phase (inception and validation), country representatives have expressed their agreement with the wording used to describe project Outcomes and Outputs, and with their placement and pertinence under each project Component. After negotiation with the countries, changes in the formulation of Outcomes were not considered necessary. Measurable goals were determined jointly with the countries and are shown in the Project Results Framework.

The ProDoc also contains text that develops and explains the concept of ecohydrogeology (nature-based solutions).

Under Component 4, the second Outcome is linked to several Outputs. This was also agreed on with the project countries. The same is applicable to the 3 outputs that operationalize Outcome 5.1.

Key stakeholders and risks: Vis a vis the PIF, both sections have been agreed upon with the four countries and developed in the ProDoc.

ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS. □

A. Provide detailed funding amount of the PPG activities financing status in the table below: □

PPG Grant Approved at PIF: 100 000 USD			
<i>Project Preparation Activities Implemented</i>	<i>GEF/LDCF/SCCF Amount (\$)</i>		
	<i>Budgeted Amount</i>	<i>Amount Spent To date</i>	<i>Amount Committed</i>
<i>Component A: Preparatory Technical Studies & Reviews</i>	34,000	24,970	-
<i>Component B: Formulation of the UNDP-GEF Project Document, CEO Endorsement Request and Mandatory Annexes</i>	50,000	37,455	-
<i>Component C: Validation workshops and validation workshop report</i>	16,000	24,802	-
<i>Submission to GEF Sec and Approval (Delivery of final outputs)</i>	-	-	12,773
Total	100,000	87,227	12,773

ANNEX D: CALENDAR OF EXPECTED REFLOWS (if non-grant instrument is used) □

Provide a calendar of expected reflows to the GEF/LDCF/SCCF/CBIT Trust Funds or to your Agency (and/or revolving fund that will be set up)

ANNEX E: GEF 7 Core Indicator Worksheet

Use this Worksheet to compute those indicator values as required in Part I, Table G to the extent applicable to your proposed project. Progress in programming against these targets for the program will be aggregated and reported at any time during the replenishment period. There is no need to complete this table for climate adaptation projects financed solely through LDCF and SCCF.

ANNEX F: Project Taxonomy Worksheet

Use this Worksheet to list down the taxonomic information required under Part1 by ticking the most relevant keywords/topics//themes that best describes the project

ANNEX G: Project Budget Table

Please attach a project budget table.

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