Interreg NEXT Black Sea Basin

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LEARN4SEA

**Innovative joint learning for environmental-friendly behaviour of communities in the Black Sea Basin**

# Guidelines for authorities to establish mechanism for cooperation to generate initiatives for better-protected environment and reduced pollution

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## Abbreviations

| Abbreviation | Explanation |
|---|---|
| **WHO** | World Health Organisation |
| **CERONAV** | Romanian Maritime Training Centre – *Lead Partner* |
| **BDCA** | Black Sea Danube Association of Research and Development – *PP2* |
| **NEA** | National Environment Agency – *PP3* |
| **PRU** | Piri Reis University – *PP4* |
| **SM** | Shabla Municipality – *PP5* |
| **SDGs** | Sustainable Development Goals |
| **EIC** | Environmental Information Centre |
| **LCU** | Local Coordination Unit |
| **NCB** | National Coordination Body |
| **RCP** | Regional Coordination Platform |
| **KPI** | Key Performance Indicator |
| **EU** | European Union |
| **LEARN4SEA** | Innovative joint learning for environmental-friendly behaviour of communities in the Black Sea Basin (BSB00008) |
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# Executive Summary

The guidelines aim to support local, national, and regional authorities in strengthening cooperation frameworks to address environmental challenges, particularly pollution and ecosystem degradation affecting the Black Sea region.
The Black Sea Basin faces significant environmental pressures, including water pollution from nutrient inflows, untreated wastewater, marine litter, and oil discharges, as well as air pollution caused by industrial activity, urbanization, and transport. These challenges are exacerbated by fragmented governance, uneven policy implementation, and limited administrative capacity, especially in small and medium-sized municipalities.
In response, LEARN4SEA project promotes a coordinated and participatory approach, emphasizing the importance of multi-level governance and stakeholder engagement.
The guidelines build upon project findings, including environmental monitoring activities, stakeholder consultations, and pilot initiatives, to propose a structured cooperation mechanism tailored to the needs of local authorities. The proposed mechanism is based on a "quadruple helix" model, integrating public authorities, environmental agencies, academia, the private sector, and civil society. It operates across three governance levels: local level (Local Coordination Units – LCUs), responsible for implementation and community engagement, national level (National Coordination Bodies – NCBs), ensuring regulatory alignment and coordination and regional level (Regional Coordination Platform – RCP), facilitating transnational cooperation and knowledge exchange.
The mechanism follows a continuous operational cycle consisting of six stages: data collection, joint analysis, coordinated planning, implementation of measures, monitoring and evaluation, and feedback and adaptation. This iterative approach ensures responsiveness to environmental challenges and continuous improvement of policies and actions.
Key components of the mechanism include:

- ✓ Joint monitoring and data-sharing platforms
- ✓ Harmonized pollution reduction protocols aligned with EU directives
- ✓ Regional environmental initiatives and restoration projects
- ✓ Capacity building and knowledge exchange activities
- ✓ Strengthened legal and institutional cooperation.

The guidelines also highlight best practices from participating countries and emphasize the importance of integrating the mechanism within existing policy and legal frameworks. A diversified financial model is proposed, combining EU funding, national resources, municipal budgets, and private sector contributions to ensure sustainability.
Ultimately, the proposed cooperation mechanism aims to enhance environmental governance, improve coordination among stakeholders, and foster environmentally responsible behavior among communities. By providing a scalable and replicable model, the guidelines contribute to long-term environmental protection and sustainable development across the Black Sea Basin.

# 1 Introduction

Bordered by Romania, Bulgaria, Türkiye, Georgia, Russia and Ukraine, the Black Sea and its surrounding areas are home to more than 160 million people and feature a diverse range of habitats as well as a rich cultural and natural heritage. However, the state of the Black Sea environment continues to be a matter of concern due to the ongoing degradation of its ecosystem and the unsustainable use of its natural resources.

When it comes to the water quality, the Black Sea is seriously affected by certain pollutants, notably nutrients mainly from land-based sources and brought by via the rivers that flow into the sea. In this respect, only the Danube accounts for over half of the nutrient input to the Black Sea. Other pollutants such as insufficiently treated sewage that result in the presence of microbiological contaminants posing a threat to public health and a barrier to the development of sustainable tourism and aquaculture or oil from accidental or operational discharges from vessels, threaten the Black Sea ecosystem. To these, human actions such as intense, unsustainable tourism, uncontrolled urban and industrial development and non-ecological behaviour add up.

Air pollution, in general, is the largest environmental health risk globally and it significantly impacts the health of the population, particularly in urban areas. Air pollution in the Black Sea region has also become a pressing concern due to the high concentration of particulate matters, carbon dioxide and volatile organic compounds. Heavy industry, urbanisation, residential heating and car traffic heavily contribute to air pollution, thus posing serious threats to public health or even causing premature death.

# 2 Scope of document

While the existing Black Sea-specific legal instruments (e.g., EU directives, regional environmental conventions, etc.) either overlap or are divergent in their application and national policies are either lacking or ineffectively applied, small and medium-size communities in the Black Sea basin witness the irreversible process of degradation and suffer from the effects of pollution.

Aware of the fact that joint actions across borders, initiated by a multifarious partnership, ensure a better harmonized approach on a wider geographical scale and have the power to engage different types of organisations (local public authorities, environmental agencies, NGOs, higher education and research, etc.) as well as regular citizens, LEARN4SEA consortium set out to elaborate this document aimed at serving as a guide for local authorities to establish mechanisms for cooperation that would generate and support initiatives for better-protected environment and reduced pollution. The purpose of the document is to bridge the

gap between the decision makers and the local communities, the citizens, who are essential in reducing pollution through an environmentally-friendly behaviour.
This guide takes into consideration the results of the water and air quality measurements conducted within the LEARN4SEA project, thus identifying the specific risks posed to the environment, the national or regional bodies responsible for environmental protection in the participant countries, the current transnational cooperation initiatives as well as the best practices identified at European level.

# 3 Results of air and water quality measurements in the Black Sea Basin and risks posed to the environment

As per Output 1.5 *Jointly developed innovative methodology for air and water quality assessment in the Black Sea Basin regions*, chapter 1.5 Integrated assessment of collected data in the Black Sea Basin, the analysis of the monitoring campaigns conducted in Romania, Bulgaria, and Georgia provides a comprehensive and comparable overview of air and water quality patterns across representative Black Sea coastal environments, including large urban agglomerations, small coastal settlements, protected areas, port zones, and river-influenced marine sectors.
Across all investigated sites, particulate matter fractions ($PM_1$, $PM_{2.5}$, $PM_{10}$) and nitrogen oxides ($NO$–$NO_2$–$NOx$) exhibited strong internal correlations, indicating common emission sources primarily related to road traffic, residential heating (in winter), and port-related activities. A consistent pattern identified in all countries is the inverse relationship between wind speed and pollutant concentration, confirming the dominant role of atmospheric dynamics in short-term pollutant dispersion.
Seasonal contrasts were evident: winter campaigns showed stronger pollutant retention under stable atmospheric conditions, while summer measurements reflected enhanced mixing and more diffuse dispersion patterns, especially in coastal locations influenced by marine air masses. Protected areas such as Silistar demonstrated predominantly background air conditions, with limited local emission influence, confirming the capacity of the methodology to distinguish between local sources and regional background contributions.
Surface water assessments indicated moderate nutrient inputs in river-influenced coastal zones, without evidence of acute eutrophication during the monitoring period. In the Romanian sector (Sulina branch), physico-chemical indicators and dissolved oxygen levels reflect active ecological processes and acceptable water quality conditions. In the Bulgarian sector, nitrate concentrations in the Dvoynitsa and Kamchiya rivers confirm persistent but not critical nitrogen loading, consistent with regional agricultural pressure. The Georgian coastal sector (Sarpi–Poti)

displayed good ecological status, with natural variability driven by riverine influence and hydrodynamic mixing.
Together, these findings highlight the transboundary dimension of nutrient transport and the importance of integrating riverine and coastal monitoring when assessing Black Sea environmental pressures.
Microplastic contamination exhibited significantly higher spatial variability compared to classical physico-chemical parameters. Elevated concentrations recorded in certain Bulgarian coastal sites, particularly in semi-enclosed or retention-prone areas, suggest the influence of local accumulation processes and anthropogenic pressure. In the Danube freshwater inflow sector, the predominance of microfibres and secondary plastic fragments underscores the role of upstream urban, industrial, and agricultural activities in contributing to marine litter.
These findings reinforce the need for harmonised microplastic sampling and analytical procedures to ensure cross-border comparability and to support the development of regional baselines for marine litter assessment.
The screening of polycyclic aromatic hydrocarbons (PAHs) in Bulgarian port waters revealed concentrations below analytical detection limits for all investigated compounds, indicating low dissolved-phase.
Importantly, the joint application of a harmonised monitoring methodology across three countries demonstrated the feasibility of generating comparable datasets under diverse environmental and infrastructural conditions.
The fourth country in the partnership (Turkiye) could also be considered covered as both air and water assessment was performed in areas close to the border between Bulgaria and Turkiye (air quality measurements) and, respectively, between Turkiye and Georgia (water quality measurements).
Overall, the collected data validate the relevance of the proposed methodology as a transferable, scalable, and policy-supportive tool for integrated environmental assessment in the Black Sea Basin, capable of supporting evidence-based decision-making and regional cooperation in pollution reduction efforts.

# 4 National responsible bodies for environmental protection in the participant countries

## 4.1 Romania

In Romania, the national policy in the fields of environmental protection, green economy, biodiversity, protected natural areas and climate change is implemented by the **Ministry of Environment, Waters and Forests**. The Ministry develops and implements the national strategy as well as specific regulations for all environment-related activities, fulfilling the role of state authority, including coordination, regulation, monitoring, inspection and control. The areas of competence include: industrial pollution control, air quality and environmental noise, management of

protected natural areas, biodiversity conservation, biological security, environmental infrastructure, waste management, management of hazardous chemical substances, soil and subsoil protection, sustainable development, green economy and climate change. For its long-term strategy, the Ministry set out following priorities: - integration of the environmental protection requirements into other sectoral policies, in accordance with European and international requirements and standards; biodiversity protection, improvement of the quality of environmental factors in urban and rural areas.

The **National Agency for Environmental Protection** is the specialized institution subordinated to the Ministry of Environment, Waters and Forests that has competences in the implementation of policies and legislation in the field of environmental protection.

The National Agency for Environmental Protection acts locally via the 42 county offices (6 are located in the Southeast region of Romania: Constanta, Tulcea, Braila, Galati, Buzau, Vrancea) and it is responsible for the strategic environmental planning, monitoring of environmental factors, authorizing activities with environmental impact, reporting to the European Environment Agency in connection to air quality, climate change, protected areas, soil contamination, water.

The **National Environmental Guard** is a specialized inspection and control agency under the subordination of the Ministry of Environment, Waters and Forests that has the authority to sanction, suspend, or stop an activity if it pollutes or deteriorates the environment because it does comply with the rules set forth by the regulatory acts. The National Environmental Guard implements Government's policy in the field of preventing, detecting and sanctioning violations of legal provisions on environmental protection, including non-compliance with the regulations of specific laws in the areas of industrial pollution control and risk management, hazardous substances and products, biodiversity and protected natural areas, the environmental fund and other areas as stipulated in the specific legislation in force.

Similarly, to the National Agency for Environmental Protection, the National Environmental Guard has county offices that play an active role in ensuring environmental security through risk prevention actions and limiting ecological threats, namely pollution of water resources, air, reduction of soil fertility, trans-boundary pollution and others.

The **Environmental Fund Administration** is the main institution that provides financial support for the implementation of environmental protection projects and programs, established according to the European principles of "the polluter pays" and "producer responsibility". The Environmental Fund Administration operates as a specialized body of the central public administration, under the coordination of the Ministry of Environment, Waters and Forests.

In order to ensure a healthy living environment, the **local public authorities** have the following obligations: to ensure the separate collection, transport, neutralization

or final disposal of waste, including hazardous household waste; to improve the microclimate of cities by arranging and maintaining springs and water bodies both within and in their surrounding areas; to beautify and protect the landscape; to maintain street cleanliness; to maintain and improve the natural and anthropogenic landscape when developing urban and territorial plans; to take measures for the ecological restoration of damaged areas; to observe the urban and territorial planning provisions regarding the location of industrial sites, roads, sewage networks, treatment plants, street and industrial waste deposits so as not to harm the environment, the public recreation spaces, the health and comfort of the population; to comply with the special protection regime of spa towns, areas of tourist and recreational interest, protected areas and natural monuments; to adopt appropriate architectural elements, to optimize the housing density, considering the maintenance of green spaces, parks, tree lines; to regulate, by temporarily or permanently prohibiting, the access of certain types of vehicles or the carrying out of certain activities in certain areas; take measures against degrading the natural or landscaped environment through uncontrolled disposal of waste; to initiate projects for the arrangement, maintenance and development of the sewerage system.

The responsibilities of the **local police** in the field of environmental protection include: verifying the compliance with legal provisions regarding the conditions for the collection, transport and storage of household and industrial waste; supervising local waste dumps to prevent the outbreak of fires that could endanger human life, the environment or material goods; informing the competent public authorities in case legal standards regarding the level of pollution, including noise, are not being followed; identifying abandoned goods on the public or private property and applying the legal procedures for their collection; verifying the sanitation procedures of water sources, their banks, riverbeds or basins; verifying the sanitation and disinfestation of streets, access roads, green spaces and gutters; verifying the collection of household waste by sanitation service operators, in accordance with the established schedules; handling citizens' complaints regarding non-compliance with the legal requirements for safeguarding the environment and water sources; detecting violations and imposing penalties for breaking the environmental protection laws.

In relation to navigable waters, the Romanian Naval Authority is in charge of protecting them from ship pollution and responding to oil spills and other marine pollution incidents.

**Environmental NGOs** have an important role in shaping, influencing and implementing the public policies related to the protection of the environment, organising public awareness raising campaigns, promoting sustainable development and conservation of biodiversity as well as responsible management of natural resources.

## 4.2 Bulgaria

The state environmental protection policy is implemented by the **Ministry of Environment and Water** (MEW) and is integrated into sectoral policies - transport, energy, construction, agriculture, tourism, industry, education and others, and is implemented by the competent bodies of the executive branch.

The Ministry of Environment and Water develops the policy and strategy for environmental protection in the Republic of Bulgaria, manages the National Environmental Monitoring System (NEMS) through the Executive Environment Agency (EEA), controls the state of the environment on the territory of the country, coordinates the control powers of other executive authorities regarding the environment, issues orders, permits, instructions and approves methodologies, prepares the annual report on the state of the environment, carries out the activities of organization and coordination in accordance with Regulation (EU) 2021/783 of the European Parliament and of the Council of 29 April 2021 establishing a Programme for the Environment and Climate Action (LIFE) and repealing Regulation (EU) No 1293/2013 (OJ, L 172/53 of 17 May 2021), prepares and submits to the European Commission reports on the implementation of the regulatory acts of the European Union law in the field of the environment.

In performing its functions, the Ministry of Environment and Water is guided by the principles of transparency, dialogue, partnership, accountability and inclusion of the public in the importance of the environmental cause.

The **Executive Agency for the Environment** is an administration under the Ministry of Environment and Water responsible for implementing management, coordination and information functions regarding environmental control and protection in Bulgaria. The Agency is the National Coordination Centre under the European Environment Agency (EEA). It is also a member of the Environmental Protection Agency Network. The EEA manages the National Environmental Monitoring System. The system is organized in accordance with the provisions of Chapter Eight of the Environmental Protection Act (EPA) and includes the National Networks for monitoring atmospheric air, waters, lands and soils, forests and protected areas, biodiversity, radiological monitoring and noise monitoring. The scope of the National Environmental Monitoring System also includes the control and information systems for emissions of harmful substances into the atmospheric air, wastewater emissions into water bodies, a waste information system, a soil information system, a biodiversity information system, and an automated gamma-ray background radiation system. The system provides timely and reliable information on the state of the elements of the environment and the factors affecting it, on the basis of which analyses, assessments and forecasts can be made to justify activities for the conservation and protection of the environment from harmful impacts.

The **regional environmental and water inspectorates**, **the national park directorates and the basin directorates** ensure the implementation of the state environmental protection policy at the regional level.
The **regional governors** ensure the implementation of the state environmental protection policy on the territory of the respective region, coordinate the work of the executive authorities and that between the municipalities on the territory of the region regarding the implementation of the state environmental protection policy.
The **mayors of municipalities** inform the population about the state of the environment in accordance with the requirements of the Environmental Protection Act, develop and control together with other bodies plans for eliminating the consequences of emergency and mass pollution on the territory of the municipality, organize waste management on the territory of the municipality, control the construction, maintenance and proper operation of wastewater treatment plants in urbanized areas, organize and control the cleanliness, maintenance, protection and expansion of urban green systems in populated areas and suburban areas, as well as the protection of biological diversity, landscape and natural and cultural heritage in them, organize the activities of environmental inspections established by decision of the municipal council, including on a public basis, which have the right to draw up acts for establishing administrative violations, determine the officials who may draw up acts for establishing administrative violations.
**Non-governmental organizations** (NGOs) dealing with environmental protection also actively contribute to the formation of environmental policies, the quality implementation of projects, measures and activities related to the sustainable use of natural resources and the effectiveness of the monitoring and control carried out.

### 4.3 Georgia

A major portion of environmental policy and legislation is being developed by the **Ministry of Environmental Protection and Agriculture of Georgia** (MEPA). MEPA also plays a major role in environmental administration, issuing and enforcement of the permits, implementation of state control, data analysis and management in the field of environmental protection and use of natural resources (except oil and gas) through its subordinated structural units as well as state subordinated entity and the Legal Entities of Public Law. MEPA also coordinates the cooperation within the framework of regional and international Multilateral Environmental Agreements (MEAs).
The Ministry of Economy and Sustainable Development, the Ministry of Regional Development and Infrastructure, the Ministry of Finance with its Customs Department, the Ministry of Internal Affairs, the Ministry of Internally Displaced Persons from the Occupied Territories, Labour, Health and Social Affairs of Georgia and the National Statistics Office are key state institutions in this respect. In order to address complex environmental issues such as the organization of waste management, reducing air pollution in larger settlements and industrial areas,

solving water quality and quantity issues, protecting forest resources and biodiversity and managing coastal zones and the Black Sea, close cooperation among the ministries and integration of environmental aspects into other planning documents are needed.

The **National Environment Agency** (NEA) is a legal entity of public law within the system of the Ministry of Environment Protection and Agriculture of Georgia, which was established as an agency on September 1, 2008. NEA carries out its activities independently under state control.

NEA is guided by the Constitution of Georgia, international treaties of Georgia, decrees of the President of Georgia, decrees of the Government of Georgia, orders of the Minister of Environment Protection and Agriculture of Georgia, regulations, other legislative and subordinate normative acts and individual administrative-legal acts of the Head of the Agency.

The **Division of Environmental Protection and Natural Resources** of the Adjara Autonomous Republic (A/R) manages forests on the territory of the A A/R (150, 117 ha) through its Forestry Agency except for those having the status of protected areas. In addition, the division participates in all relevant actions aimed at protecting the environment and human health.

**Local self-governments** are responsible for the management of natural resources of local importance, including water and forest resources and land owned by the respective municipality. Municipal waste collection, street cleaning, parks and other public spaces on the territory of a municipality and greening activities are also the functions of municipalities. Local self-governments issue construction permits for activities of certain categories, part of which could be the conclusion of ecological expertise. The academic sector is also among the key stakeholders, as scientifically proven analysis is crucial for effective decision making and good governance. Currently, scientific institutes in the country focus mainly on problems related to geology, seismology, radiation safety, biodiversity, soil, and water resources. Environmental NGOs and SCOs also play an important role in the overall governance process through their support to the state agencies in building their capacities. NGOs also participate in various discussions and contribute to policy formulation process, as well as serve as watchdogs and monitor environmental performance.

### 4.4 Türkiye

In Türkiye, environmental protection is managed through a network of key institutions, each playing a distinct yet interconnected role. At the forefront of this structure is the **Ministry of Environment, Urbanization, and Climate Change**, which is responsible for developing and implementing national environmental policies. This ministry oversees crucial processes such as Environmental Impact Assessments (EIA), waste management, and pollution control. In addition, it leads Türkiye's climate change mitigation strategies, ensuring environmental sustainability at a national level.

While the ministry handles high-level policy-making, the **Turkish Environment Agency (TÜÇA)** focuses more on practical environmental initiatives that directly impact citizens. Through projects like the zero-waste initiative and its management of plastic bag usage and deposit-return systems, TÜÇA helps minimize waste at the consumer level. To further enhance public participation, the agency also organizes awareness campaigns that educate people on preventing environmental pollution.

Scientific research and innovation are equally vital in addressing environmental challenges. This responsibility is undertaken by the **Scientific and Technological Research Council of Türkiye (TÜBİTAK)**, which supports scientific research and promotes green energy projects. By encouraging technological advancements in environmental sustainability, TÜBİTAK plays a key role in developing innovative solutions to ecological issues.

Of course, environmental protection is not limited to land; Türkiye's precious water resources require careful management as well. The **General Directorate of State Hydraulic Works (DSİ)** is the primary institution responsible for ensuring the conservation and effective management of these resources. Beyond water supply and irrigation, DSİ also conducts environmental impact assessments for major infrastructure projects such as dams, ensuring that development efforts align with environmental priorities.

Protecting Türkiye's forests and natural ecosystems is another crucial aspect of environmental conservation. The **General Directorate of Forestry (OGM)** assumes this responsibility by implementing afforestation projects, preserving forested areas, and responding swiftly to wildfires. With Türkiye's rich biodiversity at stake, OGM's efforts are essential in maintaining ecological balance.

Ensuring that national environmental policies are effectively applied at the local level requires strong regional coordination. This responsibility lies with the **Provincial and District Directorates of Environment and Urbanization**, which oversee waste disposal, conduct industrial inspections, and manage environmental permits. By working closely with local stakeholders, these directorates ensure environmental standards are upheld across Türkiye.

Municipalities also play an indispensable role in environmental protection, particularly in urban areas. Their responsibilities range from solid waste management and recycling to air pollution control and the preservation of green spaces. Through these efforts, municipalities contribute significantly to improving environmental conditions at the community level.

However, effective environmental protection also requires strict enforcement to deter harmful practices. This is where the **Turkish Gendarmerie Environmental, Nature, and Animal Protection Units** and the **Environmental Police** step in. These specialized units actively combat environmental crimes such as illegal dumping, pollution, and poaching. By supervising activities that threaten the environment, they ensure that legal regulations are effectively enforced.

In cases where environmental disasters occur, immediate intervention becomes crucial. The **Disaster and Emergency Management Authority (AFAD)** takes charge in such situations, coordinating response efforts for incidents like chemical spills, floods, and other ecological crises. Their swift actions help minimize environmental damage and protect public safety.
Environmental risks related to radiation and nuclear activities require specialized expertise. This responsibility is managed by the **Turkish Atomic Energy Authority (TAEK)** and the **Nuclear Regulatory Authority (NDK)**, which closely monitor nuclear facilities and enforce safety protocols to prevent environmental harm.
Given Türkiye's extensive coastline, marine protection is another critical area. The **Turkish Coast Guard Command** plays a vital role in preventing and responding to marine pollution incidents. The Coast Guard also enforces regulations to protect marine biodiversity, monitors maritime waste management, and works diligently to prevent oil spills.

Collectively, these institutions form a comprehensive framework for environmental protection in Türkiye. By combining policy-making, enforcement, public engagement, and scientific research, they work together to safeguard Türkiye's natural resources and promote long-term environmental sustainability.

# 5 State of play of national and transnational cooperation

## 5.1 Romania

National and international cooperation on the environment in the Black Sea region is facilitated through international frameworks like the regional sea **Bucharest Convention** aimed to protect the Black Sea from pollution, manage marine resources, and promote sustainable human development, and various programs supported by the European Union, the World Bank, and the United Nations.
Key initiatives include:

- the **World Bank's Blueing the Black Sea Program** (BBSEA) implemented with Bulgaria, Georgia, Moldova, Romania, Türkiye, and Ukraine to support a regional framework for sustainable management, focusing on reducing land-based pollution like untreated wastewater, agricultural runoff, and marine litter,

-the EU-funded transnational **Interreg NEXT Black Sea Basin Programme** for cross-border cooperation on research, climate change adaptation, and protecting nature and biodiversity, and

-the **Black Sea Synergy**, an EU-led initiative aimed to strengthen regional collaboration on environmental challenges, whose efforts focus on sustainable management, pollution control, climate change adaptation, and biodiversity protection across participating countries.

-organization of the **Black Sea Economic Cooperation** (BSEC) that aims at environmental protection through its Working Groups, focusing on issues like climate change adaptation strategies and creating information exchange mechanism.

Areas of focus and cooperation refer to:

- Pollution control: Initiatives target pollution from land-based sources, agricultural runoff, and industrial discharges, with a goal to improve water quality in the Black Sea.
- Climate change adaptation: Regional cooperation is being promoted to develop strategies for adapting to the impacts of climate change and preventing disasters.
- Biodiversity and nature protection: Programs aim to improve the conservation of nature, biodiversity, and the management of marine protected areas.
- Sustainable development: Efforts include promoting sustainable growth, urban and rural development, and the efficient management of natural resources.

Romania has a national framework to support the 2030 Agenda for Sustainable Development, which integrates economic, social, and environmental pillars. The **National Strategy for the Sustainable Development of Romania** - **2030** (NSDSR) presents the concept of sustainable development, according to the programming documents of the UN, the EU and Romania, and sets the national targets for each of the 17 SDGs, respectively Horizon 2020 for the expected measures and Targets 2030 for the rational phasing of the efforts aimed at achieving this goal.

The environmental goals included in the agenda are:

- Clean Water and Sanitation - Ensure availability and sustainable management of water and sanitation for all.
- Affordable and Clean Energy - Ensure access to affordable, reliable, sustainable and modern energy for all.
- Sustainable Cities and Communities - Make cities and human settlements inclusive, safe, resilient and sustainable.
- Responsible Consumption and Production - Ensure sustainable consumption and production patterns.
- Climate Action - Take urgent action to combat climate change and its impacts.
- Life Below Water - Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
- Life on Land - Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.
- Partnerships for the Goals - Strengthen the means of implementation and revitalize the global partnership for sustainable development

Ministerial areas are involved in developing strategies, with "**Hubs for Sustainable Development**" in ministries helping to ensure policy coherence and the implementation of the Sustainable Development Goals (SDGs).
Romania uses instruments such as **Sovereign Green Bond Framework** to fund projects aimed at improving air quality, developing public transport, and installing electric vehicle charging points.
Regarding Transnational cooperation, as an EU member, Romania implements common frameworks for development cooperation and environmental policy, such as the New European Consensus on Development.
Romania actively participates in cooperation in the Danube region, which is crucial for its environmental and economic development. It also seeks to involve non-EU riparian states through initiatives like the Danube Cooperation Process.
Romania is a signatory to international agreements, including the Paris Agreement and the Montreal Protocol, and works with partners like the US Environmental Protection Agency on monitoring and data collection.
Romania's environmental protection policy is built on its constitution and EU directives, aiming for sustainable development through legal frameworks and strategic plans. Key areas include a focus on sustainable resource management, waste reduction through the "Pay-As-You-Throw" system, air and water quality protection, biodiversity conservation, and combating climate change. The policy is implemented through national laws and administered by various agencies, such as those of the Ministry of Environment, Waters and Forests.
The constitutional and legal framework of Romania's environmental protection policy is based on:

-The **Constitution of Romania**, 1991, which provides for environmental policies based on Article 135 paragraph e) which states the importance of environmental protection and recovery, as well as the preservation of the ecological balance, and also in Article 35 about the “Right to a Healthy Environment”;

-**The Environmental Protection Law no. 137/1995 and Law no. 265/2006**, the main framework for environmental protection, built on principles like sustainable development and risk prevention;

-**the Water Law** (WL) a regulation of economic and social activities regarding environmental impact, protection of natural resources and conservation of biodiversity and pollution control;

-**Law no. 220/2008** which promotes renewable energy and carbon emission reduction;

-**Environmental Impact Assessment** (EIA) which identifies, predicts, and assesses impacts on factors like air, water, biodiversity, and human health, and proposes ways to mitigate negative effects;

-**Air Quality Regulations** based on Law no. 104/2011 and aligned with European Union directives, mandating that environmental authorities monitor pollutants, set

limit values, and establish alert thresholds. The **National Air Pollution Control Program** (PNCPA) outlines measures to reduce emissions from various sectors like agriculture, industry, and transport, while county and local authorities are responsible for implementing and enforcing regulations within their jurisdictions.

-**Waste Management Law** is primarily governed by Government Emergency Ordinance no. 92/2021 (which replaced Law no. 211/2011), aligning the country with European Union objectives for a circular economy: increased municipal waste recycling targets (55% by 2025, 60% by 2030, and 65% by 2035) and the enforcement of a waste hierarchy through mechanisms like fees and producer responsibility schemes.

-**Nature Conservation and Biodiversity law** is based on EU directives, with key legislation including the O.U.G. no. 57/2007 for protected natural areas and national laws like the Forest Code (Law 26/1996). The system is managed by the Ministry of Environment, Forests and Water Administration, with the Direction of Biodiversity coordinating national policies. Key aspects include the establishment of the Natura 2000 network, protection of national parks and the Danube Delta, and regulations against activities that could damage habitats and specie Climate Change Laws and Energy Efficiency.

-**Environmental Liability and Enforcement** are governed by the principle of "the polluter pays," based on Government Emergency Ordinance no. 68/2007 transposing EU directives and Government Emergency Ordinance no. 195/2005 on environmental protection.

Romania's environmental protection policy objectives and strategies are:

-Sustainable development principles, including the precautionary principle and the participation of NGOs and the public in environmental decision-making.

-The National Waste Management Strategy which uses a "Pay-As-You-Throw" (PAYT) system to encourage source separation and recycling;

-The National Strategy on Climatic Changes (2005) which focuses on limiting greenhouse gas emissions and developing adaptation measures;

-Biodiversity and natural resources policies aimed to preserve and protect natural habitats, wetland areas, and mountain ecosystems, while managing forests and combating desertification

The following key implementation bodies help to carry out Romania's environmental protection policy objectives and strategies:

-Ministry of Environment, Waters and Forests who coordinates the implementation of environmental legislation;

-County Environmental Protection Agencies who implement policies and legislation at the county level and assess environmental impact;

-National Environmental Guard who monitors compliance with environmental regulations.

-National Administration “Romanian Waters” who manages water resources.

Romania is engaged in **regional and bilateral environmental cooperation** in the Black Sea region through frameworks such as the EU's Black Sea Synergy, the Black Sea Economic Cooperation (BSEC), and the Convention on the Protection of the Black Sea against Pollution (Bucharest Convention). It also has bilateral partnerships, such as the one with Bulgaria, that focus on environmental protection, the blue economy, and climate resilience. and often include a strong civil society component.
Romania supports regional programs like the "Black Sea Basin Joint Operational Programme," which funded projects for sustainable development in areas like tourism.
Romania also cooperates with other countries and organizations on Black Sea environmental issues. For example, the International Commission for the Protection of the Danube River (ICPDR) has a long-standing collaboration with the Black Sea Commission to address pollution originating from the Danube.
Water management policies in Romania's Black Sea Basin region are aimed at achieving "good status" for all water bodies by reducing pollution, protecting biodiversity, and promoting sustainable development. This includes implementing ecological recovery actions, improving wastewater treatment, managing flood and drought risks, and fostering cross-border cooperation through initiatives like the NEXT Black Sea Basin Programme.

## 5.2 Bulgaria

The management, protection and control of environmental components and factors affecting them are carried out in accordance with the procedure established by the Environmental Protection Act (EPA) and by special laws on environmental components and factors. The components of the environment are: atmospheric air, atmosphere, water, soil, subsoil, landscape, natural sites, mineral diversity, biological diversity and its elements. Factors that pollute or damage the environment may be: natural and anthropogenic substances and processes; various types of waste and their locations; risky energy sources - noise, vibrations, radiation, as well as some genetically modified organisms. In the case of transboundary pollution, the requirements contained in agreements and treaties to which the Republic of Bulgaria is a party apply.
As already mentioned, the state environmental protection policy is implemented by the Ministry of Environment and Water and is integrated into sectoral policies - transport, energy, construction, agriculture, tourism, industry, education and others, and is implemented by the competent bodies of the executive branch.
The Ministry of Environment and Water develops the policy and strategy for environmental protection in the Republic of Bulgaria, manages the National Environmental Monitoring System (NEMS) through the Executive Environment Agency (EEA), carries out the activities of organization and coordination in accordance with Regulation (EU) 2021/783 of the European Parliament and of the

Council of 29 April 2021 establishing a Programme for the Environment and Climate Action (LIFE) and repealing Regulation (EU) No 1293/2013 (OJ, L 172/53 of 17 May 2021), prepares and submits to the European Commission reports on the implementation of the regulatory acts of the European Union law in the field of the environment.

Regarding the protection of waters and the marine environment, projects and activities have been developed and implemented according to the following strategic documents:

-The National Strategy for Management and Development of the Water Sector (NSMDWS) in the Republic of Bulgaria;

-Strategic Action Plan for Environmental Protection and Restoration of the Black Sea;

-Strategy for environmental protection in the marine waters of the Black Sea in the Republic of Bulgaria (Marine Strategy);

-River basin management plans;

-Flood risk management plans.

Framework for international cooperation:

-Water Framework Directive and related legislation;

-Directive on the assessment and management of flood risks;

-Marine Strategy Framework Directive;

-Convention for the Protection of the Black Sea against Pollution;

-Integrated coastal zone management;

-Black Sea Synergy and European Union Strategy.

Key areas of cooperation:

-Environmental monitoring;

-Marine litter and pollution control;

-Conducting information campaigns, together with non-governmental organizations, on pollution control and its consequences;

-Joint monitoring programs with international partners to improve data collection and assessment of Black Sea water quality, biodiversity and pollution;

-Climate change and sustainability;

-Coastal strengthening activities and sustainable use of marine resources;

-Marine biodiversity monitoring and sustainable fishing.

Regional and bilateral cooperation:

-Cooperation with the countries of the Black Sea region in the implementation of the Black Sea Synergy and Strategy of the European Union, the Convention for the Protection of the Black Sea against Pollution and other regional frameworks;

-Transboundary cooperation on water management, with a focus on river basins that flow into the Black Sea.

Water management policies in the Black Sea Basin Region in Bulgaria are aimed at transposing international agreements and conventions related to pollution, biodiversity conservation and climate change into national legislation. Transboundary cooperation with the Black Sea countries is of key importance for the protection and restoration of the marine environment and the sustainable development of the region.

### 5.3 Georgia

MEPA is accountable to the Government of Georgia and performs the tasks provided for by law or assigned by the Government of Georgia and the Prime Minister of Georgia on the basis of law.
The sphere of governance of MEPA includes the management, overseeing, and promoting development in the fields of environmental protection, agricultural and rural development.
The Ministry of Environmental Protection and Agriculture follows to fulfil the obligations assumed by the existing Association and other international agreements between Georgia and the European Union.

National Cooperation Framework
Governmental Institutions:

- The Ministry of Environmental Protection and Agriculture of Georgia (MEPA) plays a leading role in coordinating Black Sea-related activities, ensuring compliance with international agreements, and implementing national strategies.

Key Policies and Strategies

- National Biodiversity Strategy and Action Plan (NBSAP) with specific actions for coastal and marine ecosystems.
- Adoption of the EU Association Agreement obligations, including measures to implement the Marine Strategy Framework Directive (MSFD).
- Fourth National Environmental Action Program of Georgia for 2022-2026 (NEAP 4).

International Cooperation Framework

- Partnerships with International Organizations
- Black Sea Commission (BSC): Active engagement in regional efforts under the Bucharest Convention for the Protection of the Black Sea Against Pollution
- United Nations Development Programme (UNDP): Supporting Georgia's implementation of marine protection and sustainable management projects

- European Union: Participation in the Black Sea Synergy initiative and EU-funded projects like EMBLAS (Improving Environmental Monitoring in the Black Sea)
- Global Environment Facility (GEF): Collaboration on projects to reduce nutrient pollution and protect biodiversity in the Black Sea basin

Key Areas of Collaboration

- Environmental Monitoring
- Joint monitoring programs to improve certain activities like data collection, assessment of water quality, biodiversity, and pollution.
- Marine Litter and Pollution Control
- Engagement in regional actions to prevent and reduce marine litter in collaboration with UNEP and EU projects
- Cooperation with NGOs for public awareness campaigns on pollution control
- Climate Change and Resilience
- Initiatives for the sustainable use of marine resources and addressing climate-induced coastal erosion
- Sustainable Fisheries and Biodiversity Protection
- Participation in regional frameworks for marine biodiversity conservation and sustainable fishery practices

Regional and Bilateral Cooperation

- Cooperation with Black Sea countries (e.g., Turkey, Bulgaria, Romania) under the EU Black Sea Synergy and other regional frameworks.

Georgia's national and transnational cooperation for the Black Sea focuses on aligning with international standards, strengthening institutional frameworks, and addressing key challenges such as pollution, biodiversity loss, and climate change. Continued collaboration with international organizations, EU initiatives, and Black Sea countries is essential for achieving long-term sustainable development and environmental protection in the region.

## 5.4 Türkiye

Environmental governance in Türkiye is structured through a multi-level and multi-actor framework, where centralized policy-making is closely integrated with decentralized implementation capacities, enabling not only regulatory alignment but also operational effectiveness and data-driven environmental management, particularly in transboundary ecosystems such as the Black Sea.

National Governance and Institutional Framework

Environmental policy development and coordination are primarily carried out by the Ministry of Environment, Urbanization and Climate Change, while implementation,

monitoring, and enforcement are undertaken through a coordinated institutional structure including the Turkish Environment Agency, the General Directorate of State Hydraulic Works, the General Directorate of Forestry, as well as provincial directorates and municipalities. This institutional configuration allows environmental policies to be translated into measurable local outcomes, as reflected in the widespread implementation of waste management systems, basin-based water management practices, and ecosystem protection measures across different administrative levels.

A key feature of Türkiye's environmental governance model is the establishment of an Integrated Environmental Monitoring System, which simultaneously covers air, water, soil, and biodiversity components and enables real-time data collection and analysis. The system integrates national air quality monitoring networks, wastewater and water quality monitoring systems, marine monitoring programmes such as DEN-İZ, industrial emissions tracking, and GIS-based ecosystem observation tools, thereby facilitating continuous environmental assessment and early risk detection. By enabling cross-institutional data sharing and standardised reporting, this infrastructure contributes to Black Sea cooperation by supporting the generation of comparable datasets, while operational evidence indicates high spatial coverage of monitoring networks and increasing reliance on data-driven decision-making processes in environmental management.

Türkiye actively participates in major regional and global environmental cooperation mechanisms, including the Convention on the Protection of the Black Sea Against Pollution, Black Sea Economic Cooperation, European Union Black Sea Synergy, Interreg NEXT Black Sea Basin Programme, and the Paris Agreement. Through these frameworks, Türkiye contributes to regional environmental governance by promoting pollution control, biodiversity conservation, climate adaptation, and environmental data exchange, while its active engagement in project-based cooperation has led to the development of shared methodologies and increased alignment of environmental monitoring practices across Black Sea riparian countries.

Türkiye's cooperation approach is operationally focused on four main areas. Pollution prevention at source is addressed through integrated waste management systems, industrial emissions control, and wastewater treatment expansion, which collectively reduce the amount of land-based pollution entering the Black Sea. Marine and coastal protection is ensured through monitoring and response systems, port and ship-based emission controls, and coastal zone management practices, all of which contribute to maintaining environmental quality in shared marine areas. Climate change adaptation and resilience are strengthened through coordinated disaster risk management led by the Disaster and Emergency Management Authority, alongside measures addressing coastal erosion, flooding risks, and sectoral integration of climate policies, thereby enhancing the region's capacity to respond to climate-related impacts.

Stakeholder and public engagement is promoted through national awareness programmes, local government initiatives, and collaborative platforms, ensuring that environmental governance incorporates both institutional and societal participation.
Academic institutions play an increasingly important role in Türkiye's environmental governance system, with Piri Reis University contributing through green transformation programmes, environmental monitoring initiatives, and multi-stakeholder platforms. These activities strengthen regional cooperation by facilitating knowledge exchange, supporting innovation, and bridging the gap between scientific research and policy implementation, while participation data from such platforms indicate growing engagement from international stakeholders and increased collaboration across sectors.

Türkiye's environmental governance model combines centralized policy-making, strong implementation capacity, and advanced monitoring systems, creating an integrated structure that enhances the effectiveness of transnational cooperation.
Through its emphasis on data generation, operational capacity, and multi-stakeholder engagement, Türkiye contributes to Black Sea environmental governance not only as a policy-aligned country but also as an implementation-oriented and data-driven actor capable of producing measurable and transferable solutions at the regional level.

# 6 Comparative Analysis, Gaps and Lessons Learned

## 6.1 Comparative Overview of Participating Countries

The analysis of environmental governance frameworks and cooperation practices in Romania, Bulgaria, Georgia, and Türkiye reveals both structural similarities and important differences that influence the effectiveness of environmental protection and pollution reduction efforts in the Black Sea Basin.
From an institutional perspective, all participating countries have established centralized environmental authorities responsible for policy development, regulation, and monitoring. Romania and Bulgaria, as European Union Member States, operate within a fully harmonized EU legislative framework, including the Water Framework Directive and the Marine Strategy Framework Directive. This results in relatively structured monitoring systems, standardized reporting procedures, and stronger regulatory enforcement mechanisms.
In contrast, Georgia and Türkiye, while aligned with many EU principles and actively engaged in regional cooperation frameworks, demonstrate more flexible and evolving governance systems. Georgia has made significant progress in aligning its environmental policies with EU standards through the Association Agreement, but still faces challenges in implementation capacity and institutional coordination.

Türkiye, on the other hand, exhibits a highly operational and data-driven approach, supported by advanced monitoring systems and strong implementation capacity, although not fully bound by EU regulatory structures.

At the local level, municipalities in all countries play a crucial role in environmental management, particularly in waste management, urban planning, and public awareness. However, the level of administrative capacity, financial resources, and technical expertise varies significantly. Smaller municipalities across all countries face similar constraints, including limited access to funding, insufficient technical infrastructure, and lack of specialized personnel.

In terms of environmental monitoring, Romania and Bulgaria benefit from EU-integrated monitoring systems, while Türkiye stands out for its advanced and integrated data collection infrastructure. Georgia is progressively strengthening its monitoring systems, including the adoption of automated technologies and standardized methodologies.

Transnational cooperation is well established across all countries through regional frameworks such as the Black Sea Commission, the Bucharest Convention, and EU-funded programmes like Interreg NEXT Black Sea Basin. However, the depth and operationalization of this cooperation vary, often depending on institutional capacity and project-based engagement.

## 6.2 Common Gaps and Challenges

Despite differences in governance systems and institutional capacity, several common gaps and challenges can be identified across all participating countries.

A major shared challenge is the fragmentation of environmental governance, particularly between national and local levels. While national authorities typically establish policies and regulatory frameworks, local authorities are responsible for implementation, often without sufficient resources or guidance. This results in inconsistencies in enforcement and limited effectiveness of environmental measures.

Another significant gap relates to the limited integration of data and insufficient use of environmental monitoring results in decision-making processes. Although monitoring systems exist, data is not always systematically shared, harmonized, or translated into actionable policies at local level.

Capacity constraints represent a critical issue, especially for small and medium-sized municipalities. These include limited financial resources, lack of technical expertise, and insufficient administrative capacity to design and implement complex environmental initiatives.

Public engagement and behavioral change also remain insufficiently developed. While awareness campaigns are conducted, they are often sporadic and not

integrated into long-term strategies. As a result, environmentally harmful behaviors persist, particularly in relation to waste management and pollution.
Another common gap is the lack of structured and continuous cooperation mechanisms. Existing cooperation is often project-based, temporary, and dependent on external funding, rather than embedded in permanent institutional frameworks.
Finally, there is a limited level of practical guidance available for local authorities. While policies and strategies exist at higher levels, municipalities often lack clear, operational tools and methodologies to translate these into concrete actions.

## 6.3 Lessons Learned

Based on the comparative analysis and identified gaps, several key lessons can be drawn to support the development of more effective environmental cooperation mechanisms in the Black Sea Basin.
First, multi-level governance is essential. Effective environmental protection requires strong coordination between local, national, and regional levels. Mechanisms that clearly define roles, responsibilities, and communication channels significantly improve implementation outcomes.
Second, data-driven decision-making enhances effectiveness. Countries with more advanced monitoring systems and better data integration demonstrate stronger capacity to identify environmental problems, prioritize actions, and measure results. Therefore, improving data collection, sharing, and analysis should be a priority.

Third, local authorities must be empowered. Given their direct interaction with communities, municipalities play a critical role in influencing environmental outcomes. Strengthening their capacity through training, funding, and access to tools is essential for achieving tangible results.
Fourth, stakeholder engagement is a key success factor. Successful initiatives consistently involve not only public authorities but also academia, NGOs, the private sector, and citizens. The quadruple helix approach proves to be an effective model for fostering innovation, ownership, and sustainability.
Fifth, cooperation must move beyond project-based approaches. While projects are valuable for piloting solutions, long-term impact requires institutionalized cooperation mechanisms that ensure continuity, stability, and scalability.
Sixth, practical and adaptable solutions are more effective than purely strategic frameworks. Local authorities benefit most from clear, simple, and adaptable tools that can be implemented within their existing capacities and resources.
Finally, transnational cooperation adds significant value when it enables knowledge transfer, harmonization of approaches, and joint problem-solving. However, this requires not only formal frameworks but also active engagement, trust-building, and continuous interaction between partners.

### 6.4 Implications for the Proposed Cooperation Mechanism

The findings of this comparative analysis directly inform the design of the proposed cooperation mechanism presented in the following chapter.

The mechanism addresses the identified gaps by:
- strengthening coordination across governance levels,
- promoting data sharing and joint analysis,
- supporting capacity building for local authorities,
- integrating stakeholder participation through the quadruple helix model,
- providing a structured and continuous cooperation framework.

By incorporating these elements, the mechanism responds to the specific needs and challenges identified across the participating countries, ensuring both relevance and applicability in diverse national and local contexts.

## 7 Best practices

### 7.1 Romania

Romania is involved in several Black Sea environmental projects, including large-scale efforts to combat coastal erosion through beach nourishment, coastal structure reinforcement, and ecosystem rehabilitation. Other projects focus on improving maritime spatial planning, marine biodiversity, and pollution control through cross-border cooperation, research, and capacity building. Additionally, some projects focus on improving wastewater treatment facilities and managing natural resources more sustainably.

In 2024, Romania together with Bulgaria, Georgia, Greece, and Ukraine participated in the ALGAEREVIVE (Harnessing Algae Power for Eutrophication Reduction and Blue Growth) project, aimed to explore algae's potential as a solution to reduce pollution, as well as their use in a variety of industrial applications in the wider Black Sea region.
The best practices for the AlgaeRevive project include:

- creating a Black Sea algae knowledge hub - establishing a centralized platform to share research, innovation, and best practices related to algae in the Black Sea region
- developing and implementing an AI-powered algae monitoring tool (AlgaeSense)

- establishing pilot actions such as a sustainable aquaponics system, to demonstrate the industrial potential of algae and their use in pollution reduction,
- fostering cross-border collaboration between research institutions, industry, and policymakers to promote algae-based solutions, and
- focusing on sustainable algae applications for pollution reduction and blue growth, implementing sustainable aquaponics models that combine fish, microalgae, and plants to improve environmental health and enhance sustainability.

Key actions involve public awareness campaigns, cross-border joint projects such as the Black Sea Marine Litter Regional Action Plan, where Romania together with Bulgaria, Georgia, Türkiye, Russian Federation and Ukraine coordinated their efforts to reduce pollution from waste in the Black Sea. The involved partners elaborated the Strategic Action Plan for Environmental Protection and Black Sea Rehabilitation (BS SAP 2009), which emphasizes the need for collective action among Black Sea countries to protect marine ecosystems from pollution originating from various sources, including land, rivers, and ships. The plan includes specific measures such as improved waste management, enhanced port reception facilities, mandatory marking of fishing gear, and strengthening international cooperation.

Romania is involved in national projects focusing on Black Sea environmental protection through coastal erosion prevention, monitoring, and innovative management, such as the "Digital Twin" project for the coastal zone. Other projects address wider Black Sea Basin issues like pollution, biodiversity loss, and climate change adaptation through cross-border cooperation, educational initiatives, and the development of ecological recovery actions. Key national bodies include the National Institute for Marine Research and Development “Grigore Antipa” (INCDM) and projects funded through programs like the Black Sea Basin Programme.

Romania is undertaking large-scale projects to protect its Black Sea coastline from erosion, involving artificial beach nourishment with sand from the seabed, building new coastal structures like breakwaters and revetments, and rehabilitating existing infrastructure. For example, Protecting Romania’s coastline from erosion project (2019 - 2023) was aimed to protect and rehabilitate a 30.5 km stretch of Romania’s Black Sea coast. It involved artificial sanding of beaches, building, extension and replacement of coastal structures such as breakwaters for beach stabilisation and support walls, rehabilitation of sluices, cliff consolidation, and dredging.

The main partners in project include the Romanian Waters National Administration and the Dobrogea-Litoral Water Basin Administration as beneficiaries, along with the European Investment Bank and the European Commission for funding and support. Other project partners include companies like Aquaproiect which contributes to flood risk management and protection works and PORR Group, which carries out physical works, such as beach nourishment and construction.

To preserve biodiversity, construction of artificial reefs and introduction of bio-structures and repopulation with marine species such as Cystoseira barbata, Donacilla cornea, Donax trunculus, Pholas dactylus and Zostera noltii are planned.
Equipment was purchased for monitoring purposes.
The Edighiol and Periboina sluices, which control water flow between the Black Sea and Lake Sinoe, are to be restored. Measures have already been taken to protect the bases of electricity pylons and erect new coastal protection structures. In Constanta, existing structures that no longer fulfil their initial protective purpose are to be demolished and new coastal revetments will be built to protect a historic area of the city.
Best practices for protecting Romania's coastline from erosion include a combination of hard engineering (coastal structures, revetments, breakwaters) and soft engineering (beach nourishment with sand, nature-based solutions like artificial reefs). Effective long-term management requires a science-based approach involving detailed studies, continuous monitoring, and integrating nature-based solutions to support biodiversity while combating erosion.

- Artificial sanding has already been completed by pumping large volumes of sand onto beaches in Mamaia, Eforie to widen and replenish them.
- Coastal structures such as breakwaters were built or extended to stabilize beaches and support walls, including coastal revetments and seawalls to protect bases of cliffs and historic areas.
- Sluices that control water flow have been restored or replaced as they no longer serve their purpose.
- Cliffs were consolidated by implementing measures to stabilize and protect them from erosion.
- Artificial reefs were built to reduce wave energy, protect marine habitats, and support marine species.
- Biodiversity preservation: bio-structures and plans for repopulating marine species to preserve and enhance biodiversity in the area have been incorporated.
- Measures that address climate change impacts, such as sea level rise and intensified storms have been implemented. These measures are regularly assessed and management strategies are adapted to changing environmental conditions and emerging challenges.

*ANEMONE project* (2018-2020) aimed to assess the status of the Black Sea, through collaborative efforts and harmonized methods among partners coordinated by the National Institute for Marine Research and Development “Grigore Antipa” (NIMRD). The project built upon the existing regional (BSIMAP) and national monitoring programs, the best practices of other Regional Sea Conventions, and Marine Strategy Framework Directive (MSFD) principles.

Case studies in selected areas were conducted:

- coastal and open sea by testing the Black Sea Monitoring and Assessment Guidance: comparative assessment of rivers impact on the Black Sea water quality;
- response of coastal ecosystems under the influence of human pressures, implementation of the methodology for identification and prioritization of Hot Spots (Hot Black Sea tool); guidance tool on the adaptative environmental impact assessment (EIA) procedures; and
- Joint Scientific Cruise. The assessment was made in terms of biodiversity, eutrophication, contamination, marine litter, and so on.

A pilot study on the quality of Black Sea seafood, with aim to provide new data on chemical contamination of aquatic organisms and potential risks, was carried out as well. The two case studies on beach litter and cetaceans were meant to enhance the citizen science. Data and information gathered through project activities helped to create a compatible and open pool of data, usable by regional partners, general public and relevant stakeholders, thus contributing to improvement and upgrading of existing Black Sea data base, and to a better understanding of the human-induced changes.

The "best practices" for the ANEMONE project involve:

- enhancing cross-border collaboration through networking and joint research among scientists and stakeholders from Black Sea countries, exchanging experience and knowledge to improve skills and develop common methodologies and carrying out joint scientific cruises and comparative studies to share data and findings;
- improving monitoring methods for the Black Sea, by creating standardized monitoring tools and indicators, like the *Harmonized Black Sea Monitoring and Assessment Guidance* (BSMAG), to ensure consistent data collection across the region, implementing pilot projects to test and refine monitoring methodologies in coastal and open sea areas, using the Hot Black Sea tool to identify and prioritize areas most affected by human pressures and collecting new data on chemical contamination in aquatic organisms and other environmental parameters to fill existing knowledge gaps. Using a standardized protocol for citizen science, such as marking fixed 100m beach sections with GPS points the project ensured consistent monitoring over time; and
- creating concrete outputs like pilot projects and shared data to assess the region's marine ecosystem health and inform future actions. This includes harmonizing methodologies, conducting joint cruises with specialists from different countries to collect physical, chemical, and biological data, enabling a comprehensive regional assessment, and engaging the public and citizen scientists in monitoring marine litter and other issues. Workshops were

organized to engage the public in multiple countries to directly involve citizens, provide technical information, and build a common understanding of marine environmental issues. During the project hundreds of citizens were successfully engaged in activities like beach litter removal, with 248 participants in one initiative, and trained over 160 people to monitor cetaceans.

*ANEMONE PLUS* continues the ANEMONE project, enhancing research, innovation, and cooperation for a resilient and sustainable Black Sea, thus also demonstrating the relevance of the first project.
Romania together with Georgia, Greece, Republic of Moldova and Türkiye are partners in *CARE SEA* (Cooperation and Awareness for Pollution-free and Environmentally Sustainable Black Sea) project (2024-2026) which addresses the common territorial challenge of pollution with various components including plastic and microplastic. The project proposes a common methodology and instruments for monitoring and assessing pollutants including a numerical model able to simulate the transport, advection, dispersion and weathering of small plastic particles that flow/float in a water body.
The overall objective of the project is enhancing protection and preservation of nature and biodiversity by raising awareness on different types of pollution among communities and providing practical means of action towards a greener and cleaner Black Sea region.
The primary solution derived from the project is the development and dissemination of a simulation model. This model simulates the transport, advection, dispersion, and weathering of small plastic particles in water bodies, and will be accessible online for stakeholders across countries.

## 7.2 Bulgaria

Project “SCience and Information towards Regional ENvironmental Action for the Black Sea - SCIRENA- Black Sea”, with beneficiary Black Sea Region Basin Directorate – Varna and partner Institute of Marine Research – Norway, financed under the "Environmental Protection and Climate Change" program of the Financial Mechanism of the European Economic Area (EEA FM) 2014-2021, priority axis "Marine Waters", project code BGENVIRONMENT-2.004.
The implementation of SCIRENA - capacity building is aimed at filling data and information gaps, developing and implementing methods and tools for marine monitoring and assessment, increasing expert capacity in marine environmental management through training, joint field work, exchange of experience and expertise, as well as informing the general public about the negative impacts on the marine environment.

The established bilateral relations between the partners will contribute to the enhanced cooperation with all stakeholders, the institutional and academic communities, non-governmental organizations, etc. to improve the management of the marine environment. The achieved results create the opportunity for the new knowledge and skills gained during the project implementation to be applied in the development of the next cycle of the Marine Strategy Framework Directive (2008/56/EC).

Project "Exorcising the BLACK Sea's Silent Killers" BlackNETs (BSB00164), implemented by NGO Mare Nostrum (Romania), Karadeniz Technical University (Turkiye), Institute of Oceanology – Bulgarian Academy of Sciences (Bulgaria) and Tbilisi State University (Georgia) under the Programme 2021 - 2027 Interreg VI-B NEXT Black Sea Basin.

BlackNETs project quantifies and minimizes the impact of abandoned, lost or otherwise discarded fishing gears (ALDFG) on the Black Sea environment. The main achievement of the project is at least 8000 kg of ALDFG eliminated from Black Sea waters through the pilot actions that will take place in each partner country (Romania, Bulgaria, Turkiye and Georgia). The basis for these actions will be an awareness guidebook to prevent, reduce and remove fishing gear in the Black Sea that will be part of the sustainability process. Moreover, the mapping of the hosting areas will facilitate further actions and next steps in making Black Sea net free. Another important output will be the capacity building and knowledge sharing by training, and promoting changes in the behaviour of stakeholders linked to the fishing sector through the implementation of good practices that minimise the loss of fishing gear and improve the voluntary collection of ghost nets. The public events and #ghostbusters campaign raises awareness of the impact that ghost nets have on the Black Sea ecosystem.

BlackNETs envisages that through the ongoing efforts to combat ALDFG, a shared vision for "litter-free marine environments" would be realized among all of the various actors and stakeholders concerned and it will be a benefit for the entire basin, from various points of view (environmental, economic, social, etc.). This will not only remove plastic from Black Sea for improved environmental health, but will activate relevant actors (recreational fishers, producers and retailers, NGOs, Universities, and authorities) to implement preventive actions and better monitoring of lost recreational fishing gear in the future.

### 7.3 Georgia

In 2023 in Georgia was implemented project the Small Scale Funding Agreement between LEPL – National Environmental Agency (NEA) and Commission on the Protection of the Black Sea Against Pollution (BSC). The objective of the project was to provide concrete support to Georgia aimed to contribute to the implementation of the BSC Work Program and Black Sea Integrated Monitoring and Assessment

Programme (BSIMAP) through support of preparatory actions for the implementation of the Regional Plan on Marine Litter Management for the Black Sea (2018).

The overall objective of the Marine Litter MED II project in the Black Sea is to reduce and prevent the generation of marine litter through an expanded implementation of key reduction and prevention measures as provided for in the Regional Plan on Marine Litter Management in the Black Sea.

In the frames of the project, 2 periodic clean-up actions were carried out on selected. Students from different schools participated in these activities. communication materials were prepared and awareness campaigns were conducted. Local and National workshops were organized to disseminate best practices related to "Adopt-a-beach" initiative. Both local and national representatives attended the meetings. A multi-stakeholders consultation meeting was organized at the end of project implementation and all results were presented and discussed with the participants.

In Georgia, several best practices have been identified in the field of Black Sea environmental monitoring.

- One key example is the implementation of systematic marine water quality monitoring by the National Environmental Agency (NEA). This program involves regular sampling along the Georgian coastline at designated stations to track chemical, physical, and biological indicators of marine health.
- Another best practice is the integration of automated data collection systems. NEA has introduced data loggers and sensors for real-time monitoring of temperature, salinity, and oxygen levels—enhancing both the efficiency and reliability of the results.
- Additionally, Georgia has adopted standardized methodologies aligned with the Marine Strategy Framework Directive (MSFD), which allows for comparability with EU countries. This includes quality control procedures, laboratory accreditation efforts, .
- A final highlight is cross-institutional and international cooperation. Georgia actively participates in Black Sea regional initiatives and EU-funded projects like EMBLAS, BSB552 RedMarLitter, and Learn4Sea, where data, protocols, and expertise are shared among partner countries.

These examples demonstrate how Georgia is strengthening its capacity in marine environmental protection through innovation, harmonization with international standards, and active collaboration.

### 7.4 Türkiye

Best practices in Türkiye demonstrate how national environmental policies are translated into **measurable, scalable, and cooperation-oriented solutions**, particularly within the Black Sea regional context.

**Transnational Project-Based Cooperation**

- ***Interreg NEXT Black Sea Basin Programme***

Türkiye actively participates in cross-border environmental projects involving Black Sea riparian countries, where joint implementation, data sharing, and capacity-building activities are carried out with partner institutions. This project-based cooperation contributes directly to the development of harmonised methodologies and strengthens regional governance by enabling the exchange of comparable environmental data across countries. In practice, the effectiveness of these collaborations can be observed through the increasing number of jointly implemented projects, the expansion of shared datasets, and the growing participation of stakeholders in cross-border workshops and training activities.

**Integrated Marine Monitoring (DEN-İZ Programme)**

- ***Ministry of Environment, Urbanization and Climate Change***

The Integrated Marine Monitoring Programme (DEN-İZ) provides systematic observation of coastal and offshore waters through the measurement of physical, chemical, and biological parameters. This system supports regional cooperation by producing data that are comparable at the Black Sea level, thereby facilitating joint assessments and coordinated environmental management. Current implementation indicates that monitoring activities cover approximately 70–90% of coastal areas, while nutrient load reductions are observed in the range of 10–25%, depending on the location and reporting period.

**Marine Pollution Response System**

- ***Turkish Coast Guard Command***

Türkiye's marine pollution response system integrates monitoring, detection, and rapid intervention capacities, ensuring effective management of oil spills and hazardous discharges. This system enhances regional cooperation by contributing to joint emergency preparedness and response mechanisms across the Black Sea. Operational performance data indicate that response times for coastal incidents are typically within 6–12 hours, and more than 80% of pollution events are successfully contained or controlled.

**Türkiye – Best Practices (Black Sea Cooperation-Oriented)**

- ***Basin-Based Water Management*** **(General Directorate of State Hydraulic Works)**

Basin-based water management practices in Türkiye play a critical role in reducing land-based pollution entering the Black Sea. Through integrated planning and wastewater treatment investments, pollution loads transported via river systems are gradually decreasing. Current data suggest that wastewater treatment coverage ranges between 75–90%, while approximately 40–60% of monitored water bodies are approaching or achieving "good status" under EU-aligned criteria.

- **Academic–Industry Green Transformation Platform**

https://pirireis.edu.tr/haberler/piri-reis-universitesinde-yesil-donusum-platformu-gerceklesti/

The Green Transformation Platform organised by Piri Reis University provides a multi-stakeholder environment where academia, public institutions, private sector actors, and entrepreneurs collaborate on sustainable maritime solutions. This platform contributes to Black Sea cooperation by facilitating knowledge exchange, innovation transfer, and the alignment of sustainability practices across regional stakeholders. Participation levels typically exceed 100 attendees per event, with international stakeholders representing approximately 10–20% of total participants.

- **Zero Waste System as a Regional Model**

http://www.zerowaste.gov.tr/en/library/zero-waste-good-practices

The Zero Waste system represents a nationwide model for waste reduction and circular economy transition in Türkiye. By promoting source separation, recycling, and resource efficiency, the system contributes to the reduction of land-based pollution that ultimately affects the Black Sea ecosystem. Current performance indicators show recycling rates in the range of 27–35%, alongside an estimated reduction in waste directed to landfills of approximately 15–20%.

- **General Assesment**

Türkiye's best practices illustrate a governance model that integrates **national implementation capacity with transnational cooperation mechanisms**, ensuring that environmental policies produce measurable and regionally relevant outcomes. Through coordinated data generation, pollution reduction strategies, and multi-stakeholder engagement, Türkiye contributes to the development of an **effective, scalable, and cooperation-oriented environmental governance model** in the Black Sea region.

# 8 Mechanism for cooperation for reduced pollution and better-protected environment in the Black Sea basin - a proposal

This section presents a structured and operational mechanism for cooperation aimed at improving environmental protection and reducing pollution in the Black Sea Basin. The proposed mechanism is developed based on the findings and results of the LEARN4SEA project, including environmental data collection, stakeholder engagement, and pilot activities implemented at local level.

The mechanism addresses the need for enhanced coordination between decision-makers and local communities, particularly in small and medium-sized municipalities, where environmental challenges are often closely linked to behavioural patterns, limited resources, and fragmented institutional responsibilities. In this context, the mechanism aims to ensure a coherent

framework for cooperation, enabling continuous interaction between local authorities, national institutions, and other relevant stakeholders.
At its core, the mechanism is based on the quadruple helix approach, ensuring the involvement of public authorities, environmental agencies, academia, private sector, and civil society. This integrated model supports evidence-based decision-making, strengthens institutional capacity, and promotes active public participation.

**Goals of the Mechanism**

- Reduce land-based and marine pollution
- Protect marine biodiversity and coastal habitats
- Enhance monitoring and data sharing
- Strengthen environmental governance and public participation

**Key Stakeholders**

- Black Sea coastal countries: Bulgaria, Romania, Ukraine, Russia, Georgia, Turkey
- Regional organizations: BSEC (Black Sea Economic Cooperation), Black Sea Commission
- EU institutions (especially for EU member states and candidate countries)
- NGOs and academia

**Pillars of Cooperation**

a) Joint monitoring and data sharing platform
Create a centralized digital platform for:

- Pollution data
- Maritime traffic emissions
- Biodiversity trends
- Satellite monitoring of coastal erosion

b) Harmonized pollution reduction protocols

- Align national standards with EU Water Framework and Marine Strategy Framework Directives
- Introduce incentives for pollution control in agriculture, industry, and shipping

c) Regional clean-up and restoration projects

- Funded by a joint Black Sea Environmental Fund (BSEF), contributions from member states, EU, and international donors
- Focus on wetland restoration, coastal clean-ups, marine litter removal

d) Capacity building and knowledge sharing

- Annual Black Sea Environmental Forum
- Twinning programs between research institutions
- Joint training for environmental inspectors and maritime authorities

e) Legal and institutional cooperation

- Strengthen and expand the role of the Commission on the Protection of the Black Sea Against Pollution (Black Sea Commission)
- Create a regional arbitration mechanism for environmental disputes

- Local communities and private sector actors

## 8.1 Governance Structure

The cooperation mechanism is structured across three interconnected governance levels, ensuring both vertical and horizontal coordination:

- **Local level (Municipalities / Local Coordination Units – LCUs):** Municipalities act as the primary operational level of the mechanism. They are responsible for identifying local environmental issues, initiating measures, and engaging communities.
- **National level (National Coordination Bodies – NCBs):** National environmental authorities and ministries provide the regulatory framework, methodological guidance, and coordination between regions.
- **Regional level (Regional Coordination Platform – RCP):** A transnational platform facilitating cooperation among Black Sea countries, supporting knowledge exchange, alignment of approaches, and development of joint initiatives.

This multi-level structure ensures that local actions are aligned with national policies and supported by regional cooperation.

## 8.2 Key Actors and Their Roles

The effectiveness of the proposed cooperation mechanism relies on the active and coordinated involvement of multiple stakeholders, each contributing according to their specific competencies and institutional roles. At the local level, municipalities play a central role in identifying environmental challenges, initiating appropriate policies and measures, and organizing awareness campaigns tailored to the needs of their communities. They are also responsible for coordinating the implementation of actions and ensuring active engagement of local stakeholders and citizens.

At the national level, environmental institutions provide the necessary regulatory and methodological framework, ensuring that local actions are aligned with national strategies and European Union legislation. Their role also includes monitoring compliance, supporting coordination between different administrative levels, and validating environmental data to ensure consistency and reliability.

Academic and research institutions contribute by analyzing environmental data and providing scientific expertise that supports evidence-based decision-making. In addition, they play a key role in developing innovative approaches and methodologies, as well as in strengthening capacity through training and knowledge transfer activities.

Non-governmental organizations and civil society actors are essential for promoting environmental awareness and encouraging behavioral change among citizens. Through their participation in campaigns and community-based initiatives, they facilitate local engagement and provide valuable feedback that helps improve the effectiveness of implemented measures.

The private sector also plays an important role by adopting sustainable practices and contributing to environmental initiatives. Through participation in partnerships and co-financing mechanisms, businesses can support the implementation of actions and enhance the overall impact of the cooperation mechanism.
The distribution of roles and responsibilities among the main stakeholders involved in the cooperation mechanism is further summarised in the table below:

**Table 1 Roles and Responsibilities within the Cooperation Mechanism**

| Stakeholder | Main Responsibilities | Level of Action |
|---|---|---|
| **Municipalities** | Local implementation, awareness campaigns, community engagement | Local |
| **National Agencies** | Regulation, monitoring, coordination | National |
| **Academic Institutions** | Data analysis, innovation, methodology | Cross-level |
| **NGOs** | Awareness, participation, advocacy | Local/National |
| **Private Sector** | Sustainable practices, partnerships | Local/National |
| **Regional Platform** | Coordination, knowledge exchange | Transnational |

As illustrated above, the effective functioning of the cooperation mechanism depends on a clear allocation of roles and a strong level of coordination between stakeholders across all governance levels. This structured distribution of responsibilities ensures complementarity of actions, avoids overlaps, and supports the implementation of integrated and coherent environmental measures.

## 8.3 Operational Workflow of the Mechanism

The mechanism operates through a continuous and iterative cooperation cycle, ensuring that environmental challenges are systematically identified, addressed, and monitored over time. This cyclical approach allows for the gradual improvement of policies and measures, while also ensuring flexibility in responding to emerging environmental risks and local specificities.
The workflow of the mechanism is structured around several key stages, each of which contributes to the overall effectiveness and sustainability of the cooperation process.
The **first stage** focuses on **data collection and monitoring**, which forms the foundation of the entire mechanism. Environmental data is gathered through a combination of national monitoring systems, equipment and sensors deployed within the Environmental Information Centres (EICs), as well as local observations and citizen science initiatives. This integrated approach ensures the availability of both official and locally generated data, providing a comprehensive and reliable basis for further analysis.

The **second stage** involves the **analysis and identification of environmental problems**. The collected data is jointly analysed by local authorities, national agencies, and scientific experts, allowing for a multi-dimensional understanding of environmental challenges. This collaborative process supports the identification of pollution sources, the assessment of risks, and the prioritisation of intervention areas, ensuring that subsequent actions are both targeted and evidence-based.

Building upon this analysis, the **third stage** encompasses **joint planning and decision-making**. At this stage, stakeholders work together to develop coordinated responses that address the identified challenges. These responses may include the preparation of local action plans, the formulation of policy measures and regulatory proposals, as well as the design of awareness and educational initiatives. Emphasis is placed on ensuring alignment with national strategies and European Union environmental policies, thus reinforcing policy coherence across governance levels.

The **fourth stage** concerns the **implementation of measures**, which is carried out primarily at local level with the support of other stakeholders. The actions implemented may include awareness campaigns, educational programmes, improvements in waste management systems, pollution reduction measures, and the adoption of local regulations. This stage is particularly important, as it translates planning into concrete actions that directly impact environmental conditions and community behaviour.

Following implementation, the **fifth stage** focuses on **monitoring, reporting, and evaluation**. The effectiveness of the measures is assessed using performance indicators, regular reporting mechanisms, and environmental impact assessments. This ensures transparency, accountability, and the ability to measure progress against defined objectives.

Finally, the **sixth stage** involves **feedback and adaptation**, which is essential for ensuring the long-term relevance and effectiveness of the mechanism. Based on the results of the evaluation, policies and measures are adjusted, good practices are identified and shared, and future actions are refined. This stage reinforces the iterative nature of the mechanism and supports continuous improvement.

This cyclical process ensures that the cooperation mechanism remains dynamic, responsive, and capable of delivering sustainable environmental outcomes in the Black Sea Basin.

The operational workflow of the cooperation mechanism can be visually represented as a continuous cycle, illustrating the iterative nature of the process and the interconnection between its key stages.

**Figure 1 Cooperation Mechanism Workflow Cycle**

As illustrated in Figure 1, the cooperation mechanism operates as a continuous and adaptive cycle, where each stage informs and reinforces the next. The inclusion of a feedback and adaptation phase ensures that the mechanism remains responsive to changing environmental conditions and stakeholder needs, thereby supporting long-term effectiveness and sustainability.

## 8.4 Communication and Coordination Mechanisms

Effective communication represents a key component of the cooperation mechanism, as it ensures the smooth exchange of information, alignment of actions, and active engagement of all stakeholders involved. In the context of multi-level governance and cross-sectoral cooperation, clear and structured communication is essential for building trust, enhancing transparency, and supporting coordinated decision-making processes.

To facilitate effective communication and coordination, a set of complementary tools and practices is proposed, combining digital solutions, structured interaction between institutions, and targeted outreach activities.

A central element is the development and use of a shared digital platform, building upon the existing network of Environmental Information Centres (EICs). This platform is intended to serve as a common space for information exchange and collaboration, enabling:

- Data exchange between institutions and stakeholders
- Access to educational and informational resources
- Continuous communication and coordination between actors at different governance levels

In addition to digital tools, regular coordination meetings are envisaged as an essential mechanism for ensuring alignment and continuity of actions. These meetings are organised at different governance levels, reflecting the multi-level nature of the mechanism:

- Local level – operational meetings (monthly), focused on implementation of activities and addressing immediate challenges
- National level – coordination meetings (quarterly), ensuring alignment between regions and consistency with national policies
- Regional level – annual forums and thematic workshops, supporting knowledge exchange and strengthening transnational cooperation

Furthermore, communication activities are supported by the implementation of targeted awareness campaigns addressing different stakeholder groups. These campaigns are designed to promote environmentally responsible behaviour and encourage active participation, with a focus on:

- Citizens
- Students and young people
- Professionals and decision-makers

Through the combination of digital tools, regular coordination, and targeted communication activities, the mechanism ensures a transparent, inclusive, and effective communication framework, which is essential for achieving its long-term environmental objectives.

## 8.5 Financial Framework

The long-term sustainability and effective implementation of the proposed cooperation mechanism depend on the availability of adequate and diversified financial resources. In this context, the mechanism is based on a multi-source funding approach, which allows for flexibility, resilience, and the possibility to combine different financial instruments depending on the specific needs and capacities of the participating stakeholders.

A diversified financial framework is particularly important for small and medium-sized municipalities, which often face limitations in terms of budget, administrative capacity, and access to funding opportunities. By combining various sources of funding, the mechanism enables both the initiation and continuation of environmental measures, while also supporting scaling and replication in other areas.

The proposed funding structure includes the following key sources:

- **European Union programmes** (e.g. Interreg NEXT Black Sea Basin, LIFE, Horizon Europe), which provide financial support for cross-border cooperation, environmental protection, innovation, and capacity building;
- **National environmental funds and programmes**, supporting the implementation of policies and measures aligned with national strategies and priorities;

- **Municipal budgets**, ensuring co-financing of local initiatives and demonstrating institutional commitment at local level;
- **Public-private partnerships**, enabling the involvement of the private sector in financing and implementing environmentally sustainable solutions;
- **External funding from international organizations and financial institutions**, including grants, technical assistance, and investment support.

In addition to identifying funding sources, the mechanism encourages a proactive approach to financial planning and resource mobilization. This includes the development of project proposals, participation in funding calls, and strengthening administrative capacity for managing financial resources.

In fact, the combination of funding sources allows for co-financing arrangements, which are often a requirement for European programmes and contribute to increasing the overall financial capacity of the mechanism.

This diversified financial approach ensures not only the implementation of planned measures, but also the long-term sustainability, adaptability, and scalability of the cooperation mechanism across the Black Sea Basin.

## 8.6 Integration with Policy and Legal Frameworks

The proposed cooperation mechanism is designed to complement, reinforce, and operate within the existing policy and legal frameworks at European, national, and local level. Its integration into established regulatory systems is essential for ensuring institutional legitimacy, consistency of actions, and long-term sustainability of the implemented measures.

In this context, the mechanism does not introduce parallel structures, but rather builds upon and strengthens existing governance systems by enhancing coordination, improving implementation, and facilitating better interaction between stakeholders across different levels.

At European level, the mechanism supports alignment with key environmental policies and directives, ensuring that local and national actions contribute to broader regional and EU objectives. At the same time, it enables the translation of these strategic frameworks into practical measures at local level, where their impact is most visible.

At national level, the mechanism contributes to the implementation of environmental strategies and action plans by providing a structured approach for coordination between institutions and supporting the application of regulatory instruments. It also facilitates the integration of environmental considerations into sectoral policies, such as transport, tourism, and urban development.

At local level, the mechanism encourages the adoption of concrete measures through municipal decisions, regulations, and local action plans. This ensures that environmental policies are effectively implemented in practice and tailored to the specific needs and characteristics of each municipality.

In particular, the mechanism supports:

- **Alignment with EU environmental directives**, such as the Water Framework Directive, the Marine Strategy Framework Directive, and other relevant legislative instruments
- **Integration into national environmental strategies and programmes**, ensuring consistency with national priorities and policy objectives
- **Adoption at local level through municipal decisions and regulations**, enabling practical implementation and enforcement of environmental measures

By ensuring coherence between different governance levels and policy frameworks, the mechanism enhances institutional efficiency, reduces fragmentation, and supports the implementation of integrated and sustainable environmental solutions. This approach strengthens the link between policy development and practical implementation, contributing to more effective environmental governance in the Black Sea Basin.

## 8.7 Sustainability and Replicability

The mechanism is conceived as a long-term and adaptable solution, designed to ensure continuity of actions beyond the duration of the project and to support its application in different territorial contexts across the Black Sea Basin. Its sustainability is closely linked to its integration into existing institutional structures, its reliance on established policy frameworks, and its capacity to mobilize diverse stakeholders and resources.

In this regard, the mechanism is not intended as a temporary initiative, but as a structured approach that can be embedded within the regular activities of public authorities and partner institutions. By building on existing systems, capacities, and networks, it reduces the need for additional administrative structures and facilitates long-term implementation.

At the same time, the mechanism is designed to be flexible and scalable, allowing its expansion to additional regions, stakeholders, and thematic areas, depending on emerging environmental needs and priorities. This adaptability is particularly important in the context of the Black Sea Basin, where environmental challenges are dynamic and often require coordinated responses across different territories.

The mechanism promotes replicability by providing a clear and structured model that can be transferred and applied in other municipalities and regions. The use of common methodologies, shared tools, and documented good practices supports knowledge transfer and facilitates the adoption of the mechanism in diverse contexts.

In particular, the mechanism is characterized by the following features:

- **Sustainability**, achieved through integration into existing institutional and policy frameworks, as well as by established coordination and funding mechanisms

- **Scalability**, allowing expansion to additional geographical areas, stakeholder groups, and thematic priorities
- **Replicability**, enabling the transfer and adaptation of the model to other municipalities and regions within and beyond the Black Sea Basin

Local authorities are encouraged to adopt and adapt the mechanism according to their specific needs, capacities, and environmental priorities, ensuring that its implementation remains relevant and effective in different local contexts. The combination of sustainability, scalability, and replicability ensures that the proposed mechanism can deliver long-term impact and contribute to the broader objective of improved environmental governance and reduced pollution in the Black Sea Basin.

## 8.8 Uptake, Transferability and Upscaling of the Cooperation Mechanism

The proposed cooperation mechanism is designed not only as a project-related framework, but also as a transferable and scalable model that can continue to operate and evolve beyond the project implementation period. Its long-term effectiveness depends on the ability of participating institutions and stakeholders to integrate the mechanism into their regular activities, operational procedures, and future cooperation initiatives. In this context, the mechanism supports both institutional sustainability and broader regional applicability across the Black Sea Basin.

### 8.8.1 Uptake by Project Partners

The uptake of the proposed cooperation mechanism is expected to take place through its integration into the activities, operational practices, and future initiatives of the project partners and associated stakeholders. The mechanism is designed to support practical implementation in the fields of environmental governance, stakeholder coordination, awareness raising, and community engagement, while also contributing to long-term institutional cooperation and environmental sustainability.

**LP – CERONAV**

CERONAV – Romanian Maritime Training Centre is expected to support the uptake of the proposed cooperation mechanism through its activities related to environmental awareness, training, and dissemination of environmentally responsible practices within maritime and coastal contexts.

Through its experience in maritime education and training, CERONAV may further contribute to strengthening understanding of environmental protection, pollution prevention, and sustainable environmental behavior among maritime professionals and stakeholders. The proposed approaches and case examples developed within the mechanism may also support future educational, awareness-raising, and stakeholder cooperation activities related to environmental sustainability in the Black Sea Basin.

In addition, CERONAV can contribute to the dissemination and promotion of good practices and practical cooperation approaches developed within the LEARN4SEA project, supporting the broader visibility and long-term applicability of the cooperation mechanism.

**PP2 – BDCA**

BDCA – Black Sea Danube Association of Research and Development is expected to apply the cooperation mechanism within future environmental cooperation initiatives, stakeholder engagement activities, and advisory actions related to environmental protection and pollution reduction in the Black Sea Basin.

The mechanism may support BDCA in the implementation of awareness-oriented initiatives, local and regional cooperation activities, and future project development processes related to environmental governance and sustainable development. Through its experience in environmental cooperation and stakeholder coordination, BDCA can further contribute to the dissemination of good practices, strengthening institutional dialogue, and supporting practical cooperation between local authorities, civil society organisations, and educational actors.

The continued use of the Environmental Information Centre network and related communication platforms may further support the practical application and transferability of the mechanism beyond the project duration.

**PP3 – NEA**

The National Environmental Agency of Georgia (NEA) is expected to support the practical uptake of the cooperation mechanism through its integration into environmental monitoring, coordination, and environmental governance activities related to marine and coastal environments.

The mechanism may contribute to strengthening cooperation between monitoring authorities, supporting evidence-based environmental management, and improving coordination between institutional stakeholders involved in environmental protection activities. In addition, the proposed approaches related to stakeholder coordination, communication, and environmental awareness may further support future environmental initiatives and policy-support processes.

By integrating elements of the mechanism into existing environmental practices and cooperation frameworks, NEA can contribute to strengthening long-term institutional capacity and improving environmental governance processes in the Black Sea region.

**PP4 – PRU**

Piri Reis University (PRU) is expected to contribute to the sustainability and long-term application of the cooperation mechanism through educational and awareness-oriented activities related to environmental protection and sustainable development. The proposed approaches and case examples developed within the mechanism may be integrated into educational processes, awareness initiatives, and capacity-building

activities addressing environmental monitoring, pollution prevention, and stakeholder cooperation in marine and coastal environments.
Through its educational and academic activities, PRU can support knowledge transfer to future environmental and maritime professionals, while also contributing to the dissemination of environmentally responsible practices and strengthening awareness related to pollution prevention and environmental sustainability.

**PP5 – SM**

Shabla Municipality (SM) is expected to apply the proposed cooperation mechanism through the continuation of local environmental awareness initiatives, stakeholder engagement activities, and community-oriented environmental actions developed within the LEARN4SEA project.
The municipality may further integrate elements of the mechanism into future local environmental initiatives, awareness campaigns, and cooperation activities involving local communities, educational institutions, and civil society organizations.
Through these activities, Shabla Municipality contributes to strengthening local environmental governance, improving stakeholder cooperation, and promoting environmentally responsible behavior at community level.

### 8.8.2 Educational and Capacity-Building Integration

In addition to institutional uptake, the mechanism is designed to support educational and capacity-building activities related to environmental protection and sustainable development.
Universities, educational organizations, training institutions, and Environmental Information Centers (EICs) may use the proposed approaches, methodologies, and case examples within academic programs, training activities, awareness initiatives, and community engagement processes. This contributes to the transfer of knowledge and practical experience to students, professionals, and local communities.
Particular importance is placed on strengthening understanding of environmental monitoring, pollution prevention, stakeholder cooperation, and environmentally responsible behavior. The mechanism therefore supports not only institutional implementation, but also the development of long-term environmental awareness and capacity at community level.
The educational and capacity-building dimension may include:

- Integration into educational and training programs
- Use of environmental data and practical case examples for learning purposes
- Awareness and outreach initiatives targeting different stakeholder groups
- Knowledge-sharing activities and exchange of good practices

### 8.8.3 Transferability and Upscaling Potential

Due to its flexible structure and practical orientation, the cooperation mechanism can be adapted and replicated in different territorial and institutional contexts across the Black Sea Basin. Its implementation is designed to remain applicable in municipalities and regions with varying administrative capacities, environmental priorities, and institutional structures.

The mechanism does not rely on highly specialized or resource-intensive systems, which facilitates broader uptake and practical application by different organizations and stakeholders. Its scalability also allows for future expansion towards additional thematic areas, partnerships, and regional cooperation initiatives.

The upscaling potential of the mechanism is further supported through:

- Integration into future regional and cross-border cooperation initiatives
- Expansion of stakeholder networks and institutional partnerships
- Continued use and development of the Environmental Information Centers (EICs) and related communication platforms
- Dissemination of good practices and lessons learned across municipalities and organizations
- Application within future environmental monitoring, awareness, and policy-support activities

The mechanism may contribute to broader regional environmental objectives and cooperation frameworks related to pollution reduction, environmental governance, and sustainable development in the Black Sea Basin.

The combination of institutional uptake, educational integration, transferability, and upscaling potential ensures that the cooperation mechanism can continue generating value beyond the project duration and contribute to long-term environmental resilience and improved environmental governance across the region.

## 8.9 Expected Impact

The implementation of the cooperation mechanism is expected to generate significant positive impacts at local, national, and regional level, contributing to improved environmental governance and more effective responses to pollution-related challenges in the Black Sea Basin. By strengthening coordination, enhancing the use of data, and promoting active stakeholder engagement, the mechanism supports a more integrated and results-oriented approach to environmental protection.

The expected impact is not limited to short-term improvements, but extends to long-term changes in institutional practices, stakeholder cooperation, and public behavior. In particular, the mechanism is designed to create synergies between

different actors and governance levels, ensuring that environmental measures are better aligned, more efficiently implemented, and more sustainable over time.
The implementation of the mechanism is expected to lead to:

- **Improved coordination between institutions and stakeholders**, resulting in more coherent and efficient implementation of environmental policies and measures;
- **Enhanced use of environmental data in decision-making**, supporting evidence-based policies and more targeted interventions;
- **Increased public awareness and behavioral change**, encouraging environmentally responsible practices among citizens and local communities;
- **Reduction of pollution and environmental risks**, through the implementation of coordinated measures and improved monitoring systems;
- **Strengthened regional cooperation within the Black Sea Basin**, facilitating knowledge exchange, joint initiatives, and shared responsibility for environmental protection.

The combined effect of these impacts contributes to a more resilient and sustainable environmental governance system, capable of addressing both current and emerging challenges in the region.

## 8.10 Practical Implementation at Local Level

To ensure that the proposed cooperation mechanism is not limited to a conceptual framework but is effectively applied in practice, a structured approach for implementation at municipal level is required.
Local authorities play a central role in operationalizing the mechanism, as they are the closest governance level to citizens and are directly responsible for key environmental functions such as waste management, urban planning, and local awareness initiatives.
The implementation process at local level should follow a structured sequence of actions, including:

- Initial assessment of environmental conditions and identification of priority issues;
- Establishment of a local coordination team involving representatives of administration, education sector, and civil society;
- Definition of local objectives aligned with national and regional priorities;
- Development of short-term and long-term action plans;
- Allocation of resources and responsibilities;
- Implementation of measures and engagement of local communities.

Special attention should be given to citizen involvement, as behavioral change is a key factor in achieving sustainable environmental outcomes. Activities such as educational campaigns, participatory initiatives, and local environmental actions should be integrated into the implementation process.

To provide a more structured and operational perspective, the implementation of the cooperation mechanism can be further detailed through the following step-by-step roadmap:

**Table 2 Step-by-Step Implementation Roadmap of the Cooperation Mechanism**

| Phase | Key Actions | Responsible Actors | Expected Outputs |
|---|---|---|---|
| **Phase 1: Preparation** | Identification of environmental priorities; Mapping of stakeholders; Establishment of local coordination team | Municipalities; National agencies | Defined priorities; Established coordination structure |
| **Phase 2: Data Collection** | Collection of environmental data through monitoring systems and EIC network; Integration of local observations | Municipalities; Environmental agencies; EIC centers | Updated environmental data; Identified trends |
| **Phase 3: Analysis** | Joint analysis of data; Identification of pollution sources and risks; Prioritization of actions | National agencies; Academia; Local authorities | Analytical reports; Defined problem areas |
| **Phase 4: Planning** | Development of action plans; Definition of measures and policies; Stakeholder consultation | Municipalities; National authorities; NGOs | Approved local action plans; Policy proposals |
| **Phase 5: Implementation** | Execution of measures (campaigns, infrastructure, regulations); Community engagement | Municipalities; NGOs; Private sector | Implemented initiatives; Increased public participation |
| **Phase 6: Monitoring & Evaluation** | Tracking progress through indicators; Reporting results; Impact assessment | Environmental agencies; Municipalities | Monitoring reports; Performance evaluation |
| **Phase 7: Feedback & Adaptation** | Adjustment of measures; Integration of lessons learned; Scaling of good practices | All stakeholders | Improved policies; Replicable practices |

This roadmap provides a structured and practical framework for the phased implementation of the cooperation mechanism, clearly defining the sequence of actions, responsible actors, and expected results at each stage. It supports a coordinated and results-oriented approach at both local and regional level.

## 8.11 Stakeholder consultation and co-creation workshops

To support the development and practical validation of the proposed cooperation mechanism, two national workshops were organized in Bulgaria within the framework of the LEARN4SEA project. The workshops aimed to facilitate dialogue between local authorities, experts, researchers, educational institutions, NGOs, and representatives of local communities regarding practical approaches for improving environmental protection and reducing pollution in the Black Sea Basin.

The first workshop was held in Shabla on 19 September 2025 and focused primarily on strengthening cooperation between local authorities in coastal areas. The second workshop was organized in Varna on 24 February 2026 and addressed cooperation between local authorities, research organizations, and environmental stakeholders for the development of modern approaches supporting environmental protection and pollution reduction.

Both workshops included interactive discussions, stakeholder consultations, and feedback surveys aimed at identifying practical needs, priorities, and recommendations relevant to the proposed cooperation mechanism. The results confirmed strong stakeholder support for enhanced coordination, awareness-raising activities, digital communication tools, and improved cooperation between institutions and local communities.

The feedback collected during the workshops demonstrated a particularly high level of support for:

- strengthening coordination between local authorities and environmental institutions;
- development of shared information and communication platforms;
- implementation of awareness and educational initiatives;
- increased use of modern monitoring technologies and digital tools;
- active involvement of citizens and local communities in environmental initiatives.

Participants also emphasized the importance of Environmental Information Centres (EICs) as practical tools for improving public awareness, facilitating access to environmental information, and supporting local engagement in environmental protection activities.

The workshops additionally highlighted the need for:

- regular coordination meetings between institutions;
- practical and community-oriented environmental actions;
- stronger integration between scientific expertise and local decision-making;
- development of unified procedures and cooperation standards;
- expansion of educational and capacity-building activities.

The consultation process confirmed that the proposed cooperation mechanism responds to actual needs identified by local stakeholders and institutions operating in the Black Sea coastal region. The recommendations and findings generated during the workshops were therefore taken into consideration in the development of the present Guidelines and contributed to strengthening the practical applicability and long-term relevance of the proposed mechanism.

**Table 3. Key Findings from the National Workshops**

| Topic | Main Conclusions |
|---|---|
| **Institutional cooperation** | Strong need for regular coordination and joint actions |
| **Public participation** | High importance of citizen involvement and awareness campaigns |
| **Digital tools** | Support for shared platforms and monitoring technologies |
| **EICs** | Strong support for Environmental Information Centers |
| **Capacity building** | Need for training and practical workshops |

*More detailed information, including survey results, recommendations, and workshop materials, is provided in the annex of the present document, Summary of the National Workshops held in Bulgaria within the LEARN4SEA project, events coordinated by PP2 BDCA.*

## 8.12 Monitoring and evaluation framework

The effectiveness of the cooperation mechanism depends on the establishment of a robust monitoring and evaluation system.
This system should include both quantitative and qualitative indicators, allowing for continuous assessment of progress and impact.

**Key categories of indicators include:**

- Environmental indicators:
  - Air quality levels (PM10, $CO_2$, etc.)
  - Water quality parameters
  - Amount of collected waste and recycling rates
- Operational indicators:
  - Number of implemented initiatives
  - Level of stakeholder participation
  - Number of coordinated actions between institutions
- Behavioral indicators:
  - Level of public awareness
  - Participation in campaigns and activities
  - Changes in community practices

Monitoring should be conducted on a regular basis, with results reported at local, national, and regional level. The collected data should be used not only for reporting purposes but also for improving future actions and policies.
To ensure measurable impact, accountability, and consistency in monitoring practices, a set of key performance indicators (KPIs) is proposed as part of the cooperation mechanism and is presented in the table below.

**Table 3 Key Performance Indicators (KPIs) for the Cooperation Mechanism**

| Indicator Category | Indicator | Unit of Measurement | Target Value (Indicative) |
|---|---|---|---|
| **Environmental Impact** | Reduction of collected waste in target areas | % decrease | 10–20% reduction |
| | Improvement of air quality indicators | % improvement | 5–10% improvement |
| | Improvement of water quality parameters | % improvement | Measurable positive trend |
| **Operational Performance** | Number of implemented local initiatives | Number | 5–10 per municipality/year |
| | Number of coordination meetings held | Number | ≥12 local / ≥4 national annually |
| | Number of institutions involved | Number | ≥5 per region |

| | | | |
|---|---|---|---|
| **Public Engagement** | Number of participants in campaigns | Number | ≥200 participants/year |
| | Level of citizen involvement | % increase | 15–25% increase |
| | Number of awareness campaigns conducted | Number | ≥3 per year |
| **Capacity Building** | Number of trained stakeholders | Number | ≥50 per region |
| | Number of developed methodologies/tools | Number | ≥2–3 outputs |
| **Replication & Sustainability** | Number of municipalities applying the mechanism | Number | ≥3–5 additional areas |
| | Amount of attracted funding | EUR | Increasing trend |

The proposed set of indicators provides a practical framework for tracking progress, assessing impact, and supporting evidence-based decision-making at all levels of implementation.

## 8.13 Risks and Mitigation Measures

The successful implementation of the proposed cooperation mechanism may be influenced by several risks and challenges, particularly in the context of multi-level governance, limited local capacities, and varying levels of stakeholder engagement. Identifying and addressing these risks at an early stage is essential to ensure the effectiveness, continuity, and sustainability of the mechanism.

Given the diversity of institutional contexts across the Black Sea Basin, potential risks may arise both at organizational and operational level. These risks should be proactively managed through appropriate mitigation measures, integrated into the planning and implementation process.

The main potential risks include:

- **Limited administrative capacity at local level**, which may affect the ability of municipalities to implement and coordinate activities effectively
- **Insufficient funding and resources**, potentially limiting the scope and sustainability of planned measures
- **Lack of coordination between institutions**, leading to fragmentation of actions and reduced efficiency
- **Low level of public engagement**, which may hinder behavioral change and community participation
- **Data gaps or inconsistencies**, affecting the quality of analysis and decision-making processes

To mitigate these risks, a set of complementary measures is recommended:

- **Strengthening institutional capacity** through targeted training, knowledge exchange, and technical support
- **Ensuring access to diversified funding sources**, including EU programmes and national funding schemes
- **Establishing clear coordination procedures and responsibilities**, improving cooperation between stakeholders

- **Promoting continuous communication and awareness campaigns**, to increase public engagement and participation
- **Improving data collection systems and methodologies**, ensuring reliable and consistent information

To further support effective implementation and risk mitigation, the cooperation mechanism should be structured over time through a phased and coordinated approach. This allows for gradual development, continuous improvement, and better allocation of resources and responsibilities across different stages.

The implementation of the mechanism can be structured over time through the following indicative timeline:

**Table 4 Indicative Timeline for Implementation of the Cooperation Mechanism**

| Timeframe | Key Activities | Expected Results |
|---|---|---|
| **Months 1–3** | Establishment of Local Coordination Units (LCUs); Stakeholder mapping; Initial environmental assessment | Operational local structures; Identified priorities |
| **Months 4–6** | Data collection and baseline analysis; Setup of monitoring processes; First coordination meetings | Baseline data established; Initial cooperation activated |
| **Months 7–12** | Development of local action plans; Launch of awareness campaigns; Pilot initiatives | Approved action plans; Increased public engagement |
| **Year 2 (Months 13–24)** | Full implementation of measures; Strengthening coordination between levels; Expansion of activities | Operational mechanism in practice; Visible local impact |
| **Year 3+** | Monitoring, evaluation, and optimization; Replication in additional municipalities; Integration into policies | Sustainable mechanism; Long-term environmental improvements |

The indicative timeline outlined above provides a structured and realistic framework for the phased implementation of the cooperation mechanism, ensuring a logical sequencing of actions and a gradual strengthening of capacities at local, national, and regional level.

## 8.14 Case Example: Application of the Cooperation Mechanism at Local Level (Shabla Municipality)

To further demonstrate the practical relevance and applicability of the proposed cooperation mechanism, a case example from Shabla Municipality is presented below.

Shabla Municipality provides a practical example of how the proposed cooperation mechanism can be applied at local level within the Black Sea Basin. The activities implemented under the LEARN4SEA project demonstrate the potential of coordinated actions between local authorities, communities, and project partners to achieve tangible environmental results.

As part of the project, the municipality actively contributed to raising awareness, environmental education, and community engagement through a series of targeted initiatives. These included the development of educational video materials addressing key environmental challenges, such as pollution from household and

industrial waste, as well as practical steps for reducing environmental impact in everyday life.

A series of non-formal educational activities were organized, involving students from different age groups as well as adult participants. These activities introduced key concepts such as environmental responsibility, citizen participation, and the role of local communities in environmental protection. The use of interactive methods, including role-playing exercises simulating stakeholder discussions on environmental policies, contributed to a higher level of engagement and understanding among participants.

In addition to educational activities, the municipality organized large-scale demonstration campaigns for cleaning coastal areas. These campaigns brought together local residents, volunteers, and stakeholders, resulting in the collection of significant quantities of waste and contributing directly to the improvement of the coastal environment. The cross-border dimension of these actions, implemented in coordination with partners from Romania, further strengthened regional cooperation and shared responsibility for the Black Sea.

The experience of Shabla highlights several key elements necessary for the successful implementation of the cooperation mechanism:

- The importance of active local leadership and institutional commitment
- The role of community engagement and citizen participation
- The effectiveness of combining education, awareness, and practical actions
- The added value of cross-border cooperation and exchange of good practices

Furthermore, the case demonstrates how local initiatives can be integrated into a broader multi-level cooperation framework. The activities carried out in Shabla align with the proposed mechanism by contributing to data collection, awareness raising, behavioral change, and stakeholder cooperation.

This example confirms that the proposed mechanism is not only theoretically sound but also practically applicable, particularly in small coastal municipalities facing similar environmental challenges across the Black Sea Basin. It also illustrates the potential for replication and scaling of such initiatives in other regions.

In conclusion, the proposed cooperation mechanism represents a structured, adaptable, and results-oriented approach to strengthening environmental protection in the Black Sea Basin. By fostering coordination, enhancing the use of data, and promoting active participation of stakeholders at all levels, it contributes to more effective and sustainable environmental governance. Its practical applicability, demonstrated through local-level implementation, confirms its potential to be further developed, scaled, and replicated, ultimately supporting long-term environmental resilience and reduced pollution across the region.

# ANNEX

## RESULTS OF THE NATIONAL WORKSHOPS
## Held on 19.09.2025 in Shabla, and on 24.02.2026 in Varna, Bulgaria

within project BSB00008 LEARN4SEA, INTERREG NEXT Black Sea Basin 2021-2027

**(SUMMARY)**

Two national working meetings were held in Bulgaria within the framework of the preparation and testing of the Guidelines for authorities to establish mechanism for cooperation to generate initiatives for better-protected environment and reduced pollution.

The first meeting was held in the town of Shabla on 19.09.2025. It was organised together with the demo campaign carried out by PP5 Shabla and was focused on setting the mechanism for cooperation between local authorities in coastal zone. The workshop was attended primarily by representatives of local authorities – municipalities and village halls from northern Black Sea coast, but the audience included also experts and representatives of other key stakeholders.

The 2nd Workshop was organized in Varna on 24.02.2026. It was focused on cooperation of local authorities with the research sector for advising initiatives and modern approaches to support environmental protection based on adequate coastal air and marine water quality assessment, and promoting further cooperation in research and innovation in this area. Target audience was researchers, schools, professionals and NGOs, along with representatives of local authorities.

Based on discussions, findings, recommendations and interactive feedback surveys, some practical recommendations have been summarised to contribute to Output 1.7 “Guidelines for authorities to establish mechanism for cooperation to generate initiatives for better-protected environment and reduced pollution”.

Results are presented in the following attachments:

1. Results of the Interactive feedback survey, Workshop #1, Shabla, 19.09.2025
2. Results of the Interactive feedback survey, Workshop #2, Varna, 24.02.2026
3. Recommendations for Practical Actions by Local Authorities to reduce pollution along the Black Sea coast

*Translated from Bulgarian*

# RESULTS

of an Interactive feedback survey

with the participants of the 1st Workshop

## Opportunities for coordination and cooperation of local authorities to reduce pollution of the Black Sea

September 19, 2025, Shabla

within the framework of contract BC-10/19.07.2025, project BSB00008 LEARN4SEA - Joint innovative training for environmental behaviour of communities in the Black Sea Basin, under the Interreg NEXT "Black Sea Basin" Program 2021-2027

At the end of the workshop, the participants filled out an interactive survey with a QR code in Google Forms, designed to collect feedback on the LEARN4SEA project. 16 people from the attendees participated in the survey.

The questions and results are summarized here below:

1. Do you think that local ordinances and regulations regulating activities polluting the marine environment (e.g. illegal dumping of waste or unauthorized discharges) should be updated?

- Yes: 16 (100%)
- No: 0

2. Which initiatives do you consider most effective and appropriate for local authorities? (*multiple choice*)

- Demonstration campaigns: 13 (81%)
- Raising public awareness: 15 (94%)
- Improving infrastructure: 14 (87%)

3. What recommendations would you give to improve cooperation and coordination between local authorities? (*choose from several options*)

- Information exchange through a digital portal or system: 1 (6%)
- Regular joint meetings and working groups: 16 (100%)
- Development of unified procedures and standards: 12 (75%)
- Involving citizens and businesses in partnerships: 14 (87%)
- Use of modern technologies (sensors, drones, GIS): 13 (81%)
- Training and increasing the capacity of staff: 15 (94%)

4. Do you think that the establishment of environmental information centers would be useful for raising public awareness and building a responsible attitude towards the Black Sea?

- Yes: 15 (94%)
- No: 1 (6%)

5. How satisfied are you with the quality of the content presented at the workshop? (on a scale of 1–5)

- Average rating: 4.6 / 5

6. How relevant and applicable was the content of the workshop to your work or interests? (on a scale of 1–5)

- Average rating: 4.5 / 5

7. Did the technical level of the workshop correspond to your prior knowledge and expectations? (on a scale of 1–5)

- Average rating: 4.6 / 5

The results of the survey will be used in the development of "Guidelines for local authorities to establish mechanisms for cooperation to generate initiatives for better protected environment and reduced pollution" (Output 1.7 "*Guidelines for authorities to establish mechanisms for cooperation to generate initiatives for better protected environment and reduced pollution*")

30.09.2025
Varna

*Translated from Bulgarian*

# RESULTS

of the Interactive feedback survey

with the participants of the 2nd Workshop

## OPPORTUNITIES FOR COOPERATION BETWEEN LOCAL AUTHORITIES, RESEARCH ORGANIZATIONS AND COASTAL COMMUNITIES TO REDUCE BLACK SEA POLLUTION

Held on **24 February 2026 in Varna, Bulgaria**

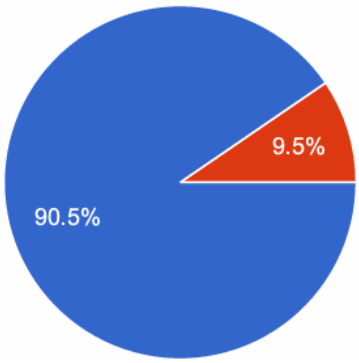
within the framework of contract BC-10/19.07.2025, project BSB00008 LEARN4SEA - Joint innovative training for environmental behavior of communities in the Black Sea Basin, under the INTERREG NEXT "Black Sea Basin" Program 2021-2027

A total of **21 participants** responded.

**Key Findings**

**1. Need to update local environmental regulations**

Participants were asked whether local regulations related to marine pollution activities (such as illegal dumping or unauthorized discharge) need modernization.




- **90.5% answered "Yes"**
- **9.5% answered "No"**

This shows a very strong consensus that environmental legislation and enforcement mechanisms should be improved.

**2. Most effective initiatives for protecting the Black Sea ecosystem**

Participants identified the following as the most effective actions for promoting responsible environmental behavior:

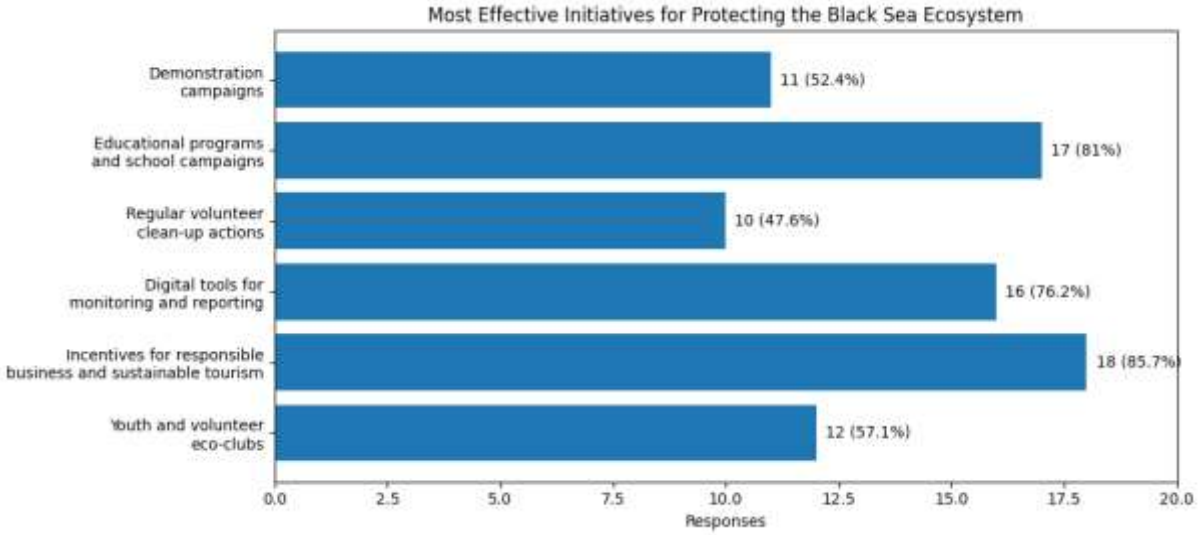
Top-rated initiatives:

- **Incentives for responsible business and sustainable tourism** – 85.7%
- **Educational programs and school campaigns** – 81%
- **Digital monitoring and reporting tools** – 76.2%

Other important initiatives:

- Youth and volunteer eco-campaigns – 57.1%
- Demonstration campaigns – 52.4%
- Regular volunteer clean-up actions – 47.6%

This indicates participants strongly value a combination of education, technology, and economic incentives.




**3. Recommended mechanisms for institutional coordination**

Participants recommended several measures to improve cooperation and information exchange regarding environmental protection in the Black Sea region:

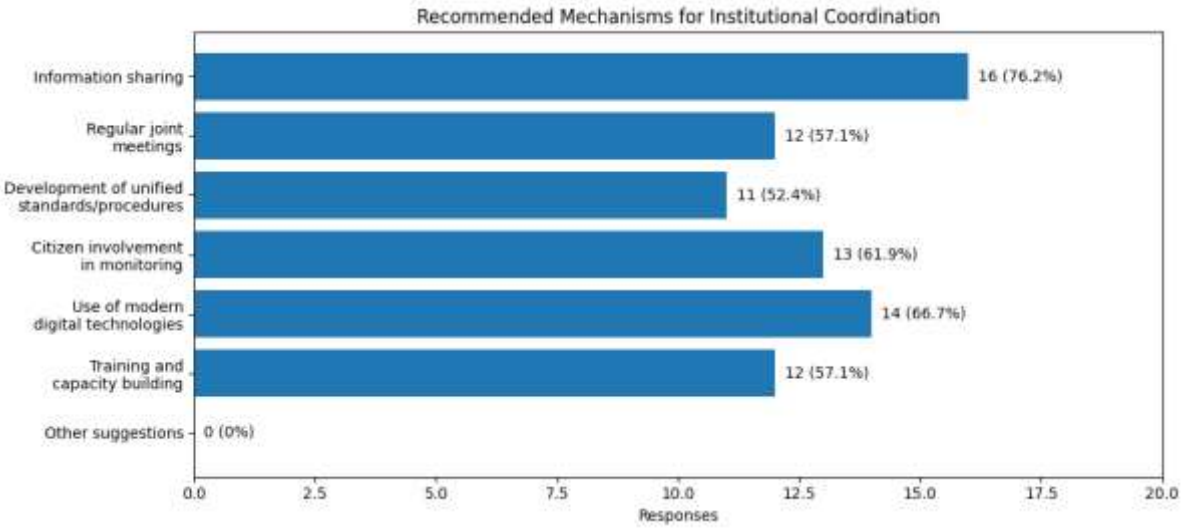
Most supported measures:

- **Information sharing systems/platforms** – 76.2%
- **Use of modern digital technologies** – 66.7%
- **Citizen involvement in environmental monitoring** – 61.9%

Additional recommendations:

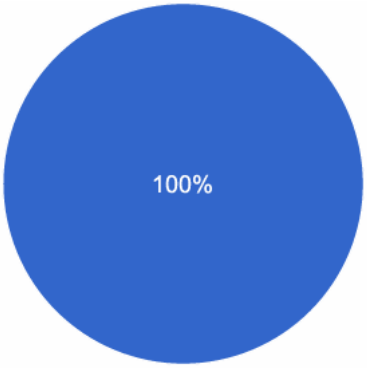
- Regular joint meetings between institutions – 57.1%
- Training and awareness activities – 57.1%
- Development of unified standards/procedures – 52.4%

These responses emphasize the importance of digital coordination, transparency, and public participation.




**4. Environmental information centers**

Participants were asked whether creating environmental information centers would help inform communities and encourage responsible attitudes toward Black Sea protection.




- **100% answered "Yes"**

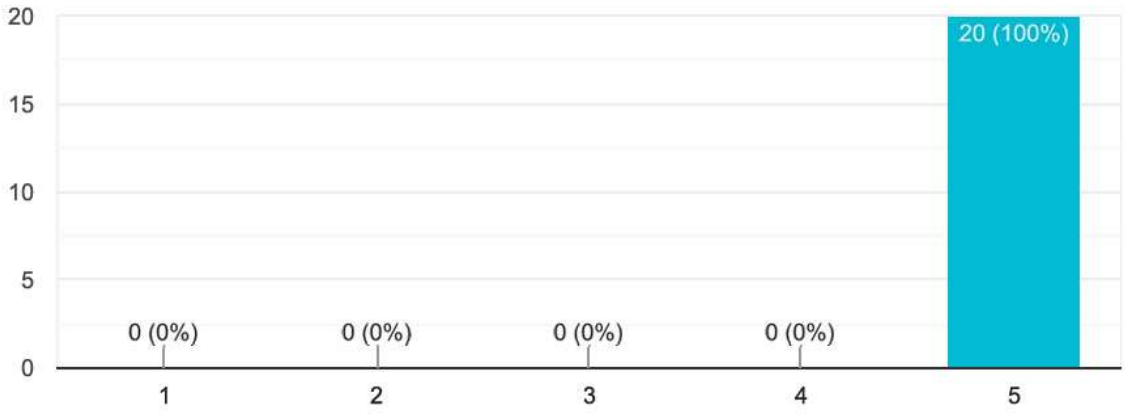
There was unanimous support for establishing such centers.

**Evaluation of the Workshop**

**5. Satisfaction with workshop content**

- **100% gave the highest rating (5/5)**

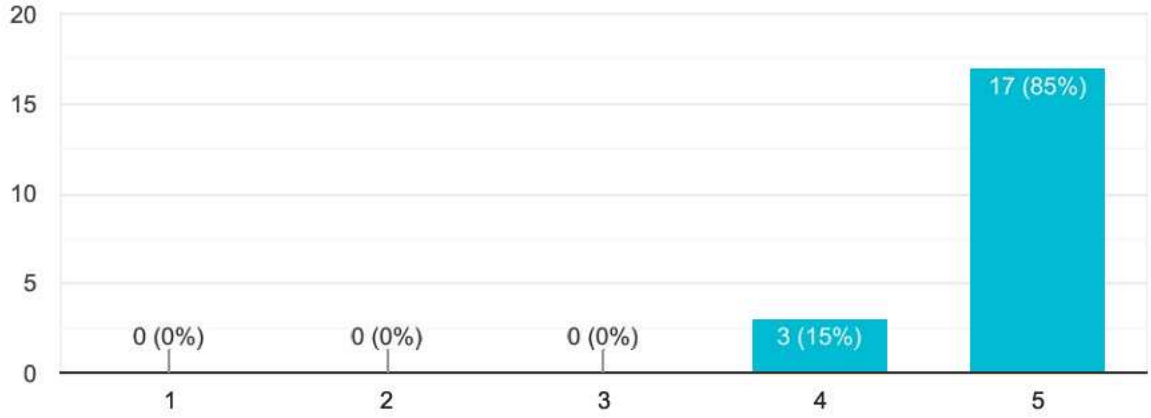
Participants were fully satisfied with the quality of the presented content.




**6. Relevance of the workshop to participants' work/interests**

- **85% rated 5/5**
- **15% rated 4/5**

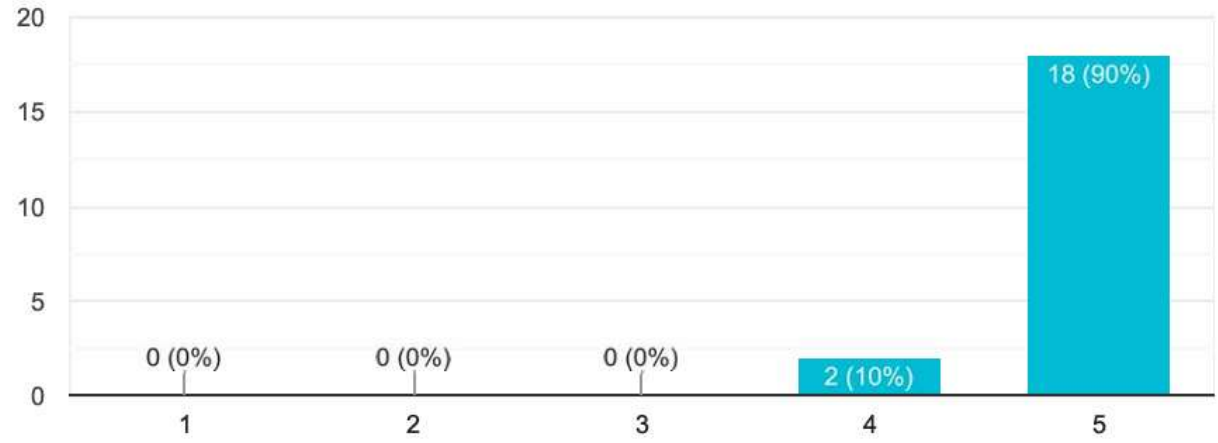
The workshop content was considered highly applicable and relevant.




**7. Technical level of the workshop**

- **90% rated 5/5**
- **10% rated 4/5**

Participants felt the technical level matched their prior knowledge well.




**Open Feedback / Suggestions**

Participants suggested:

- Expanding discussions on:
  - renewable energy,
  - sustainable tourism,
  - environmental regulations,
  - and practical solutions for reducing pollution.
- Organizing:
  - more practical workshops,
  - interactive activities,
  - and broader participation from institutions and local communities.

Overall feedback was extremely positive, with participants expressing strong interest in continuing similar initiatives in the future.

# RECOMMENDATIONS
## FOR PRACTICAL ACTIONS BY LOCAL AUTHORITIES TO REDUCE BLACK SEA POLLUTION

ADOPTED AT WORKSHOPS HELD ON 19.09.2025 IN SHABLA, AND ON 24.02.2026 IN VARNA, BULGARIA
WITHIN PROJECT BSB00008 LEARN4SEA, INTERREG NEXT BLACK SEA BASIN 2021-2027

### REGULATING LAND-BASED POLLUTION

Runoff control:

Local authorities can reduce the amount of excess runoff that carries pollutants into waterways by implementing better urban planning and promoting water-saving practices in communities.

Wastewater management:

Improving local wastewater treatment systems to ensure that treated water discharged into the sea meets environmental standards, while minimizing nutrient and chemical pollution.

### IMPROVE WASTE MANAGEMENT

Increase recycling and waste collection:

Invest in comprehensive waste management programs that include kerbside collection facilities, sorting and recycling of plastics and other recyclable materials to prevent them from entering the sea.

Support proper disposal:

Enforce regulations for the proper disposal of household and industrial waste to prevent illegal dumping and the spread of debris in coastal areas.

### RAISE PUBLIC AWARENESS

Educational campaigns:

The local government is interested in strengthening activities to educate residents about the impact of marine pollution. Encourage responsible actions such as reducing single-use plastics, using reusable bags and bottles, and choosing eco-friendly products.

Support community initiatives:

Organize and promote local beach clean-ups and community efforts to remove marine litter and raise awareness about pollution issues.

### COOPERATION FOR ENFORCEMENT OF LOCAL REGULATIONS

Cooperation:

Local authorities should cooperate with national (e.g. MoEW) and international organisations (e.g. INTERREG NEXT Black Sea Basin Programme) to adapt and implement policies addressing marine pollution.

Enforcement of local regulations:

Adopt and enforce local regulations and initiatives specifically targeting activities contributing to marine pollution, such as illegal dumping or illegal discharges.

THE CONTRIBUTION OF THE **LEARN4SEA** PROJECT

Within the framework of the project, two of the partners, in their role as local authorities/administrations - Shabla Municipality and the National Environment Agency, Georgia (NEA), are developing and implementing guidelines necessary for them as initiators and implementers of decisions and regulations for pollution reduction at the local level. These guidelines will be made available to local authorities in the project countries.

The contribution of universities and educational institutions (PRU Turkey, and CERONAV Romania), as well as environmental protection organizations (NEA Georgia and BDCA Bulgaria), all the expertise and experience of the partners have been enriched with new data collected and analyzed within the framework of the project, together with a number of educational materials developed and made available to the general public on the LEARN4SEA platform.

Based on the discussions during workshops, recommendations to improve the mechanism are proposed for cooperation between relevant authorities, administrations and environmental agencies, and, as a third party, essential for achieving the results - the general public, professionals, pupils and students at all educational levels.

Some EU best practices have been presented and proposed to be adopted by local authorities and relevant consultative bodies. The initiatives and will be adapted according to the specific needs of each interested local group in the Black Sea coast and beyond.

The LEARN4SEA project encourages local authorities to reduce marine pollution by regulating land-based sources such as run-off and wastewater, investing in better waste management and recycling infrastructure and promoting public awareness campaigns on the reduction of plastic and other pollutants.

They can also support municipal clean-ups, enforce waste treatment regulations, and collaborate with national and international organizations to develop effective local strategies for marine conservation and pollution prevention.