



GEF-6 PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: Full-sized Project

TYPE OF TRUST FUND: GEF Trust Fund

For more information about GEF, visit TheGEF.org

PART I: PROJECT INFORMATION

Project Title:	Promoting accelerated uptake of environmental technologies and promotion of best practices for improved water, chemicals, and waste management in the Black Sea basin.		
Country(ies):	Belarus, Georgia, Ukraine	GEF Project ID: ¹	9571
GEF Agency(ies):	EBRD (select) (select)	GEF Agency Project ID:	TBC
Other Executing Partner(s):	To be determined in accordance with EBRD procurement policies	Submission Date:	20/03/2017
GEF Focal Area(s):	Multi Focal	Project Duration (Months)	60
Integrated Approach Pilot	IAP-Cities <input type="checkbox"/> IAP-Commodities <input type="checkbox"/> IAP-Food Security <input type="checkbox"/>	Corporate Program: SGP <input type="checkbox"/>	
Name of parent program:	[if applicable]	Agency Fee (\$)	563,645

A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES²

Objectives/Programs (Focal Areas, Integrated Approach Pilot, Corporate Programs)	Expected Outcomes	Trust Fund	(in \$)	
			GEF Project Financing	Co-financing
IW-2 Program 4	Outcome 4.1 Increased water/food/energy/ecosystem security and sharing of benefits on basin/sub-basin scale underpinned by adequate regional legal/institutional frameworks for cooperation.	GEFTF	1,091,552	5,457,762
IW-3 Program 5	Outcome 5.1 Elimination or substantial decrease in frequency and extend of “dead zones” in sizeable part of developing countries’ LMEs	GEFTF	1,091,553	5,457,763
CW-2 Program 3	Outcome 3.1: Quantifiable and verifiable tonnes of POPs eliminated or reduced	GEFTF	3,750,000	11,250,000
(select) (select) (select)		(select)		
(select) (select) (select)		(select)		
(select) (select) (select)		(select)		
(select) (select) (select)		(select)		
(select) (select) (select)		(select)		
Total Project Cost			5,933,105	22,165,525

¹ Project ID number will be assigned by GEFSEC and to be entered by Agency in subsequent document submissions.

² When completing Table A, refer to the excerpts on [GEF 6 Results Frameworks for GETF, LDCF and SCCF](#).

B. INDICATIVE PROJECT DESCRIPTION SUMMARY

Project Objective: The project will support investments tackling land-based and water based pollution, improve systems for water management in coastal hotspots, water and pollution management in the Black Sea drainage basin, and will aim to improve management of harmful chemicals and waste with particular focus on private sector operations in the eligible countries.						
Project Components	Financing Type ³	Project Outcomes	Project Outputs	Trust Fund	(in \$)	
					GEF Project Financing	Co-financing
1. Targeted policy dialogue and stakeholder engagement	TA	1.1. Stakeholders engaged to expand understanding of pollution reduction technologies	1.1.1. Engagement of private and public stakeholders, to increase their capacity for adoption of advanced environmental technologies 1.1.2. Improved regulatory environment 1.1.3. Knowledge management systems in place and linked to relevant regional organizations, including the Black Sea Commission and sharing of the relevant datasets with the GEF/UNEP project titled "Towards an International Nutrient Management System"	GEFTF	400,000	400,000
2. Pipeline development and implementation support	TA	2.1. Targeted pre-investment and investment cycle support provided	2.1.1. Pipeline of investments defined 2.1.2. Implementation assistance provided for investments	GEFTF	750,000	1,000,000
3. Financing tools and instruments to support accelerated deployment of environmental technologies	Inv	3.1. Measurable reduction of harmful chemicals and wastes (POPs) and of excess nutrients	3.1.1. Adoption of technologies for reduction of POPs and other pollutants 3.1.2. Water treatment infrastructure investments	GEFTF	4,783,105	20,265,525
Subtotal					5,933,105	21,665,525
Project Management Cost (PMC) ⁴				GEFTF	0	500,000
Total Project Cost					5,933,105	22,165,525

For multi-trust fund projects, provide the total amount of PMC in Table B, and indicate the split of PMC among the different trust funds here: ()

³ Financing type can be either investment or technical assistance.

⁴ For GEF Project Financing up to \$2 million, PMC could be up to 10% of the subtotal; above \$2 million, PMC could be up to 5% of the subtotal. PMC should be charged proportionately to focal areas based on focal area project financing amount in Table D below.

C. INDICATIVE SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE, IF AVAILABLE

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount (\$)
GEF Agency	EBRD	Loans	20,165,525
GEF Agency	EBRD	In-kind and from other bilateral and multilateral donors	1,000,000
Donor Agency (select)	Other donors	Grants (select)	1,000,000
Total Co-financing			22,165,525

D. INDICATIVE TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES) AND THE PROGRAMMING OF FUNDS ^{A)}

GEF Agency	Trust Fund	Country/Regional / Global	Focal Area	Programming of Funds	(in \$)		
					GEF Project Financing (a)	Agency Fee (b) ^{b)}	Total (c)=a+b
EBRD	GEFTF	Black Sea Basin	International Waters	(select as applicable)	2,183,105	207,395	2,390,500
EBRD	GEFTF	Black Sea Basin	Chemicals and Wastes	POPS	3,750,000	356,250	4,106,250
(select)	(select)	(select)	(select)	(select as applicable)			0
(select)	(select)	(select)	(select)	(select as applicable)			0
Total GEF Resources					5,933,105	563,645	6,496,750

a) Refer to the [Fee Policy for GEF Partner Agencies](#).

E. PROJECT PREPARATION GRANT (PPG)⁵

Is Project Preparation Grant requested? Yes ☒ No ☐ If no, skip item E.

PPG AMOUNT REQUESTED BY AGENCY(IES), TRUST FUND, COUNTRY(IES) AND THE PROGRAMMING OF FUNDS

Project Preparation Grant amount requested: \$250,000					PPG Agency Fee: \$27,000		
GEF Agency	Trust Fund	Country/Regional/Global	Focal Area	Programming of Funds	(in \$)		
					PPG (a)	Agency Fee ⁶ (b)	Total c = a + b
EBRD	GEFTF	Black Sea Basin	International Waters	(select as applicable)	100,000	9,500	109,500
EBRD	GEFTF	Black Sea Basin	Chemicals and Wastes	POPS	150,000	14,250	164,250
Total PPG Amount					250,000	23,750	273,750

⁵ PPG requested amount is determined by the size of the GEF Project Financing (PF) as follows: Up to \$50k for PF up to \$2m (for MSP); up to \$100k for PF up to \$3m; \$150k for PF up to \$6m; \$200k for PF up to \$10m; and \$300k for PF above \$10m. On an exceptional basis, PPG amount may differ upon detailed discussion and justification with the GEFSEC.

⁶ PPG fee percentage follows the percentage of the Agency fee over the GEF Project Financing amount requested.

F. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS⁷

Provide the expected project targets as appropriate.

Corporate Results	Replenishment Targets	Project Targets
1. Maintain globally significant biodiversity and the ecosystem goods and services that it provides to society	Improved management of landscapes and seascapes covering 300 million hectares	<i>Hectares</i>
2. Sustainable land management in production systems (agriculture, rangelands, and forest landscapes)	120 million hectares under sustainable land management	<i>Hectares</i>
3. 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	Water-food-ecosystems security and conjunctive management of surface and groundwater in at least 10 freshwater basins;	<i>1 Number of freshwater basins</i>
	20% of globally over-exploited fisheries (by volume) moved to more sustainable levels	<i>Percent of fisheries, by volume</i>
4. Support to transformational shifts towards a low-emission and resilient development path	750 million tons of CO _{2e} mitigated (include both direct and indirect)	<i>metric tons</i>
5. Increase in phase-out, disposal and reduction of releases of POPs, ODS, mercury and other chemicals of global concern*	Disposal of 80,000 tons of POPs (PCB, obsolete pesticides)	<i>300 – 500 metric tons⁸</i>
	Reduction of 1000 tons of Mercury	<i>0 metric tons</i>
	Phase-out of 303.44 tons of ODP (HCFC)	<i>ODP tons</i>
6. Enhance capacity of countries to implement MEAs (multilateral environmental agreements) and mainstream into national and sub-national policy, planning financial and legal frameworks	Development and sectoral planning frameworks integrate measurable targets drawn from the MEAs in at least 10 countries	<i>Number of Countries:</i>
	Functional environmental information systems are established to support decision-making in at least 10 countries	<i>Number of Countries:</i>

*This project will also result in the transfer of advanced environmental technologies to markets in which they have not achieved significant penetration to date. As such this project will also contribute to the achievement of Outcome 1.2 and Indicator 1.2 of the Chemicals and Waste Focal Area Objective 1 (ref p 101 of GEF-6 Programming Directions) as follows:

Program Objective	Indicator	Project Targets
7. Develop and demonstrate new tools and regulatory along with economic approaches for managing harmful chemicals and waste in a sound manner	Innovative technologies are successfully demonstrated, deployed and transferred	<i>3 technologies demonstrated, deployed and transferred</i>

⁷ Provide those indicator values in this table to the extent applicable to your proposed project. Progress in programming against these targets for the projects per the *Corporate Results Framework* in the [GEF-6 Programming Directions](#), will be aggregated and reported during mid-term and at the conclusion of the replenishment period. There is no need to complete this table for climate adaptation projects financed solely through LDCF and/or SCCF.

⁸ The target has been developed taking into consideration the focus of this project on technology transfer to private and sub-sovereign entities to reduce the production and use of POPs in supply chains as well as to eliminate existing stockpiles. The proposed approach is intended to lead to generate additional reductions beyond the immediate time period of this project.

PART II: PROJECT JUSTIFICATION

1. *Project Description.* Briefly describe: 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 area⁹ 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) innovation, sustainability and potential for scaling up.

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

Global environmental problems and the EBRD region

EBRD countries of operations began their transition with a significant handicap, carrying the communist era's legacy of widespread environmental neglect and wasteful use of resources. In spite of significant capital stock transformation during the past 25 years and associated improvements, environmental standards are still generally poor. Market failures to internalise and monetise the cost of environmental damage have exacerbated this situation. Accordingly, there is a need for fast and material changes in an economic space where markets are currently weak or non-existent. Externalities are large, global and intergenerational. Environmental impacts are cumulative and non-linear. Like other aspects of transition, the shift to an environmentally sustainable economy is also centred on the transformation of markets, behaviours, products and processes, deployment of technologies and new skills. Given the significance of early mover, information, network and capital markets externalities, activities that help remove such failures and foster green innovation bring the market closer to efficiency.

The region has taken important steps to reduce environmental degradation with noticeable results in terms of improved urban air quality, the phase-out of ozone-depleting substances, a larger use of renewable sources of energy, improved water management and increased coverage of protected areas. Most Governments of the region are signatories or parties to the major global and regional environmental and climate change conventions and protocols. Overall, tangible progress has been made in integrating the sustainable development dimension into policymaking in key sectors such as agriculture, transport and housing, reducing carbon dioxide (CO₂) emissions, increasing energy efficiency and strengthening the sustainable management of forests. Despite the above, the growth in incomes has been associated with deterioration in key environmental indicators, so much so that the pan-European region has the highest ecological footprint compared with the rest of the world. Indeed, most countries in the region are running a bio-capacity deficit, i.e., they use more resources than they have in their territories and the capacity of natural capital and ecosystems to sustain the delivery of goods and services is being undermined.

From a water perspective, the EBRD region has some of the most water stressed countries in the world. The average water stress measure for the EBRD region as a whole is 21% whereas the EU average is around 15%. Various factors impede progress in the water sector, including inadequate regulatory and incentive frameworks (low tariffs and insufficient collection of payments for water services), low awareness across a wide range of stakeholders and lack of financial resources to extend or maintain the infrastructure. Coherent financial and investment policies to address water supply and sanitation are often lacking, as are resources to sustain infrastructure at the local level and maintain existing centralised systems. In many countries, more than 30% of water is lost in transfers from supply sources to consumers, such as in open water canals. Access to quality and affordable water services is also an issue as an increasing number of persons are not able to afford the price of water at full cost recovery, especially if costs charged include collection and treatment of wastewater. Social measures often are ineffective and poorly targeted.

All of the predominant countries that are pollution sources for the Black Sea are EBRD countries of operation – in particular those covered within the project of Belarus, Georgia, and Ukraine. Within these countries, as discussed later in the text and in Annex C, there are major point and non-point

⁹ 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.

sources of pollution which lead to high levels of nutrient pollution of waterways leading to the Black Sea. This pollution can often be linked to the structures of socialist-era industry, agriculture, water, and waste systems wherein environmental protection and resource efficiency was not fully considered. The subsequent collapse of economic systems has led to a structural lack of environmental enforcement, management, and financing capabilities for pollution reduction. These structural deficiencies continue today in most of these countries, leading to significant ongoing pollution. Though there are some trends towards pollution reduction, there is also a significant ongoing risk that the pollution reduction measures are not sufficient to meet the challenge.

On the whole, the EBRD region of operations continues to face significant environmental and resource efficiency challenges. While a number of countries experienced a significant improvement in materials consumption and resource productivity since 1995, resource productivity in the EBRD region of operations, in PPP terms, remains half of that in the EU-15¹⁰. There are compelling reasons for COOs to improve productivity and decrease their resource intensity as there is a strong positive correlation between material intensity (including use of chemicals and generation of waste) and international competitiveness.

EBRD track record in addressing global environmental concerns

The promotion of environmentally sound and sustainable development in the full range of investment and technical cooperation activities has been intrinsic to the Bank's mandate from its founding. EBRD has been an active contributor to the United Nations' sustainable development agenda and programme through the Rio, Johannesburg and Rio +20 processes. The commitment to sustainable development is embedded in the Bank's constitutive documents and operations, including in the Environmental and Social Policy (ESP) of the Bank, and in its sector strategies. In line with the ESP, the Bank has developed advanced operational approaches to scale-up its sustainable energy activity under the Sustainable Energy Initiative (SEI) and is developing its activity in water and materials efficiency under its Sustainable Resource Initiative (SRI). The cumulative track record in sustainable energy and resource efficiency is well distributed regionally and as of March 2016 was:

- EBRD financing of €19.5 billion, in 1095 projects;
- SRI water and materials efficiency related annual bank investment of €821 million in 2013 and 2014; and
- €792 million invested between 2011 and 2015 in climate resilience/adaptation measures in 124 Bank projects.

The average SRI/SEI share in the annual business volume of the Bank was as high as 30% in 2015 and the Bank has set itself a target of 40% in 2020 as part of its recently announced Green Economy Transition strategy. This increase is to be achieved by, among other activities, scaling up current operations and expanding the range of environmental interventions to be financed by the Bank, such as activities in pollution prevention and control, environmental remediation, sustainable agriculture and clean manufacturing. The Bank will aim to build on its track record and experience from already established programmes such as FINTECC (cofinanced by the GEF) or Near Zero Waste (NOW, cofinanced by the CTF) in order to tackle barriers to deployment of best available technologies and practices, and to accelerate the uptake of advanced environmental technologies.

Improving the quality of water supplies and sanitation facilities, safeguard of water sources, their distribution and associated environmental protection are key elements of the EBRD's work in municipal and environmental services sector. Urban population growth, industrialisation and the effects of climate change are creating new challenges. Improving water supply and sanitation in urban areas requires major investments, supported by sound policies and effective, accountable institutions. The Bank is also addressing environmental and social issues and improving the financial and budgetary sustainability of the municipal sector by focusing on certain goals including: (i) increasing the number of people with access to affordable, drinkable tap water, (ii) decreasing water losses from water supply systems, (iii) decreasing the amount of untreated sewage discharged into watercourses, (iv) increasing energy efficiency in the water and wastewater sector, and (v) improving the regulatory and enforcement capacity of public sector bodies. The EBRD aims to achieve long-term sustainability through the application of market-based approaches and instruments, creating sustainable urban infrastructure

¹⁰ SERI, 2011

and services, attaining environmental and social sustainability, achieving financial and budgetary sustainability and gradually transitioning towards an energy efficient, low carbon economy.

Investments in the waste sector have supported improved waste management through interventions across the entire waste management value chain, from the creation of integrated waste management systems and the rehabilitation or remediation of existing landfills to the construction of new landfills in accordance with EU Waste Directives and the acquisition of new waste management infrastructure. Between 2013 and 2015 the investment in the water, wastewater and waste has accounted for EUR 1.8 billion across 111 projects, resulting in water savings of 33 million m³ per annum and reduction of 1.1 million tonnes of waste across private, municipal and public sector.

The role of donors is critical to the success of municipal and environmental infrastructure investments across the region. Technical cooperation grant funds promote project implementation and institution-building, while investment grants are provided in specific regions to address both affordability constraints by reducing the need for extensive tariff increases and to accelerate adoption of high environmental standards. In addition, the EBRD also addresses water and waste water management opportunities in the corporate sector. The EBRD and GEF have previously piloted innovative financing facilities jointly to address chemicals and water pollution issues in the past, namely the GEF-EBRD Environmental Credit Facility in Slovenia from 2003-09.

Black Sea context

The Black Sea basin is home to some 160 million people which make up approximately half of Eastern Europe's population. The Black Sea itself is burdened by excessive loads of nutrients and hazardous substances from the coastal countries and the rivers that enter it. Pollution inputs and other factors have radically changed Black Sea ecosystems beginning around 1960, and seriously threaten biodiversity and the use of the sea for fishing and recreation.¹¹ In particular, the presence of excessive nutrient loads lead to the sea's eutrophication, resulting in algal blooms that block the penetration of sunlight, while also depleting the oxygen level in the benthic zone due to decomposition of algae biomass. Consequently, nutrient enrichment leads to significant loss of marine flora and fauna and other species that depend on them. This has had significant adverse impacts on the biodiversity of the Sea; for example, in 1960 there were around 26 commercial fish species, while now there are only five or six. The Black Sea Commission is currently in the process of adopting protocols for tracking various species (including invasive and endangered species).

Inputs of insufficiently treated sewage result in the presence of microbiological contaminants, which constitute a threat to public health and in some cases pose a barrier to the development of sustainable tourism and aquaculture. An estimated 70 per cent of the Black Sea's surface water contains pathogenic bacteria.

With six littoral countries and a further ten countries present in its drainage basin, the Black Sea and the surrounding basin is recognised as a significant global environmental challenge. Additionally, the Black Sea is highly sensitive to anthropogenic impacts due to the huge catchment area (around 2 million km², five times the surface of the Black Sea itself) and almost landlocked nature. Together, these challenges led to the signing of several multilateral instruments, notably the Convention on the Protection of the Black Sea Against Pollution in 1992 and the Convention on Co-operation for the Protection and Sustainable Use of the Danube River in 1994. These multilateral governance arrangements reinforce the Black Sea basin's status as a global environmental issue.

¹¹ Based on the Strategic Action Plan for the Environmental Protection and Rehabilitation of the Black Sea. Adopted in Sofia, Bulgaria, 17 April 2009: <http://www.blacksea-commission.org/bssap2009.asp>



Figure 1: black sea basin Countries targeted in proposed project

International Waters

Related to international waters, in general, the region has a problem of water pollution due to industrial point-source pollution – including wastewater treatment plants – and non-point source pollution from agricultural activities and non-treated municipal water waste.¹² Regarding the status of the eutrophication levels, Luminate et al. (2015) conducted research concerning the pollution status of the Black Sea region and noted that climate factors and anthropogenic impacts which are more pronounced in coastal and shelf waters, could easily result in quality shifting to one extreme state (poor or high). This study, neglecting the atmospheric deposition and other diffuse sources, identified the main pathways of nutrients to the Black Sea as riverine inputs, direct discharges from coastal point sources and excess nutrients stored in bottom sediments which can enter into water.

Figure 3 shows recent updates from the Black Sea Commission resulting from the Black Sea eutrophication integrated assessment. The Red colour represents a bad condition of water quality, yellow is for moderate and green is for good water quality. It is clear that coastal area of Romania and Ukraine have the worst water quality concerning eutrophication – with Georgia also having moderately bad quality.

¹² See Annex B for additional information on major sources within each country targeted by the project. Many of the point-sources of pollution are described in the report by project Hot Black Sea (2015) Black Sea Hot Spots Verification and Update – available at <http://bs-hotspots.eu/Documents/Deliverables/HS%20Lists%20Update%20Report%20Final.pdf>

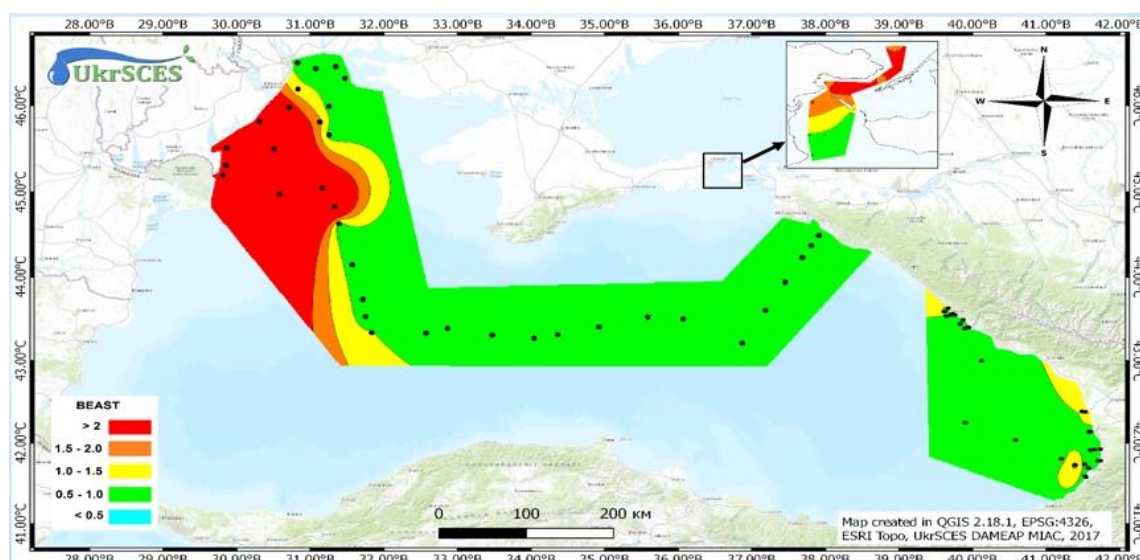


Figure 2 Black Sea eutrophication integrated assessment – water quality

Source: Environmental Monitoring in the Black Sea (February 2017) “Eutrophication - nutrients levels, land-based sources in GE, RF, UA and the Black Sea eutrophication integrated assessment – results of application of the BEAST tool”

The Black Sea ecosystem continues to be threatened by local pressures coming from the coastal zone and by more indirect pressures from activities based inland (such as nutrient pollution pressures and in-land point pollution sources) but reaching marine waters via rivers entering the Black Sea, in particular (i) from the west via the Danube river, which passes through Bosnia and Herzegovina and Serbia and enters the Black Sea, (ii) from the north-west via the Dniester and Cogilnik Rivers which pass through Moldova and Ukraine, and (iii) from the north via the Dnieper river which passes through Belarus and Ukraine and which is one of the key focuses of this project. In Georgia, this pollution is reported to be causing large-scale microbiological and other contamination, damaging the country's tourism industry, and posing significant human health risks to those living in coastal areas resulting in illnesses such as diarrhea and hepatitis A which are widespread in the area.¹³ These pressures on water quality can be divided into three major categories:

- **Industrial emissions** from factories which either do not treat their waste streams or do not implement Best Available Techniques (BATs)/ Best Environmental Practices (BEPs);
- **Agricultural and forestry run-off and emissions** related mostly to fertilizer and pesticide usage; and
- **Municipal wastewater discharge** which goes untreated in many municipalities and only partially treated in others.

Focusing on littoral countries, the Strategic Action Plan for the Environmental Protection and Rehabilitation of the Black Sea identifies high pollution from municipal and industrial operations in Georgia as a key contributor to Black Sea pollution, while the agriculture and municipal sectors are critical contributors in Ukraine. Each of the countries in the project will need to reduce pollutants from each of these various pollution sources. More information on the sources of water pollution in the targeted countries is included in Annex C.

Eutrophication caused by nutrient disposal is one of the key drivers of the Black Sea pollution and dead zone development. According to the Borysova et al (2015), the main anthropogenic sources of the nutrient pollution are agriculture 80% and wastewater 15%. It is apparent that pollution is heavily driven by agriculture, a major non-point source activity in the Black Sea region. According to Higgins et al. (2014) the Danube River is responsible for 70% of the nutrient pollution of the northwestern shelf of the Black Sea – which is the most polluted part. Agriculture is still major activity and source of income in the lower Danube countries where EU nations in the Black Sea catchment received a total of almost EUR 32 bn paid through the Common Agricultural Policy (CAP) between 2008 and 2010. This shows an extent of the nutrient input in the Black Sea ecosystem.

¹³ See UNEP (2014) Black Sea in Pollution Crisis: Georgian Communities Take Action
<http://www.unep.org/newscentre/Default.aspx?DocumentID=2797&ArticleID=10960&l=en>

Figure 2 shows the main hot spots and river run-off in the Black Sea and additional information on the location and nature of hot spots is found in Annex C.

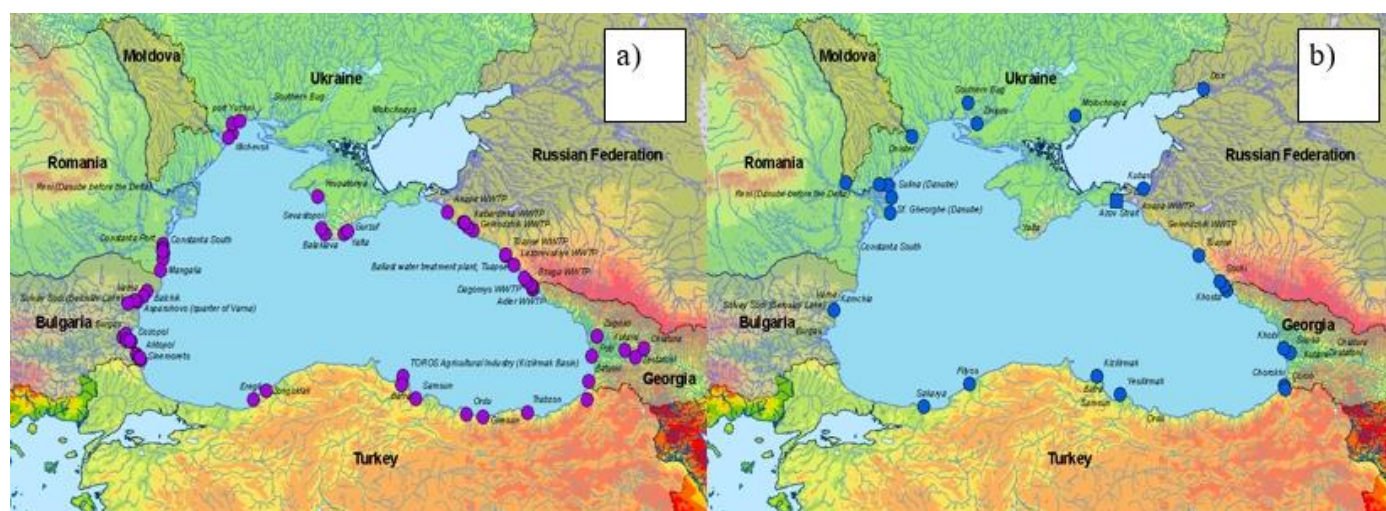


Figure 3 Main land-based sources of the Black Sea “hot spots” (a); river run-off (b)

Source: *Environmental Monitoring in the Black Sea (February 2017)* “Eutrophication - nutrients levels, land-based sources in GE, RF, UA and the Black Sea eutrophication integrated assessment – results of application of the BEAST tool”

According to O’Higgins et al. (2014)¹⁴ eutrophication leads to the collapse of the larger, higher value species. The major fisheries currently being exploited in the Black Sea are those for small pelagic species, anchovy and sprat. For example effects of the nonindigenous comb jelly *Mnemiopsis leydi* (partly due to eutrophication) reduced the profits of Black Sea anchovy fishery from over USD 17 million per year to under USD 300,000, illustrating the sensitivity of the sector to the eutrophication impacts.

Furthermore, the tourism and health sectors are also impacted by eutrophication. Borysova et al. (2005)¹⁵ states that degradation in the environmental quality of the sea water led to the losses of more than USD 500 million in 2005 in the tourism sector. There are two negative externalities on health sector. First, water with the presence of the high amount of the organic matter is very difficult to treat and during the process very harmful compounds can develop, such as carcinogenic and chlorinated compounds as well as ozonides. Second, the presence of the cyanobacteria can lead to the increase of toxic compounds in the water which can be harmful for humans.

Related to trends, according to Stokal and Kroeze (2013) the GDP has increased in the Black Sea region by 40% since 1970 with the population having almost doubled. At the same time, the population connected to the sewage system has increased significantly. This is associated with substantial increases in total nitrogen and phosphorus inputs to watersheds from human waste and detergents in the South Black Sea region and a slight increase in the North Black Sea region over the period of 1970 and 2000. This has led to the significant increase in the total nitrogen and phosphorus dissolved in the Black Sea.

Figure 4 shows the results of modelling provided by the Black Sea Commission on future Black Sea basin water quality scenarios. To date, recovery from eutrophication has been partial. GDP is projected to continue to increase from 2000 to 2050, and per capita GDP has been increasing fastest in the North Black Sea basins. The baseline Global Orchestration scenario¹⁶ predicts the most rapid growth of the GDP and thus increase of the

¹⁴ O’Higgins, T., Farmer, A., Daskalov, G., Knudsen, S., Mee, L. (2014) Achieving good environmental status in the Black Sea: scale mismatches in environmental management. *Ecology and Society* 19(3): 54.

¹⁵ Borysova, O., Kondakov, A., Paleari, S., Rautalahati-Miettinen, E., Stolber, F., Daler, D. (2005) Eutrophication in the Black Sea region Impact Assessment and Casual Chain Analysis. University of Kalmar.

¹⁶ The Global Orchestration scenario depicts a globally-connected society in which policy reforms that focus on global trade and economic liberalization are used to reshape economies and governance, emphasizing the creation of markets that allow equal participation and provide equal access to goods and services.

urbanization across the Black Sea region. This will increase or at best maintain the high level of dissolved nitrogen and phosphorus in the Black Sea. The same authors used ICEP (The indicator for coastal eutrophication potential) to assume eutrophication potential of the region. They calculated relatively high potentials for coastal eutrophication for rivers draining into the North Black Sea and the Azov Sea, indicating a high potential for coastal eutrophication. It is also important to emphasise the fact that while currently there is little eutrophication in the South Black Sea, this may change in the future because of the projected increases in nutrient inputs from rivers that are difficult to control.

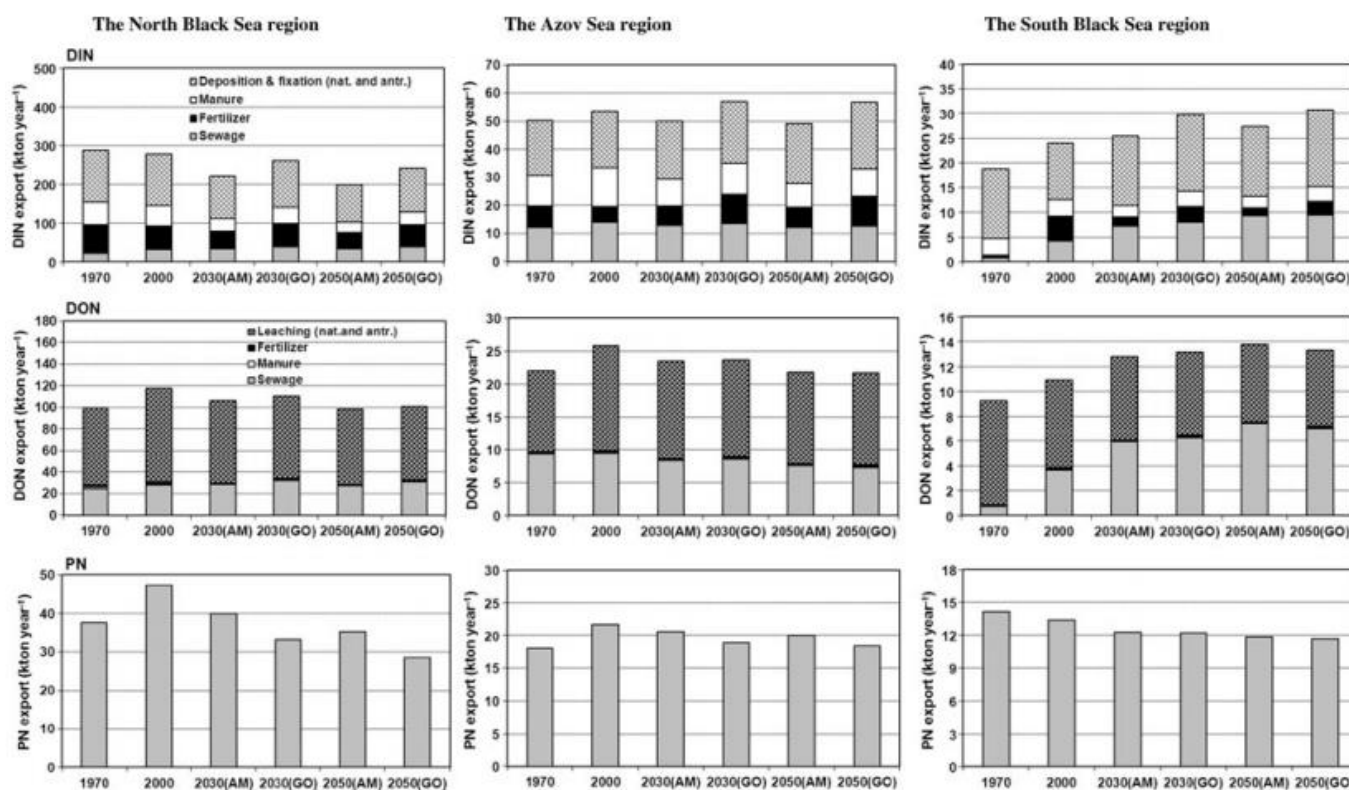


Figure 4: Modelled export of dissolved inorganic (DIN) (Row 1), dissolved organic (DON) (Row 2) and particulate (PN) (Row 3) nitrogen by rivers that drain to coastal waters of the three Black Sea regions: the North Black Sea, the Azov Sea and the South Black Sea and nitrogen sources. DIN, DON and PN export are calculated for the past (1970 and 2000) and future (2030 and 2050) and expressed in kton per year.

Chemicals and Waste

Linked to the issues of water pollution outlined above, there are challenges observed in Belarus, Ukraine and Georgia with chemicals in the form of POPs and heavy metals, and pollution related to e-waste generation and disposal. As noted in the National Implementation Plans for the Stockholm Convention in the various countries, there are major issues with solid waste management cutting across countries in that the systems are disorganized, mostly do not utilise appropriate protocols for chemical waste, and often have uncontrolled combustion processes (i.e. open burning). Related to chemicals, this is particularly problematic with regards to:

- Plastics (PVC especially) which are often burned and can lead to emissions of POPs;¹⁷
- Disposal of e-waste – of which there are estimated to be over 300,000 per year in total over the 7 countries targeted by the project.¹⁸ This waste is not generally carried out in a systematic or appropriate manner in the region. E-waste can contain POPs (especially PCBs) and a host of other chemicals¹⁹

¹⁷ The incineration of PVC can lead to the emission of POPs – see <http://www.pvc.org/en/p/pvc-incineration-dioxins>. Annex B goes into detail about sources of unintended POPs in the various countries targeted by the project. One of the main sources is the burning of waste.

¹⁸ Annex B has country-level detail on e-waste.

¹⁹ See <http://ewasteguide.info/hazardous-substances>.

The level of supply chain management and sound management of chemicals in the operation of companies and their supply chain still lags behind EU standards. There are a number of POPs present or produced as by-products of industrial activities in each country which will require investment to eliminate, prevent, or dispose of properly. These have predominantly been identified via National Implementation Plans (NIPs) for the Stockholm Convention. There are significant stocks of POPs containing materials which need to be properly stored, disposed of, or recycled.

Based on the inventories from the various NIPs, it is estimated that there are at least 13,000 tonnes of POPs or POP-containing materials in the countries of the project. The review of NIPs highlighted however that private sector engagement in the issues of POPs is limited and there is limited information on emissions of chemical wastes in many industries.

The eligible countries have banned import, export and use of pesticides listed in the Stockholm Convention, however the existing stocks are often kept in substandard facilities, often in storehouses of agricultural entities. While the targeted countries never produced PCBs, these chemicals have been used extensively in the electrical equipment and their phase-out is ongoing (and PCBs are still in use especially in the electricity distribution systems). The countries are phasing-out the use of PCBs, but the phased out equipment is often stored in substandard conditions resulting in leakages.

One of the key issues related to POPs – both dealing with existing POPs and production of unintended POPs – is solid waste management – which is generally ineffective, lacking adequate quality and size of infrastructure, leading to increased levels of harmful chemicals in the environment. This issue is consistently a problem across all three countries that form part of this proposal, in particular with regards to recycling of plastics (PVC especially), and disposal of e-waste. It is not uncommon for various toxic chemicals to be burned in open fires – resulting in their release into the environment. Existing waste management infrastructure in the targeted countries is largely insufficient to cover the country's needs and lags behind its EU neighbours. Along with the countries' growing demand for goods, the level of waste generation is increasing. This results in significant waste management challenges.

At the same time, some industrial processes result in unintended POPs. Ferrous and non-ferrous metal production and power/heat production from coal are also important sources in the target countries. For more information on the current stocks and sources of POPs in the target countries in Annex B.

The result of these pollution sources is that there are relatively high contamination levels of some pesticide, heavy metals and PCBs, which are present at specific sites in the Black Sea and surrounding basin, with illegal dumping/discharges (particularly of agrochemicals) being recognised as a particular problem. The historically poor enforcement of discharge standards and a failure to consider the Sea itself as a receiving water body for discharges to river are considered to be the principal reasons underlying the pollution status of the Sea.

Barriers that need to be addressed

As is evident from the above, the Black Sea water basin is facing multiple challenges related to pollution from inadequate water, waste, and chemicals management. Processes that result in the production, consumption and storage of chemicals and waste occur in many countries in the basin, in multiple economic sectors. This creates challenges for designing effective interventions that meet multiple water, waste and chemical management objectives whilst being tailored to the economic, technical and operational characteristics of the countries and sectors being targeted. The EBRD has been working with the private and municipal sector in the targeted countries since its establishment, with a specific focus on promoting environmental sustainability and best practice. The experience of the EBRD shows that there are substantial challenges being faced by corporate and municipal sector in the targeted countries in terms of sound water resource management, chemicals and waste management and elimination of hazardous waste.

Environmental goods and services are particularly exposed to different forms of market failures, in comparison with other categories of goods and services available to societies. In the absence of correct market signals, private agents will be deterred to invest in certain area where returns are low. Innovation suffers from other market

failures such as network, early mover, and capital market failures. These need to be overcome to allow transition to happen. Also, governments will generally be reluctant to approve and enforce an environmental regulation until they are convinced of the practical, technical and economic benefits.

In terms of water and waste water management, local financial products are not tailored to accommodate projects in which environmental outcomes are a predominant objective. Additionally, current and anticipated regulatory obligations do not provide sufficient incentive for municipal and private sector actors to invest in environmental technologies. These challenges are compounded by a lack of awareness of compliance obligations, best alternative technologies and best environmental practices, and a lack of capacity to assess the feasibility of such technologies/practices.

The development of National Implementation Plans under the Stockholm Convention has encouraged the identification and prioritization of specific chemicals management and waste management needs. However, it has at the same time highlighted gaps in capacity, institutional frameworks, information exchange and the mobilization of finance. Particularly, there is a lack of involvement of the private sector related to information exchange – with many industries lacking systematic tracking of POPs. While funding for the preparation of National Implementation Plans has been widespread amongst implementing countries, funding for implementation is not as advanced which necessitates private sector involvement.

The fragmentation of international responses (e.g. Basel, Rotterdam, Stockholm and Minamata Conventions and the Montreal Protocol) to inter-related pollutant management issues has been acknowledged and presents challenges for countries to implement an efficient, integrated and fully-financed response. At a national level, regulatory frameworks to address the issues are underdeveloped and fail to implement effective instruments to disincentivise pollution. Furthermore, issues of capacity to access financing are as prevalent as the availability of adequate financing. While it is recognised that leveraging additional funding from the private sector is essential to meet the costs of implementation of the Stockholm Convention in developing countries, private sector involvement to date in adopting water, waste and chemical management best available practices has been limited.

As noted in the Danube Declaration of 2016, thanks to targeted interventions in the past seven years the total nitrogen emissions to the Black sea have slightly decreased by 12%, while the total phosphorus emissions declined by 34%. The loads to the Black Sea have therefore declined considerably but are still higher than those of the early 1960s. Consistent with the objectives of the International Commission for the Protection of the Black Sea, additional investments are needed to recover the ecosystem to conditions similar to those observed in the 1960s.²⁰

At this stage of project preparation, the total carrying capacity of the Black Sea ecosystem in terms of nutrient pollution was unavailable. It should be noted that the system is generally vulnerable to rapid changes in the environment due to a combination of climate and nutrient pollution which can result in rapidly deteriorating environmental conditions (and eutrophication). Given that future trends are predicted to have a relatively stable level of pollution (see Figure 4), it is therefore important to reduce the nutrient load through an investment programme such as that which is proposed within this project. It is also worth noting that during project preparation, it is expected that the Black Sea Commission will complete a number of activities related to monitoring of pollution levels which will provide more data on the carrying capacity of the Black Sea ecosystem.

Together, the barriers to investment in water, waste and chemicals technologies and management in the target countries can be summarised as follows:

²⁰ Danube Declaration 2016, <https://www.icpdr.org/main/sites/default/files/nodes/documents/danube-declaration2016.pdf>.

Table 1: Barriers to investment in improved water, waste and chemicals technologies and management practices in target countries

Barrier category	Barrier description
Capacity, awareness and technical	<p>Lack of reliable up-to-date baseline information on best available technologies and their market penetration: There is limited availability of reliable information and baseline data on pollution levels, inventories of polluters (including nutrients and POPs), market penetration of different technologies and sectors. This limits the ability of both private sectors and policy makers to make well-informed decisions and weakens the investment case for prospective environmental technology projects. This presents barriers both at a regional and national level for policy-makers, as well as at the business owner level about the baseline impacts of water and fertiliser use at individual facilities, which may not be measured or managed on a regular basis.</p> <p>Knowledge of Best Available Techniques (BATs)/ Best Environmental Practices (BEPs): There is generally a lack of knowledge on environmental technologies, their costs, benefits, and how to implement projects to reduce water pollution, and minimize the use and production of harmful chemicals in the targeted countries. This is further compounded by a lack of capacity to assess these considerations, particularly the energy and water efficiency potential of specific technology investments. In terms of nutrient pollution, common current practices often include inappropriate use of fertilisers and inefficient irrigation techniques, and barriers to alternatives include:</p> <ul style="list-style-type: none"> • Resistance to change established and entrenched natural resource management practices • Lack of understanding about the roles and responsibilities of all stakeholders in the water supply chain • Lack of knowledge and understanding of the causes and wider consequences of soil and nutrient run-off <p>High perceived risk: Some of the practices and technologies – particularly those related to resource efficiency - are considered innovative, and are perceived as having higher implementation risks than more proven or established practices and technologies. In terms of specific technical solutions, there is often a lack of competition among technology suppliers which (together with the lack of demonstration projects in the country) results in high prices and limited availability of technology solutions.</p>
Financial	<p>Limited availability of suitable financial products: Conventional finance sources such as those provided by local banks are often unsuitable as local banks often do not have the technical expertise to appraise environmental technology projects that often have high upfront investment costs. For municipalities in particular, access to suitable financial products is a limiting factor.</p> <p>Weak incentives: Environmental technology investments are not prioritized as they are perceived to have no impact on (or have limited impact on) cash flow. The resulting improved environmental performance is not recognized as part of the competitive advantage of companies. In some countries, the absence of regulatory drivers there is a lack of financial incentives to promptly implement environmental technologies with performance beyond regulatory requirements. This is widespread related to POPs and relevant for nutrient pollution where enforcement of pollution fee systems is either non-existent or insufficiently enforced. Specifically for nutrient pollution, the lack of cost-reflective water pricing creates disincentives for agricultural producers and processors to invest in water saving practices/processes that could reduce at the same time reduce nutrient input into water resources.</p> <p>Transaction costs: Lack of adequate familiarity of companies with performance of environmental technologies and processes results in high transaction costs, due to lack of familiarity and experience with preparing projects to adopt these technologies/practices. Additional costs can arise from feasibility studies, laboratory testing or temporary installation of monitoring equipment, implementation support, needs for process shut down to install relevant technologies or deploy relevant practices.</p> <p>Affordability: The introduction of innovative and advanced – and in most cases more capital intensive – technologies is hindered by affordability considerations, especially if the cost is transferred to the final user of the services such as businesses, which is typically the case in municipal and general infrastructure sector investments.</p>
Institutional, policy, legal and regulatory	<p>Lack of cross-sectoral cooperation and partnerships: Lack of established communication channels within and between sectors, national boundaries, and institutions undermines the development and consolidation of regional knowledge and regionally appropriate best practices across different sectors. The dispersed nature of non-point agricultural pollution means that disseminating best-practice approaches to controlling water pollution is hindered by a lack of continuous and effective knowledge-exchange forums and opportunities.</p> <p>Uncertainty in the current and future legal and regulatory environment: The current regulatory</p>

Barrier category	Barrier description
	environment does not provide the full incentives for environmental technology investments. This is particularly the case in BiH, Georgia, and Belarus, where related to nutrients there are limited policies to deal with pollution using financial tools – either via pollution permits or required fees for pollution. Uncertainties about the upcoming EU regulation and directives to be implemented during EU accession talks do not provide sufficient incentive for businesses to invest in anticipation of future regulation.

Considering the extent and impact of barriers and market failures in the environmental area, the EBRD is acting in two major ways:

- (i) to pursue an ***active policy dialogue*** and reform agenda to address these market failures, which involves working with governments to improve the policy and legal environments, enabling markets to estimate costs and benefits correctly and hence creating a level playing field for all technologies and practices; and
- (ii) to use grants and other ***economic incentives*** to play a compensating role, recognising that the reforms needed for the resolution of these market failures may take long and require financial support to be effective. EBRD's role is to help ensure that incentives are only used if they are an efficient way of correcting markets to ensure a level playing field. When properly designed, concessional funding supports innovative environmental investment growth in key sectors and countries and enables the Bank to provide new products to its clients and develop new markets. This is in line with the efforts made by many other developing regions in the world which see the low carbon and green economy transition as a source of long-term comparative advantage and competitiveness.

As in other cases of successful initiatives, environmental transition is best promoted through a combination of investment, technical assistance, institutional reform and policy dialogue.

Additional work within the Project Preparation Phase will be carried out to identify and prioritise specific current stocks of POPs, waste water discharge points, and non-point pollution sources where investment resources would be most effectively deployed.

2) The baseline scenario or any associated baseline projects

Over recent years there have been extensive management conventions, commissions and action plans which aim to ensure the sustainable and equitable use of the Black Sea and Black Sea basin. These initiatives encompass multiple water, chemicals and waste management objectives and include:

- The Convention on the Protection of the Black Sea Against Pollution (adopted in 1992) and its Protocols, and its implementing agency, the Black Sea Commission;
- The Strategic Action Plan for the Environmental Protection and Rehabilitation of the Black Sea (adopted in 2009), and
- The Danube River Protection Convention and its implementing agency, the International Commission for the Protection of the Danube River.
- The Danube River Basin Management Plan (Update 2015).

As part of these initiatives, there are various international Secretariats dealing with international water management in the region, as described under the Coordination section below. Agreed programmes of work exist, notably under the Danube River Basin Management Plan, however in that case implementation (and therefore financing) is the responsibility of national governments.

The baseline analysis confirmed that aggregate waste water treatment capacity in the targeted countries is insufficient to appropriately treat water before being released into the river system. Diffuse sources are predominantly agricultural operations resulting in the emission of nitrogen compounds, but also organic substances (including phenols) and heavy metals and contribute substantially to the eutrophication. Country contributions to nitrogen and phosphorus run-off in the Black Sea basin are detailed in Annex C of this document.

All countries proposed for inclusion in the project have reported the use and/or storage of significant quantities of POPs, POPs pesticides, unintentionally produced POPs, DDT and PCBs. These quantities vary in terms of location and size. While each country has prepared a National Implementation Plan for the Stockholm Convention covering the identification, management and disposal of POPs, implementation of the plans is subject to adequate mobilization of financial resources. To date, there are insufficient investment-driven initiatives which address the specific sources of the pollution. Country specific details of waste inventories are provided in the Annex C of this document.

Ukraine and Georgia are currently at some point in the process of application to become EU Member States – which involves the implementation of the EU *acquis communautaire* related to – amongst other aspects – water pollution and POPs pollution. Some of the specific EU Directives and regulations which are to be implemented include:

- EC Persistent Organic Pollutants (POPs) Regulation No. 850/2004 of 29 April 2004
- The Marine Strategy Framework Directive (Directive 2008/56/EC)²¹
- The Water Framework Directive (Directive 2000/60/EC)²²
- Urban Waste Water Treatment Directive (Directive 91/271/EEC)²³
- Integrated Pollution Prevention and Control Directive (Directive 2008/1/EC)²⁴

Additional information on each of the above instruments can be found in Annex A of this document.

While these developments are welcome, the full implementation of the directives is typically lengthy, with countries often asking for derogation, resulting in a substantial delay in relevant investments and pollution reductions. Furthermore, the investments involved for the private sector (and municipally owned companies) to fully address the EU Directives, meet international obligations, and address pollution problems will be substantial and unlikely to be realized without intervention from international financial institutions such as EBRD in conjunction with donor resources such as from the GEF.

Some of the countries planned for project implementation have pollution taxes in place and other enforcement mechanisms which provide a financial incentive for pollution reduction (notably Ukraine²⁵), however these are in themselves often not sufficient to overcome the existing barriers outlined above. As noted by the International Commission for the Protection of the Danube River, in general, the funding of water pollution-related measures in non-EU member state countries is more difficult than for those countries which have the legal obligation to fulfil the Water Framework Directive, amongst other directives. The Project will therefore aim to achieve accelerated compliance by EU candidate countries with the relevant directives, bridging the gap between the current situation and full implementation of the directives.

The Project will complement current ongoing implementation activities in the targeted countries by other stakeholders. Of the 19 on-going activities identified in the proposed countries related to development of the legislative framework, development of capacity, and investments in pollution reductions:

- 7 represent investments to reduce nutrient pollution;
- 1 is related to enabling transboundary water resource management cooperation but not linked to investment;
- 9 represent investments in meeting specific reduction targets for POPs; and
- 2 are related to enabling activities/policy development dealing with POPs.

These activities build on an extensive track record of investments by the GEF in the Black Sea/Danube area over the course of two decades, including The Danube River Basin Regional Project Phase 1 & 2 (UNDP), the Black Sea Ecosystem Recovery Project Phase 1 & 2 (UNDP/UNEP), and the Investment Fund for Nutrient Reduction

²¹ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0056>

²² <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32000L0060>

²³ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31991L0271>

²⁴ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0001>

²⁵ Ukraine, and Georgia's systems are described here: http://www.bs-hotspots.eu/Documents/Deliverables/Economic_Instruments%20in%20the%20BS%20region.pdf

(WB). A full list of on-going implementation activities by country is found in Annex D of this document. The objectives and results of notable projects targeting the basin are summarised in table 2 below.

Table 2 Objectives and results of recent investments targeting nutrient and chemical pollution in the Black Sea basin region

Project title	Period	Objective	Results
Danube River Basin Regional Project Phase 1 and 2	(1991 – 1996 and 1997 - 1999)	To contribute to the creation of the framework for a long-term solution to the problem of pollution of the Danube River Basin. The project had four main objectives in order to facilitate the formulation of a Danube Action Program: collecting pollution emission data and creating regional data network, identifying policy and legal options, and feasibility studies for local and international funding.	The terminal evaluation of the project highlighted the achievements made in several aspects of transboundary water management in the Danube River Basin, including a marginal cost assessment, durable project outcomes, improved data quality, a revised Strategic Action Plan and a financing proposal. It was recommended that the project draw more heavily on experience gained through the first phase of the project to inform the design of future interventions.
Black Sea Ecosystem Recovery Project Phase 1 and 2	2001 – 2003 and 2004 – 2007	To support participating countries in the development of national policies and legislation and the definition of priority actions to avoid that discharge of nitrogen and phosphorus to the Black Sea exceed those levels as observed in 1997. This will require countries to adopt strategies and measures that permit economic development whilst ensuring the rehabilitation of coastal and marine ecosystems through pollution control and reduction of nutrients and hazardous substances. At the end of the Project Tranche II, it is expected that the institutional mechanism of the Black Sea Commission is reinforced and fully operational ensuring cooperation between all Black Sea countries to efficiently implement joint policies and actions and operate common management and control mechanisms.	The terminal evaluation of the project highlighted several positive outcomes of the project, including improved understanding of the status of the Black Sea ecosystem, involvement of NGOs and enhanced capabilities, the establishment of monitoring and information systems, and improved public awareness and appreciation for Black Sea issues. On the other hand, it noted that in areas which relied on government decision-making, such as the establishment of a land based activities protocol, a negotiated fisheries agreement and coastal zone management strategies, progress was significantly less than expected at project inception as countries were not fully committed to the delivery of the project's outputs.
Investment Fund for	2001-2015	The World Bank-GEF	Ten World Bank Group projects

Project title	Period	Objective	Results
Nutrient Reduction		Investment Fund (IF) was the investment arm of the GEF Strategic Partnership on the Black Sea/Danube Basin. The Fund constituted a proposed envelope of US\$70 million to partially grant-finance investment projects in the Black Sea/Danube Basin that aimed at nutrient reduction. Eligible areas of intervention for support under the Fund included investments to remediate and mitigate nutrient pollution in municipalities, industry and agriculture, as well as policy and legal reform and capacity building for enhanced monitoring and enforcement.	supported by the Investment Fund for Nutrient Reduction financed by Global Environmental Facility (GEF) since 2002 have been successful in piloting measures to reduce nutrient loads entering the Black Sea and Danube Basin. The projects in Bosnia and Herzegovina, Bulgaria, Croatia, Moldova, Romania, Serbia and Turkey supported, among others: ²⁶ introduction of innovative low-cost wastewater treatment methods (BiH, Moldova); promoting wetlands as environmentally and economically valuable investments benefiting populations (e.g. Bulgaria); restoring degraded land and reducing soil erosion (e.g. Moldova), introducing waste segregation and water quality monitoring (Romania); constructing manure management facilities and promoting organic farming (e.g. Turkey).
Developing the Implementation of the Black Sea Strategic Action Plan	1996-2000	To strengthen and create regional capacities for managing the Black Sea ecosystem; to develop and implement an appropriate policy and legal framework for the assessment, control and prevention of pollution and the maintenance and enhancement of biodiversity, and to facilitate the preparation of sound environmental investments. Activities are funded with associated contributions from the European Union's PHARE and TACIS programmes as well as bilateral contributions from Canada, the Netherlands, Switzerland and France.	The terminal evaluation of the project highlighted several positive outcomes of the project, including successful help to countries to develop the national SAP and adopted a basin-wide approach for co-ordination of activities for Black Sea protection, however for <i>Preparing the Technical Implementation of the Black Sea Strategic Action Plan</i> the review of outputs show the project executed only six minor ones; two outputs were not executed and ten others were financed by other donors and executed by the Activity Centers. Furthermore, the project published one issue of a 16-pages Black Sea Newsletter in seven languages.
Control of Eutrophication, Hazardous	2001-2007	To support participating countries in the development of national	The terminal evaluation of the project highlighted several positive outcomes of the project, including

²⁶ World Bank, Black Sea Danube Basin Partnership, <http://www.worldbank.org/en/region/eca/brief/black-sea-danube-basin-partnership>, accessed 10/11/16.

Project title	Period	Objective	Results
Substances and Related Measures for Rehabilitating the Black Sea Ecosystem: Phase 1 and Tranche 2		policies and legislation and the definition of priority actions to avoid that discharge of nitrogen and phosphorus to the Black Sea exceed those levels as observed in 1997. This will require countries to adopt strategies and measures that permit economic development whilst ensuring the rehabilitation of coastal and marine ecosystems through pollution control and reduction of nutrients and hazardous substances. At the end of the Project Tranche II, it is expected that the institutional mechanism of the Black Sea Commission is reinforced and fully operational ensuring cooperation between all Black Sea countries to efficiently implement joint policies and actions and operate common management and control mechanisms.	establishment of a land based activities protocol, a negotiated fisheries agreement, and coastal zone management strategies and overall in making progress in expanding knowledge, awareness and support for ecosystems protection in the Black Sea region.

However, despite these extensive investments in the region to date, the investment requirements for dealing with international waters far surpass those planned within the existing projects, and the quantities of POPs being disposed of are not sufficient to fully meet countries' disposal needs (unlikely to address even 1/3 of estimated existing stocks).

Over the course of the project preparation phase, more detailed analysis will be undertaken to identify capacity and investment gaps which should be addressed by the project. An initial assessment of investment opportunities in Table 6 shows possible interventions that may be eligible for support, leading to additional nutrient pollution and POPs reductions over and above the baseline scenario. The focus of this project on the Dnipro River and its tributaries complements other investment activities around the Black Sea that are specific to the Danube River basin. The proposed investments will address pollution upstream of and at the mouth of the Dnipro at Odesa, in addition to activities targeting littoral pollution in Georgia.

From a financial perspective, the proposed project will complement the largely public-sector investments supported by projects such as the Investment Fund for Nutrient Reduction by using private sector and sub-sovereign delivery channels such as municipalities and utilities. Building on the extensive knowledge exchange and national regulatory frameworks that previous projects have developed, the GEF-EBRD project will focus on catalysing local markets for environmental technologies and practices by addressing barriers experienced by these borrowers. To address the investment gap in water and POPs pollution described above, there is a critical need to enhance the role of the private sector in the area of water, chemicals and waste management. A key focus of this project will therefore be to enhance access to finance to support the implementation of water management measures in the Black Sea basin area, which is currently hindered by the administrative complexity of applying for and managing funds, lack of access to finance/appropriate financial instruments, misalignment of financing and planning processes, and missing capacity for the implementation of investments.

An integrated approach to addressing the barriers identified in Table 1 is intended to promote durable and longer-term outcomes beyond the initial time period of this project by demonstrating the economic benefits of environmental investments in the region and improving the local environment for investment in environmental technologies and practices. During the project preparation phase the EBRD will consult key GEF partners involved in past nutrient reduction efforts in the Danube and Black Sea basins, including UNDP and the World Bank. Dialogue with past key GEF agency partners will be used to ensure that EBRD's approach builds on existing successes and lessons learned from historic and on-going activities. The dialogue will also help to inform the set of eligibility criteria that public/private stakeholders must comply with to gain access to funding via the envisioned financing mechanism.

3) The proposed alternative scenario, GEF focal area²⁷ strategies, with a brief description of expected outcomes and components of the project

Project approach

The prime focus of the project for the IW programme is on point/non-point nutrient pollution and aims to reduce nitrogen and phosphorus pollution in the Black Sea basin. The prime focus of the project for the CW programme is on POPs pollution and aims to eliminate and/or dispose of POPs and avoid the use of and/or emission of POPs in the Black Sea basin.

The proposed project adopts a regional approach to facilitate the accelerated uptake of environmental technologies and practices for (i) reduction in point and non-point water pollution, (ii) improvement in water and waste management, and (iii) for elimination, prevention, and improved management of harmful chemicals use (specifically POPs) in the private, utilities and municipal sectors.

The project intends to strengthen the implementation of the Black Sea Strategic Action Plan, with a focus on increasing the implementation capacity of the private sector, and investment incentives for demonstration of advanced technologies. This will be achieved by, amongst other activities, ensuring consistency with the Black Sea Strategic Action Plan priorities and work programmes, engaging with the Black Sea Commission Secretariat and its existing stakeholder engagement mechanisms, and drawing on Black Sea commission information exchange platforms such as the Black Sea Information System. The project will contribute to the achievement of the objectives of the GEF international waters and chemicals and waste programs in a way that complements and strengthens existing regional institutional frameworks for cooperation.

The geographical focus of the project will be on Ukraine, Belarus and Georgia, all of which form part of the Black Sea drainage basin which contribute significantly to overall pollution. Ukraine and Georgia are littoral countries of the Black Sea and Belarus covers 24% of the Dnieper basin, which passes through Belarus and Ukraine before discharging into the Black Sea. The project will target high polluting operations such as agribusiness, manufacturing and infrastructure (municipal and utilities) operations where there is lack of incentives for deployment of environmental technologies going beyond current regulatory requirements in the country. The blend of funding from the International Waters and Chemicals & Waste focal area will ensure that the above issues can be targeted in an integrated manner.

It is currently envisioned that as relates to nutrient pollution, the project investments will focus on particularly sensitive areas – though this may have an impact on the particularly polluted areas of the northwest Black Sea shelf at the same time.

The activities under the Project will be aimed at:

- (i) Design/upgrade of products and processes to minimize the use and generation of hazardous substances and waste (including POPs), and implementation of sound chemicals management in the operations of companies and along the supply chain, targeting in particular supply chains that contribute to POPs,
- (ii) Management and phase out of POPs and reduction of stockpiles, and management of UPOPs emissions

²⁷ 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.

- (iii) Adoption of innovative and advanced environmental technologies for improved water and waste management and technologies and techniques addressing transboundary pollution from industrial, agricultural and municipal sources, including by heavy metals from mining, tanning and/or dying industries, organic pollutants, sediments through incentive mechanisms, demonstration of nutrient reduction technologies (point and non-point nutrient pollution sources) with potential for sector wide uptake and other innovative technologies involving both public and private sector actors.

The EBRD has developed advanced operational approaches to scale-up its sustainable resource efficiency investments, which represent 25% of the Bank's total annual investments between 2006 and now (equivalent of EUR 18.5 billion). The project leverages EBRD experience in promoting sustainable energy technologies and private sector engagement to accelerate adoption of advanced environmental technologies and to provide a platform for sharing, disseminating knowledge and bringing together relevant key stakeholders.

GEF funding is requested to support incremental activities, going beyond the baseline scenario.

Proposed Project Structure

The proposed Project will follow the successful structure of EBRD activities, which combines:

1. **Component 1 - Targeted policy dialogue and awareness rising and stakeholder engagement:** creating enabling environment for adoption of targeted BATs/BEPs, mainly focusing on more targeted policy dialogue activities and awareness-raising activities for specific technologies or sectors.
2. **Component 2 - Pipeline development and implementation support:** This Component provides technical assistance to support the development of innovative financing mechanism(s), and associated needs assessments, project identification, preparation and implementation assistance. These activities directly contribute to capacity building of market stakeholders throughout the supply chain, including services and finance.
3. **Component 3 – Financing tools and instruments to support accelerated deployment of environmental technologies:** This Component will provide project financing of specific BATs/BEPs with clear environmental benefits related to the objectives of the International Waters and Chemicals & Waste focal areas.

Overview of proposed project components and related activities:

Component 1: Targeted policy dialogue, awareness raising and stakeholder engagement

This project component will aim to strengthen the regulatory environment in the targeted countries and improve stakeholders' understanding of pollution reduction obligations, technologies, their financial costs, and environmental and financial benefits. Stakeholders to be engaged will include regional institutions, national governments/regulatory authorities, municipalities (especially in relation to wastewater), and private sector (SMEs as well as large companies).

The activities will aim to create both market push and pull for adoption of relevant environmental technologies and practices and activities may include: (i) gathering baseline information on uptake of relevant best practice technologies and practices to inform changes to the regulatory environment (ii) incorporating POPs and hazardous waste considerations into industry roadmaps, (iii) preparing guidelines for implementation of sound waste and chemicals management in private sector operations (including in the supply chains), (iv) assistance with adoption of relevant international best practice policy instruments or directives, and (v) assistance with definition of effective implementation. The project will aim to introduce or strengthen regulatory frameworks at the national (or where appropriate sub-national) level, consistent with country-driven strategies and priorities. Within this context GEF funds may also be used to enhance the enforcement capability at the relevant national/sub-national level (e.g. environmental protection agency, entity level inspectors, etc.) through technical assistance.

During project preparation consultations will be held with the relevant regional institutions – in particular the Black Sea Commission – and national institutions with the purpose of discussing the feasibility of developing a regional agreement on targets for nutrient loading for nutrients originating in the individual countries but ending up in the Black Sea. If this is feasible, it will be included as a new project component.

Within this component there will also be regional knowledge management (KM) activities undertaken to ensure sharing of outputs, outcomes, and lessons from the project. These will be shared with relevant stakeholders and will use existing knowledge sharing platforms (such as FINTECC, EastAgri and GEF's IW platform) for dissemination of findings. The KM system will link to the relevant regional institutions (Black Sea Commission, etc.) so as to ensure proper coordination and share best practices and relevant datasets with the GEF-UNEP project "Towards an International Nutrient Management System" (GEF ID 5400). Furthermore, 1 % of the GEF IW grant will be allocated towards IW:LEARN activities.

In order to promote the green industry concept and enhance supply chain management, the Component 1 may also cover establishment of Green Industry Club(s), private sector partnerships, where large companies will be able to share experience with introducing sound chemical management in their supply chain, particularly as it relates to POPs.

Recommendations on the focus of the Component 1 will be made during the development of the full project prior to CEO Endorsement thereby allowing the project to fully reflect the needs of the Governments, business associations, private sector, civil society organisations and ongoing activities of other stakeholders. The estimated break-down in terms of project resources allocated between the IW and C&W programmes is provided in the table below:

Table 3: Indicative Breakdown according to programme of resources for Component 1. Targeted stakeholders engagement

	GEF	Cofinancing	Total
IW	\$200,000	\$160,000	\$360,000
CW	\$200,000	\$240,000	\$440,000
Total	\$400,000	\$400,000	\$800,000

Component 2: Pipeline development and implementation support

The piloted financing mechanism (Component 3) will be supported with targeted technical assistance. This Component will involve technical assistance to support the definition and subsequent implementation of investments within various sectors. It is noteworthy that the support will not be related just to feasibility studies and definition of investment programmes, but also to ensure adequate monitoring and evaluation of such investments. Emphasis of the assistance will be on bridging technical gaps between recommendations, project financing, implementation, and management of chemicals and waste.

The objectives of Component 2 will focus on activities supporting: (i) demonstration and transfer of effective, appropriate, innovative and environmentally safe technologies, and (ii) development of financing models that can achieve large scale and long-term investment with the objective to de-couple economic growth from resource use (including water pollution, use/emissions of POPs or other chemicals). Activities under Component 2 will be coordinated to the extent feasible with relevant regional organisations, including the Black Sea Commission. IW funding will be used primarily for the purpose of technical assistance, advancing policy reform and enforcement, along with infusion of near marked mature and innovative nutrient reduction technologies – including as relates to fertiliser and water management in agriculture. C&W funding will be utilized for interventions specific to POPs and chemical reduction.

The investments to be supported with GEF funds addressing water pollution will target transboundary priorities as developed under the relevant Regional Strategic Action Plans, with a primary focus on advanced nutrient reduction technologies with no or very low market penetration in the targeted countries or sectors. Such technologies will only be eligible for GEF IW funding if deemed innovative within the given country context, and if they show potential for sector wide uptake. GEF IW resources will be allocated on the basis of IW relevant criteria – to be further developed during PPG and cleared by GEF at CEO endorsement.

The key activities under Component 2 will cover:

- **Pipeline development and coordination:** Technical assistance will be provided to support pipeline development for the piloted financing mechanism(s) (Component 3). The aim of the activity will be to support concrete investment definition across sectors and prioritization based on National Implementation Plans, other related national strategies and action plans, SAPs and equivalent regional development programs responding to agreed regional and national needs established through a participatory process. This activity will focus on the development of a project pipeline, leveraging on the existing contacts of the Bank as well as engaging with potential new clients from priority high polluting industries.
- **Finance mechanism development:** Based on an assessment of viable and appropriate financing structure(s), a finance mechanism will be designed to support both improved management of chemicals, waste, as well as water. The activity will utilize findings of the PPG studies and apply these in the design of the financing mechanism, mainly in the design and fine-tuning of eligibility criteria. The funding will be used for ongoing assessments of projects for eligibility under the programme.

In the case of water-related interventions, the selection of investments to be supported by the financing mechanism will be consistent with the priorities as defined in both the Black Sea Strategic Action Plan and the International Waters GEF 6 strategy²⁸. IW investments will focus mainly on technical assistance, policy reform and enforcement, along with demonstration of innovative nutrient reduction technologies (point and non-point nutrient pollution sources) with potential for sector wide uptake. The selection of investments to be supported by the Financing Mechanism should be aligned with priorities as defined in both the BS SAP and the IW GEF 6 strategy. IW investments will focus mainly on technical assistance, policy reform and enforcement, along with demonstration of innovative nutrient reduction technologies (point and non-point nutrient pollution sources) with potential for sector wide uptake.

- **Monitoring and evaluation:** Component 2 will include activities dedicated to monitoring and evaluation of investments. GEF supported investments on the ground will be accompanied by gender analysis as part of the socio-economic assessment during project design and will consider the differentiated role of gender with a specific aim to enhance women's access to resources and document how women's participation increases innovation, efficiency and sustainability.
- **Sound Chemical Management:** Technical assistance may also be provided to individual businesses to identify and structure their Sound Chemical Management for their operations as well as their supply chain, particularly those contributing to POPs. Such activities will also include review and recommendations for suitable monitoring and evaluation systems.

The EBRD will also provide significant technical assistance and engineering support through the Energy Efficiency and Climate Change Group, in-house industry experts and special advisors, resident offices, and through Small Business Initiatives.

Potential investments to be supported under the Project may include:

Pollution	Anticipated interventions/industries
Reducing pollution from major point sources of pollution	<ul style="list-style-type: none"> • Introduction of Best Available Techniques (BAT) and Best Environmental Practices (BEP) in most polluting industries, promoting cleaner production technologies and reduced environmental pollution, including technologies for reducing POPs and improving chemicals and waste management. Such technologies may be applicable in particular to:

²⁸ In the case of IW, the selection of investments to be supported by the Financing Mechanism should be aligned with priorities as defined in both the BS SAP and the IW GEF 6 strategy. IW investments will focus mainly on technical assistance, policy reform and enforcement, along with demonstration of innovative nutrient reduction technologies (point and non-point nutrient pollution sources) with potential for sector wide uptake

Pollution	Anticipated interventions/industries
	<ul style="list-style-type: none"> ○ (i) electricity distribution and large industry, with PCB based transformers and capacitors, ○ (ii) cement kilns firing hazardous waste ○ (iii) sinter plants in the iron and steel industry (e.g. Ukraine), ○ (iv) secondary aluminium production, and ○ (v) from operation of waste oil refineries <ul style="list-style-type: none"> • Introduction / upgrade of waste water treatment plants, including nitrogen & phosphate removal in municipal and industrial operations (applicable across all eligible countries), and introduction of adequate waste water treatment systems in tourism resorts in the littoral countries of the Black Sea (to be based on existing hot spot analyses). The selection of treatment technology will depend on factors including but not limited to: <ul style="list-style-type: none"> ○ the market penetration of treatment technologies in the particular country or region, ○ the potential for demonstration and replication of the selected technologies, ○ the contribution to the global environmental benefits anticipated under the project and ○ the anticipated mobilisation of co-financing that could be achieved by the GEF funds. • Introduction of BAT-compliant solid waste management facilities and introduction of best practice in chemicals and hazardous waste management. • Land remediation for elimination of POPs and other harmful chemicals, to unlock further opportunities for further development and elimination of POPs stockpiles including in the infrastructure sector.
Management of non-point pollution sources	<p>Focusing primarily on introduction of best environmental practices in agriculture through:</p> <ul style="list-style-type: none"> • introduction of water management best practices in the agriculture such as improved irrigation systems • introduction of best practice for fertiliser management including piloting of bio fertilizers

Activities undertaken as part of project preparation will identify specific investments that could be targeted by the proposed Project. This will form part of a broader process to align the areas of greatest need with opportunities to deploy EBRD investments as effectively as possible, so as to maximise the overall benefit to the region from the project.

The estimated break-down in terms of project resources allocated between the IW and C&W programmes is provided in the table below for Component 2.

Table 4: Breakdown according to programme of resources for Component 2. Pipeline development and and implementation support

	GEF	Cofinancing	Total
IW	\$300,000	\$450,000	\$750,000
CW	\$450,000	\$550,000	\$1,000,000
Total	\$750,000	\$1,000,000	\$1,750,000

Component 3. Financing tools and instruments to support accelerated deployment of environmental technologies

The Project proposes to adopt a Financing Mechanism for promoting accelerated uptake of environmental technologies. The Financing Mechanism will be structured on the basis of the extensive EBRD experience in

financing technology modernization and innovation, developing market-based mechanisms for the provision of services, leveraging private sector finance and promoting the introduction of best practice.

The selection of the investments to be supported specifically with the Financing Mechanism will be in line with criteria defined in other EBRD-GEF projects (such as FINTECC), and will take into account:

- a) Quantified physical impact of the investment (water saved, water treated, POPs reduced, etc.),
- b) Compliance of the investments with best available technology and techniques,
- c) Demonstration effect and replication potential of the supported technologies and techniques, and
- d) Other benefits of the investments associated with other aspects such as gender/inclusion, climate change and resilience, food-energy-water nexus, etc.

In addition, the investments supported as part of the project will observe the principles of transition, sound banking and additionality as applied consistently across all EBRD investments. All EBRD investments are subject to a rigorous Transition Impact assessment, underpinned by a transparent and robust methodology for ensuring that EBRD investments are consistent with the Bank's mandate to foster the transition towards open market-oriented economies and to promote private and entrepreneurial initiative. As such all EBRD investments are designed to avoid introducing distortions by positively influencing the structure and extent of markets, strengthening institutions and policies that support markets and promoting market-based behaviour patterns, skills and innovation. As is EBRD's consistent practice, the project will adhere to relevant safeguards thereby insuring that the project does not act as market distorting mechanism.

The Financing Mechanism will explore multiple channels for accessing/developing the market. The likely channels will include: (i) direct financing of high polluting industries, (ii) eliminating pollution in supply chains through supply chain aggregators (such as retailers, car manufacturers, dairy producers and similar), and (iii) sovereign lending for establishment of dedicated programmes on national or local level. The Financing Mechanism will flexibly use a combination of financing products and instruments to suit the financing channels (informed by the technical assistance defined in Component 2). All activities under component two (2) will be coordinated with relevant regional organizations, including the Black Sea Commission."

Progress on the final selection of financing tools and instruments which will utilise GEF resources will be verified during preparation of the full project for CEO Endorsement, but it is likely to include a combination of:

- *Advanced technology support*: Provision of capital incentives (such as grants) linked to minimum performance criteria for advanced technologies, with the performance based incentives proportional to impact.
- *Blended financing instrument*: Blending of funding to support development of dedicated programmes for water efficiency, water treatments and chemicals and waste management (typically through a sovereign entity but it can be through another aggregator).
- *Comprehensive implementation support*: Provision of a grant to support the final beneficiary with implementation of the investments/investment programmes targeting eligible environmental technologies.
- *Risk mitigating instruments such as guarantees*: Provision of a guarantee for achieving a level of environmental performance agreed at the outset of the investment, to mitigate the risk from technology underperformance.

The final format of the financing mechanisms will be verified during the PPG stage and will be presented as part of the request for CEO endorsement of the Final Project Document. GEF resources will be critical in providing additionality to EBRD investment resources to stimulate investment into targeted technologies and techniques.

The estimated break-down in terms of project resources allocated between the IW and C&W programmes is provided in the table below for Component 3:

Table 5: Breakdown according to programme of resources for Component 3. Financing tools and instruments to support accelerated deployment of environmental technologies

	GEF	Cofinancing	Total
IW	\$1,683,105	\$10,305,525	\$11,988,630
CW	\$3,100,000	\$10,460,000	\$13,560,000
Total	\$4,783,105	\$20,765,525	\$25,548,630

4) Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing

Incremental/additional cost reasoning

The proposed project is entirely additional; without the provision of GEF funds in the form of the financing types requested, the barriers identified in Table 1 would not be addressed. In the baseline scenario there is a material risk of delay in investments and adoption of relevant technologies with global environmental benefits, and reduced leverage of private capital mobilization for new technologies.

In the absence of transformational and rapid change in awareness and visibility – for which no evidence has been identified – knowledge of best alternative technologies and best environmental practices to address transboundary environmental issues will remain low. This will be further compounded by the continued lack of financial and specialist capacity for businesses to undertake feasibility studies to better understand the opportunities and risks of deploying innovative environmental technologies and practices.

Global and multilateral regulatory frameworks will continue to evolve, however implementation of water management and environmental technology frameworks will continue to be hindered by insufficient regulatory incentives to promote compliance. Without strong regulatory incentives (or threats of future incentives), companies and public sector agencies will continue to face challenges in mobilizing the necessary funds to meet EU and international standards. These challenges apply to the achievement of water and POPs reduction objectives.

The Project will accelerate transformation of the market, disseminating relevant information and increasing awareness and absorption capacity of businesses for deployment of relevant technologies and risks associated with being ‘late-adopters’ of technologies with global environmental benefits. The Project will also aim to support deployment of technologies which would otherwise be viewed as too risky due to lack of demonstration projects in the region.

Expected contributions

GEFTF resources will be used for technical assistance to undertake targeted policy awareness-raising (Component 1), pre-investment and investment cycle support (Component 2) and investments to support accelerated deployment of environmental technologies (Component 3).

They GEF TF will be critical in ensuring large-scale investments in pollution reduction due to two main factors:

1. Increased understanding amongst stakeholders of the environmental and financial aspects of pollution control will allow for more effective governance (by national and municipal authorities) and decision-making by investing entities (by industries and municipalities). Active identification of potential project investments will also be critical for this understanding – as will sharing of information between countries.
2. Investment incentives will be critical for implementation of the promoted technologies and techniques. Without the incentives the project would be implemented with technologies and techniques that lag behind best international practice, resulting in companies being locked into resource inefficiencies and higher levels of pollution.

The EBRD's co-financing contribution will be made predominantly in the form of loans, in the form of in-kind support, and through other donor funding to complement the proposed Project. EBRD co-financing will be provided for each of the project components and purposes as the GEFTF resources. The proposed project will also leverage EBRD's strong network of existing contacts in the corporate and municipal sectors in the targeted countries.

5) Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF)

The Global Environmental benefits to be achieved by this project will be related to the reduction in water pollution, water use, and improvement of chemicals and waste management. Indicative targets are described below:

International Waters: The project will result in reduced pollution load through the following actions and associated indicators:

- At least 1.2 million m3 of water saved/recycled
- At least 1.0 million m3 of waste water treated
- At least 1 irrigation system upgraded

The following table sets out an indicative pipeline of investments to be assessed under the Black Sea basin project. EBRD stresses that this is based on an initial review of the investment pipeline and will continue to evolve as market studies and stakeholder engagement are carried out as part of the full project development process. The following de-identified information is provided so as not to prejudice commercial negotiations with clients. Actual information has been used where available and assumptions are documented in footnotes.

Table 6: Indicative pipeline of investments to be supported by GEF funding and EBRD co-financing

Indicative pipeline	Number of operations	Indicative water saved/treated (m3/year)	Indicative nitrogen/phosphorus stress reduction (t/year)	Potential total EBRD investment (EUR)	Potential GEF funding (EUR)
Agricultural producer – investment to promote irrigation improvements combined with the use of bio-fertiliser	1	1.2 million m3 saved	80 tonnes N 80 tonnes P ²⁹	EUR 5 million	EUR 500,000
Sugar producer with substantial opportunities for improving waste water treatment	1	0.24 million m3 treated	180 tonnes N 35 tonnes P ³⁰	EUR 2-3 million	EUR 200,000
Municipalities with opportunities to modernise solid waste programme with potentially both water and chemical components	2	0.4 million m3 treated	75 tonnes N 1.5 tonnes P ³¹	EUR 22 million	EUR 700,000
On-going assessment of waste water treatment and waste management opportunities in Green City Action Plans	2	0.4 million m3 treated	75 tonnes N 1.5 tonnes P ³²	EUR 22 million	EUR 700,000
INDICATIVE TOTAL	6	~1.2 million m3 saved ~1.0 million m3 treated	~500 tonnes N ~100 tonnes P	~EUR 51 million³³	~EUR 2.1 million

By CEO endorsement, the anticipated nutrient pollution reduction to result from the project will be validated based on the market studies conducted as part of the project preparation process.

²⁹ Based on area under improved irrigation of 1600 ha, 750 m3/ha-year of water savings and 5 tonnes reduction in both N and P per 100 ha per year. Area under improved irrigation taken from actual data.

³⁰ Based on 60% treatment capacity of a total 400,000 m3/year wastewater volume produced per plant, 1.51 kg N load and 0.29 kg P load per m3 waste water and 50% N/P removal efficiency. Plant volume is taken from actual data and N/P load assumed based on analysis of typical sugar beet processing effluent at <http://www.ajol.info/index.php/ajb/article/viewFile/100777/89984>.

³¹ Based on illustrative volume of 0.2 million m3 leachate produced per site per annum, 100% treatment capacity, 250 g N/m3 loading and 5 g P/m3 loading and 75% removal efficiency. Volume and loading assumed based on analysis of landfill sites at <https://www.diva-portal.org/smash/get/diva2:411843/FULLTEXT01.pdf> and http://ocw.unesco-ihc.org/pluginfile.php/462/mod_resource/content/1/Urban_Drainage_and_Sewerage/5_Wet_Weather_and_Dry_Weather_Flow_Characterisation/DWF_characterization/Notes/Wastewater%20characterization.pdf.

³² As per footnote 31.

³³ Total EBRD investment represents the entire investment including non-GEF related components. Overall finance associated with the international waters component of the investment will be lower and consistent with the amounts indicated in Part I Section A of the PIF.

Chemicals and Waste:

- The project will result in demonstration and deployment of at least 3 different innovative technologies resulting in POPs, hazardous waste or other pollutant reduction, elimination, or prevention (pollutant of global significance).
- The project will result in a reduction/disposal of POPs. It is estimated the project will result in at least 300 tonnes of POPs disposed of/destroyed/prevented and up to 500 tonnes, depending on how the investment pipeline evolves.

The following table sets out an illustrative assessment of POPs reductions based on an example investment plan:

Example investment	Number of operations	Indicative POPs reduction	Indicative number of technologies transferred
Transformer/capacitor recycling in electricity distribution	1	POPs – 60 tonnes	1
Introduction of chemicals management in ferrous and non-ferrous production facilities	1	POPs – 40 tonnes	1
Elimination of other stockpiles	1	POPs – 200 tonnes	1
TOTAL	3	POPs – 300 tonnes	3

These indicative amounts of pollution reduction will be assessed and confirmed during the project preparation phase based on the market studies to be conducted. To support the generation of a suitable pipeline of projects, EBRD will:

- Include relevant considerations into resource efficiency audits that are typically delivered directly to corporates, to identify opportunities for POPs elimination and improved waste water treatment.
- Include relevant consideration into Green City Action Plans, which are being undertaken by the Bank within the Green City Programme, in order to identify a combination of opportunities for decontamination, elimination of stockpiles, or improvements on waste water treatment and waste management.

As noted throughout the document, the financial resources devoted to tackling POPs pollution in the region that this project is targeting are insufficient. Public funds for pollution management are limited and investments in environmental technologies (and to address environmental liabilities) are not prioritised by private sector actors as they do not tend to generate cash flow. An innovative aspect of this project is its focus on attracting private sector investment into POPs reduction by adopting best available technologies and best environmental practices throughout the value chain of private sector companies. By providing the technical assistance to evaluate investment opportunities and large-scale finance on suitable terms to implement them, this project seeks to transfer advanced technologies into those regions where they have little or no market penetration.

EBRD finance for adopting BATs/BEPs in the target countries is intended to both stimulate demand for innovative technologies that address POPs pollution and create opportunities for co-financing by other financial institutions, thereby contributing to the mobilisation of private capital in what has previously been a predominantly publicly-financed space. While the direct reductions envisaged by the project are low relative to the total stocks of hazardous materials in the region, this innovative approach to transferring advanced technologies, stimulating private sector demand and catalysing private capital is intended to leverage additional private finance over time and hence lead to POPs reductions beyond the direct scope of this project.

6) Innovation, sustainability and potential for scaling up

The project involves the introduction and significant scale of investment in innovative BATs/BEPs into a variety of high polluting sectors. Introduction of these technologies will demonstrate best practices and engage local economic actors in implementation where awareness and visibility of BATs/BEPs is currently low, resulting in sustainable impacts both at sites where investment has occurred, and indirectly through scaling up to other sites within each country. These investments are long-term commitments that are sustainable investments with lasting

impacts. Additionally, the scaling up potential is expected to be quite large due to other polluting actors recognizing the positive impacts of these practices and technologies.

Furthermore, Component 1 will focus on stakeholder dialogue in order to create an enabling environment for the scale up of investment in pollution reduction in the various countries – which is expected to yield investments and pollution reductions beyond the scope of the project. As part of this stakeholder dialogue, there will be private sector involvement and regional knowledge sharing which will aid in the sustainable impacts of the project and increase the potential/likelihood of scaling up.

2. Stakeholders. Will project design include the participation of relevant stakeholders from civil society organizations (yes ☒ /no ☐) and indigenous peoples (yes ☐ /no ☒)? If yes, identify key stakeholders and briefly describe how they will be engaged in project preparation.

During project design phase, key stakeholders at the regional and national levels will be consulted to:

- Gain insight into civil society's impressions on the major pollution problems requiring investment;
- Ensure that the project will have synergistic effects with existing plans and operations;
- Develop specific plans for interactions during project implementation.

Specific civil society organizations to be consulted during project preparation are expected to include members of the Black Sea NGO Forum (active in Belarus, Georgia and Ukraine)³⁴. There are not significant populations of indigenous peoples in the affected areas for engagement.

It is envisaged that the following additional stakeholder groups will be engaged during project implementation:

- Countries – partnership with governments is considered a critical collaboration for the EBRD as it is essential to scale-up investments to green economy. The EBRD has already established close links with governments in all of its countries of operations and will continue to foster these relationships through policy dialogue and networking, in addition to investment financing, under this Project.
- Private Sector – Given the EBRD's private sector and transition mandate, the achievement of the project's results will be significantly through the private sector. The private sector will play a key role in identifying, developing and implementing investments, and will benefit directly from the financing mechanism established. The EBRD is committed to continue building up private partnerships to promote adoption of best available technologies, demonstrate new technologies, and build capacities of these stakeholders in the region.
- Public institutions including IFIs – The EBRD will ensure full coordination with IFIs especially on opportunities to combine expertise on policy, technical expertise and financing of this project. The EBRD will coordinate and network with European institutions, bilateral counterparts and international agencies working on the topics targeted by the project.

3. *Gender Equality and Women's Empowerment*. Are issues on gender equality and women's empowerment taken into account? (yes ☒ /no ☐). If yes, briefly describe how it will be mainstreamed into project preparation (e.g. gender analysis), taking into account the differences, needs, roles and priorities of women and men.

The project will address gender equality and women's empowerment through the scoping of investments – wherein in specific communities considered for investment, gender issues as they relate to the investment will be analysed as part of Environment and Social Management Plans. Where applicable, specific sub-activities as part of investments will be put into place to address these issues. All Project components and activities will take relevant gender issues in consideration, as gender equality is considered an integral part of sound business management and also key in the EBRD's activities to advance sustainable growth in its countries of operations. The Project will therefore be consistent with the Strategy for the Promotion of Gender Equality (SPGE), which promotes gender equality and the empowerment of women in the Bank's investment and technical cooperation projects.

³⁴ <http://www.blackseango.org/about-forum/>

All investment projects financed by the EBRD are subject to the EBRD's internal procedures, which include an Environmental and Social Action Plan (ESAP) that ensures that environmental, social, gender and other issues are taken into consideration prior to or during Project implementation. In addition to this, zero or positive gender impact will be one of the criteria for decision making on investment. In line with EBRD's environmental and social due diligence requirements, a rapid gender impact analysis tool will be designed to guide project teams during the decision making process. Opportunities for promoting women's employment related to project investments will also be explored as part of the EBRD investments undertaken under this Project. The Project will actively encourage women to participate in all training and awareness initiatives. The Project aims to build on women's role as environmental managers to maximize impact and outreach of awareness raising strategies.

4. Risks. Indicate risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the project design (table format acceptable).

Risk	Level of risk	Measures to address the risk
Political risk (i.e., low government commitment)	Low	Political risk is considered low. Consultative process will be used to increase ownership, including involvement in planning, awareness raising and dissemination of results.
Lack of interest amongst industry in investment	Medium	This is a key risk to be addressed by the project. The project will bring together the key stakeholders, through surveys and consultations early on during the full-project design process, and then in consultative and networking manner during the project implementation, to ensure maximum outreach and involvement. Additionally, the project will liaise with other related International Water and Chemicals & Waste projects (as described in this PIF) to identify priority investments which are commercially viable and of sufficient scale for Bank's investment.
Technology risk	Low/Medium	Technology risk is considered low, as the project will aim to promote technologies and practices that have been demonstrated and well proven in developed countries.
Implementation risk	Low	EBRD has extensive experience in the region and will work closely with in-country partners. A thorough stakeholder consultation process will be conducted in the context of finalizing the scope of the project.

As a financial institution, the EBRD operates extensive risk assessments of all its transactions covering credit, economic, environmental, implementation, legal, market, technological and integrity risks.

5. Coordination. Outline the coordination with other relevant GEF-financed and other initiatives.

As noted above, this project will bring together eligible countries from the region and build on the ongoing and planned initiatives. The Project will aim to complement activities undertaken by other stakeholders and projects, especially:

- (i) *GEF-funded projects:* The project will be coordinated with the GEF-financed initiatives which are relevant to its operations, in particular, projects which deal with POPs and International Waters, (being) undertaken primarily by UNEP, UNDP, UNIDO and FAO. EBRD will engage with all organisations undertaking GEF-funded projects during the project preparation phase to ensure consistency with on-going projects and draw on lessons learnt.
- (ii) *EBRD projects where synergies exist:* Within EBRD's portfolio of projects, the project will coordinate in particular with 'FINTECC' - Finance and Technology Transfer Centre for Climate Change (GEF ID 4956) which supports businesses to implement climate technologies in the EBRD region. FINTECC also operates a network, which will be leveraged and expanded to cover technologies and practices related to the objectives of the Project.
- (iii) *Initiatives run by other entities:* The project will also liaise with additional regionally-oriented initiatives which will be important for coordination including The Commission on the Protection of the Black Sea Against Pollution, International Commission for the Protection of the Danube River, MELIA – the Mediterranean Dialogue on Integrated Water Management – a European Commission funded project, and SWIM – Sustainable Water Integrated Management - a European Commission funded project.

- (iv) *Research initiatives:* Finally, the project will liaise with various research initiatives related to water pollution, POPs, and the Black Sea – such as the project “Integrated hotspots management and saving the living Black Sea ecosystem”.

It is important to highlight that related to water pollution, the project will aim to deal with specific Black Sea Strategic Action Plan priorities such as:

- Addressing high priority point-sources of pollution through Component 2 and Component 3 activities;
- Improving the regulation of point sources through Component 1 activities; and
- Addressing pollution from dumping and waste management by dealing with municipal solid waste, waste water, and industrial waste systems.

The project intends to work closely with the Black Sea Commission (and International Commission for the Protection of the Danube River as relevant) during the PPG stage on identifying potential areas for investment - and continuing this cooperation during project implementation. As much as possible, information on best practices and obtained data will be shared with all relevant regional institutions – thereby enabling better management actions towards the preservation of the Black Sea ecosystem.

6. *Consistency with National Priorities.* Is the project consistent with the National strategies and plans or reports and assessments under relevant conventions? (yes ☒ /no ☐). If yes, which ones and how: NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, etc.

Specific national strategies, plans, and reports which are applicable for this project include the various national implementation plans for the reduction of POPs³⁵ as well as other environmental strategies – with specific correlation to plans within each country as follows:

Country	National Strategy/plan/report	How this project is consistent with these documents
Belarus	Environmental Strategy for the years 2014-2023	Strategy describes measures for water safety improvement and water distribution
	The National Plan of the Republic of Belarus for the Implementation of its Obligations under the Stockholm Convention on POPs for the period of 2007–2010 and until 2028 (published in 2006) as well as the 2011-2015 National Implementation Plan of the Republic of Belarus under the Stockholm Convention on Persistent Organic Pollutants	National Plan describes a number of measures for dealing with POPs, including: - environmentally sound storage and disposal of the existing wastes containing persistent organic pollutants and - the identification, assessment and clean up of POPs contaminated sites and remediation of the affected environment. Also notes that external financing is necessary for a number of activities to dispose of/ phase out POPs.
	General legal framework	A number of laws and regulations are in place dealing with water pollution, air pollution, and chemicals (including banning the import and use of certain pesticides, etc.)
Georgia	Persistent Organic Pollutants National Implementation Plan of Georgia	The NIP identifies the following main areas to address: 1. Pesticides (obsolete pesticide stocks). 2. PCBs (polychlorinated biphenyls). 3. Furans and dioxins (by-products). it also identifies a need for waste management improvement in particular.
Ukraine	Strategy of national ecological policy of Ukraine until 2020	The strategy contains a section related to protection of the waters
	The National Implementation Plan for the Stockholm Convention on POPs (2007)	Describes policy and investment actions to be taken to limit POPs in new production and destroy stockpiles – calling for international investments.

7. *Knowledge Management.* Outline the knowledge management approach for the project, including, if any, plans for the project to learn from other relevant projects and initiatives, to assess and document in a user-friendly form, and share these experiences and expertise with relevant stakeholders.

³⁵ Available here: <http://chm.pops.int/Implementation/NIPs/NIPTransmission/tabid/253/Default.aspx>

The proposed Project's knowledge management will fall under Component 1. Relevant projects and initiatives will be consulted during the project preparation and continue to be engaged during implementation. Outputs, outcomes, and lessons from the project will be shared with relevant stakeholders – engaging primarily with three key existing programmes:

- **The EBRD's 'FINTECC' - Finance and Technology Transfer Centre for Climate Change (GEF ID 4956)** – supports businesses to implement climate technologies in the EBRD region. FINTECC also operates a network, which will be leveraged and expanded to include the proposed Project.
- **The EBRD (in collaboration with FAO, World Bank and the Central European Initiative)** EastAgri platform, which is an informal platform for sharing information, best practices and lessons learned on agricultural and agribusiness financing and rural development among key practitioners working in Eastern Europe, Central Asia and the Caucasus.
- **The GEF's IW learning community through the International Waters Learning Exchange and Resource Network (IW:LEARN)** for the purpose of leveraging experience and lessons learned.

Additional participation in and engagement with other relevant ongoing initiatives in the region will be sought and maintained, in particular:

- The proposed UNEP-led Mediterranean Sea Programme, where the EBRD is a participating GEF Agency;
- MELIA – the Mediterranean Dialogue on Integrated Water Management – a European Commission funded project
- SWIM – Sustainable Water Integrated Management - a European Commission funded project.

Knowledge management activities will ensure the Project's systemic impacts are potentially extended to other countries in the EBRD's Region of Operation more broadly.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)


A. RECORD OF ENDORSEMENT³⁶ OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):

(Please attach the [Operational Focal Point endorsement letter](#)(s) with this template. For SGP, use this [SGP OFP endorsement letter](#)).

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
VALENTYNA PYLYPENKO	Head of Department for International Cooperation and European Integration	MINISTRY OF ECOLOGY AND NATURAL RESOURCES, UKRAINE	19/8/2016
IYA MALIKINA	First Deputy Minister of Natural Resources and Environmental Protection	MINISTRY OF ENVIRONMENT, REPUBLIC OF BELARUS	24/8/2016
NINO TKHILAVA	Operational Focal Point	MINISTRY OF ENVIRONMENTAL PROTECTION AND NATURAL RESOURCES, GEORGIA	13/3/17
PROFESSOR HALIL IBRAHIM SUR	Executive Director	BLACK SEA COMMISSION PERMANENT SECRETARIAT	23/8/2016

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies³⁷ and procedures and meets the GEF criteria for project identification and preparation under GEF-6.

Agency Coordinator, Agency name	Signature	Date	Project Contact Person	Telephone	Email
Marta Simonetti, Deputy Pillar Head – Multilaterals, EBRD GEF Agency Focal Point		25/11/2016	Marta Simonetti, Deputy Pillar Head – Multilaterals, EBRD GEF Agency Focal Point	+44 20 7338 7259	simonetm@ebrd.com

C. ADDITIONAL GEF PROJECT AGENCY CERTIFICATION (APPLICABLE ONLY TO NEWLY ACCREDITED GEF PROJECT AGENCIES)

For newly accredited GEF Project Agencies, please download and fill up the required [GEF Project Agency Certification of Ceiling Information Template](#) to be attached as an annex to the PIF.

³⁶ For regional and/or global projects in which participating countries are identified, OFP endorsement letters from these countries are required even though there may not be a STAR allocation associated with the project.

³⁷ GEF policies encompass all managed trust funds, namely: GEFTF, LDCF, and SCCF

ANNEX A: DESCRIPTION OF SELECTED RELEVANT EU POLICIES

Selected EU policies that are relevant to the project baseline are:

- **EC Persistent Organic Pollutants (POPs) Regulation No. 850/2004 of 29 April 2004** for the protection of human health and the environment plus new amendments concerning to newly adopted POPs. There are a number of additional regulations which are applicable as well. This regulation prohibits the production and sale of a number of POPs (with certain exceptions) and describes the processes for waste management for POPs.
- **The Marine Strategy Framework Directive (Directive 2008/56/EC)³⁸**: This Directive aims to achieve Good Environmental Status (GES) of the EU's marine waters by 2020 and to protect the resource base upon which marine-related economic and social activities depend – including the Black Sea. According to the Directive, each Member State is required to develop a strategy for its marine waters (or Marine Strategy) – which must be kept up-to-date and reviewed every 6 years.
- **The Water Framework Directive (Directive 2000/60/EC)³⁹**: This Directive involves a new approach to water protection. It covers all water categories; rivers, lakes, groundwater as well as coastal and transitional waters – mandating that the use of water resources must be sustainable throughout Europe. Under the Directive, waters are to be managed at river basin level by formulating a River Basin Management Plan. In the case of transboundary water bodies, this requires co-operation between countries. The Directive also mandates the active participation of all stakeholders, including NGOs and local communities, in water management activities.
- **Urban Waste Water Treatment Directive (Directive 91/271/EEC)⁴⁰**: This Directive's objective is to protect the environment from the adverse effects of urban waste water discharges and discharges from certain industrial sectors and concerns the collection, treatment and discharge of domestic waste water, mixture of waste water, waste water from certain industrial sectors. Specifically the Directive requires sets requirements for waste water treatments for agglomerations of > 2,000 population equivalents and sets requirement for pre-authorisation of discharges (including from industry), monitoring of treatment plant performance, and controls on sewage sludge disposal and re-use.
- **Integrated Pollution Prevention and Control Directive (Directive 2008/1/EC)⁴¹**: This Directive is aimed at minimising pollution from various industrial sources. Operators of industrial installations operating activities are required to obtain an environmental permit from the authorities. About 52,000 installations are covered by the Directive. The Directive is based on several principles, namely (1) an integrated approach, (2) best available techniques, (3) flexibility and (4) public participation. The integrated approach means that the permits must take into account the whole environmental performance of the plant, covering e.g. emissions to air, water and land, generation of waste, use of raw materials, energy efficiency, noise, prevention of accidents, and restoration of the site upon closure. The purpose of the Directive is to ensure a high level of protection of the environment taken as a whole. The permit conditions including emission limit values (ELVs) must be based on Best Available Techniques (BAT), as defined in the IPPC Directive. The Directive also ensures that the public has a right to participate in the decision making process, and to be informed of its consequences.

³⁸ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0056>

³⁹ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32000L0060>

⁴⁰ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31991L0271>

⁴¹ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0001>

ANNEX B: DESCRIPTION OF PERSISTENT ORGANIC POLLUTANT SOURCES AND OTHER WASTES IN COUNTRIES TARGETED BY THE PROJECT AND MEASURES TO REDUCE THEM

Recent estimates of the quantity, uses and locations of notable pollutants in each country targeted by the project are described below. Measures to reduce these pollutants could include, for example:

- Phasing out equipment in electricity supply and distribution which include PCBs (POPs) and replacing with non-POP utilising equipment
- Improvement of processes for cement, iron, steel, and non-ferrous metal production to reduce unintended POPs
- Improved processes in waste oil refineries
- Solid waste management systems – especially for pesticides and other POPs containing materials
- Land remediation especially in urban / semi-urban areas where land remediation can add value to the land and allow it to be utilised for other development purposes (e.g. real estate)

Belarus: existing stocks of 3811 tonnes of POPs pesticides buried in 6 landfills; another 2800 tonnes of POP pesticides in storehouses. The storage conditions for obsolete pesticides do not always correspond to the modern environmental norms – non-repackaged and repackaged pesticides may be stored together, spills of pesticides are not always cleaned on the spot. At present repackaging of pesticides kept in the storehouses is almost completed. In the private sector, 762 enterprises owning PCB-containing equipment or waste have been identified. These enterprises belong to 27 ministries and concerns. The predominance of PCB-containing equipment is electrical equipment and prone to leakage – with 1564 tonnes of PCBs.

In 2004, unintentional POPs (u-POP) releases were estimated at 141.9 g TEQ. The predominant sources are waste incineration (47.6%), Ferrous and Non-Ferrous Metal Production (27.6%), and power and heat generation (11.7%).⁴²

E-waste in Belarus in 2014 was estimated at 72,000 tonnes (7.7 kg per inhabitant).⁴³ Its disposal is regulated when produced by businesses, but amongst the general population, e-waste is generally simply put in with other waste streams and can cause pollution into the environment.⁴⁴ Total municipal solid waste is estimated at 3,757,000 tonnes per year⁴⁵

Georgia: 3057 tonnes of pesticides including 2700 at one site; pPotentially 20,000 pieces of electrical equipment with PCBs.

Most (80%) of unintended POPs of dioxin/furan emissions are estimated to mostly result from uncontrolled combustion processes (uncontrolled/spontaneous combustion of wastes and wildfires) – a majority of which are taking place at the landfills.⁴⁶

E-waste in Georgia is estimated at 21,000 tonnes (4.6 kg per inhabitant)⁴⁷. Plastics waste is estimated to be 43,000 tonnes per year.⁴⁸ The system of management is very under-developed – likely leading to significant pollution both at landfills and outside of them.⁴⁹

Ukraine: 2019 tonnes of POPs pesticides including 1750 tonnes of DDT stored in various locations (mostly in Odessa Oblast). There are up to 12,765 contaminated and potentially contaminated sites in the country. It is

⁴² http://www.popsbelarus.by/en/pops_rb_en/pops_inventory_data.html

⁴³ http://www.step-initiative.org/Overview_Belarus.html

⁴⁴ See <http://ipen.org/sites/default/files/documents/CES%20E-waste%20Report%20English%20Summary%20EN.pdf>

⁴⁵ http://www.atlas.d-waste.com/index.php?view=country_report&country_id=49

⁴⁶ Government of Georgia (2012) Persistent Organic Pollutants National Implementation Plan of Georgia

⁴⁷ http://www.step-initiative.org/Overview_Georgia.html

⁴⁸ Based on http://www.atlas.d-waste.com/index.php?view=country_report&country_id=80

⁴⁹ See for example: http://apps.unep.org/redirect.php?file=/publications/pmtdocuments/-Georgia_Country_Report_EEA-2011GEORGIA_COUNTRYREPORT_2011.pdf.pdf

estimated that there are 250 tonnes of PCB containing oils with almost 4,000 tonnes of electrical equipment containing PCBs (1002 transformers and 102,032 capacitors) though this data is preliminary as companies do not have information on POPs which they possess nor do they carry out systematic registration.

U-POPs emissions were estimated at 1,451 g TEQ in 2002 – dominated by Ferrous and non-ferrous metal production (82.4%) and incineration of solid municipal wastes (10.8%) – wherein there are a number of incineration plants in Ukraine.⁵⁰

E-waste in Ukraine was estimated at 258,000 tonnes in 2014 (5.7 kg per inhabitant).⁵¹ Plastic waste is estimated at 768,000 tonnes per year.⁵² Current waste management practices in Ukraine are resource-inefficient and result in negative environmental impacts.⁵³

⁵⁰ Ministry of Environmental Protection of Ukraine (2007) The National Implementation Plan for the Stockholm Convention on POPs

⁵¹ http://www.step-initiative.org/Overview_Ukraine.html

⁵² Based on http://www.atlas.d-waste.com/index.php?view=country_report&country_id=172

⁵³ See <http://www.ifc.org/wps/wcm/connect/31b3d8004bc75c31b99dff1be6561834/PublicationUkraineMSW2012en.pdf?MOD=AJPERES>

ANNEX C: DESCRIPTION OF COUNTRY CONTRIBUTIONS TO POLLUTANT AND NITROGEN RUN-OFF INTO THE BLACK SEA BASIN AND MEASURES TO REDUCE POLLUTION

Amongst, the countries which will be impacted by this project, there are a wide variety of industries and economic activities contributing to the water pollution problem. Nutrient reduction can be achieved through investment measures such as the following:

- Improvements in agricultural production processes – including improved fertilisation methods, improved land management (and crop rotations), improved irrigation management, etc.
- Wastewater treatment – from industrial sources of pollution as well as municipal water systems
- Improved fertiliser production to reduce emissions from the production process

The issues in the littoral countries of the Black Sea can be described as follows.

In Georgia the primary sources of pollution are municipal wastes from cities and settlements, industrial wastes (such as oil terminals, mining operations, metal factories) and wastes from hospitals, recreation, and other health centres.⁵⁴ As of 2013, there were 4 operating wastewater treatment plants which process approximately 717,100 m³ total per day. However, the plants are typically 10-25 years old and most are not maintained. None of the existing plants is actually providing biological treatment since the technical facilities are out of order.⁵⁵

In Ukraine, agriculture has been noted as a major non-point source of pollution with 88% of those river basins being cultivated land. Agriculture (in particular linked with irrigation) is defined as inducing local severe pressure in terms of pollution. Approximately 80 million tonnes of soil with the content of 120,000 tons of nitrogen and 80,000 tonnes of phosphorous is being washed out annually. On the slopes 20% of nitrogen, 25% of phosphorous and 10-70% potassium are wasted out of fertilizers.⁵⁶ Additional point sources of pollution are primarily waste water treatment plants.⁵⁷ Approximately 8 billion m³ of waste water per year is discharged into surface waters and 26% of water supply and sewerage networks are in an emergency state.⁵⁸

The remaining countries of the project are not directly connected to the Black Sea but their waterways do drain into the Sea causing pollution problems.

Belarus covers 24% of the Dnieper river basin before it enters Ukraine. Due to the issues with waste water treatment capacity and wastewater discharges from industry, there is a substantial negative impact on the quality of water sources. Also, the run-off from agricultural areas has a local and severe impact in the Belarusian part of the river basin. Main pollutants are nutrients (nitrogen compounds), organic substances (including phenols) and heavy metals. Most municipal wastewater is treated – in 2011 only 3.8 million m³ discharged which is insufficiently treated out of a total of 462 million m³ collected in wastewater systems (compared to 651 million m³ injected into the distribution network).⁵⁹

⁵⁴ See <http://www.bs-hotspots.eu/Documents/Deliverables/HS%20Lists%20Update%20Report%20Final.pdf>

⁵⁵ See <http://www.nispa.org/files/GE-report.pdf>

⁵⁶ See <http://www.ais.unwater.org/ais/aism/getprojectdoc.php?docid=85>

⁵⁷ See <http://www.bs-hotspots.eu/Documents/Deliverables/HS%20Lists%20Update%20Report%20Final.pdf>

⁵⁸ See <https://www.nwp.nl/sites/default/files/aquatherm-invitation.pdf>

⁵⁹ See <https://openknowledge.worldbank.org/bitstream/handle/10986/16730/832850WP0ENGLI0Box0382083B00PUBLIC0.pdf?sequence=1&isAllowed=y>

ANNEX D: RELATED ON-GOING PROJECTS IN PROPOSED COUNTRIES OF OPERATIONS

Country	Activity	Implementing organization(s)	Main objectives
Belarus	Northern Dimension Environmental Partnership (NDEP) ⁶⁰	Organization funded by EU, Partner Governments and IFIs	NDEP provides grants which complement loans provided by IFIs and these in turn can leverage further local and international funding. Within Belarus, funding focuses on the Baltic and Barents seas – so not the focus of this GEF project.
	GEF-6 POPs Legacy and Sustainable Chemicals Management	UNDP/GEF	The project aims to build capacity and destroy 1,000 tonnes of PCB stockpiles, accelerate the phasing out of 2,100 tonnes of PCB equipment, and destroy 3,000 tonnes of Obsolete Pesticides.
Belarus, Ukraine	Regional Demonstration Project for Coordinated Management of ODS and POPs Disposal in Ukraine, Belarus, Kazakhstan and Armenia	UNIDO/GEF with ministries for environment protection in targeted countries	<p>The project will demonstrate environmentally sound collection and destruction of Persistent Organic Pollutants (POPs) stocks and Ozone Depleting Substances (ODS) – assisting in complying with the Stockholm Convention and the Montreal Protocol It will introduce regulatory reforms in (amongst others) Belarus and Ukraine and strengthen national capacity in identifying, assessing, managing, and treating such wastes in an environmentally sustainable manner.</p> <p>The project aims to reduce POPs by 450 tonnes over the course of the project (in total over the 4 countries).</p>
Georgia	Drinking Water Safety Plan (WSP) for Oni Water Supply System, Republic of Georgia ⁶¹	USAID with local municipality	The objective of the WSP is to ensure the safety of drinking water by applying good water supply practices, which include: i) prevention of contamination of the source water; ii) treatment of the water to reduce or remove contamination and meet water quality targets; and iii) prevention of re-contamination during storage, distribution and handling of drinking water.
	Financing for the Urban Water Supply and Sanitation Sector in Georgia Strategy ⁶²	OECD/EAP	In this project, the OECD/EAP Task Force secretariat cooperated with the Georgian Government to assess the financial implications of achieving the Millennium Development Goals (MDGs); to help the Government of Georgia to set realistic targets for the rehabilitation and development of urban water supply and sanitation infrastructure and services; and to identify options to bridge the financial gap between the expenditure needed for achieving policy objectives and the financing available.
	Disposal of POPs Pesticides and Initial Steps for Containment of Dumped POPs Pesticides	UNDP/ Ministry of Environmental Protection and Natural Resources	The project's objective is to enhance environmental quality and avoid human impacts by ensuring minimization of POPs pesticide releases in Georgia
	Demonstrating and Scaling Up Sustainable Alternatives to DDT for the control of vector borne diseases in Southern Caucasus and Central Asia	UNEP/GEF	The project aims to – amongst other things - eliminate 200 tonnes of DDT in Georgia (as well as in Tajikistan and Kyrgyzstan) and is currently under implementation.
	PCB-free electricity distribution in Georgia	UNIDO/Ministry of Environment and Natural Resources Protection	This GEF-funded project will focus on elimination of PCBs in the electricity system in Georgia.
Ukraine	Enabling Transboundary Cooperation and Integrated Water Resources Management in the Dniester River Basin	UNDP, UNECE, OSCE (GEF-funded) – with national entities	Integrated water resources management in the Dniester river basin to strengthen sustainable development, through the update of the TDA, development and endorsement of the SAP and initiation of its implementation. The project is also linked to another of other sub-projects.
Belarus	Global Project on the Implementation of PRTRs as	UNEP (GEF-funded) – with national entities	The project focuses on implementing information collection/reporting methodologies and tools for POPs. It does

⁶⁰ <http://ndep.org/>

⁶¹ http://www.globalwaters.net/wp-content/uploads/2014/03/Drinking-water-safety-plan-for-Oni-ENG_5081.pdf

⁶² <https://www.oecd.org/countries/georgia/36472918.pdf>

Country	Activity	Implementing organization(s)	Main objectives
	a Tool for POPs Reporting, Dissemination and Awareness Raising for Belarus, Cambodia, Ecuador, Kazakhstan, Moldova and Peru		not have investments in POP reduction within its scope.
Ukraine	UNIDO project on water management on water management in Ukraine	UNIDO with the Ministry of Environmental Protection of Ukraine	This project focuses on the sustainable application of WMC, in order to increase the efficiency of the national industry and to reduce risks to humans and the environment. The project aims to provide services to the private and public sector, create local capacity, co-ordinate the different international efforts, and contribute to the establishment of the legal basis for water management.
	Environmentally Sound Management and Final Disposal of PCBs	UNIDO/GEF	The project plans to replace and dispose of 3,000 tonnes of PCB s oil, PCB containing equipment and wastes – along with other capacity building/project identification activities.