

**BSB-785**

# **Raising Public Awareness and Reducing Marine Litter for Protection of the Black Sea Ecosystem (LitOUTer)**

**GAT1. State Of Art of Marine Litter Pollution in Partner  
Countries**

**GA T1.1 Gathering Information on Legislation and  
Measures on Marine Litter Pollution**

**GA T1.1.1 Report on State of Art of Marine Litters and  
Legal Status in The Partner Countries**

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**Common borders. Common solutions.**

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## ABSTRACT

This document is a part of the LitOUTer “Raising Public Awareness and Reducing Marine Litter for Protection of the Black Sea Ecosystem”- BSB-785 project funded by the Joint Operational Programme Black Sea Basin 2014-2020.

The report consists of national, regional and international legal framework and projects of the beneficiaries. The report is a deliverable of the GAT1.

According to the content of the report, project beneficiaries are linked for the same regional and international legislations which make the project actions more understandable, easy applicable and the same responsibilities for all beneficiaries.

This report presents the review of the Turkish, Georgian, Romanian and Bulgarian national and regional as well as international legal and policy framework related to the complex transboundary environmental issue of marine litter pollution. The marine litter problem is mostly the outcome of rapidly increasing manufacturing and use of plastics, combined with deficiencies in solid waste management. While oil-based polymers are extremely versatile materials, their physical and chemical properties make them very persistent in the marine and coastal environment.

The estimated release of plastic waste in the oceans and seas in 2010 was rated between 4.8 and 12.7 million metric tonnes, and those numbers were expected to increase to between 100 and 250 million metric tonnes by 2025 (Jambeck, J. et al, 2015). The Black Sea is no exception to this global trend therefore all littoral countries and the wider basin need various measures urgently put in place to abate marine litter pollution. Bulgaria, and Romania are two EU members bordering on the Black Sea, has been introducing various policies to support marine litter reduction not only on local and national level, but also at regional scale and in line with the global initiatives and strategies.

As the purpose of the project is to raise awareness of different groups of stakeholders on issues that would help curb marine litter pollution, the report has focused on some important aspects of the national policy framework. Those aspects are waste prevention, the reduction, reuse and recycling of solid waste, prevention of marine litter discharge from land-based and sea-based sources, the clean-up activities on shore and in the sea, as well as capacity building and monitoring measures as part of



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marine litter policy. These parameters are related to the principles of the hierarchy of waste management and their identification in the policy framework will provide solid support to effective awareness raising activities.

Legislative measures preventing discharge of litter from land-based sources and discharge prevention from sea-based sources are implemented quite successfully. A major role in the prevention of marine pollution is the improvement in discharge prevention from shipping with the improvement of port-reception facilities and the enforcement of the relevant EU related legislation.

Marine litter is not specifically targeted by the national waste management legislation and improvement in the overall management of waste can lead to improvement of the overall situation with marine litter. Those policy strengths can be used to support awareness raising and guide the selection of topics for awareness activities and training on issues of waste in the marine environment. Policies related with waste management, the reduce-reuse-recycle approach, though there is room for improvement there, especially in terms of enforcement and meeting of recycling targets. Coastal clean-ups and waste removal measures, especially measures related to debris from fishing nets and gear are considered to be quite effective. Capacity building and monitoring measures that need to be part of the marine litter policies are envisaged though they need more attention. EU environmental legislation is being consistently transposed in the national legislation but regional cooperation with all neighbours remains a challenge.

There is need for sufficient financing and improvement of educational activities on the reduction of marine litter, monitoring measures, research and innovation for decreasing marine litter, introductions of principles like the extended producer responsibility, introduction of deposit refund schemes for beverage containers, administrative capacity building and enforcement capacity and mechanisms for marine litter reduction. All those areas provide various opportunities for awareness raising to abate marine litter pollution.

The present review on marine litter assessment and reported data proved that marine litter is widely spread on beaches and throughout the entire coastal, shelf on open sea area in the Black sea; the density numbers reported are very worrying and must raise institutional and societal awareness and highlight the urgent need of an integrated multidimensional approach at all levels - institutional and societal, starting from education on marine litter for the new generations, inclusion of all institutions involved, NGOs and volunteer organizations, following well-structured strategy -



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identification and elimination of the initial sources, identification and monitoring of hotspots, implementation and execution of litter removal plans, identification and possible expansion of landfill and waste management capacities, implementation of reuse and recycling plans, other relevant measures, aiming at achieving sustainability and good environmental status as well as elimination of risks to human health and ecosystems.

## 1. GENERAL INFORMATION

Marine litter can be defined as waste, discarded or lost material resulting from human activities (Cheshire et al., 2009). As such, marine litter is any such material that has made it into the marine environment, including material found on beaches or material that is floating or has sunk at sea. The United States National Oceanographic and Atmospheric Administration (NOAA) and the United States Coast Guard (USCG) adopt the term 'marine debris' and define it as any persistent solid material that is manufactured or processed and directly or indirectly, intentionally or unintentionally, disposed of or abandoned into the marine environment or the Great Lakes (Lippiatt et al., 2013). Another generally adopted definition is that of UNEP: "Marine litter has been defined as any persistent, manufactured or processed solid material discarded, disposed of or abandoned in the marine and coastal environment, including all materials discarded into the sea, on the shore, or brought indirectly to the sea by rivers, sewage, storm water, waves, or winds" (UNEP, 2011).

Marine litter has been recognized as a global issue raising grave concerns over the state of the marine and coastal environment. Marine litter originates from land-based and sea-based sources and due to its slow degradation, its accumulation in the marine and coastal environment in recent years has been growing at alarming rates. Its negative impacts have been recognized in various spheres of life the world over and the Black Sea is no exception.

The potential damage caused by marine litter is complex and can be divided into three major categories including ecological, social and economic impacts. This complex trans-national problem has been addressed by a number of regional interventions among them the project "Raising Public Awareness and Reducing Marine Litter for Protection of the Black Sea Ecosystem" (LitOUTer) promoting common awareness-raising and joint actions to reduce river and marine litter among four Black Sea countries. The project has been supported by the Joint Operational Programme Black Sea Basin 2014 - 2020. Lead partner is the Karadeniz Technical University, Marine Science Faculty, Trabzon, Turkey and partners are the International Business and Economic Development Center (IBEDC), Georgia, Mare Nostrum NGO, Romania, the Institute of Oceanology - BAS, Bulgaria, the National Institute for Marine Research and Development "Grigore Antipa", NIMRD, Romania, and the Black Sea NGO Network,



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Bulgaria. The consortium of NGOs, higher education and scientific research institutes from four countries employs innovative awareness raising methods including information exchange, education and training and demonstration of litter movements by GIS web-based hydrodynamic model. The project will be implemented in the course of 30 months and the overall project budget is about 930 000 euro.

The project enhances awareness-based neighbourhood cooperation through national level and cross-border initiatives on raising the awareness of societies about the sources and distribution of marine litter and supporting policies and tools leading to marine litter reduction. The report will help outline the state-of-the-art national policy framework for marine litter in partner countries policies, programmes, achievements and projects. The report will help to identify thematic areas and specific tools suitable for awareness raising for the targeted stakeholder groups in partner countries. It will help reach the correct target groups with the correct messages to produce strong impact for marine litter reduction at the source.

The Black Sea is a unique water body by a number of characteristics being also the most isolated sea in the world. It is connected to the world ocean through the winding Bosphorus Straits, a narrow 35-kilometer channel, only 40 m deep in places. The exchange of waters with the Mediterranean is extremely slow. Several other specific hydrographic characteristics related to its depth, catchment basin, water balance and stratification influence the situation with marine litter. The patterns of its movements and deposition are not sufficiently well known.

Being one of the 'youngest' seas in geological terms, the Black Sea was formed 7500 - 8000 years ago, and used to be a fresh water lake. It is locked between the tectonic plates of Europe and Asia and is over 2 km deep in places. The Black Sea surface area is 474 000 sq km, and its catchment area is five times bigger, 2 414 000 sq km, with a population of 191 994 000 discharging waters and waste. There are six littoral countries: Bulgaria, Georgia, Romania, Russian Federation, Turkey, Ukraine. The large rivers in Europe, and Anatolia the Danube, Dnieper, Don rivers, Kızılırmak River, Yeşilırmak River, flow into the Black Sea bringing plenty of waste into the deep basin. Each year the Black Sea receives about 350 cubic kilometres of river water from a territory covering roughly a third of continental Europe and including substantial parts of twenty countries.



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The Black Sea has positive freshwater balance, which means that it receives more fresh water from the rivers and rainfall than it loses from evaporation. The surplus of water therefore flows through the Bosphorus into the Marmara Sea. Thus, two flows through the straits are formed. The upper flow leaves the Black Sea and carries surface water out of it. Meanwhile a bottom flow carries salt water, about 35‰ from the Mediterranean to the Black Sea. The salty water mixes with the waters of the basin proper and that results in a comparatively low salinity at the surface, about 17,5 - 18‰. The volume of the bottom flow is about 300 cubic km, roughly half of the surface flow.

Because of the specific characteristics described above, the Black Sea has two distinct water layers: the lighter upper layer from surface to approximately 200 m deep and the heavier lower layer from 200 m down to the seabed. This stratification of waters causes weak vertical circulation within them. The waters from the two layers do not mix very easily and that fact has an enormous influence on life in the sea. In the entire Black Sea at a depth greater than 150 - 200 m there is a permanent hydrogen sulphide zone devoid of aerobic life forms. Oxygen is completely absent at this level. Oxygen rich surface waters supporting most life in the sea constitute only about 13% of the Black Sea volume. These features influence the condition of the marine environment and the diversity of organisms depending on it, being closely related to marine litter as well. They are the key to the character and the problems of the Black Sea's environmental health.

Strong currents in the Black Sea are an important factor in transporting of dissolved substances, floating matter and living organisms throughout the sea thereby causing transboundary dissemination of pollution, invasive species, marine litter.

Because of its large catchment area compared to its own area the Black Sea is very vulnerable to pressure from land-based human activities and its environmental health is dependent from both coastal and non-coastal states in the catchment basin. Due to the same reason it is vulnerable to climate change. A major type of problematic pollutants are varieties of solid waste dumped into the sea from ships and some coastal towns.

In general, in the Black Sea marine litter has been confirmed as a critical issue for the whole basin, intensified by territorial challenges such as significant pressure from land-based sources, aggravated by the basin's very large catchment area, extremely limited exchange with the world ocean, densely populated coast, well developed tourism along the coasts with accumulation of garbage on some beaches, busy



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maritime traffic and various additional inputs from rivers and discharges from numerous coastal ports, industrial zones and urban areas.

In global scale, marine litter problem was reported in 1960s on microplastics and their effects of transferring persistent organic pollutants to marine food web. Then, in the 1970s, marine plastic litter at sea, their impact on sea floor and marine animals were interested in by scientists. Recent studies showed that about 5 million tons of plastic wastes are entering the ocean and this amount totally will reach to 250 million tons by 2025 ([www.marinelittersolutions.com](http://www.marinelittersolutions.com)). Marine litter problem is taken into account at MSFD in 2008 in European level. At present, the framework of the marine litter problem is well defined and understood but the solutions still has not been clear yet. Because, this problem has many legs and some of them are cultural, welfare, traditional, educational and insufficient knowledge. In the Black Sea region, European Commisison has supported several projects related with the Black Sea sustainability under different topics such as fisheries and pollution. Marine litters laying on the sea bed, or suspended in the water column are threatened wildlife and their environment. Additionally, they behave as a transporter for pollutants (adsorbed pesticides, PAHs) and also invasive species from one place to another. The sources of marine litter are categorised into two; one is from land and the other is from marine based sources. The main sources consist of many different secondary sources underneath, such as;

1. Coastal landfill area,
2. Wild litter storage area,
3. Rivers,
4. Beaches,
5. Sewages,
6. Deep sea discharge,
7. Coastal industrial facilities (Ports, shipyards, shelters etc),
8. Fishing boats,
9. Other merchant ships,
10. Storm water overflows,
11. Agriculture,
12. Illegal dumping,
13. Tourism activities

We, as a partners, have common challenge to find sustainable solutions to raise awareness of the public for reducing marine litters. The sources of the marine litter are more or less the same in all partner countries. In the first implementation activity,

**Common borders. Common solutions.**





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each partner will demonstrate background studies on marine litters in their coastal areas including selected river basins where possible (20-50 km upwards from coast).

First priority will be given to determine current state of litter pollution in partner countries. On the other hand, understanding the legal framework of litter problem in member countries is very important to make necessary recommendations how to reduce it by technical, administrative and legal dimensions at the end of the project. At the end of this work, it will be possible to compare which country has covered the requirements of the EU-WFD, EU-MSDF and other international conventions, to determine failures and gaps and to inform authorities what should be done in short-mid-long term legal and technical provisions.

This review is a summary of marine litter problem and research surveys carried out in partner countries in the last decades. The literature survey is based on national, regional, and international laws, regulations, legislations and agreements of the project partner countries. As EU member countries, studies on marine litter pollution had been carried out in line with the EU policies and regional conventions in Romania and Bulgaria. As non-member countries, marine litter pollution studies conducted according to the BSIMAP, Bucharest Convention and their national legislation in Georgia and Turkey. Turkey is also candidate country of EU, therefore all EU legislations and regulations are integrated into Turkish regulations. Turkey adopt its marine litter pollution policies, strategies and monitoring standards according to the Bucharest Convention, Barcelona Convention, WFD and MSFD. These data submitted and shared at regional platform under the national responsibilities. Of course there might be similar situation valid for Georgia, Romania and Bulgaria. So this report will be useful to provide maximum benefit to clarify marine litter pollution which serves as a baseline knowledge in project member countries which covers the majority of the Black Sea coastal area.

## **1. PARTNERS NATIONAL AND INTERNATIONAL REGULATIONS AND LAWS THAT RESPONSIBLE TO FOLLOW THEIR INSTRUCTIONS**

### **2.1. TURKEY**

First legal instruments have been introduced to conserve terrestrial and aquatic environment against various pollution sources in Turkey. Some of them enacted due to rated international conventions, some of them prepared according to the principals of



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the institutions of which Turkey is accepted as a member (i.e. FAO, IMO) and some others born due to harmonization process to EU acquis.

This section focuses on international law and agreements that address marine litter. The following sections give brief information on the national and international legal framework to prevent and manage marine litter problem at national, international and regional levels.

Analyses of current legislations regarding mitigation of marine litter in Turkey and regional and international legislations, conventions, agreements to which Turkey is parties have been investigated. International laws associated with marine litter can be categorized as multilateral environmental agreements, soft law and international legal principles and customary international laws. Multilateral environmental agreements are engaging international agreements. As with other international agreements, multilateral environmental agreements only engage the States who commit to bound by ratification or accession. Three multilateral environmental agreements are particularly relevant to marine litter.

### 2.1.1.National Legal Framework

#### 2.1.1.1.Environment Law-No. 2872:

Environment Law has been submitted in Turkey on 11 August 1983. The purpose of the environment law is to protect and improve the environment which is the common asset of all citizens; make better use of, and preserve land and natural resources in rural and urban areas; prevent water, land and air pollution; by preserving the country's vegetative and livestock assets and natural and historical richness, organize all arrangements and precautions for improving and securing health, civilization and life conditions of present and future generations in conformity with economic and social development objectives, and based on certain legal and technical principles.

The 34 articles of the Law are divided into 6 Sections: Objective, Definitions and Principles (1); Central and Local Administrative Divisions and their Functions (2); Precautions and Prohibitions Regarding Environmental Protection (3); Environmental Pollution Prevention Fund (4); Penal Provisions (5); Miscellaneous Provisions (6).Provisions regarding the Central Environmental Board and the Provincial Environmental Board of Section 2 are repealed by subsequent amendments of the Law. Provisions of Section 3 prohibit various forms of pollution, empower the Council of Ministers to declare "Special Environmental Protection Areas", oblige "institutions, agencies and establishments" which may cause harm to the environment to prepare



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environmental impact assessment reports, and regulate license and inspection. Importation, transport and storage of harmful chemicals shall be subject of further regulation. Article 17 of Section 4 provides for the establishment of an "Environmental Pollution Prevention Fund". In Article 9-h Environmental Protection: To ensure the protection and utilization of country's sea, underground and aboveground water resources and water products acquisition areas and to protect them against pollution shall constitute a basis.

On the other hand, this law was amended in 2006 with the Law No. 5491 by substituting some articles as well as adding new provisions. The purpose of the amended Law shall be redefined as follows: "to ensure the preservation of the environment, which is a common asset of all living beings, through sustainable environment and sustainable development principles". A Supreme Environment Board, chaired by the Prime Minister, shall be established, and its main tasks include: the formulation of the targets, policies and strategies; the definition of legal and administrative measures to include environment aspects to economic decisions; the resolution of environment-related disputes among the ministries and agencies, etc. Agencies, institutions and enterprises that may damage the environment due to their activities shall be obliged to prepare an Environmental Impact Assessment Report. Individuals and companies who wish to be involved in waste transportation and/or collection, except household wastes, shall be to obtain a license from the Ministry. Municipalities are also obliged to set up or organize household solid waste disposal facilities. Procedures and principles for specifying hazardous chemicals, their production, importation, labeling, classification, storing, risk assessment, transportation and exportation shall be defined by a separate regulation. Importation of hazardous wastes shall be prohibited.

Besides, Law No. 7153 amending the Environmental Law No. 2872 and other laws has entered into force in 2018 (Official Gazette No. 30621, 10th of December, 2018.). This Act adds a new subparagraph to the Article 3 of the Principle Act regarding the mandatory standards for environmental protection and pollution control; environmental fees; promotion of renewable energy sources and clean technologies; recycling share; reduction of the use of plastic bags and plastic packaging; emission fee; compensation within the polluter pays principle; and market-based mechanisms such as carbon trading and economic tools and incentives. Moreover, this Act lays down administrative fines in Article 20 of the Principal Act for the breach of provisions relating to emission control, storage of solid fuels, and discharge of domestic



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wastewater, solid waste disposal, and plastic bag ban. This Act adds a new subparagraph to the Article 29 of the Principal Act regarding zero waste management and waste sorting. Finally, this Act adds Additional Clauses on recycling share and reduction of the use of plastic bags.

Type of text	Law
Source	Official Journal No. 18132, 11 August 1983.
Available web site	<a href="http://www.resmigazete.gov.tr">www.resmigazete.gov.tr</a>
Amended by	1. Law No. 5491 amending the Environmental Law No. 2872. 2006-04-26 2. Law No. 7153 amending the Environmental Law No. 2872 and other laws. 2018-11-29
Keywords	framework law; basic legislation; institution; EIA; pollution control; soil pollution/quality; authorization/permit; inspection; protected area; offences/penalties; freshwater quality/freshwater pollution

#### ***1.1.1.2. Metropolitan Municipalities Law-No. 5216***

The law on metropolitan municipalities, dated 23 July 2004, aims to establish the legal status of metropolitan municipality administration and ensure that services are provided in a planned, programmed, effective, efficient and consistent manner. In Article 7-i Metropolitan municipalities shall have the following duties, powers and responsibilities: In accordance with the principle of sustainable development, ensure the protection of the environment, agricultural land and water basins; plant trees; gather polluting businesses, recreational facilities and other businesses that have impact on public health and environment in specific places in the city; designate storage areas and sales points for building materials, scrap materials, and storage areas for excavated soil and rubble, sand and gravel, places for the sale and storage of wood and coal; take necessary measures to prevent environmental pollution in such areas and places and during transport; draw up or cause to draw up the metropolitan area's solid waste management plan; except for the collection of solid waste at origin and the transport of such waste to the processing plant, provide services for the recycling, storage and disposal of solid waste and excavated soil, establish or cause to establish, operate or cause to operate facilities for the purpose; provide services concerning industrial and medical waste, establish or cause to establish, operate or cause to operate facilities for the purpose; collect or cause to collect waste from maritime vessels, treat such waste and make the necessary arrangements in this regard.

Type of text	Law
Source	Official Gazette No. 25531, 10 July 2004.



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Available web site

Last Amended by

Keywords

[www.resmigazete.gov.tr](http://www.resmigazete.gov.tr)

Law No. 6462 amending Metropolitan Municipalities Law No. 5216

Framework law; local governments, metropolitan municipality system; planned; programmed; effective; efficient; sustainable development; industrial and medical waste.

### 1.1.1.3.Coastal Law-No 3621

The Coastal Law, dated 17 April 1990, Official Journal No: 20495, has provisions for the use and protection of "sea coasts, natural and artificial lakes and river banks and coastal stripes" (Art. 1). Article 4 defines "coastal line", "coastal edge line", "coast", "coastal stripe", and "narrow coast". The main provisions concerning the protection of these areas can be found in Section 2 (Arts. 6-12) which regulates licenses and permissions for construction of structures, land reclamation, plans for coasts and coastal stripes. Also in article 6, waste and residues cause pollution such as rubble, soil, slag and garbage cannot be dumped on the coasts. Those who shed wastes and wastes such as rubble, soil, slag, garbage to the places listed in the first paragraph are punished according to the provisions of the Criminal code of Turkey, Misdemeanor Law or the Environmental Law, depending on the nature of the discarded.

Type of text

Law

Source

Official Gazette No. 20495, 17 April 1990.

Available web site

[www.resmigazete.gov.tr](http://www.resmigazete.gov.tr)

Last Amended by

Law No. 7221 amending the Regulation on implementation of Coastal Law No. 3621.

Keywords

Marine pollution, Coastal zone management, Maritime zone, Pollution control, Territorial sea, Drainage/land reclamation, Certification, Environmental planning, Basic legislation

### 1.1.1.4.Criminal Code of Turkey-No. 5237

The Criminal code law of Turkey has been published in official Gazette no. 25611 on 12 October 2004. The last amendment Law No. 6217 is Law No. 6217 (March 31, 2011). The objective of Criminal Code is to protect the individual rights and freedom, public order and security, state of justice, public health and environment, and communal peace, as well as to discourage commitment of offences. This Law defines the basic principles for criminal responsibility and types of crimes, punishments and security precautions to be taken in this respect.

Offenses against the environment has regulated in second section of the law. Intentional pollution of environment, Article 181-(1) any person who intentionally



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drains refuses or wastes to the ground, water or air contrary to the technical procedure defined in the relevant laws and in such a way to cause environmental pollution, is punished with imprisonment from six months to two years. (2) any person who engages in transfer of refuses or wastes into the country without permission is punished with imprisonment from one year to three years. Pollution of environment by negligence, Article 182 - (1) Any person who drains refuses or wastes to the ground, water or atmosphere by negligence in such a way to cause environmental pollution, is imposed punitive fine. Where the refuses or wastes are observed to have remaining affect in the ground, water or atmosphere, punishment of imprisonment is imposed from two months to one year.

Type of text	Law
Source	Official Gazette No. 25611, 12 October 2004.
Available web site	<a href="http://www.resmigazete.gov.tr">www.resmigazete.gov.tr</a>
Last Amended by	Law No. 7442 amending criminal code of Turkey No. 5237
Keywords	Framework law; the individual rights and freedom, public order and security, state of justice, public health, environment, communal peace.

#### 1.1.1.5.Zero Waste Regulation

This Regulation sets forth the principles and procedures of the establishment, development, monitoring, and financing of a waste management system aiming at the protection of environment, human health and all resources throughout the waste management processes within the principles of effective management of raw materials and natural resources and sustainable development. The system shall apply to the wastes listed in Annex-IV of the Regulation on waste management. In order to use resources efficiently in production, consumption and service processes, the general principles of the system are to prevent waste generation by considering the principles given in Annex-II; reduce wastes, if not possible to prevent waste generation; and evaluate the possibilities of reuse of products and materials. All necessary precautions shall be taken to protect the environment and human health, during the storage of wastes according to their types and to the explanations in the Annex-V. In case the separately collected wastes cannot be recycled, their final disposal shall be carried out in a way that does not cause environmental pollution. All activities of zero waste system shall be registered into the Zero Waste Information System. The Ministry and the provincial directorates shall encourage environmental awareness-raising activities for the development and extend of the zero waste system. The duties of the Ministry are (I) to develop policies, plans, programs and targets at the national and local level, (II) to develop guidelines on the standards of the system, (III) to raise public awareness and organize training sessions, (IV) to strengthen





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coordination and cooperation between the relevant institutions for the effective implementation of this Regulation, and improve monitoring and evaluation, (V) to follow the latest developments at the national and international level, (VI) to establish a Zero Waste Coordination Center, (VII) to determine the criteria for the evaluation of process industrial wastes within the scope of zero waste certificate, and (IX) to develop strategies for waste prevention and to monitor and evaluate the implementation of waste prevention measures. Furthermore, this Regulation lays out rules on the duties and responsibilities of the provincial directorates, local administrations as well as the responsibilities of the airports, organized industrial zones; the establishment of the zero waste system; general principles of waste collection systems; the procedures of the zero waste licensing; inspection and monitoring of license holders; and administrative fines in accordance with the Environment Law No. 2872.

Original title	Zero Waste Regulation
Source	Official Gazette No. 30681, 9th of February 2019
Available web site	<a href="http://www.resmigazete.gov.tr">www.resmigazete.gov.tr</a>
Implements	Environment Law No. 2872. 1983-08-11
Keywords	basic legislation; capacity building; certification; data collection/reporting; education; inspection; institution; local government; monitoring; offences/penalties; policy/planning; procedural matters; public health; recycling/reuse; sustainable development; waste disposal; waste domestic sources; waste management; waste non-domestic sources; waste prevention

#### 1.1.1.6.Regulation on Waste Management

This Regulation aims to ensure an efficient waste management in each and every phase from their formation to their disposal. To this end the Regulation sets forth provisions regarding the reduction, reuse and recycling of waste. The Regulation covers electronic items, packages, vehicles, batteries and battery products. It does not cover gas emissions, radioactive waste, waste, available explosives and waste in the state, contaminated soil and the animal cadavers and manure used for agricultural purposes.

Original title	Regulation on waste management
Source	Official Gazette No: 29314, 2 April 2015
Available web site	<a href="http://www.resmigazete.gov.tr">www.resmigazete.gov.tr</a>
Implements	Environment Law No. 2872. 1983-08-11
Keywords	waste management; recycling/reuse



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### 1.1.1.7.Regulation on Solid Wastes

The objective of this Regulation is to define the principles of collecting, transporting, recycling, and disposing of the household wastes, plant wastes from parks, gardens and other green areas, non-hazardous industrial and commercial wastes, sludge from household purification systems, non-hazardous industrial purification sludge, and excavation soil and rubble. Municipalities are obliged to take necessary measures to prevent possible environmental pollution during disposal of solid wastes. The Ministry of Environment shall support the use of recyclable materials providing for cash incentives to recycling facilities. The Ministry of Environment applies quota and deposit payments to companies using packaging materials containing substances listed in the regulation, or importing goods packed with materials listed. Details are given in the text. Individuals and companies who wish to set up recycling or disposal facilities will apply to the Ministry of Environment for the issuance of a license. The Regulation provides details for the collecting, transporting and storing of solid wastes. Liquids and liquid wastes, liquid sludge, explosives, medical wastes, animal cadavers, radioactive wastes, as well as hazardous wastes, cannot be stored together with household wastes. The Regulation contains the definition of the waste storage grounds, and the municipalities are obliged to fulfill all requirements defined in the text.

Original title	Regulation on solid wastes
Source	Official Gazette No. 20814, 14 March 1991
Available web site	<a href="http://www.resmigazete.gov.tr">www.resmigazete.gov.tr</a>
Implements	Environment Law No. 2872. 1983-08-11
Keywords	waste disposal; waste domestic sources; waste non-domestic sources; solid waste; subsidy/incentive; waste management

### 1.1.1.8.Regulation on Battery and Accumulator Wastes

The scope of this Regulation is to define the principles of labeling and marking batteries and accumulators, of collecting, transporting and disposing them separately from household wastes, and of the prohibitions, restrictions, and obligations during importation, transit movements and exportation.

Original title	Regulation on battery and accumulator wastes
Source	Official Gazette No. 25569, 31 August 2004
Available web site	<a href="http://www.resmigazete.gov.tr">www.resmigazete.gov.tr</a>
Implements	Environment Law No. 2872. 1983-08-11 Law on the institution of the Ministry of Environment and Forestry. 2003-05-08





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Keywords	waste domestic sources; waste management; waste non-domestic sources; hazardous waste; waste disposal
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#### 1.1.1.9.Regulation on Wastewater and Domestic Solid Waste Disposal Facilities

This Regulation aims to ensure sustainability of environmental infrastructure services by provisions on (i) establishment, maintenance, operation, tracking and termination of wastewater and domestic solid waste disposal facilities, (ii) collection, discharge and recycling of urban or industrial wastewater, (iii) collection, transport, transfer, recycling and disposal of domestic solid waste, (iv) duties and authorities of the Ministry and environmental agencies, and (v) raising public awareness.

Original title	Regulation on wastewater and domestic solid waste disposal facilities
Source	Official Gazette No. 27742, 27 October 2010.
Available web site	<a href="http://www.resmigazete.gov.tr">www.resmigazete.gov.tr</a>
Implements	Environment Law No. 2872. 1983-08-11
Keywords	waste non-domestic sources; waste management; waste domestic sources; recycling/reuse; institution; capacity building; freshwater quality/freshwater pollution; effluent waste water/discharge; pollution control

#### 1.1.1.10.Regulation for Water Pollution Control

The aim of this Regulation is to to set out the legal framework for water pollution control in order to preserve the potential of the country's underground and surface water resources for all kinds of use, as well as to ensure the best possible utilization and the prevention of water pollution in conformity with economic and social objectives.

Original title	Regulation for Water Pollution Control
Source	Official Gazette No. 25687, 31 November 2004
Available web site	<a href="http://www.resmigazete.gov.tr">www.resmigazete.gov.tr</a>
Implements	Environment Law No. 2872. 1983-08-11 (Article 24)
Keywords	marine pollution; deep sea bed; hazardous waste; marine area; surface water; effluent waste water/discharge; freshwater quality/freshwater pollution; groundwater; inland waters; water conservation zone; water quality standards; oil pollution; pollution control; sewerage; waste disposal

#### 1.1.1.11.Regulation Establishing Fines to be Levied for Water Pollution on Ships and Other Marine Vessels

The purpose of this Regulation is to lay down the principles governing the establishment of guilt in fines to be levied on ships and marine vessels, the procedures for levying such fines and the form, distribution and control of the receipts to be issued. The provisions of this Regulation shall encompass the seas, inland seas, straits, gulfs, harbours, natural and artificial lakes, rivers and canals and the shores thereof, within Turkish territorial waters and within Turkey's free and restricted economic zones. It consists of 8 sections divided as follows; Purpose, scope, legal foundation, definition and principles; Officials authorized to impose administrative penalties; Administrative penalties for ships and other marine vessels; Monitoring teams; Establishment of guilt; Procedures for levying fines; Receipts; Miscellaneous provisions.

Original title	This Regulation enters into force on the date of publication
Source	Official Gazette No. 19623, 3 November 1987.
Available web site	<a href="http://www.resmigazete.gov.tr">www.resmigazete.gov.tr</a>
Implements	Environment Law No. 2872. 1983-08-11 (Article 24)
Keywords	marine pollution; navigation; management/conservation; environmental fees/charges; freshwater quality/freshwater pollution; pollution control

#### 1.1.1.12.Regulation on Implementation of Coastal Law No. 3621.

The aim of this Regulation is to define the rules and procedures of implementation of the Coastal Law and determining shore edge line of seas, lakes and rivers. The Regulation also defines the rules and procedures of land reclamation by sea embankment and the rules of these areas for public interest, rules and procedures of planning and settlement near costal lines of seas, lakes and rivers. The Regulation also defines the powers and duties of the Shore Edge Line Determining Committee.

Original title	This Regulation enters into force on the date of publication
Source	Official Gazette No. 20594, 3 August 1990
Available web site	<a href="http://www.resmigazete.gov.tr">www.resmigazete.gov.tr</a>
Implements	Coastal Law (Law No. 3621).
Keywords	Legal proceedings/administrative proceedings Coastal zone management Management/conservation Policy/planning

#### 1.1.1.13.Regulation on Environmental Impact Assessment

The purpose of this Regulation is to regulate the administrative and technical procedures and principles to be followed during the Environmental Impact Assessment process. The Ministry of Environment is authorized to decide whether a project/investment is subject to "the Environmental Impact Assessment" or not, as well as to decide whether the project/investment be allowed as the result of the assessment. However, the Ministry could transfer its power on deciding the necessity of an assessment to Governors of the provinces where the project/investment would take place. All projects listed in Annex-I, and the projects listed in Annex-II which are specified as "Assessment Needed" are subject to Environmental Impact Assessment.

The Regulation defines all administrative procedures, from initial application by the investor to the final decision by the Ministry. Meetings will be held with Community representatives of the location where the investment is planned to exchange views and obtain consent of the community in general. If the final report is favorable for the project/investment; it will also be communicated to the community and the investment should commence within five years. For projects not commenced in due time, the assessment process should be renewed. If final report is unfavorable for the project/investment; the investor could re-design the investment by eradicating all unfavorable conditions and could apply for a new assessment. The Regulation also defines monitoring and evaluation procedures and measures against any possible failure in complying with the rules and procedures imposed by this Regulation.

Original title	Regulation on Environmental Impact Assessment
Source	Official Gazette No. 24777, 6 June 2002
Available web site	<a href="http://www.resmigazete.gov.tr">www.resmigazete.gov.tr</a>
Implements	Environment Law No. 2872. 1983-08-11
Keywords	EIA; environmental planning; court/tribunal; ecosystem preservation; enforcement/compliance; environmental audit; pollution control; monitoring

#### 1.1.1.14.Regulation on Quality of Swimming Water

The aim of this Regulation is to prevent pollution and to combat microbiological pollutants in rivers, lakes, dams, lakes and marine waters swimming and water sports purposes to protect the environment and human health. The Regulation defines



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quality criteria and covers technical and administrative rules and procedures of inspection, monitoring, sampling and analysis of swimming waters.

Original title	Regulation on quality of swimming water
Source	Official Journal No. 26148, 9 January 2006
Available web site	<a href="http://www.resmigazete.gov.tr">www.resmigazete.gov.tr</a>
Implements	Environment Law No. 2872. 1983-08-11 Law on the institution of the Ministry of Environment and Forestry. 2003-05-08
Keywords	pollution control; water quality standards; freshwater quality/freshwater pollution

#### 1.1.1.15.Regulation on Urban Waste Water Treatment

The purpose of this Regulation is to protect the environment from the pollution caused by urban and industrial waste waters. It determines the rules and procedures of treatment, discharge, monitoring and inspection of urban and industrial waste water discharge.

Original title	Regulation on urban waste water treatment
Source	Official Journal No. 26047, 8 January 2006.
Available web site	<a href="http://www.resmigazete.gov.tr">www.resmigazete.gov.tr</a>
Implements	Environment Law No. 2872. 1983-08-11 Law on the institution of the Ministry of Environment and Forestry. 2003-05-08
Keywords	freshwater quality/freshwater pollution; effluent waste water/discharge; industrial water use; inspection; monitoring; pollution control

#### 1.1.1.16.Regulation on the Pollution of Water and its Surroundings by Hazardous Substances

This Regulation aims to reduce pollution of waters; including surface waters and groundwater and the surrounding of water by hazardous substances. It sets standards and defines technical and administrative principles on determining the hazardous substances causing pollution. The Regulation also requires a policy programme to reduce pollution of water by hazardous substances to be developed and an inventory of hazardous substances which are discharged into water to be created.



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Original title	Regulation on the pollution of water and its surrounding by hazardous substances
Source	Official Journal No. 26005, 26 November 2005
Available web site	<a href="http://www.resmigazete.gov.tr">www.resmigazete.gov.tr</a>
Implements	Environment Law No. 2872. 1983-08-11 <u>Law on the institution of the Ministry of Environment and Forestry.</u> 2003-05-08
Keywords	hazardous substances; inventory; pollution control; standards; freshwater quality/freshwater pollution; effluent waste water/discharge; groundwater; surface water; policy/planning

#### 1.1.1.17.Regulation on Reception of Waste from Ships and Waste Management

This Regulation aims to protect marine environment and prevent marine pollution. This Regulation sets forth procedures and principles on provision of port reception facilities in order to reduce discharges of ship-generated wastes and cargo residues into the sea. This Regulation shall apply to ships, port reception facilities and waste reception vessels in the maritime zone of the Republic of Turkey. This Regulation has been drafted in accordance with the Directive 2000/59/EC of the European Parliament and of the Council of 27 November 2000 on port reception facilities for ship-generated waste and cargo residues.

Original title	Regulation on reception of waste from ships and waste management
Source	Official Gazette No. 29435, 4 August 2015
Available web site	<a href="http://www.resmigazete.gov.tr">www.resmigazete.gov.tr</a>
Implements	Environment Law No. 2872. 1983-08-11 Decree No. 1990/442 of the Council of Ministers on ratifying the International Convention for the Prevention of Pollution from Ships, the Protocol of 1978 amending the International Convention for the Prevention of Pollution from Ships and Annex I, II and V of this Protocol. 1990-05-03
Keywords	marine pollution; maritime zone; pollution control; waste disposal; waste management; residues; protection of environment; territorial sea

#### 1.1.1.18.Regulation on Environmental Impact Assessment

This Regulation sets forth the administrative and technical procedures and principles governing Environmental Impact Assessment. The Ministry of Environment and Urbanization is authorized to decide whether the Environmental Impact Assessment is positive, negative, required or not required for the projects subject to this Regulation. Such projects may not be initiated without the decision by the Ministry. A



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committee will be instituted to debate the EIA and committee findings will be submitted to the Ministry for a final decision.

Original title	Regulation on Environmental Impact Assessment
Source	Official Journal No. 28784, 3 October 2013
Available web site	<a href="http://www.resmigazete.gov.tr">www.resmigazete.gov.tr</a>
Implements	Environment Law No. 2872. 1983-08-11
Keywords	EIA; institution; authorization/permit

#### 1.1.1.19.Environmental Pollution Prevention Fund Regulation

The purpose of this Regulation is to lay down the principles governing the Environmental Pollution Prevention Fund, which has been established in order to prevent environmental pollution and to improve the environment. It consists of 5 sections establishing the conditions to be satisfied in order to benefit from such Fund. The Fund shall be by the General Directorate of Environment for research, clean-up operations, training aimed at prevention, pollution elimination, etc. This Regulation is divided as follows: General provisions; Fund Management; Fund incomes; Expenditures to be made from the Fund and Credits to be provided; Miscellaneous provisions.

Original title	Environmental Pollution Prevention Fund Regulation
Source	Official Gazette No. 18757, 17 May 1985.
Available web site	<a href="http://www.resmigazete.gov.tr">www.resmigazete.gov.tr</a>
Implements	Environment Law No. 2872. 1983-08-11
Keywords	special fund; pollution control; environmental fees/charges; ecosystem preservation; education; research

#### 2.1.2. Regional and International Legal Instruments Associated with Marine Litter

This section focuses on international conventions and agreements that address marine litter. The following stage examines legislation that States have adopted to prevent and manage marine litter at international and regional levels.

International conventions associated with marine litter can be categorized as multilateral environmental agreements, soft law and international legal principles and customary international laws. Multilateral environmental agreements are engaging international agreements. As with other international agreements, multilateral environmental agreements only engage the States who commit to bound by



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ratification or accession. Three multilateral environmental agreements are particularly relevant to marine litter for Turkey:

#### **2.1.2.1. Bucharest Convention (The Convention on the Protection of the Black Sea against Pollution), (1992).**

The convention was signed in Bucharest in April 1992 and ratified by all six riparian countries (Bulgaria, Georgia, Romania, Russian federation, Turkey and Ukraine). The convention is predestined to provide legal framework and co-operation to prevent, reduce and control any kind of pollution in the Black Sea in order to protect and preserve the marine environment. It is the basic framework of agreement of three specific protocols, which are: (1) the control of land-based sources of pollution; (2) dumping of waste; and (3) joint action in the case of accidents (such as oil spills) (BSC, 1992<sup>a</sup>) .

#### **2.1.2.2. The United Nations Convention on the Law of the Sea (UNCLOS), 1982**

UNCLOS, referred to as “Law of the Sea” was one of the most important legal instruments on marine environment. The Convention sets out an international legal framework governing all activities on the oceans and related issues, placing a general obligation on States to protect and protect the marine environment. Specifically in General Obligation for states under UNCLOS Part XII Protection and Preservation of the marine Environment Article 192: “...to protect and preserve the marine environment”. Article 194 further specifies that “States shall take, individually or jointly as appropriate, all measures within this Convention that are necessary to prevent reduce and control pollution of the marine environment from any source..” (UN, 1982).

While UNCLOS does not explicitly refer to marine litter, it addressed marine litter issues within the definition of pollution of the marine environment, which can be used in the context of marine litter regulation: “the introduction by man, directly or indirectly, of substance or energy into marine environment, including estuaries, which results or is likely to results in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities (UN, 1982). However, according to some environmentalists, UNCLOS does not provide the basis full and effective protection to the marine environment (Hoagland et al., 2001).





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At the 17<sup>th</sup> meeting of the Consultative Process on Oceans and the Law of the Sea, (annual meeting to examine particular topics of interest that fall within the scope of UNCLOS) in June 2016, took as its main theme: “Marine debris, plastics and microplastics” illustrating that the topic is high on the international policy agenda. As with all legislation, UNCLOS is only effective as far as States are willing and able to introduce and enforce measures to meet the agreed goals (Barboza et al., 2019).

### 2.1.2.3. The International Convention for the Prevention of Pollution from Ships (MARPOL), 1973/1978

The International Convention for the Prevention of Pollution from Ships (MARPOL) was developed under the auspices of the International Maritime Organization (IMO). It was adopted in 1973 and amended in 1978. The Convention which ratified by 153 States includes regulations aimed at preventing and minimizing pollution from ships -both accidental pollution and that from routine operations - and currently includes six technical Annexes. MARPOL Annex V Prevention of Pollution by Garbage from Ships, which revised in 2011 and came into force in 2013, addresses the ocean-based litter pollution and complete ban imposed on the disposal into the sea of any form of plastics from ships, except for few clearly defined circumstances. These circumstances are associated with the types of garbage that can be disposed of, specifications of the distances from the coast, discharge of garbage within or outside special areas, the manner in which they may be disposed of, and *en route* requirements for allowed discharge. Other major changes include expanding the requirements for placards and garbage management plans to fixed and floating platforms, and reduction of the minimum tonnage limit for garbage management plans from 400 gross tonnage (GT) to 100 GT (IMO).

The MARPOL regulations have dramatically reduced intentional dumping of plastics and other waste from commercial shipping. IMO continues to campaigns and training program for waste management improvement in general on vessels. Another challenge is to upgrade and improve land based facilities to meet the demand for disposal. The history of MARPOL shows how regulation at an international level can change shipboard practices (URL-1). However despite banning plastic disposal at sea, monitoring result indicates that ships are still a source of plastic pollution (Culin & Bielic 2016).





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#### **2.1.2.4. The Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention) 1972/The London Protocol (LP), (1996)**

The London Convention in 1972 which later modernized and replaced by the 1996 London Protocol (LP) is a major instrument to prevent marine pollution by regulating the dumping of waste and other materials at sea. The discharge of garbage during normal operations which regulated in the Annex V of MARPOL 73/78 is not considered as dumping. While the goal of the 1972 convention is to regulate pollution by dumping, the Protocol's goal is to stop waste dumping at sea (Louka, 2006).

The Protocols prohibited dumping of plastics while allowed dumping of these materials which listed on "the reverse list" (such as dredged material, sewage, sludge, fish waste, vessels and platforms, inert, inorganic geological material) requires a permit and parties shall adopt measures to ensure that the issuance of permits and permit conditions comply with Annex II (Chen, 2015). Some global and regional multilateral environmental agreements for example the Convention on Biological Diversity (CBD) with the Jakarta Mandate, and the Convention on Migratory Species (CMS) also have relevant clauses or are working to reduce marine litter. States are also engaged by resolutions that are agreed upon by the Conference of the Parties (COPs). COP resolutions from a wide range of agreements have addressed marine litter.

Furthermore on multilateral environmental agreements, international trade agreements has important role to established the conditions under which States should adopt laws and other measures that affect trade activities (including bans, taxes, and subsidies). At the global level, the most important instruments are the General Agreement on Tariffs and Trade (GATT) and the 1995 Marrakech Agreement that established the World Trade Organisation (WTO), and their accompanying protocols and related instruments. In addition, there are numerous bilateral and regional trade agreements. As a general matter, trade agreements seek to limit measures that distort or limit trade. There are exceptions-such as GATT Article XX-that allow measures that restrict trade to protect public health and the environment, but these have often been narrowly interpreted (UN, 2016).

#### **2.1.2.5. *Declaration on Environment and Development, 1992***

Rooted to Stockholm Declaration in 1972, the 1992 United Nations Conference on Environment and Development (popularly referred to as Rio Earth Summit) is a declaration of 27 principles, many of which are now considered establish the fundamental of international environmental law. The declaration goal was establishing



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international agreements and equitable global partnership among States which respect the interest of all in protecting the integrity of the global environmental and developmental system. Among the claims, Principles 14 and 15 encourage actions by States to protect environment and preventing environmental degradation (UN, 1992<sup>a</sup>).

#### 2.1.2.6. Agenda 21, 1992

Also adopted at the Rio Earth Summit, Agenda 21 is a comprehensive plan of action to be taken globally, nationally and locally by organizations of the United Nations System, Governments, and major Groups in every area in which human impacts on the environment. Agenda 21 was 350-pages blueprint for sustainable development, setting forth detailed guidance on a wide range of issues. Section II calls for the Conservation and Management of Resources for Development, and includes the conservation of biological diversity and control of pollution as two goals; chapter 17 of section II addresses marine environmental protection and coastal areas, and notes threats posed by marine litter and plastics (UN, 1992<sup>b</sup>).

#### 2.1.2.7. Global Programme of Action (GPA) for the Protection of the Marine Environment from Land-based Activities, 1995+

The UNEP Regional Sea Programme of Action (GPA) is a global intergovernmental mechanism that advises national and regional authorities on how to prevent, reduce, control and/or eliminate marine degradation from land-based pollution and activities. The GPA seeks to guide states to adopt national programs of action to address land-based source pollution. The framework focusing on managing marine litter was arranged through individual agreement in 12 Regional Seas. The main activities include: a review and assessment of the status of marine litter in the region, organization of a regional meeting and national authorities and experts on marine litter, preparation of a regional cleanup day within the framework of the International Coastal Cleanup Campaign. This regional initiative also provides a platform for the establishment of partnerships, cooperation and coordination of activities for the control and sustainable management of marine litter. The main partners include Regional Sea Conventions and Action Plans, government representatives, UN agencies, relevant bodies, donor agencies, the private sector and NGO's (UNEP, 2009).

According to Vander Zwang and Powers (2008) there are six key challenges facing GPA implementation include: limited national participation and implementation, limited



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national reporting, limited coverage of pollutant source categories, limited financing, limits of a non-legally binding approach, and limits in international environmental governance.

#### **2.1.2.8. Food and Agricultural Organization of the United Nation (FAO) Code of Conduct for Responsible Fisheries, 1995**

The 1995 Code of Conduct for Responsible Fisheries is one of the most cited and widely diffused global fisheries instrument in the world after UNCLOS 1982. The purpose of 1995 FAO Code of Conduct is to set out principles and international standards of behaviour for responsible practice with a view to ensuring the effective conservation, managing and development of living aquatic resource, with due respect for the ecosystem and biodiversity. These standards may be implemented, as appropriate, at the national sub regional and regional levels and in promoting more responsible behaviour in the fisheries sector. It is anticipated that these standards and norms will lead to the achievement of long-term sustainable outcomes. In Section 7.2.2 of the FAO (1995) states that management measures must be undertaken to minimize the impact of pollution, waste, discards, and lost or abandoned gear on fish and non-fish species; section 8.3.2 states that port also have a responsibility to prevent pollution, for example providing adequate disposal systems; and section 8.9.1 states that harbours have the same responsibilities as ports (FAO, 1995).

#### **2.1.2.9. Johannesburg Plan of Implementation, 2002**

The Johannesburg Plan of Implementation rooted from Stockholm Declaration and Rio de Janeiro Summit. The Johannesburg Summit adopted at the 2002 World Summit on Sustainable Development. It promotes targets and timetables for specific measures; such as calls for the prevention and reduces waste including marine pollution and maximizes reuse, recycling and use of environmental friendly alternative materials also reinforces the polluter pays principle (UN, 2002).

#### **2.1.2.10. The Future We Want, (2012).**

Adopted at the 2012 UN Conference on Sustainable Development (also known as Rio+20), The Future We Want identified a series of measures to improve sustainable development. Paragraph 163 noted the harm caused by marine pollution including marine debris (litter) especially plastics, persistent organic pollutants, heavy metals,



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and nitrogen-based compounds, from a number of marine and land-based sources, including shipping and run-off. States committed to implement relevant conventions and programs, the aim of achieving significant reductions in marine debris by 2025 (UN, 2012).

#### **2.1.2.11. SAMOA Pathway, (2014).**

The third International Conference on Small Island Developing States (SIDS) was held on September 1-4, 2014 in Apia Samoa. The Conference resulted in adoption of the SIDS Accelerated Modalities of Action or SAMOA Pathway. Among the declaration, it calls for efforts “to strengthen national, regional and international mechanisms for the management of waste, including chemical and hazardous waste, ship- and aircraft generated waste and marine plastic litter” (UN, 2014).

#### **2.1.2.12. Sustainable Development Goals, (2015).**

At the UN General Assembly on October 21, 2015, adopted resolution 70/1 and endorse the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs). Goal 14 seeks to conserve and sustainably use the oceans, seas and marine resources for sustainable development. It targeting prevention and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution by 2025 (UN, 2015<sup>a</sup>).

#### **2.1.2.13. United Nations general Assembly Resolution 235, (2015).**

The UN General Assembly on 23 December 2015 adopted Resolution 235 on Oceans and the Law of the Sea. It addressed the negative impact of marine debris especially plastic, from land-based and marine sources, marine plastic debris and microplastics on marine environment. The Resolution urged States to national and regional strategies, incentives, and infrastructure (UN, 2015<sup>b</sup>). Principles of international law and rules of customary international law are additional sources for international law. Rules of customary international law engage all States, except for those that persistently object. These key principles below are part of customary international law which relevant to marine litter. The principles related to prevention of harm, the duty to cooperate, and environmental impact assessment have recognized by the



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International Court of Justice (ICJ) as binding principles of international law, but the status of other principles-especially precaution-is still debated and uncertain.

#### 2.1.2.14. Prevention of Environmental Harm

The principle calls for States to prevent pollution and minimize environmental damage. Both Principle 21 of the 1972 Stockholm Declaration and Principle 2 of the 1992 Rio Declaration assert that States have the responsibility to ensure that activities under their jurisdiction or control do not cause damage to the environment of other states or area beyond national jurisdiction. This principle also reflected throughout Article 194 of UNCLOS which demands States to take “all measures... that are necessary to prevent, reduce and control pollution of marine environment from any source...” the International Court of Justice recognized this principle as a norm of customary international law (UN, 2016).

#### 2.1.2.15. Precautionary Principle

The precautionary principle encourages legislators to set laws, regulations, and policies that to prevent environmental damage even without scientific certainty. Principle 15 of the 1992 Rio Declaration articulated the principle, and a 2011 advisory opinion of the International Tribunal on the Law of the Sea (ITLOS) addressing deep seabed mining indicated there is a trend toward making the precautionary approach part of customary international law, although it did not explicitly rule on its customary status (UN, 2016).

#### 2.1.2.16. Polluter Pays

Principle 16 of the 1992 Rio de Declaration calls upon national authorities to take the approach which polluters bear the cost of the environmental pollution. The polluter pays principle has informed taxes and fees that seek to internalize the cost of pollution (UN, 2016).

#### 2.1.2.17. Duty to Cooperate

Principle 24 of the 1992 Rio Declaration emphasizes the importance of multilateral and bilateral cooperation to effectively control, prevent, reduce and eliminate adverse environmental effects resulting in all spheres, in such a way that due account



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is taken of the sovereignty and interests of all states. In its MOX Plant decision, ITLOS held that the duty to cooperate is “a fundamental principle in the prevention of pollution of the marine environment under [...] the Convention [on the Law of the Sea] and general international law”. Decision in the Lac Lanoux arbitration, Pulp Mills case, and the Nuclear Test cases further confirm its binding status in international law (UN, 2016).

#### 2.1.2.18. Environmental Impact Assessment

Principle 17 of the 1992 Rio Declaration calls for Environmental Impact Assessment (EIA) to be undertaken for “purposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority”. Article 206 of UNCLOS has a similar requirement for assessment of potential activities when those activities may have significant effect on the marine environment. In its Pulp Mills decision, the International Court of Justice held that there is a requirement under general international law” for States to undertake an EIA where there is a risk of significant adverse impact on a shared resource (UN, 2016).

#### 2.1.2.19. Sustainable Development in Rio Declaration

The principle of sustainable development-as articulated in the Rio Declaration- requires an integrated consideration of economic, environmental, and social concern, taking into account the needs of future generations and intergenerational equity. For example for waste disposal this means that marine litter issues should be taken into account along with other environmental concerns (emissions, leachate, habitat degradation) and social concerns (land-use health risks), as well as economic costs (UN, 2016). In addition to global agreement and soft-law instruments, there are a number of regional agreements and instruments that address marine litter. Example includes Annex IV of the Helsinki Convention, the European Union (EU) Port Reception Facilities (PRFs) Directive, Regional Sea Conventions and Action Plans, and the EU Marine Strategy Framework Directive (MSFD), among others. These instruments provide regional approaches to global instruments provide regional approached to global instrument and otherwise enable regional coordination to address marine litter. Regional instrument, regional agreement, resolutions and other Instruments related to marine litter especially for Black Sea region.

#### **2.1.2.20. LBS protocols (Protocol on Protection of the Black Sea Marine Environment against pollution from Land-Based Sources), (1992).**

The convention mandates prevention, reduce and control pollution of the marine environment of the Black Sea caused by discharges from land-based sources on their such as rivers, canals, coastal establishments, other artificial structures, outfalls or run-off or emanating from any other land-based source, including throughout atmosphere by the Contracting Parties (six legislation) was adopted in 1992 (BSC, 1992<sup>b</sup>) .

#### **2.1.2.21. European Union (EU) Port Reception Facilities (PRFs), (2000).**

In response to MARPOL 73/78, the EU adopted the Port Reception Facility (PRF) Directive aimed to reducing the input of ship-generated waste to the sea. The PRF Directive 2000/59/EC obligate vessels to land the waste they produce during voyages to and between EU port reception facilities. The EU PRF Directive also requires port to develop Waste Handling Plans and provide Port Reception Facilities including the implementation of a planning for, collecting and disposal of this waste to the ships using their port. It requires vessels to pay a Mandatory Fee for landing this waste and to notify the port of what waste it has in advance of arriving in port. This Cost Recovery System (CRS) should be aligning with the polluter/user pays principle, whilst simultaneously providing an incentive for ships to deliver their waste on shore. The mandatory fee ensures that a ship can land its waste and that waste is not discharged into the sea. Under the PRF Directive, Member States are left with a high degree of freedom to arrange the reception of waste and to apply CRS in the most suitable manner for their ports (EU, 2000).

A study by the European maritime Safety Agency (EMSA) shows that there was an increase in the total delivery from 2004 to 2008 for oily waste and from 2009 to 2010, for oily waste and garbage for European ports and the decreased, experienced in 2009 and 2010 for oily waste and garbage respectively, is thought to be a result of financial crisis and thus a decrease in number of calls to the ports (ship/cargo/traffic) (EMSA, 2012).





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#### **2.1.2.22. EU Marine Strategy Framework Directive (MSFD), (2008).**

The aim of the European Union's ambitious Marine Strategy Framework Directive is to protect more effectively the marine environment across Europe. The MSFD articulates four broad marine regions to which it applies: the Baltic Sea, the Black Sea, the Mediterranean Sea, and the North East Atlantic Oceans. The MSFD seeks to achieve "Good Environment Status" of EU marine waters by 2020, while also protecting the resource base for economic and social purposes (EC).

The Marine Strategy Framework Directive was adopted on 17 June 2008. Each Member State defines GES as well as environmental targets and put in place its own marine strategy to protect its waters. Marine litter is listed as the tenth of 11 qualitative descriptors for determining GES, which states that the properties and quantities of marine litter on beaches, in the water column and on the seafloor should not cause harm to the coastal and marine environment considerations are to be addressed through the marine strategy. They are also addressed through the EU's waste regulations, including the Waste Framework Directive regulations on packaging waste (including provisions on plastics bags), and the circular economy approach (EU, 2008). Furthermore, the Technical Group on marine Litter was established to support member states by providing technical and scientific recommendations for the implementation of MSFD requirements with regard to marine litter (Galgani et al., 2013).

#### **2.1.2.23. EU Initiatives on Land-Based Waste Management**

The EU has a wide range of initiatives on land-based waste management. The packaging and packaging Waste Directive, the Waste Framework Directive, the Landfill Directive and the Urban Waste Water Directive are examples of EU waste management which could have a significant impact on the amount of waste in the marine environment (Chen, 2015).

#### **2.1.2.24. Black Sea Marine Litter Regional Action Plan (BSMLRAP)**

The 34<sup>th</sup> meeting of the commission on the protection of the Black Sea was held in order to recognizing the negative impact of marine litter on marine environment no exception to the semi-closed Black Sea basin. The main objectives of BS ML RAP such as preventing and reduce to the minimum marine litter pollution in the Black Sea and its impact on ecosystem services, habitat, and species, also enhance knowledge on marine litter (BSC, 2018).





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Emergency Protocol (Protocols on Cooperation in Combating Pollution of the Black Sea Marine Environment by Oil and Other Harmful Substances in Emergency Situations) and Dumping Protocol (Protocol on the Protection of the Black Sea Marine Environment against Pollution by Dumping) which are adopted in 1992 are among Black Sea regional marine litter instruments (UN, 2016).

## 2.2. GEORGIA

The natural resources of the Black Sea are essential not only in terms of biodiversity and recreation but also create an important sector of the country's economy - fishing and aquaculture. At the same time, the Georgian Black Sea coast is represented by only two ports, Batumi and Poti seaports. It includes passenger ferry services to Ukraine and Turkey, and the short sea shipping sector, which provides employment growth along the coastline.

Effective management of water resources, including those of the Black Sea, is a challenge faced by Georgia, both nationally, regionally and locally.

Pollution of the Black Sea environment and degradation of ecosystems are problems of transboundary importance. According to the existing data, in terms of eutrophication, the water quality in the Georgian Black Sea water area is generally good, with a few exceptions (relatively high concentrations of chlorophyll-a were observed in Anaklia and Poti waters) (EMBLAS, 2016). Compared to other countries of the Black Sea Basin, the sea is not so polluted. The only high concentration of some contaminants was observed at several points along the coastline.

Based on the conducted researches, the Black Sea is polluted by litter spread along the entire coastline and in rivers (Bilashvili et al., 2016). Besides, the information is available only on the amounts and composition of household waste. Data on micro and Nano-sized waste, as well as the waste in water animals either do not exist or is limited.

### 2.2.1. National Legal Framework

The management of water resources in the country, including the marine environment, is regulated by the legislative acts, strategic documents and



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international obligations undertaken by the country in the field of management of water resources.

A big part of the national legislation came into force in the late 1990s and was partially amended in 2003. However, in the UNECE Environmental Performance Review of Georgia of 2016, the country's current legislation on water resource management was assessed as "worthless and segregated system".

In 2014-2017, several essential measures were taken by the responsible agencies. Namely, to fulfill Georgia's obligations under the EU-Georgia Association Agreement (AA) and address the existing problems in the field (water pollution and inefficient use of water resources), the government has made amendments to the existing legislation, has been drafted new laws, regulations and strategic documents.

#### **2.2.1.1. The Constitution of Georgia (1995).**

It is noteworthy among the national legislation regulating the marine environment. Under its article 29, everyone has the right to live in a healthy environment, the right to participate in the decision making process related to the environment and the principle of rational use of natural resources.

#### **2.2.1.2. The Law on Environmental Protection (1997).**

The law sets out environmental principles and norms to ensure both constitutional rights and the rational use of resources. The Article 54 of the law deals with the issues of protection of the marine environment from pollution.

#### **2.2.1.3. The Law on Water (1997).**

The law regulates the use of surface water resources. Article 17 of the Law - "Protection of Natural Resources of the Black Sea"- defines measure for the protection of the Black Sea fauna, its natural and other living resources, and sea ecosystem.

#### **2.2.1.4. The Maritime Code of Georgia (2018).**

It defines the institutional structure related to maritime transport and the procedures for compensation for damage caused by environmental pollution from ships. Also, the terms of liability and insurance related to shipping.



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#### **2.2.1.5. The Law on Maritime Space (1998).**

The law defines the legal status of internal state waters, territorial seas, seabed and the jurisdiction of Georgia regarding these issues. The law prohibits the pollution of maritime space by disposing of toxic and radioactive substances or other waste and materials that are harmful to human health and the Black Sea ecosystem; establishes marine sanitary and protected areas.

In order to comply with the national legislation with the EU Maritime Strategy Framework Directive, based on the amendments made in March 2018, an obligation to develop a "Strategic Action Plan for the Environmental Protection and Rehabilitation of the Black Sea" was elaborated.

#### **2.2.1.6. The Code of Spatial Planning, Architectural and Construction Activities of Georgia (2018).**

It provides measures related to the planning of maritime space.

#### **2.2.1.7. Law of Georgia on Aquaculture (2020.24.06).**

The law aims to regulate the activities of aquaculture, to promote responsible and sustainable development of aquaculture.

#### **2.2.1.8. The Law on the Maritime Rescue Service.**

It regulates the rules for the elimination of sea pollution with oil and hazardous substances spilt as a result of accidents for all persons, ships and /or aircraft in distress at sea.

#### **2.2.1.9. The Law on the System of Protected Areas.**

The of 1996 is the legal basis for the Network of Protected Areas in Georgia. It also identifies the conditions of being part of the mentioned network of coastal and marine protected areas.

#### **2.2.1.10. The Law on Animals (1996).**

It regulates the animal world and its habitat.

#### **2.2.1.11. The Law on Licenses and Permits (2005).**

It defines the types of environmental permits and licenses, explains the procedures for their issuance, revocation and amendment.



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#### **2.2.1.12. The Environmental Assessment Code.**

The environmental Assessment Code (adopted in 2017 and replaced by the Law on Environmental Impact Permit) defines the Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) procedures, as well as transboundary environmental impact assessment procedures and public participation. The Code includes provisions on transboundary environmental impact assessments that will enter into force upon ratification of the ESPOO Convention. The new code has improved public participation mechanism in decision making process.

#### **2.2.1.13. The Waste Management Code (WMC).**

WMC of 2015 defines waste management according to the the European waste management hierarchy, which includes waste prevention, its re-use, recycling, energy recovery and safety disposal of remains (after being used waste as a resource at the landfill. The sanctions / fines for violation of the law have been toughened.

By 2021, the WMC enacts the Extended Producer`s Responsibility (EPR) principle, which means that the product producers/manufacturer and importer are required to ensure that waste of their products (e.g. batteries, recycled vehicles, oils, packaging materials and electrical and electronic goods) are collected, separated and processed for further recovery. The bylaw on the management of packaging wastes (including plastic waste) is on the final stages of consideration.

The entry into force and execution of the Extended Producer`s Responsibility, in particular the Producers` of Packaging Materials, will contribute to the establishment of a waste (plastic) collection and management system between the plastics manufacturing and consumer industries to reduce the pollution of the surface waters by plastic waste, and improve the marine environment.

While the new water law has not yet been approved with donor assistance, the development of river basin management plans has already begun.

Among the by-laws it should be mentioned:

Order of the Minister of Labor, Health and Social Affairs No. 297/2001 "On approval of environmental quality norms", defines the rules of protection and use of coastal waters; besides, the border of the coastal areas of seawater consumption and the sanitary protection zone is established.

Government Resolutions No. 17/2014 "On Approval of Environmental Technical Regulations" and No. 414/2014 "On Approval of Technical Regulation on the



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Calculation of Maximum Permissible Discharge (MPD) Norms for Pollutants Discharged in Surface Water with Wastewater" regulate the maximum permissible norms of pollutants discharged from industrial and non-industrial facilities to surface water bodies with wastewater.

Resolution No. 425/2013 of the Government of Georgia "On the Approval of the Technical Regulation on Protection of Surface Waters of Georgia from Pollution" regulates the activities that may affect the state of surface waters to reduce the pollution of surface water bodies from the point and diffuse sources.

Government Resolution No. 423/2013 "On the Approval of Technical Regulations for the Protection of Fisheries and Fish Supplies" regulates species, equipment and fishing prohibited zones. The regulation applies to the special economic zone of the Black Sea of Georgia, the continental shelf and territorial waters, rivers, lakes, natural lakes and reservoirs, and the management of fish stocks and the protection of endangered fish species.

In 2015, the Government of Georgia also approved the technical regulation of ballast water management procedures in Georgia.

While non-compliance with norms and standards is punished by law, low fines and gaps in law execution (e.g., low probability of detecting violations) make water pollution control less efficient. Strict law enforcement and review of fines are essential to prevent recurrence of violations.

#### **2.2.1.14. Third National Environmental Action Programme of Georgia, 2017-2021.**

According to this programme, the state aims to introduce an effective water resource management system in the medium term; to reduce water pollution from the point and diffuse sources and ensure sustainable use of water resources; to improve systems for monitoring and evaluating the quality and quantity of water resources.

#### **2.2.1.15. The National Waste Management Strategy 2016-2030 and the National Action Plan 2016-2020.**

It should be mentioned also The National Waste Management Strategy 2016-2030 and the National Action Plan 2016-2020. The implementation of strategy will support improvement of waste management at all levels that will have a positive impact on reducing and eliminating pollution of river basins by municipal wastes. It will



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significantly reduce the risk of carrying the household waste into the sea by rivers and thus pollution of the sea.

#### **2.2.1.16. The National Biodiversity Strategy and Action Plan (2014-2020).**

Regarding the protection of the biodiversity of the Black Sea, the National Biodiversity Strategy and Action Plan (2014-2020) , adopted by the resolution No. 343 of the Government of Georgia of May 2014, is important.

#### **2.2.2. Regional and International Legal Instruments Associated with Marine Litter**

The Black Sea is a semi-enclosed body of water and receives a significant amount of water from the continent, which causes several problems. In particular, water flows into the sea with its contents, and the water almost does not outflow. Besides, the Black Sea coast and basin depend on the sediments brought by the river. Consequently, the dams in the rivers of the region prevent the transfer of sediments from the rivers to the sea, as well as species entering the rivers from the sea. Industrial activities, urbanization and tourism, agriculture, domestic sewage, maritime transport - ballast water discharge into the sea, have a significant impact on the condition of the coastline. Even though the country's oil terminals operate in Batumi, Kulevi, Supsa and Poti, the terminals do not have enough infrastructural capacity to receive ballast water.

Anthropogenic pressures on the coastal and marine environment include chemical and solid waste pollution, pollution of marine litter and wastewater, inputs from rivers and over-consumption of marine natural resources caused by unsustainable fishing and changes in natural systems. Due to the existence of large hydro-technical infrastructures, a big part of the coast in Georgia suffers from a lack of sediment, for example, at the river Chorokhi (sediment source for Batumi coastline) and Anaklia (river Enguri) which causes significant erosion of the coast.

Currently, the Georgian Black Seawater quality monitoring system includes the research of physicochemical parameters of coastal waters (transparency, nitrites, nitrates, ammonium nitrogen, organic substances, chlorophyll) at six observation points (Gonio, Batumi, Chakvi, Kobuleti, Poti and Anaklia, at depths of 10, 20, 40 and 60 meters) four times a year. Also monthly hydrobiological monitoring at two stations (Sarpi and Batumi). At present, there is no regular monitoring of marine litter in the country.



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In 2016, as a result of the expedition and scientific-research works carried out at 15 points along the Black Sea coast of Georgia, relatively complete information on the state of the Black Sea coastal waters of Georgia was obtained (EMBLAS, 2016). The study examined macrobenthos, meiobenthos, microplankton, ichthyoplankton, as well as contamination with solid waste, noise and chemicals.

According to the monitoring results, the level of eutrophication in the Black Sea coastal waters of Georgia can be assessed as good, which indicates a relatively low content of nutrients. However, moderately high levels of chlorophyll- $\alpha$  were observed in two sections - Anaklia and Poti water area. It is caused by nutrients released from urban agglomerations along the coast, namely, by pollution with ammonium nitrogen, which flows into the sea at Anaklia by the river Enguri and in Poti port with the negative impact of high anthropogenic activity. Biomonitoring has revealed intensive growth and development of diatoms in the coastal waters of Supsa-Poti.

All rivers flowing into the sea take their wastes there. It is due to activities carried out in the upper reaches of the river. It is noteworthy that nutrients and pesticides are found in rivers and estuaries from agriculture and sewage water. For example, the Chorokhi River is polluted as a result of the intensive use of pesticides in agriculture. Rivers pollute the sea. Although the pollution of the Black Sea was significantly lower than the norms set by the EU EQS, separate pesticides were still observed in Gonio and Batumi<sup>3</sup> (Hexachlorobutadiene (HCB<sub>D</sub>)), Dichlorodiphenyltrichloroethane (DDT) was even found along the entire coast.

The results of chemical pollution monitoring indicate that the concentration of heavy metals in the surface layers of the Black Sea water is within the norm. In the case of nickel, the amount of EQS exceeded the norm three times, near Tsikhisdziri and Kobuleti.

Hydrocarbons of petroleum origin were observed in the surface layers of open waters. In 83% of the water samples, their concentration was almost five times higher than the TLV indicator (TLV = 50 mg/L). Hydrocarbon pollution of coastal waters is most likely related to the operation of the Batumi oil terminal and the Poti port - the transportation and storage of hydrocarbons.

Weighted particles, the high concentration of which also indicates eutrophication, were found to be relatively high in the Batumi water area and the Chorokhi River impact zone.

However, in recent years there has been an increase in zooplankton species diversity, which indicates an improvement in water quality. According to the results of





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monitoring of microphytes and macrozoobenthos species, the relatively poor or average condition of the coastal waters is observed only near Batumi.

The pressure on the Black Sea coastal waters comes from onshore sources and is mostly related to the problem of urban wastewater treatment. Point sources of pollution include runoff, sewage and wastewater from the streets. It should be noted that sewage treatment constructions operate only in Batumi, Kobuleti and Anaklia, and are being built in Ureki and Poti. Some parts and villages of Batumi do not have a sewerage system, which is a source of bacteriological water pollution.

By 2024, it is planned to arrange a centralized sewage system and sewage treatment facilities throughout the coast of Georgia. It will ensure the prevention of bacteriological contamination of seawater.

A severe problem for the Black Sea is the pollution of the coastal waters with municipal waste. It is mainly reasoned by municipal waste dump sites arranged by the population along the rivers, the unfavourable condition of the official landfills in Adjara, and solid waste brought from cargo ships by sea.

At present, within the framework of EBRD financial assistance, a project for the construction of a new landfill according to the European standards in Adjara and planning measures for the closure of existing official landfills following international norms, are underway.

A study conducted within the framework of the EMBLAS II project in 2016, covered 20 monitoring sections, which eventually comprised 114 km. According to the results, municipal waste pollution is frequent in the Black Sea coastal waters of Georgia. An average of 322 units of municipal waste is found per square kilometre. In some parts of the sea, there is a very high concentration of waste. It exceeds 201-810 items per km<sup>2</sup>, whereas some of them have an average concentration of 4 to 30 items per km<sup>2</sup>. Packaging, polyethene bags and plastic bottles comprise the largest share of the waste mass. As for the Georgian river litter flows, on average, 50 units per hour were detected in the rivers. According to the study results, a significant part of the large and small sea litter is brought by the rivers.

To prevent the discharge of litter from the rivers into the sea, several rivers, for example, near the confluence of the Supsa River, have a drainage net (i.e. trash trap). On three rivers in Adjara: Bartskhana, Mejinistskali and Kubistskali, trash traps are periodically placed. The local municipality cleaning service manages the collected waste. Unfortunately, the amount and composition of waste are not recorded.



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Due to the regional importance of the Black Sea, maritime transport waste is a problem. There is a limited number of receiving facilities in the country to collect waste from ships in ports. At present, there is a marine litter receiving facility in Batumi port, although the marine litter hotspots are around the seaports and oil terminals - the Supsa and Kulevi port terminals are rich in waste from fishing vessels.

According to the results of marine litter researches on the coast, the beaches of the coastal tourist areas are periodically cleaned (Bilashvili, 2016). At the same time, on the coast of Kobuleti and Sarpi, marine litter is represented by an average of 1,560 items per 50 m<sup>2</sup> of the land. 90-95% is plastic waste, less than 1% is glass, and the remaining waste is represented by textile and rubber fractions.

Thus, it is important to

integrate marine litter monitoring into the existing coastal and maritime monitoring programs in line with EU harmonized methods and best practices;

permanently inform the public about the possible negative impact of their actions on the marine environment and

motivate public involvement in the decision-making process.

Georgia's state policy in the field of water resource management, in addition to national legislation, is defined by the international obligations under the signed and ratified international conventions and agreements.

The following conventions should be pointed out:

Convention on the Protection of the Black Sea against Pollution (Bucharest Convention), to which Georgia acceded in 1992. Georgia is also a party to the four Protocols to the Convention, which deal with various aspects of pollution reduction (control of onshore pollution sources; dumping of waste and joint action in emergencies);

Environmental conventions signed within the framework of the International Maritime Organization (IMO);

1969 Convention on Civil Liability for Oil Pollution Damage (signed 15.11.1993);

1990 International Convention on Oil Pollution Preparedness, Response and Cooperation (09.09.1995);



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The Protocol of 1978 relating to the International Convention for the prevention of pollution from ships, 1973 (15.11.1993);

1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (London Protocol) (24.03.2006);

The Protocol of 1992 on the Establishment of an International Fund for Compensation for Oil Pollution Damage;

1969 International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties and its 1973 Protocol relating to Intervention on the High Seas in Cases of Marine Pollution by Substances other than Oil (25.08.1995);

UN Convention on the Law of the Sea (UNCLOS) of 10 December 1982, ratified on 21 March 1996;

In 2014, Georgia acceded to the International Convention for the Control and Management of Ships` Ballast Water and Sediments, which established a legal framework for ballast water management in the country. With the approval of the technical regulation of ballast water management procedures in Georgia in 2015, the country took the first important step to comply with the requirements of the Convention.

The country prepares annual reports in accordance with the requirements of the conventions and presents to the secretariat of the relevant convention.

In 2014, the country signed the EU-Georgia Association Agreement (AA), which among many other issues includes important guidelines on marine environmental management: Article 234 deals with trade in fish products and Article 339 covers cooperation within the framework of integrated maritime policy in the field of fisheries, maritime transport, environment and other areas under the UN Convention on the Law of the Sea.

Within the framework of the AA, Georgia undertook to bring national legislation in line with the EU directives in the sector within the established timeframe. Namely:

- Directive 2004/35/EC on environmental liability concerning the prevention and remedying of environmental damage;
- Directive 2000/60/EC on establishing a framework for European Community action in the field of water policy (EU Water Framework Directive);
- Directive 2007/60/EC on the assessment and management of flood risks;



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- Directive 91/271/ concerning urban wastewater treatment as amended by Directive 98/15/EC and Regulation (EC) No 1882/2003;
- Directive 98/83/EC on the quality of water intended for human consumption as amended by Regulation (EC) No 1882/2003;
- Directive 91/676/EC concerning the protection of waters against pollution caused by nitrates from agricultural sources;
- Directive 2008/56/EC establishing a framework for Community action in the field of marine environmental policy (Maritime Strategy Framework Directive).

In the maritime sector, Georgia has implemented most of the directives and regulations set out in the Association Agreement. Several laws, by-laws and strategic documents have been developed and are being developed following the European directives since 2014. A complete package of national legislation should be developed by 2022.

With the support of the United Nations Economic Commission for Europe (UNECE), a new draft law on water resource management has been developed under the EU Water Framework Directive. The draft Law is based on the principles of integrated water resources management and river-basin management, ensures the achievement of good ecological and chemical status of water by preventing the pollution of water resources and the deterioration of the existing situation.

It should be noted that the European Union considers the Black Sea region as a region of strategic importance. An EU Black Sea Strategy has been developed, and a joint maritime agenda has been prepared. In May 2019, Georgia participated in the approval of the Common Maritime Agenda for the Black Sea in Bucharest. The document reflects the challenges and needs of the Black Sea countries, including Georgia. According to the agenda, countries have three goals: healthy marine and coastal ecosystems, a competitive, innovative and sustainable blue economy, and investing in a blue economy.

Under the AA, the country is committed to developing a National Maritime Strategy document by 2022. Within the framework of the project "Support to the implementation of the environmental provisions of the EU-Georgia Association Agreement", the country's " National Maritime Strategy " Draft has already been developed.



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The strategy defined the country's vision: the Georgian part of the Black Sea is healthy, productive, harmless, protected and sustainable. It stands in line with the requirements of the Maritime Strategy Framework Directive. Besides, it considers the international dimensions, the interconnection of land and sea, and the use of an ecosystem approach.

Although Georgia is not an EU member state, in the process of developing the National Maritime Strategy and Action Plan, it was decided to consider several EU directives and strategies. In particular, the European Strategy for Plastics in a Circular Economy (2018), which enables processing of plastics and development of the economy. The plastics strategy aims to review the plastics production and consumption system in EU countries to facilitate the recycling and reuse of plastics, as well as to encourage the use of more sustainable materials.

Along with the strategy on plastics, the European Directive on Port Reception Facilities (2018), which aims to protect the marine environment by reducing the dumping of litter into the sea, was considered as a component of the circular economy. The directive applies to all types of waste from ships, as well as waste collected in nets during fishing. The directive promotes national legal conditions that serve to protect the marine environment from the adverse effects of litter discharged from ships through the introduction of affordable and adequate use of port reception facilities. At the regional level of the Black Sea, these issues are also reflected in the Black Sea Marine Litter Regional Action Plan (2018) of the Bucharest Convention. According to the plan, waste prevention and remediation of the marine environment should be an integral part of national action plans. It includes the development of specific national provisions that restrict the use of plastic. It is essential to develop a national marine litter monitoring plan and a national plan against marine pollution.

To involve manufacturers of plastic products, the EU has introduced increased producer responsibility. In particular, to facilitate the collection of discarded fishing gear and the recycling of plastics used in agriculture.

The draft National Marine Strategy of Georgia envisages updating the legal framework regulating the Black Sea environment of Georgia under the International Convention for the Prevention of Pollution from Ships and the EU Strategy, which will contribute to achieving a good quality of the marine environment.

### 2.3. ROMANIA



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Marine litter (also called marine debris) has long been on the political and public agenda. It is recognized as a worldwide rising pollution problem affecting all the oceans and coastal areas of the world (Galgani et al. 2015; Ryan 2015; Thompson 2015). The increasing production and use of durable synthetic materials such as plastics has led to a gradual, but significant accumulation of litter in the marine environment, making it ever more difficult to tackle (Barnes et al. 2009; Kühn et al. 2015).

The Black Sea is represented by the Black Sea Commission (BSC) or Bucharest Convention which works to protect the marine environment in this region. However, there is limited assessment of marine litter in the Black Sea, and a lack of comprehensive and systematic monitoring. As such, there is a lack of comparable and reliable data. BSC (2007) reports that some governmental and private institutions and NGOs in Bulgaria, Romania, Russia, Turkey and Ukraine have conducted marine litter research using different approaches and methods, including aerial surveys. National reviews are scarce and there is no aggregated information available. UNEP (2009) presents some of the results of local surveys, stating that vessel-based transect surveys estimated between 6.6 and 65.7 items/km<sup>2</sup> of floating plastic litter, and beach surveys along the Turkish Black Sea coast recorded between 58 and 1,395kg litter per km. Local surveys and studies (BSC 2007, UNEP 2009, Topcu et al. 2012) state municipal waste/sewage and badly managed landfills as the most important sources of marine litter, followed by marine transport and ports and recreational activities.

In Romania, Mare Nostrum NGO conducted between 2014-2020, marine litter monitoring after the methodology included in the “Guidance on Monitoring of Marine Litter in European Seas” for beach litter. Thus, the proposed and used methodology involves the identification of beach samples of 100 m in length and covering the area from the water line to grassy/concrete area. These sectors are monitored each year, twice: April and October. These sessions provide information on the current state of Romanian shore, in terms of marine litter, but unfortunately these data are not fully recognized by the authorities, even they receive each time the report and are aware of them.

### 2.3.1. National Legal Framework

Adopting and implementing new legislation for environmental protection has been a priority for Romania. This legislation is based on several legal principles, such as: (i) compliance with the *acquis communautaire* for environment; (ii) integration of



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environmental concerns into sectoral policies; (iii) monitoring and reduction of climate change risks; (iv) application of the “polluter pays” principle; (v) preservation of biodiversity and specific ecosystems; (vi) sustainable use of natural resources; (vii) disclosure of environmental information and public participation in decision-making; and (viii) international cooperation for environmental protection.

The long-term objective of EU policies is to reduce the amount of waste generated and, where waste generation cannot be avoided, to promote their use as a resource and to achieve higher levels of recycling and disposal under safety conditions.

While Romanian legislation accurately reflects the environmental requirements agreed at EU level (figure 1), their implementation on the ground is in general a challenge, prompted inter alia by a lack of planning, coordination and appropriate funding. The implementation gap is problematic in several areas, in particular waste management and waste-water treatment.

The main challenges Romania faces with regard to implementing EU environmental policy and law are:

Improving compliance with EU waste and urban waste-water legislations in order to meet the EU targets, as the final deadlines set out in the Accession Treaty are drawing near;

Improving coordination and enhancing the administrative capacity of the authorities and agencies involved in the implementation of EU legislation, in particular with regard to water and waste management and the protection and management of the Natura 2000 sites, as part of the broader strategy to strengthen public administration.

Romania is also part of and has ratified various bilateral, regional and international conventions and treaties on environmental matters, including the 1992 UN Framework Convention on Climate Change and its 1997 Kyoto Protocol, the 1982 UN Convention on the Law of the Sea, the 1973 International Convention for the Prevention of Pollution from Ships and its 1978 Protocol, etc.

Romania's marine waters are part of the Black Sea marine region and the country is party to the Black Sea Convention. The main threats to the Black Sea region are land-based sources of pollution (e.g. nutrients coming from the River Danube).





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As Member State Romania has the obligation to implement the requirements of the Marine Strategy Framework Directive into its marine waters which are part of the Black Sea marine region. Romania has been diligent with the implementation of the MSFD.

Regarding the last deliverables under the MSFD (initial assessment, determination of GES and environmental targets), Romania made considerable efforts to set quantitative targets when data was available and to give a GES description consistent with EU legislation. However, weaknesses were identified in the definition of GES: for instance, Romania initially only defined GES for 5 out of the 11 MSFD descriptors. A number of EU-financed projects facilitate cooperation and support implementation of the MSFD in the Black Sea region. Romania should continue to pursue coordination at regional level to improve quality.

The Marine Strategy Framework Directive has been transposed into national legislation by Emergency Government Ordinance 71/2010 on establishment of Marine Strategy and approved by Law 6/2011 and then amended by the Law 205/2013.

According to the Emergency Government Ordinance 71/2010 on establishment of Marine Strategy (chapter I, Objective, article 1), which transposed the Marine Strategy Framework Directive (2008/56/CE), the Ministry of Waters and Forest is the central authority responsible for the implementation of the requirements of the Directive.

2020 came with a new Government Decision 432/2020 on the approval of the Program of Measures for Achieving Good Environmental Status of the Black Sea marine region. This decision includes the annex with the existing measures for all 10 MSFD descriptors, but also new measures which will lead to GES.

Main measures included in the Government Decision 432/2020 are:

RO-ME-029 - The exploitation of beaches in bathing areas, on the seafront, is done in compliance with the following requirements: maintenance of cleanliness, endowment with suitable containers for waste collection (a container at 150 m<sup>2</sup> beach area); no solid residues; no foam, detergents; no oil stains; compliance with the recommended number of sanitary facilities

RO-ME-033 - Elaboration and implementation of the plan for taking over and management of ship-generated waste and / or cargo residues

RO-ME-034 - Port authorities should ensure the endowment and permanent availability of port facilities for the collection of ship-generated waste and cargo residues and



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establish a charging system applicable to ships, so as to encourage ships to hand over generated waste and / or cargo residues to port facilities. download and not download them into the sea

RO-EX-03 - The level of marine litter, particularly microplastics, in the marine environment

RO-MN-026 - Facilitating and implementing "fishing for litter" practices

RO-MN-025 - Coordinated establishment and/or support of regular (annual) awareness-raising campaigns aimed at the business environment (commercial agents, beach operators, fishermen, etc.) and the public (tourists, students, children, etc.) related to the sources and the consequences of marine litter on the environment and the need to recycle waste

RO-MN-027 - Identification of areas for the accumulation of plastic waste in the marine environment and elaboration of an action plan for their depollution

#### 2.3.1.1. Law No. 107(1996).

The law on Water remains the main legal instrument for water protection. Two important amendments to this Law are Government Emergency Ordinance (GEO) No. 64 (2011) regarding the geological storage of carbon dioxide, and GEO No. 3 (2010) amending Law No. 107 (1996) on Water. Also, was adopted Law nr. 243/2018 for the approval of Government Emergency Ordinance no. 78/2017 amending and supplementing the Water Law no. 107/1996. These amendments cover the public authority with environmental responsibilities; measures to be taken to prevent temporary deterioration of water bodies; protection and conservation of surface water resources; gradual reduction of water pollution; uniform, rational and integrated management of waters; and exploitation rights for minerals in waterbed courses and lakes, with a new detailed section on the management of flood risks.

#### 2.3.1.2. Law No. 211 (2011)

The Law on Waste transposes the provisions of Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste. The most important provisions of this Law refer to:

- The waste hierarchy for the purpose of diminishing the negative effects of waste on the environment;
- Regulation of the extended liability of the producer for the purpose of strengthening reuse, reduction, recycling and other methods for the recovery of waste;
- Application of the self-sufficiency and proximity principles;



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- The control and labelling of hazardous waste

The preparation and content of waste management plans and waste prevention programmes.

Emergency Ordinance no 74/2018 amending and supplementing Law no 211/2011 on treatment of waste has brought significant changes to waste management legislation. This aims to improve the overall waste management system, starting from separately collecting waste at the generating source, sorting recycling and further disposal. To this end, the most widely used economic tools at European and international level taken by the Emergency Ordinance no. 74/2018 are: (i) "pay for the entire generated waste" principle, (ii) the "extended liability of the producer" and (iii) the "circular economy" principle that replaces the "deposit fee". To implement these economic tools, this ordinance proposes the following: discouragement of waste disposal through storage, payment schemes based on the amount of waste generated, extended producer liability scheme and a guarantee scheme for refunds or for reusable packing.

Apart from bringing novelties to waste management procedures in Romania, Emergency Ordinance no. 74/2018 also seems to clarify various areas of old waste management legislation that has proven problematic in Romania's relationship with the European Union and EU institution.

The framework law that regulates waste management activities in Romania is Law no. 27/2007, approving Government Emergency Ordinance no. 61/2006, amending and supplementing Government Emergency Ordinance no. 78/2000 on waste regime. This legislation sets the responsibilities for waste management from generation to disposal, the priorities in waste management, the requirements concerning the development of waste management plans at the national, regional and county level and the required competence for the respective development.

#### **2.3.1.3. Law no. 249/2015.**

The Law regarding the management of packaging and packaging generated waste provides certain obligations for suppliers of packaging materials, manufacturers of packaging and packaged products, importers, retailers, distributors and public authorities, regarding the manufacturing, labeling, collecting and recycling of packaging. The law transposes the provisions of Directive no. 94/62/CE of the European Parliament and of the Council, from 20th December 1994, regarding packaging and packaging generated waste. The Law contains provisions regarding:

Base criteria for designating an object as packaging;



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Annual objectives, at a national level, regarding the recovery, incineration or recycling of packaging generated waste and the responsibilities of economic operators which place packaged products on the market, for the packaging generated waste;  
The publishing of a list containing all the economic operators mentioned at point 2 above, on the Environment Fund Administration's official homepage;  
The obligation for economic operators that purchase packaging or packaged products directly from the economic operators mentioned at point 2 above, to ensure that the latter are registered on the list mentioned at point 3 above;  
The obligation for economic operators which sell products to final consumers through sale units with medium and large surface areas, according to Government Ordinance no. 99/2000, to ensure that the customers are able to dispose of the packaging from purchased products, without any additional costs;  
The maximum amount for concentration levels for lead, cadmium, mercury and hexavalent chromium present in packaging and its components;  
Prohibiting the conditioning, under any form, of the customer's legal rights regarding the purchased products, on keeping the packaging;  
Granting priority, when purchasing goods using public funds, to products made from recycled materials or with packaging made from recycled materials;  
The definition of "placing on the national market of a product" has been redefined as "the supply made by a legal person established in Romania for the first time, of a product for distribution, consumption or use on the national market during a commercial activity, for consideration or free of charge."

European Strategy for Plastics in a Circular Economy was adopted in Romania through Decision no. 27/2018 on the adoption of the opinion on the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, that supports the actions at EU levels.

In Romania, the efficient use of resources is low, and the circular economy remains poorly developed. Along with Bulgaria and Estonia, the resource productivity (the economy's efficiency in using material resources to produce wealth) was the lowest in the EU in 2015, standing at 0.31 EUR/ kg compared to the EU average of 2 EUR/ kg. Circular economy is not just a fancy trend or a hot subject in Europe, is another economic model, is a new engine using waste as a fuel. Waste, having seen by environmentalists as a threat, as a potential polluter is now becoming a more disputed resource for all industries. As a result, the consumer is becoming not just a "waste generator" but a supplier for the recycling industry. Recycling industry is in the center



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of circular economy absorbing the municipal and industrial waste as a nutrient for its own growth and implicitly modifying the metabolism of the city towards "zero waste" horizon. Circular economy is an opportunity for Romania to stimulate its economic growth, by disconnecting itself from the use of natural resources. It also creates a snowball effect that can bring immense social benefits, such as the creation of new specialized types of jobs in the green economy and generation of job opportunities. The switch to a circular economy leads the way to a new perspective in the research and development field, so that the great creativity and ingenuity of Romanians can be put to work also here.

In Romania, the legal framework for carrying out the spatial and urban planning activities was completed in 2001 by the promulgation of Law 350/2001 on Spatial Planning and Urban Planning, which establishes:

- spatial planning objectives (balanced economic and social development of regions and areas, in observance of their specific nature, improving life quality for people and human collectivities, accountable management of natural resources and environmental protection, sound land management);

- the compulsory nature of carrying out spatial planning activities, so that spatial management be conducted on a continuous and long-term basis, in the interest of the collectivities that use the territory, in accordance with the values and aspirations of society and with the requirements related to integration within the European space;

- the institutional structure and the duties of the central, county and local public administration in the field;

- the categories of Spatial and Urban Planning documentations, responsibilities for endorsing and approving them.

In accordance with Law 350/2001, the spatial planning activity is carried out on the entire Romanian territory based on the principle of hierarchization, cohesion and spatial integration at national, regional, county, city and commune level, creating the appropriate framework for balanced development and sound use of territory and accountable management of natural resources and environmental protection.

#### **2.3.1.4. Government Decision no. 349/2005 on waste (Official Gazette no. 394 of 10 May 2005).**

Another important framework is Government Decision no. 349/2005 on waste (Official Gazette no. 394 of 10 May 2005), by GD no. 210 / 28.02.2007 amending and supplementing certain acts transposing the *acquis communautaire* in the field of environmental protection. This aims to establish the legal framework for the carrying out of the waste storage activity, for realization, exploitation, monitoring, closure and



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post-closure monitoring of the new deposits, as well as for the exploitation, closure and post-closure of the existing deposits under environmental protection conditions and people's health.

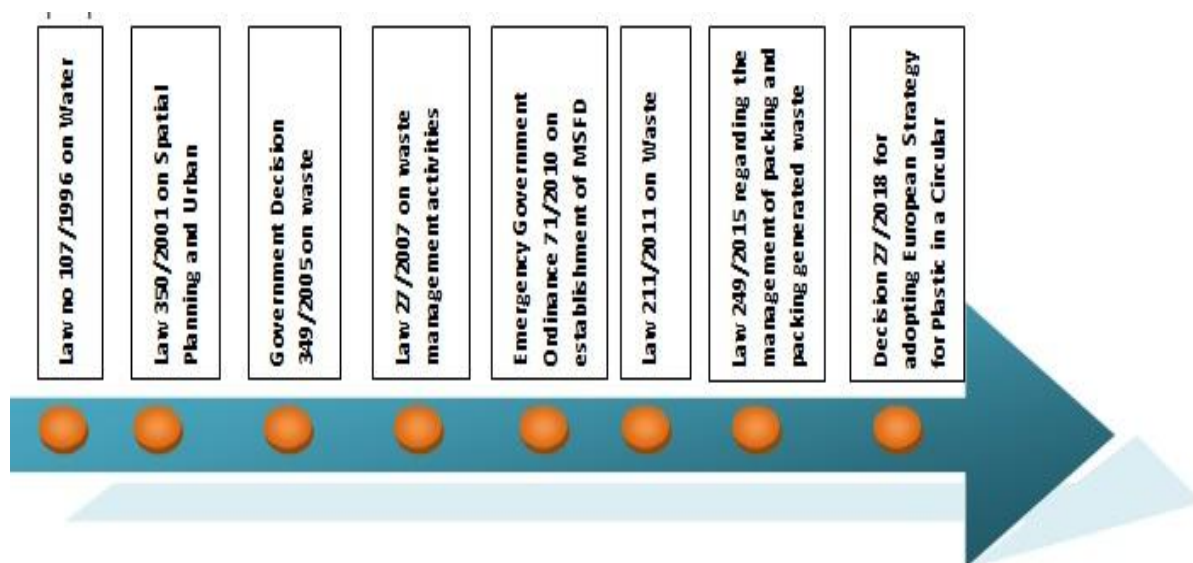


Figure 1 - Evolution of the Romanian marine litter framework

### 2.3.2. Regional and International Legal Instruments Associated with Marine Litter

Preventing waste generation by using modern and innovative technologies and converting waste into a resource are the main objectives of European policy, as well as the legislation in the field, which must be fully implemented across the European Union. This includes the application of the waste hierarchy and the effective use of economic instruments to ensure the phasing out of landfills, the imitation of energy recovery to non-recyclable materials, the use of recycled wastes as a major and reliable source of raw materials for the EU, hazardous waste and reducing their generation, eradication illegal shipments of waste and removing obstacles in the internal market so that all recycling activities are carried out at the highest environmental standards. The aforementioned aspects are all the more evident in Romania, where the relatively low living standards, as well as the insufficient implementation of clean technologies, negatively influence the efficiency of resource use.





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Marine litter is a huge problem and a large number of instruments at international, regional and national levels have been adopted in order to tackle this issue. These instruments comprise conventions, agreements, regulations, strategies, action plans, programs and guidelines. They contain specific management measures that are either compulsory or voluntary.

#### 2.3.2.1. MARPOL 73/78.

The International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 (MARPOL) is one of the most important international marine environmental conventions. It was developed by the International Maritime Organization in an effort to minimize pollution of the oceans and seas, including dumping, oil and air pollution. MARPOL is divided into Annexes according to various categories of pollutants, each of which deals with the regulation of a particular group of ship emissions. Annex V of MARPOL 73/78 is the major international instrument addressing ocean-based litter pollution from ships. Annex V was recently revised in 2011 and came into force in 2013. The revised Annex V provides an updated framework for the control of garbage generated by ships. It imposes a general ban on discharges of all garbage from ships at sea, except for a few clearly defined circumstances. These circumstances are associated with the types of garbage that can be disposed of, specifications of the distances from the coast, discharge of garbage within or outside special areas, the manner in which they may be disposed of, and in route requirements for allowable discharge.

#### 2.3.2.2. The London Protocol (LP).

LP is a major instrument dealing with dumping of wastes and other matter at sea. The discharge of garbage during normal operations as regulated in the Annex V of MARPOL 73/78 is not considered as dumping. In 1996, the protocol was adopted to further modernize the 1972 London Convention and eventually replace it. The protocol entered into force in 2006. While the goal of the 1972 convention is to regulate pollution by dumping, the goal of the Protocol is to stop waste dumping at sea. Namely, the protocol is more restrictive in regulating wastes dumping than the 1972 convention by introducing a reverse listing approach. This approach is, in essence, to prohibit the dumping of any wastes or other matter except for the materials listed in Annex I. In addition, the protocol prohibits incineration of wastes at sea and the export of wastes to countries for dumping or incineration at sea. The protocol is to supersede the convention for the state parties that ratified it and will eventually replace the convention as more and more parties ratify.





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#### **2.3.2.3. UNEP, 2003.**

The UNEP Regional Sea Programme embarked in 2003 on the development of a Global Initiative on Marine Litter. This initiative has succeeded in organizing and implementing regional activities on marine litter around the world. Activities focusing on managing marine litter were arranged through individual agreements in 12 Regional Seas, including Black Sea. The main activities include: a review and assessment of the status of marine litter in the region, organization of a regional meeting of national authorities and experts on marine litter, preparation of a regional action plan for the management of marine litter, and participation in a regional cleanup day within the framework of the International Coastal Cleanup Campaign. This regional initiative also provides a platform for the establishment of partnerships, cooperation and coordination of activities for the control and sustainable management of marine litter.

#### **2.3.2.4. UNEP/IOC Guidelines on Surveying and Monitoring of Marine Litter.**

The UNEP developed, in cooperation with the intergovernmental Oceanographic Commission (IOC), guidelines on surveying and monitoring of marine litter in order to provide a long-term platform for scientific monitoring. Four sets of operational guidelines were developed: comprehensive assessments of beach, benthic and floating litter, and rapid assessments of beach litter. The first three sets target the collection of highly resolved data to support the development and/or evaluation of mitigation strategies, while the last aims to raise public awareness of and educate about marine litter issues.

#### **2.3.2.5. Global Partnership of Marine Litter (GPML), 2012.**

The most recent initiative was to establish a Global Partnership of Marine Litter (GPML) in June 2012 by the UNEP. The GPML builds on the Honolulu Strategy. It is a global partnership, acting as a “coordinating forum” for all stakeholders (international, regional, national and local organizations) working in the area of marine litter prevention and management. The forum assists stakeholders to complement each other’s efforts, to avoid duplication and to optimize the efficiency and efficacy of their resources. Mare Nostrum NGO is part of this partnership.

There are numerous EU legal instruments already in operation that could have a role in tackling marine litter, addressing litter sources from a diversity of sectors.



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#### **2.3.2.6. The Marine Strategy Framework Directive (MSFD2008/56/EC).**

The MSFD aims to achieve Good Environmental Status (GES) of the EU's marine waters by 2020 and to protect the resource base upon which marine-related economic and social activities depend. It is the first EU legislative instrument related to the protection of marine biodiversity, as it contains the explicit regulatory objective that "biodiversity is maintained by 2020", as the cornerstone for achieving GES (EC, 2008).

The directive establishes a framework, within which member states shall take necessary measures to achieve or maintain good environmental status (GES) in the marine environment by 2020. Marine litter is listed as the tenth of 11 qualitative descriptors for determining GES, which states that the properties and quantities of marine litter do not cause harm to the coastal and marine environment.

Of the 11 descriptors listed in Annex I of the MSFD for determining GES, descriptor 10 has been defined as 'Marine litter does not cause harm to the coastal and marine environment'. Commission Decision 2010/477/EU identify the following criteria and four associated indicators for Descriptor 10:

Criteria 10.1. Characteristics of litter in the marine and coastal environment;

Trends in amount of litter washed ashore and/or deposited on coastlines, including analysis of its composition, spatial distribution and, where possible, source (10.1.1)

Trends in amount of litter in water column (including floating on the surface) and deposited on sea floor, including analysis of its composition, spatial distribution and, where possible, source (10.1.2)

Trends in amount, distribution and where possible, composition of micro-particles (in particular micro-plastics) (10.1.3)

Criteria 10.2. Impacts of litter on marine life

Trends in amount and composition of litter ingested by marine animals (e.g. stomach analysis) (10.2.1)(MARLITER SOD, 2019).

Perhaps the most relevant is the Marine Strategy Framework Directive (MSFD), the environmental pillar of the EU Integrated Maritime Policy. This directive is an integral policy instrument for the protection of the marine environment for the European Community, following an ecosystem-based, adaptive and integrated approach to the management of human activities, which have an impact on the marine environment (MARLITER SOD, 2019).



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The revised Commission Decision 2017/848/EU requires EU Member States to establish threshold values for criteria of Descriptor 10 on marine litter. Threshold values, which are now mandatory through the new provisions, are intended to contribute to Member States' determination of a set of characteristics for Good Environmental Status and enable their assessment of the extent to which Good Environmental Status is being achieved under the Marine Strategy Framework Directive (MSFD).

TVs are used to distinguish between GES being achieved and GES not being achieved, the latter triggering a need for targets and measures. ML, as considered through MSFD Descriptor 10, represents a pressure to the marine environment. The TVs to be defined, should be set at a level that does not cause harm to the coastal and marine environment by setting concentration levels (D10C1 and D10C2), levels corresponding to impact levels (D10C3) or to impacts directly (D10C4) that should not be exceeded. D10C1 and D10C2 are to be established at Union level, D10C3 and D10C4 at a regional or subregional level.

Calculation of the 10th percentile of the EU baseline dataset resulted in a value of 13 litter items per 100 m of coastline length. Further consideration of the 95% confidence intervals of the TV and assessment value, respectively, led to a final TV of 20 litter items/100 m beach length, which corresponds to the 15th percentile value of the EU baseline dataset. This TV is estimated by experts from TG ML to reduce harm from beach litter to a sufficiently precautionary level. The methodology acknowledges uncertainties in the underlying data which is considered in the proposal. The median assessment value is compared with this TV for compliance checking.

It is acknowledged that achieving this TV will require substantial and sustained measures over a longer period. Intermediate targets over time towards the proposed TV are proposed to support the achievement of the TV.

#### **2.3.2.7. The Waste Framework Directive (2008/98/EC).**

This Directive has already opened the way to a new thinking on waste management. It establishes an extensive liability of the manufacturer and describes powerful and innovative factors to stimulate sustainable production, taking into account the whole life cycle of products.

Member States are encouraged to adopt legislative and non-legislative measures to reinforce reuse and prevention, recycling and other waste recovery operations. Manufacturers should be encouraged to engage in the creation of end-of-life



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acceptance points. They can engage in waste management and assume financial responsibility for the activity (MARLITER SOD, 2019).

#### **2.3.2.8. The Packaging and Packaging Waste Directive.**

The Directive has the potential to have a high impact on marine litter, given that packaging comprises a large proportion of marine litter (more than half of the plastic fraction of marine litter is composed of plastic packaging waste such as bottles and bags (European Commission, 2013b). With regards to plastic in particular, full implementation of the Packaging Directive by the Member States is important to close loopholes in the plastic packaging cycle, and should have significant benefits for the quantities of marine litter generated. The addition of a specific mention of marine litter/the marine environment to the Directive could be considered to ensure that the importance of the issue is acknowledged. Another policy option would be to increase the recycling targets for packaging waste (in particular plastics) (MARLITER SOD, 2019).

#### **2.3.2.9. The European Strategy for Plastics in a Circular Economy, 2018.**

This circular adopted on January 2018 will transform the way plastic products are designed, used, produced and recycled in the EU. Better design of plastic products, higher plastic waste recycling rates and more and better quality recycles will help boosting the market for recycled plastics. It will deliver greater added value for a more competitive, resilient plastics industry. By 2030, all plastics packaging should be recyclable (MARLITER SOD, 2019).

#### **2.3.2.10. Single-Use Plastics, 2019.**

In March 2019, the European Parliament agreed on the rules on Single-Use Plastics items and fishing gear, addressing the ten most found items on EU beaches that place the EU at the forefront of the global fight against marine litter. They are part of the EU Plastics Strategy - the most comprehensive strategy in the world adopting a material-specific lifecycle approach with the vision and objectives to have all plastic packaging placed on the EU market as reusable or recyclable by 2030. The Single-Use Plastics Directive adopted by the European Parliament is an essential element of the Commission's Circular Economy Action Plan as it stimulates the production and use of sustainable alternatives that avoid marine litter. The main measures included are:

A ban on selected single-use products made of plastic for which alternatives exist on the market: cotton bud sticks, cutlery, plates, straws, stirrers, sticks for balloons, as



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well as cups, food and beverage containers made of expanded polystyrene and on all products made of oxo-degradable plastic.

Measures to reduce consumption of food containers and beverage cups made of plastic and specific marking and labelling of certain products.

A 90% separate collection target for plastic bottles by 2029 (77% by 2025) and the introduction of design requirements to connect caps to bottles, as well as target to incorporate 25% of recycled plastic in PET bottles as from 2025 and 30% in all plastic bottles as from 2030 (MARLITER SOD, 2019).

#### **2.3.2.11. The Landfill Directive.**

The Directive potentially has a direct (although possibly limited) influence on marine litter, as it establishes technical requirements for the operation of landfills, to limit the final disposal of waste through landfill and to reduce the environmental impacts of landfill sites (MARLITER SOD, 2019).

#### **2.3.2.12. The Water Framework Directive (WFD).**

WFD requires all surface waters (including rivers, estuaries and coastal waters) to meet 'good ecological status'. However, although rivers are a source of marine litter, litter is not a criterion of good ecological status. As a result, Member States are not directly required to take measures under the WFD to reduce the amount of litter in suspension in their rivers (MARLITER SOD, 2019).

#### **2.3.2.13. The Bathing Water Directive**

The Directive aims to guarantee bathing water quality, which may be threatened by pollution. In particular, the Directive provides that bathing waters must be inspected visually for pollution such as tarry residues, glass, plastic, rubber or any other waste as part of the beach profile (MARLITER SOD, 2019).

#### **2.3.2.14. The Urban Waste Water Treatment Directive**

The directive regulates the discharge of sewage, industrial waste water and rainwater run-off with the aim of reducing pollution to freshwater, estuarial and coastal waters. Urban waste water is a source of marine litter including items such as sanitary towels, tampons, condoms, plastic cotton wool bud sticks, microplastics from cosmetics and fibres from clothes washing. It is also one of the main sources of litter in all regional seas (MARLITER SOD, 2019).



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## 2.4. BULGARIA

The Black Sea coastline of Bulgaria extends for 378 km. The country exercises jurisdiction over an exclusive economic zone (EEZ) of 34,685 sq. km, located in the western part of the sea. The area of the immediate Black Sea drainage basin is inhabited by around 1 million people. This estimate does not cover the Bulgarian population living in the Danube basin, which contributes indirectly via the Danube river to the pollution load on the Black Sea.



The Bulgarian Black Sea coast is no exception to the global pressure of marine litter pollution. The Black Sea Commission (2009) identified through expert assessment marine litter hotspots along the Bulgarian seashore, ranked according to their importance: 1. Coastal cities (including seaside resorts); 2. Ports; 3. Navigation routes; 4. Industrial zones along the beaches of the cities of Burgas and Varna; 5. Wild beaches and estuaries of rivers. The Bulgarian MSFD Initial Assessment (BSBD, 2013) states that there is no dedicated survey or available data on marine litter. Since then there have been consistent efforts to implement monitoring activities and establish a baseline for further assessment.

The more recent quantitative approach follows the requirements of the MSFD (2008/56/EC) and its amended Annex III (Commission Decision 2017/848/EU). The initial investigations follow the OSPAR guideline for marine litter monitoring (OSPAR, 2010a, 2010b). The Guidance on Monitoring of Marine Litter in European Seas, (EC, 2013) harmonizing the recording of litter items among the most established approaches including OSPAR was applied later. Since then monitoring activities have



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been under way to improve the availability of data and fill in the gaps of knowledge related to marine litter pollution so that informed decisions on policies and measures should be adopted. A review of monitoring activities for marine litter in Bulgaria can be included in awareness raising activities for stakeholders.

Marine litter was acknowledged as one of the most serious threats to marine ecosystems, including living marine organisms and their habitats. Numerous studies are investigating the overall impact of marine litter to sea life and indirect to humans and the outcome shows that the problem is very complex. It has short term and long term negative effects, some of them are eventually still unknown, and therefore the latter has been seriously underestimated throughout the years.

Marine litter is widely spread on beaches and throughout the entire coastal, shelf on open sea area in the Bulgarian sector of the Black sea. The density numbers reported are very worrying and must raise institutional and societal awareness and highlight the urgent need of an integrated multidimensional approach at all levels - institutional and societal, starting from education on marine litter for the new generations, inclusion of all institutions involved, NGOs and volunteer organizations, following well-structured strategy - identification and elimination of the initial sources, identification and monitoring of hotspots, implementation and execution of litter removal plans, identification and possible expansion of landfill and waste management capacities, implementation of reuse and recycling plans, other relevant measures, aiming at achieving sustainability and good environmental status as well as elimination of risks to human health and ecosystems (Simeonova et al., 2017).

In Bulgaria, Institute of oceanology, BAS investigated spatial distribution and carried out initial assessment of marine litter abundance in the Bulgarian sector of the Black sea waters, according to "Guidance on Monitoring of Marine Litter in European Seas" for beach litter. Precise classification of dominating litter categories could serve as basis for analysis of the current state and to lay down the foundation of more comprehensive marine litter monitoring. Combined stratified fish stock and marine litter assessment survey was carried out for three consecutive years (2015-2017) and results were analysed in terms of proper differentiation and classification of the marine litter items collected and the most frequent litter groups are identified accordingly.

## 2.4.1. National Legal Framework

### 2.4.1.1. Law of the Sea.

Inland waterways and ports of the Republic of Bulgaria. The Act establishes the legal regime of the maritime space, inland waterways and ports of the Republic of Bulgaria.





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In the maritime space and inland waterways and in the ports, the Republic of Bulgaria shall exercise sovereignty, certain sovereign rights, jurisdiction and control in conformity with the generally agreed principles and standards of international law and the international agreements to which the Republic of Bulgaria is a party. It aims at ensuring the use of the Black Sea and the river Danube in the interests of cooperation of countries of the Black Sea, the Danube and other countries, facilitating the sea and river connections, providing for the safety of navigation, protection of the marine and river environment during navigation and maintaining the ecological balance.

#### **2.4.1.2. Fisheries and Aquaculture Act.**

This Act regulates the relations associated with ownership, organization, management, use and conservation of fishery resources in the waters (marine and freshwater) of the Republic of Bulgaria, including the trading issues and relation and provisions also regarding the other aquatic organisms.

#### **2.4.1.3. Environmental Protection Act.**

The objectives of the Act shall be achieved by: regulating of the regimes for preservation and use of the components of the environment; control over the status and the use of the components of the environment and sources for its pollution and damaging; establishing of admissible standards for emissions and for quality of the environment; management of the components and the factors of the environment; implementing of environmental impact assessment (EIA); issuing of permissions for prevention, restriction and control of the pollution; announcing and management of territories with special regime of protection; development of the system of monitoring of the components of the environment; introduction of economic regulators and financial mechanisms for management of the environment; regulation of the right and the obligations of the state, the municipalities, the corporate bodies and the individuals. The environmental protection shall be based on the following principles: sustainable development; prevention and reduction of the risk for human health; priority of the prevention of pollution to follow-up removal of the damages, caused by it; participation of the public and transparency in the process of decision taking in the field of environment; informing of the citizens about the status of the environment; the polluter shall pay for the caused damages; preservation, development and protection of the ecosystems and their intrinsic biological diversity; restoration and improvement of the quality of environment in the polluted and damaged regions; prevention of pollution and damaging of the clean regions and other unfavourable impacts on them; integration of the environmental protection policy in the sector and



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the regional policies for development of economy and public relations; access to justice on issues, referring to environment.

#### **2.4.1.4.Environmental Protection Law and Law on Management of the Black Sea coast, Law on Concessions.**

These laws are regulating protection of beaches and the coast, concessions, land use and especially use of the beaches and cleaning of beaches and coastal areas. With respect to monitoring of the beaches for marine litter, the main responsibility is to the Black Sea Basin Directorate in Varna, agency of the environment ministry. Other institutions involved in marine litter monitoring are less focused on the process of beaches and coasts monitoring for litter and their state. Those include IO-BAS (monitoring sea spaces/waters for floating and bottom litter), Executive Agency for the Environment, Ministry of Tourism, Ministry of Transport, Regional Governments of coastal regions, local authorities etc.

#### **2.4.1.5.Biological Diversity Act.**

This Act regulates the relations among the State, the municipalities, and the juristic and natural persons in respect of the conservation and sustainable use of biological diversity in the Republic of Bulgaria. It shall have the following purposes: conservation of natural habitat types representative of the Republic of Bulgaria and of Europe and habitats of endangered, rare and endemic plant and animal species within a National Ecological Network; conservation of the protected plant and animal species of the flora and fauna of the Republic of Bulgaria, as well as of those as are subject to use and trade; conservation of the genetic resources and the diversity of plant and animal species outside the natural surroundings thereof; regulation of the introduction of non-native and the reintroduction of native plant and animal species into the wild; regulation of trade in specimens of endangered species of wild flora and fauna; conservation of centuries-old and remarkable trees.

This act transposing the EU Habitats and Birds Directives and regulating the Natura 2000 network and the nature reserves under the Bulgarian legislation.

#### **2.4.1.6.Protected Areas Act.**

This Act regulates the categories of protected areas, the assigned use thereof and the regime of protection and use, designation and management of the said areas. The



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purpose of this Act is to conserve and preserve protected areas as a national and universal human wealth and asset and as a special form of conservation of Bulgarian nature, conducive to the advancement of culture and science and to public welfare. Nature conservation within protected areas shall take precedence over the other activities therein. Following its objectives, the State shall establish and ensure the functioning and sustained existence of a protected areas system as part of the regional and global network of such areas in accordance with the international treaties on environmental protection whereto the Republic of Bulgaria is a party.

#### **2.4.1.7. Marine Strategy of the Republic of Bulgaria (Implementing Marine Strategy Framework Directive of the EU).**

**Organizations Involved:** The Commission on the Protection of the Black Sea Against Pollution (the Black Sea Commission or BSC) and its Permanent Secretariat consolidate the regional activities on ML and other types of marine pollution on base of the implementation of the Bucharest Convention and its Protocols (see Section 2.1), and the Strategic Action Plan for the Rehabilitation and Protection of the Black Sea (see Section 4).

There are seven BSC Advisory Groups which provide their expertise and information support to the Commission and Secretariat on following items: (a) pollution monitoring and assessment; (b) control of pollution from land based sources; (c) development of common methodologies for integrated coastal zone management; (d) environmental safety aspects of shipping; (e) conservation of biological diversity; (f) environmental aspects of the management of fisheries and other marine living resources; and (g) information and data exchange. The advisory groups (a), (b), (c) and (d) seem to be the most pertinent to the addressing ML problem, although the other advisory groups are concerned about ML sources, effects and management too. In addition, two ad hoc working groups have been set up for the promotion of the European Water Framework Directive (#2000/60/EC) and for the implementation of the Memorandum of Understanding between the BSC and Danube Commission (the Danube/Black Sea Joint Technical Working Group).

Within the institutional framework co-ordinated by the BSC, seven Black Sea Regional Activity Centres (RAC) have been established on base of existing national organizations. Four of them may be especially helpful for the development of the regional ML activities:

- RAC on Pollution Monitoring and Assessment (Ukrainian Scientific Center of Ecology of the Sea, Odessa, Ukraine );



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- RAC on Control of Pollution from Land Based Sources (Ministry of Environment and Forestry, Provincial Directorate of Istanbul, Turkey )
- RAC on Development of Common Methodologies for Integrated Coastal Zone Management (Department of Natural Resources for Krasnodar Krai/Territory, Krasnodar, the Russian Federation);
- RAC on Environmental and Safety Aspects of Shipping (Marine Environment Pollution and Control Department of the Bulgarian Maritime Administration, Varna Directorate, Varna, Bulgaria ).

BSC possesses co-operation links and options for consultative conversation with other intergovernmental organizations involved in marine pollution affairs at the global and regional level, including the United Nations Environment Programme (UNEP), International Maritime Organization ( IMO), World Health Organization (WHO), UN Food and Agriculture Organization (FAO), Intergovernmental Oceanographic Commission (IOC) of UNESCO, Mediterranean Science Commission (CIESM), Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP), and different institutions of the European Union (EU). The BSC Secretariat has also relations with the secretariats of the CBD, Bern Convention, CMS and ACCOBAMS (see Section 2.1). The Black Sea states can collaborate with all above organizations directly or through the BSC Secretariat.

UNEP. ML is a priority activity for the UNEP's Regional Seas Programme. The Governing Council decision 22/2 IIIA on this Programme, calls for the utilization of the regional seas conventions and action plans (including, among them, the Bucharest Convention and the Strategic Action Plan for the Rehabilitation and Protection of the Black Sea) as a platform for the regional implementation of multilateral environmental agreements and global programmes and initiatives. In resolution 59/25 on "Oceans and the law of the sea", in paragraph 92, it is recommended that consultative process during its deliberations on the report of the Secretary General, should organize its discussions around, among others, marine debris. Besides, the 8th special session of the UNEP Governing Council/Global Ministerial Environment Forum (2004) adopted appropriate decision SS.VIII/4 on Waste Management. Within this context, UNEP provides support to the BSC Secretariat for the development of Regional Activity on Marine Litter in the Black Sea within the framework of the Strategic Action Plan on Rehabilitation and Protection of the Black Sea (the Memorandum of Understanding between the BSC Secretariat and UNEP Regional Seas Coordinating Office was concluded in 2005).



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In 1995, the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) has been adopted under the auspices of UNEP. GPA is an action-oriented programme with the goal of addressing the negative effects of land-based activities on the marine and coastal environment, with special emphasis on the inter-linkages between the marine, freshwater and coastal environment. At the 1st Intergovernmental Review Meeting (2001) representatives of 98 governments[2] expressed their concern that the marine environment is still being degraded to an increasing extent by pollution from different sources. Litter is one of principal pollution categories identified in GPA. It was recommended that states assess problems related to the severity and impacts of contaminants belonging to the principal categories including the ML.

IMO is involved, in particular, in regulatory and technical co-operation activities regarding port reception facilities. IMO maintains the Oil and Litter Information Network and adopted the Guidelines for the implementation of MARPOL 73/78. All Black Sea countries are the members of IMO.

WHO considers the ML problem as important constituent of medical, sanitary and aesthetic issues focused on the safe and salubrious use of the aquatic and coastal environment for public recreation and tourism. WHO published a series of reports on this topic (e.g., WHO, 1990, 1994) and produced appropriate guidelines. The Guide on the Monitoring Bathing Waters (Bartram and Rees, 2000) includes WHO recommendations regarding the methodology of ML surveying on the beaches and at sea (Chapter 12 by A.T. Williams, K. Pond and R. Philipp). The Guidelines for Safe Recreational Water Environments (WHO, 2003) describes possible adverse impacts of the recreational use of coastal and aquatic environments upon the health of users. It also outlines monitoring, control and prevention strategies relating to the hazards associated with these environments. ML issues (including aesthetic parameters, economic consequences, marine debris monitoring and management) are present mainly in Chapter 9 of the Guidelines.

FAO has prepared the Code of Conduct for Responsible Fisheries (adopted in 1995) and technical guidelines for the implementation of the Code. Among other things, the Code includes management objectives and measures related to the ML problem: minimization of waste, discards, catch by lost or abandoned gear, prevention of losses of fishing gear, proper handling and storage of shipboard garbage. States should “cooperate to develop and apply technologies, materials and operational methods that minimize the loss of fishing gear and the ghost fishing effects of lost or abandoned fishing gear”. The Fisheries Industry Department of FAO has a programme



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on the “Impact of Fishing on the Environment”. FAO and IMO are involved in revising the Code of Safety for Fishing Vessels where the effects of litter could be included as an issue of concern (UNEP, 2005).

IOC. The 6th Session of the IOC Committee for the Global Investigation of Pollution in the Marine Environment (1986) recommended developing methodologies and facilitating efforts to monitor the amounts and types of persistent litter in the seas. Some relevant activities, including several pilot ML surveys and assessments, and the development of solid waste management plans, were realized in 1987- 1999 in the Mediterranean and Caribbean regions, and in some places along the coasts of Africa. All Black Sea countries are the member states of IOC. Russia, Turkey and Ukraine are present also in the IOC Executive Council.

CIESM acts for the communication of scientific information and the development of scientific standards across the Mediterranean and Black Seas. In service to science, the Commission promotes cooperation among marine scientists of various disciplines. In service to society, CIESM draws upon its experts and the current scientific knowledge to deliver impartial and authoritative advice on a variety of issues, focused on the dynamics, processes, biodiversity, pollution and lasting protection of the Mediterranean and Black Sea ecosystems. In addition through its monitoring programs, the Commission keeps a watch at the regional level over sensitive indicators of the ecosystem change. Romania, Turkey and Ukraine are the member states of CIESM.

GESAMP is a multidisciplinary advisory panel consisting of independent experts nominated by a number of the United Nations Agencies (United Nations proper, UNEP, IMO, WHO, FAO, UNESCO-IOC, World Meteorological Organization, and International Atomic Energy Agency) involved in the protection of the marine and coastal environment at the global level. GESAMP addresses litter as one of important sources/categories of the adverse impact of land-based activities on the ocean. The priority actions recommended are as follows: improvement of waste materials recycling; improvement of port reception facilities; development of more degradable packaging materials; and improvement of education and public awareness (GESAMP, 2001).

EU environmental policy aims to achieve sustainability by including environmental protection in EU sectoral policies, preventive measures, the “polluter pays” principle, combatting environmental pollution at source, and shared responsibility. There are approximately 200 EU legal instruments covering a wide range of the environment-oriented fields, including water pollution, management of waste, nature conservation,





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and relevant European criteria and standards. The EU has adopted the Waste Framework Directive (1975), Directive on Hazardous Waste (1991), Directive on Integrated Pollution Prevention and Control (1996), Directive on the Landfill of Waste (1999), Directive on Port Reception Facilities for Ship-generated Waste and Cargo Residues (2000), Marine Strategy Directive (2005)[3] and some other directives which have certain relation to the ML problem. The Sustainable Use of Natural Resources and Waste is one of four priority issues in the EU 6th Environment Action Programme (2001-2010). EU member states must ensure that an environmental impact assessment is carried out before approving certain public and private-sector development projects.

Until recently, there were no EU member states round the Black Sea, however, in 2007 two riparian countries - Bulgaria and Romania - were accepted to the EU, and Turkey has a status of the candidate country embarking on the course of joining the Union. In 2005, Bulgaria and Romania signed the Treaty of Accession to EU, with the objective to make all necessary preparations for their integrating into EU in 2007 or 2008. The negotiations with Turkey whose candidacy application was made in 1987 and accepted in December 2005 continue. The EU Commission started to prepare an Accession Partnership for Turkey, which was declared on March 8th, 2001. On the other hand, the framework regulation designed to furnish the legal basis for the Accession Partnership was adopted by the General Affairs Council on February 26th, 2001. With the adoption of these two documents, an important legal procedure concerning Turkey's accession strategy was finalized. After the approval of the Accession Partnership by the Council and the adoption of the Framework Regulation, the Turkish Government announced its own National Program for the Adoption of the EU acquis on March 19th, 2001. The National Program was submitted to the EU Commission on March 26th, 2001

□. Besides,

environment protection aspects) with other Black Sea countries. EU is interested in and provides support for institutional, legal and administrative reforms in Ukraine and Georgia. In particular, the Ukraine Country Strategy Paper (2002-2006) and appropriate National Indicative Programme (2004-2006) were adopted by the European Commission in 2001 and 2003, respectively. Environmental issues are included as mandatory ones into the both documents.

#### 2.4.1.8. National Governmental And Nongovernmental Organizations

A wide variety of governmental organizations, NGOs and business establishments are concerned about marine and coastal pollution in the Black Sea states at the national





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and local level. Most of these entities, represented by ministerial and municipal structures and services, marine and sanitary inspections, research institutions and universities, port administrations, various agencies, companies and enterprises, and amateur ecological associations, are involved (or can be involved) in the activities addressing and combatting ML problem. The list of national organizations and specialists related to the ML management, research, monitoring, cleanup operations, utilization and public education is presented in Annex 3.

Bulgaria. The Bulgarian Ministry of Environment and Waters (BMEW), Ministry of Transport (BMT) and Ministry of Public Health (BMH) are at the head of ML activities regulated by the government.

BMEW includes two relevant departments responsible for the coordination and planning - the Department of Waste Management and Department of Waters. This ministry acts through such administrative/executive structures as the Bulgarian Black Sea Basin Directorate (BSBD) and Environmental Executive Agency (BEEA). BSBD has functional branches in the coastal cities of Varna and Bourgas. The Regional Environmental Inspectorates situated in the same cities are entrusted with a task of environmental control.

BMT acts through subordinate structures named as the Bulgarian Maritime Administration (BMA) and Bulgarian Port Administration which have their agencies/subdivisions of the same names in Varna and Bourgas.

The Marine Environment Protection and Control Department of the BMA is responsible for:

- control and protection of the Black Sea environment and the Danube River from pollution caused by shipping;
- administrative investigation in cases of marine pollution;
- examination of vessel's documentation related to the protection of the marine environment;
- examination of vessel's construction and equipment aimed to prevent marine pollution;
- control of port reception facilities and waste management plans in Bulgarian harbours and on ships;
- imposing fines and penalties in accordance to the national legislation;
- response to emergency situations accompanied with accidental pollution at sea.

BMH coordinates activities of the Regional Inspectorates for the Protection and Control of Public Health located in Bourgas, Varna and Dobrich. These inspectorates



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work in tight cooperation with municipalities/administrations of the cities, towns, villages and other populated sites on the Bulgarian coast.

The collected ML and solid wastes are treated in waste incinerators of the Port Varna and Port Bourgas (currently the latter is not in operation) and municipal landfills. There are several enterprises involved in this effort including the collection of ship garbage and port wastes (e.g., Marine Antipollution Enterprise PLC, Port of Bourgas Ltd. and Port of Varna PLC).

Some research institutions of the Bulgarian Academy of Science are interested to participate in ML studies (e.g., the Institute of Oceanology, Central Laboratory of General Ecology, and National Oceanographic Commission).

Bulgarian NGOs involved in ML activities could be listed as follows (alphabetically): the Bulgarian Biodiversity Foundation, Bulgarian National Association on Water Quality (BNAWQ), Center for Environment and Sustainable Development, Greener Bourgas Foundation (GBF), Institute for Ecological Modernization, Mayday Foundation, and 'Sea Friends' Marine Club.

#### **2.4.1.9. Waters and waste management**

The management of waters and waste in the national legislation are the two most relevant areas of the legal and policy framework that are related to marine litter. As an EU member state since 2007, Bulgaria has transposed all relevant legislation concerning marine litter. The most important national legal acts on the topic are the Waste Management Act (2012), Environmental Protection Act (2002), Waters Act (1999), and Maritime Spaces, Inland Waterways and Ports of the Republic of Bulgaria Act (2000), in relation to management of waste from shipping. There are also a number of by-laws, related to the implementation of the above acts or international conventions, as for example Regulation No 15/2004 for delivery and reception of ship-generated waste and cargo residues from all ships. Marine litter is yet to be incorporated in the Bulgarian legal system which is an obstacle to budgeting funding for specific measures associated with marine litter reduction.

#### **2.4.1.10. The Waters Act (1999) and Its Relevant Regulations (amend. - SG 65/06, in force from 11.08.2006).**

The objective of this Act is to provide an integral water management in community interest and protection of people's health, and also to provide conditions for: (amend.



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- SG 47/09, in force from 23.06.2009) Provision of sufficient quantity of surface and underground waters of good quality for sustainable, balanced and reasonable water use; Reduction of water contamination; Protection of surface and underground waters and the Black sea water space; Termination of pollution of the aquatic environment with natural or synthetic substances; Reduction of water outfalls, emissions and discharge of priority substances; Termination of water outfalls, emissions and discharge of priority hazardous substances; (new - SG 61/10) prevention and reduction of the harmful effects of the water to the human life and health, to the environment, the cultural heritage and the economic activity.

The act of Bulgaria, transposing the EU Waters Framework Directive, uses the Black Sea River Basin Management Plan, policy tool for waters management, to improve the state of the coast and the inland waters. It applies measures that are designated to improve the quality of various surface and also inland waters. Most of the inland waters on the Bulgarian coast have achieved good quality status with exception of some areas in the Varna Bay and the Burgas Bay where the pressure from the big coastal cities is very high. Waste waters treatment and quality of treatment and waste water treatment plant availability and operation have been improving consistently in recent years. They are constantly in the focus of public attention and have definitely a potential for awareness raising.

The Bulgarian legislation that is most closely associated with marine litter is the Marine Strategy Framework Directive 2008/56/EC transposed in the **Bulgarian Water Law** and Ordinance for the protection of the environment in the sea waters adopted by a decree of the Council of Ministers №273/23.11.2010. The Black Sea Basin Directorate in the next couple of years produced the national marine strategy or the **Marine Strategy of the Republic of Bulgaria for the Protection of the Marine Environment in the Sea Waters (2016)** and the Program of Measures for Achieving and Maintaining the Good Environmental Status of the Marine Environment, in compliance with the requirements of the Marine Strategy Framework Directive 2008/56/EC.

The main aim of the Marine Strategy Framework Directive (Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy) is to maintain or achieve a Good Environmental Status (GES) in the marine environment by 2020. To this aim, the EU Member States have to develop Marine Strategies, including a set of measures to achieve or maintain GES - the Program of Measures.



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The Initial Assessment of the state of the marine environment (Art. 8 national report), definitions for Good Environmental Status (GES) (Art. 9 national report) and the definition of environmental targets and indicators (Art. 10 national report) formed the first part, and the monitoring programmes under Article 11 were the second part of the Marine Strategy. The first part of the Marine Strategy was developed in 2012, and the second part - in 2014.

The Programme of Measures (PoMs) under Article 13 MSFD is the third part of the Marine Strategy of Republic of Bulgaria. The development of the PoMs in Bulgaria started in the beginning of 2015.

According to MSFD requirements, the momentary and future state of the marine environment has to be assessed and defined based on eleven qualitative descriptors (characteristics):

- D1: Biodiversity
- D2: Non-indigenous species
- D3: Commercially exploited species
- D4: Food webs
- D5: Eutrophication
- D6: Sea-floor integrity
- D7: Alterations of hydrographical conditions
- D8: Contaminants and their effects
- D9: Contaminants in fish and other seafood
- D10: Marine litter
- D11: Underwater noise

In order to reduce the anthropogenic pressure on the marine environment caused by human activities it is necessary to plan and implement measures so as to ensure the achievement and maintenance of a good environmental status, according to MSFD requirements.

The present Bulgarian Program of Measures is planned to provide a reduction of anthropogenic pressure from human activities for which there are no measures planned under the updated Black Sea River Basin Management Plan (BSRBMP) or when existing measures are considered as not sufficient to achieve the GES.

The MSFD is being implemented in a coordinated way across Bulgarian administrations. The proposals for a Program of Measures have been developed at a Bulgarian wide scale with input from experts and policy makers and in coordination with Romania.



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This Program of Measures applies to the territorial marine waters (in their entirety from the shoreline to the border of EEZ) and the Exclusive Economic Zone of Republic of Bulgaria.

The implementation period of the measures included in the PoM will run from 2016 to 2021.

The MSFD PoMs combines measures addressed themes as eutrophication, prevention of the spread of invasive non-indigenous species, reduction of contaminants, conservation of biodiversity, reduction in the impact of human activities on seafloor, stimulation of sustainable use and management of marine resources (link to Black Sea fish and shellfish stocks), reduction of amount of marine litter on beaches and marine environment, prevention and limitation of possible underwater noise pollution on Black sea mammals.

The new measures are subject of a detailed characterisation which includes precise description of the measure and action/steps planned of its scope, link with drivers, characteristics and environmental targets defined as well as an estimation of their cost, the technical feasibility, an socio - economic assessment (cost-benefit and cost-effectiveness analysis) and their environmental impact, which must be taken into account when prioritising measures and possible alternatives.

The programme of measures is structured on 9 themes: seven of them encompass the eleven qualitative descriptors of the marine environment, and two are additional themes: marine protected areas and general (crosscutting measures related to governance in the broad sense, such as coordination among administrations, public participation).

The relevant themes in the scope of Bulgarian PoMs are:

- Biodiversity (Descriptors 1, 4, and 6)
- Non-indigenous species (Descriptor 2)
- Commercially exploited species (Descriptor 3)
- Eutrophication, Contaminants and their effects, and Contaminants in fish and other seafood (Descriptors 5, 8, and 9)
- Permanent alteration of hydrographical conditions (Descriptor 7)
- Marine litter (Descriptor 10)
- Underwater noise and Energy (Descriptor 11)
- Marine protected areas



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- General measures

New national measures were developed by the Black sea Basin Directorate in the scope of the support project “Implementation of the Marine Strategy Framework Directive (MSFD) in Bulgaria - Development of Programmes of Measures under Article 13” funded by the Advisory Assistance Programme (AAP) for Environmental Protection in the Countries of Central and Eastern Europe, the Caucasus and Central Asia and coordinated by the German Federal Environment Agency (UBA) to the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

Total number of national measures: 6.

New transboundary measures were developed as common joint or coordinated measures between Bulgaria and Romania in the scope of an EU project “Technical and administrative support for the joint implementation of the Marine Strategy Framework Directive (MSFD) in Bulgaria and Romania - Phase 2”, funded by the European Commission, DG Environment.

Total number of transboundary measures: 17.

The Programme of Measures of the Marine Strategy of Bulgaria 2016-2021, developed under the Marine Strategy Framework Directive (MSFD), includes regional level (to be implemented together with Romania) and national level measures. The relevant new transnational measures are:

- Adoption of Regional Action Plan for Marine Litter for the Black Sea;
- Improvement of the management of ship generated waste;
- Coordinated organizing / supporting of annual campaigns to raise awareness of the business sector (merchants, beach concessionaires, beach users, fishermen, etc.) and the public (tourists, students, children, etc.) about the consequences for the marine environment caused by marine litter and the need for its recycling;
- Amend existing legislation, if necessary, by introducing a permit regime for activities in the marine environment or other regulatory changes.

There are two new national measures:

- Ensure the phased implementation of the requirements of the MSFD by providing the necessary information, incl. financing mechanisms and management decisions;
- Integration of “marine litter” in existing legislation.



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The process of reporting on the progress of measures on national level is coordinated and integrated by the EU.

Several other acts on national level are associated with coastal activities and protection of the coastal environment. They are associated with the purposes of measures aiming to abate marine litter. Those are:

#### 2.4.1.11. The Bulgarian Waste Management Act

The Bulgarian Waste Management Act and its National Plan for Waste Management 2014 - 2020 are the acts that transpose the EU Waste Management Framework Directive. The Waste Management Act regulates the measures and the control for protection of the environment and the human health by prevention or reduction of the harmful impact from the formation and management of the waste, as well as by reduction of the overall impact from the use of resources and by increasing the efficiency of that use. This law determines the requirements for the products, which in the process of their production or after their final use form hazardous and / or widespread waste, as well as the requirements for extended responsibility of the producers of these products in order to encourage reuse, prevention recycling and other types of recovery of the formed waste.

The waste management aims at preventing or reducing their harmful impact on human health and the environment and shall be carried out in accordance with the requirements of the normative acts regarding the environment. The types of waste listed in the Waste Management Act do not include the term 'marine litter' which is important in terms of financing on regular basis from public funds. This is a task to be accomplished by the national authorities in the future.

The Waste Management Act is in process of **amendment** with specific plastic waste related topics. The public consultation on it has closed in September 2020.

There is a Draft Decision of the Council of Ministers of the Republic of Bulgaria on the adoption of a **Law amending the Waste Management Act**. The draft law aims to introduce the requirements of the legislative package "Waste" adopted at EU level in 2018, and in particular Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste and partially transpose Directive (EU) 2018/850 of the European Parliament and of the Council of 30





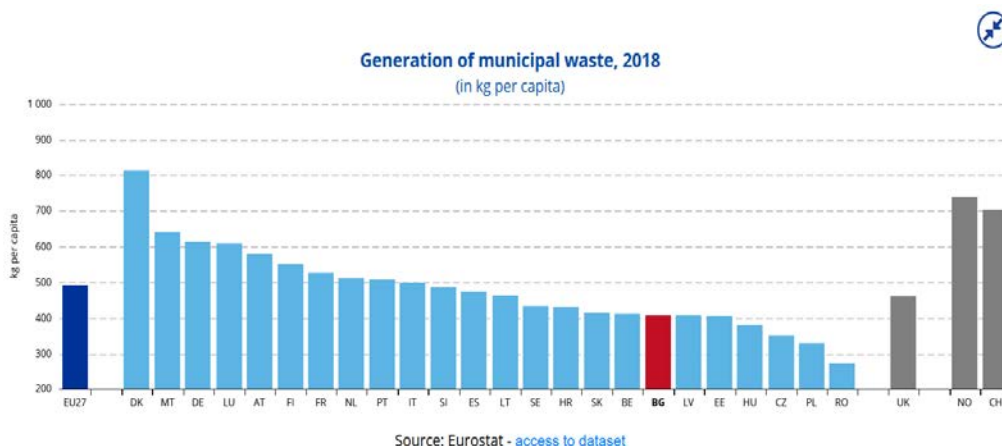
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May 2018 amending Directive 1999/31/EC on the landfill of waste. The Waste Package has introduced the following major changes to European legislation, which should be implemented by all Member States:

- The target for preparation for re-use and recycling of municipal waste has been increased to 65% in 2035 in order to reap significant environmental, economic and social benefits and accelerate the transition to a circular economy. Interim targets of 55% and 60% for 2025 and 2030 respectively have been introduced;
- In order to further stimulate the transition to a circular economy, a target of reducing up to 10% of landfilled municipal waste by 2035 has been introduced, which can be postponed by 5 years, provided that the state has achieved a reduction of up to 25%.

The Waste Management Act is the normative act that regulates all the main commitments of municipalities, producers and operators of waste activities, as well as the requirements for separate collection and for achieving the goals of waste recycling. Respectively, these requirements impose the proposed changes with the draft AIA of the WMA.



*Generation of municipal waste in 2018: 407 kg in Bulgaria and 492 kg average for EU*

#### 2.4.1.12. Waste Management Act. And Strategic Documents

The Act implements the Waste Framework Directive (2008/98/EC). This involves creating conditions for improving waste management in Bulgaria without risking



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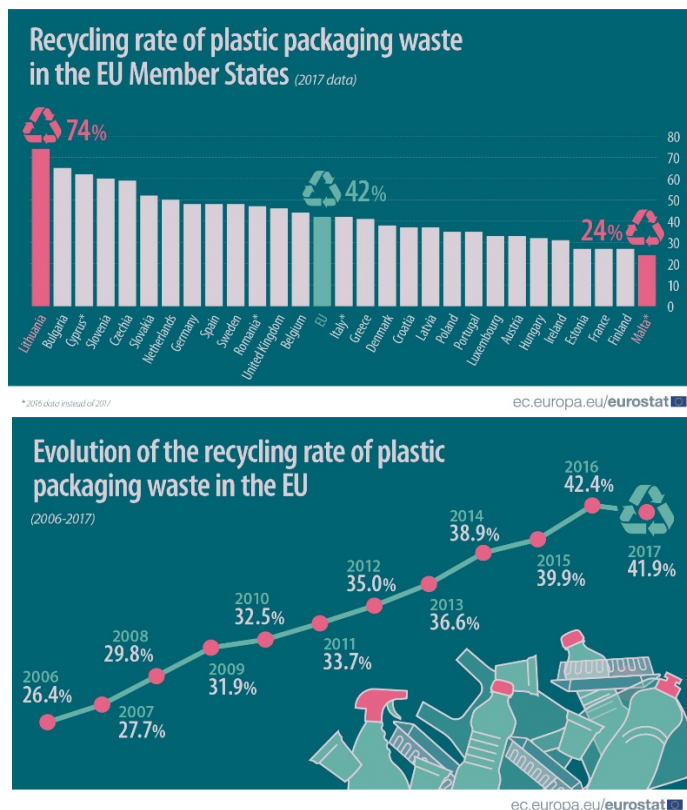
damage to human health or the environment, as well as increasing volumes of recycled and recovered waste.

Waste management in Bulgaria has some achievements reflecting favourably on the overall situation and indicating to possible ways of improvement of the situation with marine litter pollution. Marine litter is not specifically targeted by the national waste management legislation and improvement in the overall management of waste can lead to improvement of the overall situation with marine litter.

The Ministry of Environment and Water (MOEW) is responsible for the development and implementation of the national waste management policy as well as for the regulation of the related activities in the public and private sector. MOEW performs some of the activities through the Executive Environmental Agency (EEA) and a network of 16 Regional Inspectorates of Environment and Water (RIEW) that are specialized control bodies of the Ministry and control the implementation of the waste management activities on their territories. Since 2009 Bulgaria has been implementing several strategic documents, the more recent being the National Waste Management Plan (2014 - 2020). The achievements include improvement of separate collection and involvement of private sector; progress in waste management in the capital Sofia; establishment and development of national waste management; improvements in bio-waste policy (establishment of Bio-waste Strategy, project on developing bio-waste regulations, establishment of compost quality assurance system and National Organization for Quality Assurance of compost); introduction of landfill tax and progressive increase.



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In the EU, an estimated 42% of plastic packaging waste was recycled in 2017. In seven EU Member States, more than half of the plastic packaging waste generated was recycled in 2017.

Compared with 2005, the recycling rate of plastic packaging waste increased by 18 percentage points (pp) in the EU (from 24% in 2005 to 42% in 2017). This increasing trend is observed at varied levels in all EU Member States, except Croatia.

In 2017, the highest recycling rate of plastic packaging waste was recorded in Lithuania (74%), ahead of Bulgaria (65%), Cyprus (62%, 2016 data), Slovenia (60%), Czechia (59%), Slovakia (52%) and the Netherlands (50%).

#### 2.4.1.13. National Waste Management Plan 2014 - 2020

The National Waste Management Plan (NWMP) plays a key role in achieving a resource-efficient and sustainable waste management, as the analysis of the current situation shows that in Bulgaria there is significant potential to improve waste prevention and its management, better use of resources, development of new markets and new jobs, and at the same time reduce the harmful effects of waste on the environment.



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NWMP is based on the following principles:

- ✓ *Prevention* - waste generation should be reduced and avoided where possible.
- ✓ *Extended producer responsibility* and *polluter pays principle* - those who produce or contribute to waste generation or pollute the environment or current waste holders must cover the full costs for waste treatment and should manage them in a way that ensures high level of protection of the environment and human health.
- ✓ *Precaution* - potential waste problems should be foreseen and avoided at the earliest possible stage.
- ✓ *Self-sufficiency and proximity* - waste should be disposed as near as possible to the place of its generation as waste generated in the EU should be treated within the Union.
- ✓ *Public participation* - relevant stakeholders and authorities as the general public have the opportunity to participate in the development of waste management plans and waste prevention programs and have access to them after their development.

Bulgaria has developed a National Waste Prevention Programme (NWPP) in accordance with the requirements of the WFD and Article 50 of the Waste Management Act for the first time. NWPP is an integral part of NWMP and identifies measures for implementation of the highest level in the waste management hierarchy. The NWPP has significant impact on marine litter prevention.

The fourth NWMP is the transition from waste management to the efficient use of waste as resources and sustainable development by prevention of their generation, as far as possible. Successful implementation of the plan will lead to the prevention and reduction of the harmful effects of waste on the environment and human health and reduce the use of primary natural resources.

The plan supports the central and local authorities to concentrate limited financial resources from national and EU sources on priority projects in the field of waste management.

### ***Basis and approach for NWMP development***

NWMP is developed in accordance with Art. 28 of WFD and Art. 49 of WMA. During the development of NWMP are taken into account legal requirements and a number of European and national programs and methodological documents, including:

- Roadmap to a Resource-efficient Europe



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- 7<sup>th</sup> EU Environment Action Programme to 2020 “Living well, within the limits of our planet”
- Green Paper on a European Strategy on plastic waste in the environment, 2014
- Europe 2020: National Reform Programme 2012-2020 and the Council Recommendation on the National Reform Programme
- Methodological guidance note of European Commission, DG Environment: “Preparing a Waste Management Plan”, 2012
- Methodology for strategic planning in Republic of Bulgaria, April 2010, Council for Administrative Reform

The approach of NWMP developing is consistent with the requirement for such a document to be easily understandable by non-specialists and the general public and also to provide an opportunity for narrow specialists to gain more detailed information by annexes to the main text of the analytical part.

*The NWMP basic document contains:*

- ✓ Key conclusions from the analysis of the state of waste management
- ✓ SWOT analysis (analysis of strengths and weaknesses, opportunities and threats)
- ✓ Objectives and sub-objectives
- ✓ Action plan with Programmes with measures to achieve the objectives.
- ✓ *National waste prevention programme*
- ✓ Programme to achieve the objectives for preparing of re-use and recycle of municipal paper, metal, plastic and glass waste
- ✓ Programme to achieve the objectives of biodegradable waste, including bio-waste
- ✓ Programme to achieve the targets for recycling and recovery of construction and demolition waste
- ✓ Programme to achieve the targets for recycling and recovery of widespread waste
- ✓ Programme to improve the management hierarchy of other waste streams and reduce the risk to the environment from landfills for municipal waste
- ✓ Programme to improve the capacity of institutions for waste management
- ✓ Programme to improve the quality of information helping to make informed management decisions
- ✓ Programme to improve awareness and participation of the population and business in waste management activities

*The objectives*, the selected alternative for their achievement and the programmes with measures were summarized in NWMP 2014-2020, as follows:

Objective 1: To reduce the harmful impact of waste by waste prevention and promoting reuse.



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## National Waste Prevention Programme;

Objective 2: To increase the amount of recycled and recovered waste by creating conditions for developing a network of facilities for treatment of all waste generated, thus to reduce the risk to the population and environment

- ✓ Programme for achievement of objectives for preparation for re-use and recycling of municipal paper, metal, plastic and glass waste
- ✓ Programme for achieving the objectives and requirements for biodegradable waste including bio-waste
- ✓ Programme for achievement of objectives for recycling and recovery of construction and demolition waste
- ✓ Programme for achievement of recycling and recovery targets of wide spread waste /WSW/
- ✓ Programme for improvement of hierarchy of management of other waste streams and reducing environmental risk from municipal waste landfills

## Objective 3: Waste Management ensuring a clean and safe environment

- ✓ Programme for improvement of institutional capacity on waste management
- ✓ Programme for improvement the information quality in order to support informed management decisions making

## Objective 4: Making the public a key factor in applying the hierarchy of waste management

- ✓ Programme for improvement the awareness and participation of population and business in waste management activities

NWMP and NWPP as an integral part of it are developed for period 2014-2020. The plan deadline coincides with the period of programming and use of EU structural and investment funds for the period 2014-2020 and the deadline of the "Europe 2020: National Reform Programme". The period meets the requirements of the Waste Management Act, under which NWMP should be prepared for at least 6 years.

### *Waste streams within the NWMP*

NWMP includes waste that is within the scope of the WFD, respectively WMA:

- ✓ municipal waste
- ✓ industrial waste
- ✓ construction waste



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✓ hazardous waste

Wastes streams that are outside the scope of NWMP, respectively WFD and WMA, are presented in Annex No. 1 to the Plan.

**National Waste Prevention Programme** : The National Waste Management Programme (NWPP) is an important part of NWMP of Bulgaria, especially in relation to plastics in the marine environment. Decoupling economic growth from the increasing use of resources, resulting in a negative impact on man and nature, is a major goal in the field of environmental policy. This guiding principle of sustainable development is not only a guide for governmental actions, but also is a measure of the decisions of the economy and society. According to Art. 29 point 1 of the WFD each EU Member State should develop a waste prevention programmes. Provided objectives and measures should lead to decouple economic growth and environmental impact associated with waste generation (Article 29, point 2 of WFD and art. 50 of WMA). Waste prevention measures should be understood as any measure that is taken before a substance, material or product becomes waste and which contributes to reduce the amount of waste and its harmful effects on humans and nature or content of harmful substances in the waste. According to the WFD (Article 3, point 1) and according to Bulgarian Waste Management Act (§ 1, point 17 additional provisions), "Waste means any substance or object which the holder discards or intends or is required to discard".

It is particularly important to emphasize that waste prevention has the highest priority in the waste management hierarchy. The biggest environmental load from the manufacture of a product and that is precisely why these loads are reduced by waste prevention measures. Moreover, in this way also reduces the adverse effects due to incineration, transportation and storage. Ultimately waste prevention means not arise waste, not to produce products which must be recycled or disposed. Different options for waste treatment are always associated with difficulties and stresses for environment. The waste does not disappear just like that, but by landfilling and incineration, recycling even by just changing a substance. For example, incineration, even by the most modern technologies brings emissions and /or residues that need to be stored. Any disposal interference in nature, while not at 100% excludes harmful environmental impacts. In the best case, waste is recovered, but even in this case, there are loads due to the use of energy and water. Therefore, the most adequate response to the problems of waste includes steps ahead of waste, namely, the waste prevention.

According to Art. 29 point 1 of the WFD each EU Member State should develop a waste prevention programmes. Provided objectives and measures should lead to decouple economic growth and environmental impact associated with waste generation (Article 29, point 2 of WFD and art. 50 of WMA).

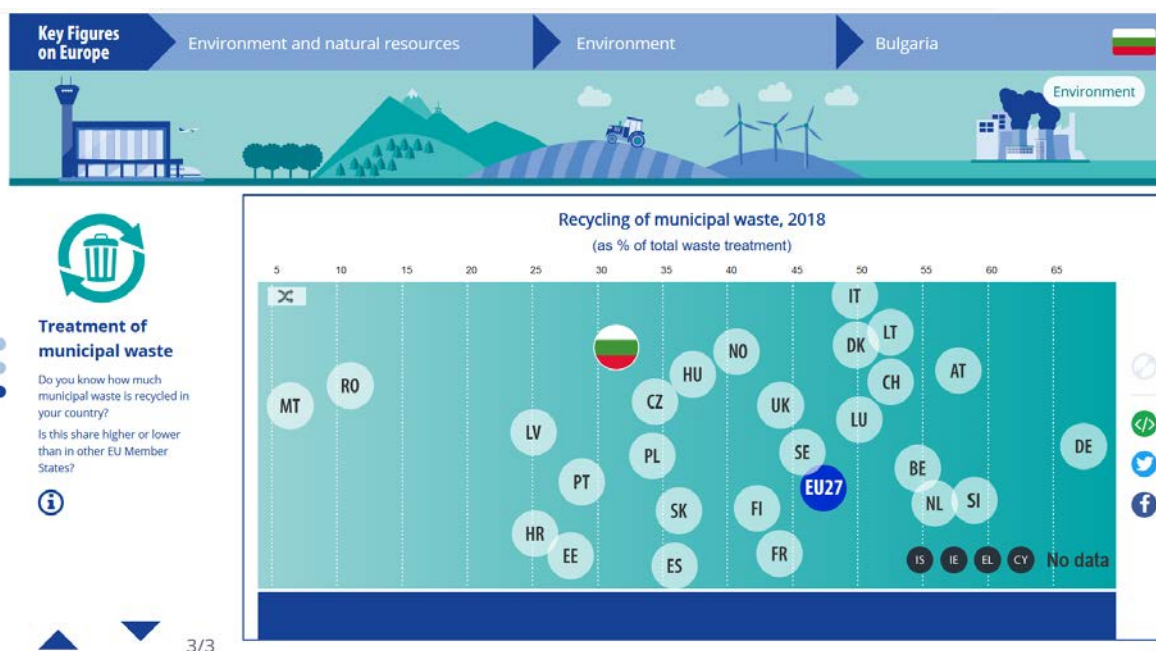




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**National Waste Management Plan (NWMP) correlations:** The National Waste Management Plan (NWMP) is part of the overall national planning system, which is why it represents the relationship between the National Waste Management Plan (NWMP) and other national programming documents. In developing the objectives of the National Waste Management Plan (NWMP), it has considered the analyses and forecasts of nine national plans from which directly or indirectly the measures set out in it are arising. In turn, the performance of the National Waste Management Plan (NWMP) will contribute, to a lesser or greater extent, to achieve the objectives of the national planning documents referred to below in this section.



*Recycling of municipal waste, 2018 Bulgaria 31.5%, EU average 47.4 % Source: Eurostat*

#### 2.4.1.14. National Development Programme: Bulgaria 2020

The National Development Programme: Bulgaria 2020 is the main strategic and programming documents, which specifies the objectives of development policies of the country until 2020 and is the basis for the programming of strategic documents related to the implementation of national policies. The document helps to optimize the programming Bulgaria 2020, by linking the national priorities of the Republic of Bulgaria to the EU objectives in the context of the Europe 2020 Strategy. The programme identifies eight national priorities, the third of which is: "Achieving

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sustainable integrated regional development and use of local potential". Its main sub-priority is "Creating conditions for protecting and improving the environment in the regions, to adapt to climate changes and for achieving sustainable and efficient use of natural resources."

It is provisioned that the objectives under this sub-priority be achieved by fulfilling a number of actions, including actions to improve the efficient use of resources by preventing waste, optimizing waste collection and implementing advanced technologies for separate collection of biodegradable waste composting, recycling and environmentally sound disposal. are specific targets for the recycling of at least 50% of municipal waste, 70% of construction waste, as well as the reduction and recycling of municipal and construction waste and reduced biodegradable municipal waste to 35% in 2020 compared to the level of 1995.

The expected outcomes of the implementation of measures are: growth of recovered and recycled waste, increased share of population served by systems for separate collection and transportation of waste; growth of composted biodegradable waste; growth of recovered and recycled and waste.

The National Waste Management Plan (NWMP) 2014-2020 is bound to another priority of the National Development Programme: Bulgaria 2020 - namely Priority 7 "Energy security and increasing resource efficiency", sub-priority 7.5. "Increasing the efficiency of resource use" areas of impact "Introduction of low-carbon, energy efficient and waste-free technologies" and "Recovery and recycling of large amounts of waste".

The implementation of programmed measures under the National Waste Management Plan (NWMP) derives from and contributes directly to the objectives and priorities of the National Development Programme: Bulgaria 2020, and in particular for achieving sustainable integrated regional development and use of local potential.

The Regulations on port reception facilities, part of the Maritime Spaces, Internal Waterways and Ports of the Republic of Bulgaria Act is described in the section of International Regulations in relation to EU Directives enforcement and MARPOL relations.



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## 2.4.2. Regional and International Legal Instruments Associated with Marine Litter

### 2.4.2.1. Bucharest Convention (Convention for protection of Black Sea against pollution).

The Convention on the Protection of the Black Sea against Pollution (also known as the Bucharest Convention) was signed in 1992 and ratified in 1994 by the six Black Sea coastal countries (Bulgaria, Georgia, Romania, the Russian Federation, Turkey, and Ukraine). The appointed Commission on the Protection of the Black Sea against Pollution adopted in 2009 a Protocol on the Protection of the Marine Environment of the Black Sea from Land-Based Sources and Activities, whose aim is to prevent, control and to the maximum extent possible eliminate pollution from land-based sources and activities, including marine litter.

The Bucharest Convention includes a basic framework of agreement with five resolutions and four specific Protocols on the control of land-based sources of pollution; dumping of waste; joint action in the case of accidents (such as oil spills) and Black Sea biodiversity and landscape conservation.

- Protocol on the Protection of the Black Sea Marine Environment Against Pollution from Land-based Sources (Land-Based Sources Protocol)
- Protocol on Cooperation in combating pollution of the Black Sea Marine Environment by Oil and Other Harmful Substances in Emergency Situations (Emergency Response Protocol)
- Protocol on The Protection of The Black Sea Marine Environment Against Pollution by Dumping (Dumping Protocol)
- The Protocols were adopted on 21 April 1992 on Diplomatic Conference on the Protection of the Black Sea Against Pollution in Bucharest. They entered into force on 15 January 1994.
- The revised Protocol on Protection of the Black Sea Marine Environment Against Pollution from Land Based Sources and Activities was adopted on 17 Apr 2009 on Ministerial Meeting/ Diplomatic Conference in Sofia. It has not yet entered into force.
- Black Sea Biodiversity and Landscape Conservation Protocol to the Convention on the Protection of the Black Sea Against Pollution was adopted on 14 June 2002 on Ministerial Meeting in Sofia. It has not yet entered into force. It is ratified by Ukraine and Turkey.



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Despite difficulties, the process of extensive evaluation of the Black Sea environment, planning and projects have resulted in development of several marine litter related instruments:

- Protocol on the Protection of the Marine Environment of the Black Sea from Land-Based Sources and Activities (2009) [http://www.blacksea-commission.org/\\_convention-protocols.asp](http://www.blacksea-commission.org/_convention-protocols.asp)
- Protocol on Cooperation in Combating Pollution of the Black Sea Marine Environment by Oil and Other Harmful Substances in Emergency Situations [http://www.blacksea-commission.org/\\_convention-protocols.asp](http://www.blacksea-commission.org/_convention-protocols.asp)
- Protocol on the Protection of the Black Sea Marine Environment against Pollution by Dumping [http://www.blacksea-commission.org/\\_convention-protocols.asp](http://www.blacksea-commission.org/_convention-protocols.asp)
- Black Sea Biodiversity and Landscape Conservation Protocol to the Convention on the Protection of the Black Sea Against Pollution of 2002 [http://www.blacksea-commission.org/\\_table-legal-docs.asp](http://www.blacksea-commission.org/_table-legal-docs.asp)
- Strategic Action Plan for the Environmental Protection and Rehabilitation of the Black Sea 2009 with provisions relating to marine litter [http://www.blacksea-commission.org/\\_bssap2009.asp](http://www.blacksea-commission.org/_bssap2009.asp)
- Contingency Plan to the Protocol on Cooperation in Combating Pollution of the Black Sea by Oil and Other Harmful Substances 2009 [http://www.blacksea-commission.org/\\_table-legal-docs.asp](http://www.blacksea-commission.org/_table-legal-docs.asp)
- Investigations on the State of the Marine Environment and Improving Monitoring Programs developed under MSFD

In addition to this, the **Strategic Action Plan for the Environmental Protection and Rehabilitation of the Black Sea**, which was adopted in 2009, includes several management targets related to marine litter:

- Minimise ghost fishing caused by discarded, abandoned or lost fixed and floating nets, including those used in illegal/unregulated fishing activities.
- Amend national waste strategies and/or national coastal zone management plans with the aim of coastal and marine litter minimisation.
- Develop regional and national marine litter monitoring and assessment methodologies on the basis of common research approaches, evaluation criteria and reporting requirements.



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- Promote/develop investment projects within national strategies/local plans to engineer, construct and install new solid waste recycling facilities, landfill sites and incineration plants, complying with BAT regulations.
- Provide adequate port reception facilities for ship-generated wastes according to MARPOL 73/78, Annex I, IV, V.
- Establish a harmonised fee/cost recovery system on ship-generated waste.

Here are some more relevant details about the plan.

Strategic Action Plan for the Environmental Protection and Rehabilitation of the Black Sea 2009. The Strategic Action Plan for the Environmental Protection and Rehabilitation of the Black Sea 2009 provides a brief overview of the status of the Black Sea, based largely on information contained within the 2007 Black Sea Transboundary Diagnostic Analysis (BS TDA), and considering progress with achieving the aims of the original (1996) Black Sea Strategic Action Plan (BS SAP). The SAP 2009 builds upon BS SAP signed in 1996 (updated in 2002), by reorganizing the priorities and actions therein considering the progress in the region and the state of the environment. The updated (2009) version of the BS SAP describes the policy actions required to meet the major environmental challenges now facing the Black Sea: eutrophication/nutrient enrichment; changes in marine living resources; chemical pollution (including oil); and biodiversity/habitat changes, including alien species introduction, and includes a series of management targets. Marine litter however is not part of the challenges.

The TDA 2007 reconfirmed four priority transboundary environmental problems, requiring coordinated efforts by all Black Sea coastal States. It was determined that these areas of concern, and their causes, could be most effectively and appropriately addressed through the aims of four Ecosystem Quality Objectives (EcoQOs). The four EcoQOs and associated Sub EcoQOs are:

EcoQO 1: Preserve commercial marine living resources.

EcoQO 1a: Sustainable use of commercial fish stocks and other marine living resources.

EcoQO 1b: Restore/rehabilitate stocks of commercial marine living resources.

EcoQO 2: Conservation of Black Sea Biodiversity and Habitats.

EcoQO 2a: Reduce the risk of extinction of threatened species.

EcoQO 2b: Conserve coastal and marine habitats and landscapes.

EcoQO 2c: Reduce and manage human mediated species introductions

EcoQO 3: Reduce eutrophication.

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EcoQO 4: Ensure Good Water Quality for Human Health, Recreational Use and Aquatic Biota.

EcoQO 4a: Reduce pollutants originating from land based sources, including atmospheric emissions.

EcoQO 4b: Reduce pollutants originating from shipping activities and offshore installations

Each EcoQO is assigned a number of management targets that address the immediate, underlying and root causes of the concern areas. For regional level interventions, the Black Sea coastal States and the international partners shall work collectively to take the required steps to fulfill those interventions. National level supporting interventions will be the responsibility of individual states.

In 2005, the Regional Activity on Marine Litter, supported by UNEP, was launched. During the following 3 years the two relevant Memorandums of Understanding (MoUs) between the Black Sea Commission (BSC) Permanent Secretariat and UNEP (Nairobi) were implemented. In 2007 the Report on Marine Litter in the Black Sea (incl. the text of the Draft Marine Litter Action Plan for the Black Sea) was adopted. It included recommendation for updating the BS SAP, on methodologies, monitoring and assessment, increased public awareness on marine litter in the Black Sea. A number of EU funded projects such as MARLISCO, CLEANSEA, MSFD Project, PERSEUS, STAGES etc. and the Berlin Conference on Marine Litter created capacity to work on marine litter issues. In 2015 BSC joined the UNEP Partnership on Marine Litter.

During its 31st BSC Regular Meeting (7-8th October 2015) the Commission welcomed the cooperation with UNEP and, in particular, implementation of marine litter related activities under the BSC PS - UNEP MoU. The Commission took note of the proposal of Bulgaria on the draft Regional Action Plan on Marine Litter Management in the Black Sea and to asked ESAS/LBS/PMA AGs to consider it and to follow the issue. At 34th BSC Regular Meeting (25-26th October 2018) the Regional Action Plan on Marine Litter in the Black Sea was adopted by BSC and tasked to further elaborate on Marine Litter Monitoring Guidelines. They will be further revised against concrete actions, considering experience of other Regional Sea Conventions (RSCs) and relevant projects and organizations.

#### **2.4.2.2. UNCLOS (United Nations Convention On The Law Of The Sea).**

The United Nations Convention on the Law of the Sea (UNCLOS), also called the Law of the Sea Convention or the Law of the Sea treaty, is an international agreement that resulted from the third United Nations Conference on the Law of the Sea (UNCLOS III),





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which took place between 1973 and 1982. The Law of the Sea Convention defines the rights and responsibilities of nations with respect to their use of the world's oceans, establishing guidelines for businesses, the environment, and the management of marine natural resources. The Convention, concluded in 1982, replaced the quad-treaty 1958 Convention on the High Seas. UNCLOS came into force in 1994, a year after Guyana became the 60th nation to ratify the treaty.[1] As of June 2016, 167 countries and the European Union have joined in the Convention. It is uncertain as to what extent the Convention codifies customary international law.

#### **2.4.2.3.Strategic Action Plan For The Environmental Protection And Rehabilitation Of The Black Sea (2009)**

#### **2.4.2.4.The Strategic Action Plan (1996) For The Rehabilitation And Protection Of The Black Sea (BS SAP)**

The plan has been one of the fundamental elements of the regional cooperation in the Black Sea which was first settled in 1992 by the Convention on the Protection of the Black Sea Against Pollution. The Plan was based on the findings of the first Transboundary Diagnostic Analysis (TDA) of the Black Sea (1996) and developed with certain principles to include specific policy actions to combat with the identified threats and problems. This document represents an agreement between the six Black Sea Coastal states (Bulgaria, Georgia, Romania, the Russian Federation, Turkey and Ukraine) to act in concert to assist in the continued recovery of the Black Sea.

#### **2.4.2.5. BWM Convention (International Convention For The Management Of Ship's Ballast Water And Sediments).**

The Ballast Water Management Convention, adopted in 2004, aims to prevent the spread of harmful aquatic organisms from one region to another, by establishing standards and procedures for the management and control of ships' ballast water and sediments. Under the Convention, all ships in international traffic are required to manage their ballast water and sediments to a certain standard, according to a ship-specific ballast water management plan. All ships will also have to carry a ballast water record book and an international ballast water management certificate. The ballast water management standards will be phased in over a period of time. As an intermediate solution, ships should exchange ballast water mid-ocean. However, eventually most ships will need to install an on-board ballast water treatment system.

A number of guidelines have been developed to facilitate the implementation of the Convention.





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The Convention will require all ships to implement a Ballast Water and Sediments Management Plan. All ships will have to carry a Ballast Water Record Book and will be required to carry out ballast water management procedures to a given standard. Existing ships will be required to do the same, but after a phase-in period.

Parties to the Convention are given the option to take additional measures which are subject to criteria set out in the Convention and to IMO guidelines.

The Convention is divided into Articles; and an Annex which includes technical standards and requirements in the Regulations for the control and management of ships' ballast water and sediments.

#### **2.4.2.6. MARPOL 73/78 and Annexes.**

The International Convention for the Prevention of Pollution from Ships (MARPOL) is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The MARPOL Convention was adopted on 2 November 1973 at IMO. The Protocol of 1978 was adopted in response to a spate of tanker accidents in 1976-1977. As the 1973 MARPOL Convention had not yet entered into force, the 1978 MARPOL Protocol absorbed the parent Convention. The combined instrument entered into force on 2 October 1983. In 1997, a Protocol was adopted to amend the Convention and a new Annex VI was added which entered into force on 19 May 2005. MARPOL has been updated by amendments through the years. The Convention includes regulations aimed at preventing and minimizing pollution from ships - both accidental pollution and that from routine operations - and currently includes six technical Annexes. Special Areas with strict controls on operational discharges are included in most Annexes.

#### **2.4.2.7. Convention On Biological Biodiversity.**

The objectives of this Convention, to be pursued in accordance with its relevant provisions, are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.



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#### **2.4.2.8. Accobams (Agreement On The Conservation Of Cetaceans In The Black Sea, Mediterranean Sea And Contiguous Atlantic Area).**

The Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic area (ACCOBAMS) is a legal conservation tool based on cooperation. Its purpose is to reduce threats to cetaceans notably by improving current knowledge on these animals. This intergovernmental Agreement provides the demonstration of the commitment of riparian Countries to preserve all species of cetaceans and their habitats within the geographical Agreement area by the enforcement of more stringent measures than those defined in the texts adopted previously. ACCOBAMS results from consultations between Secretariats of four Conventions:

- the Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean,
- the Bonn Convention on the Conservation of Migratory Species of Wild Animals,
- the Bern Convention on the Conservation of European Wildlife and Natural Habitats,
- the Bucharest Convention on the Protection of the Black Sea Against Pollution.

The Agreement Area consists of all the maritime waters of the Black Sea, the Mediterranean and the contiguous Atlantic area West of the Straits of Gibraltar. The Area includes the Pelagos Sanctuary dedicated to marine mammals in the North-West Mediterranean and established by France, Italy and Monaco. ACCOBAMS is the first Agreement binding the Countries of these sub-regions to work together for cetacean conservation. One innovative aspect of this Agreement is to include non-riparian countries whose maritime activities are likely to jeopardize cetacean conservation.

In 2010, Parties to ACCOBAMS adopted a Resolution to extend the geographical scope of the Agreement Area to the Exclusive Economical Zones of Spain and Portugal.

In 2018, the Agreement has 24 Parties: Albania, Algeria, Bulgaria, Croatia, Cyprus, Egypt, France, Georgia, Greece, Italy, Lebanon, Libya, Malta, Monaco, Montenegro, Morocco, Portugal, Romania, Slovenia, Spain, Syria, Tunisia, Turkey and Ukraine.



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#### **2.4.2.9. EU Initiative Blue Growth.**

Blue growth is the long term strategy to support sustainable growth in the marine and maritime sectors as a whole. Seas and oceans are drivers for the European economy and have great potential for innovation and growth. It is the maritime contribution to achieving the goals of the Europe 2020 strategy for smart, sustainable and inclusive growth.

#### **2.4.2.10. MSFD (The Marine Strategy Framework Directive).**

The aim of the European Union's ambitious Marine Strategy Framework Directive is to protect more effectively the marine environment across Europe. The Commission also produced a set of detailed criteria and methodological standards to help Member States implement the Marine Strategy Framework Directive. These were revised in 2017 leading to the new Commission Decision on Good Environmental Status. Annex III of the Directive was also amended in 2017 to better link ecosystem components, anthropogenic pressures and impacts on the marine environment with the MSFD's 11 descriptors and with the new Decision on Good Environmental Status.

#### **2.4.2.11. WFD (Water Framework Directive, WFD 2000/60/EC).**

Citizens, environmental organisations, nature, water-using sectors in the economy all need cleaner rivers and lakes, groundwater and bathing waters. Water protection is therefore one of the priorities of the Commission. European Water Policy should get polluted waters clean again, and ensure clean waters are kept clean. The following will provide an overview on development, present state and future of European Water Policy.

In 1988 the Frankfurt ministerial seminar on water reviewed the existing legislation and identified a number of improvements that could be made and gaps that could be filled. This resulted in the second phase of water legislation, the first results of this were, in 1991, the adoption of the Urban Waste Water Treatment Directive, providing for secondary (biological) waste water treatment, and even more stringent treatment where necessary.

The Nitrates Directive, addressing water pollution by nitrates from agriculture.

Other legislative results of these developments were Commission proposals for action on a new Drinking Water Directive, reviewing the quality standards and, where



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necessary, tightening them (adopted November 1998), a Directive for Integrated Pollution and Prevention Control (IPPC), adopted in 1996, addressing pollution from large industrial installations, later transformed into the Industrial Emissions Directive. Getting Europe's waters cleaner by managing water on a river basin scale: the new European water policy. Pressure for a fundamental rethink of Community water policy came to a head in mid-1995: The Commission, which had already been considering the need for a more global approach to water policy, accepted requests from the European Parliament's Environment Committee and from the Council of Environment Ministers and the outcome of a broad process of consultation. Concretely, the Commission concluded that, while considerable progress had been made in tackling individual issues, the water policy was fragmented, in terms both of objectives and of means. All parties agreed on the need for a single piece of framework legislation to resolve these problems. In response to this, the Commission presented a Proposal for a Water Framework Directive with the following key aims:

expanding the scope of water protection to all waters, surface waters and groundwater achieving "good status" for all waters by a set deadline

water management based on river basins

"combined approach" of emission limit values and quality standards getting the prices right

getting the citizen involved more closely streamlining legislation

#### 2.4.2.12. Waste Framework Directive 2008/9/EC

Directive 2008/98/EC sets the basic concepts and definitions related to waste management, such as definitions of waste, recycling, recovery. It explains when waste ceases to be waste and becomes a secondary raw material (so called end-of-waste criteria), and how to distinguish between waste and by-products. The Directive lays down some basic waste management principles: it requires that waste be managed without endangering human health and harming the environment, and in particular without risk to water, air, soil, plants or animals, without causing a nuisance through noise or odours, and without adversely affecting the countryside or places of special interest. The Directive introduces the "polluter pays principle" and the "extended producer responsibility". It incorporates provisions on hazardous waste and waste oils (old Directives on hazardous waste and waste oils being repealed with the effect from



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12 December 2010), and includes two new recycling and recovery targets to be achieved by 2020: 50% preparing for re-use and recycling of certain waste materials from households and other origins similar to households, and 70% preparing for re-use, recycling and other recovery of construction and demolition waste. The Directive requires that Member States adopt waste management plans and waste prevention programmes.

#### **2.4.2.13. Urban Waste Water Directive 91/27/EEC.**

Council Directive 91/271/EEC concerning urban waste water treatment was adopted on 21 May 1991 to protect the water environment from the adverse effects of discharges of urban waste water and from certain industrial discharges. On 27 February 1998 the Commission issued Directive 98/15/EC amending Directive 91/271/EEC to clarify the requirements of the Directive in relation to discharges from urban waste water treatment plants to sensitive areas which are subject to eutrophication. Commission Decision 2014/413/EU was adopted on 26 June 2014 and replaces the Commission Decision 93/481/EEC on 28 July 1993. It defines the information that Member States should provide the Commission when reporting on the state of implementation of the Directive according to Article 17, and specifies the format in which the information should be provided. This Decision was adopted in accordance with Article 18 of the Directive.

#### **2.4.2.14. Bathing Directive 2006 /7/ EC.**

The "new" Bathing Water Directive 2006/7/EC replaced the former Directive 76/160/EC. It applies to surface waters that can be used for bathing except for swimming pools and spa pools, confined waters subject to treatment or used for therapeutic purposes and confined waters artificially separated from surface water and groundwater. The new Directive is intended to be based on scientific knowledge on protecting health and the environment, as well as environmental management experience, provide better and earlier information of citizens about quality of their bathing waters, including logos, move from simple sampling and monitoring of bathing waters to bathing quality management, and be integrated into all other EU measures protecting the quality of all our waters (rivers, lakes, ground waters and coastal waters) through the Water Framework Directive.



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#### **2.4.2.15. Common Fishery Policy (CFP) (Commission Implementing Regulation (EU) 2015/1962 of 28 October 2015 amending Implementing Regulation (EC) No 1224/2009 of 20.11.2009.**

CFP establishing a Community control system for ensuring compliance with the rules of the common fisheries policy; Regulation (EU) 1380/2013 of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC and its related legislations amending Regulation (EC) No 26/2004 on the Community fishing fleet register)

- Directive (2014/89/EU) of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning . The directive sets down EU countries' common approach to the planning of maritime areas. This allows each EU country to plan its own maritime activities but this planning process - whether at national, regional or local level - is now more compatible EU-wide thanks to the introduction of a common timeframe and minimum common requirements. The new framework seeks to promote the sustainable: growth of maritime economies, known as the EU's Blue Economy; development of marine areas; use of marine resources.

#### **2.3.2.16. The European Strategy For Plastics In A Circular Economy**

It adopted on January 2018 will transform the way plastic products are designed, used, produced and recycled in the EU. Better design of plastic products, higher plastic waste recycling rates and more and better quality recycles will help boosting the market for recycled plastics. It will deliver greater added value for a more competitive, resilient plastics industry. By 2030, all plastics packaging should be recyclable (MARLITER SOD, 2019).

Bulgarian legislation addresses successfully various issues related to sea-based and land-based sources of solid waste pollution. Bulgaria is party to all international conventions relevant to marine based activities protecting the marine environment, shipping and ports such as the UNCLOS, the London Convention (1972) and Protocol (2006) and most significantly the International convention for the prevention of pollution from ships (MARPOL) (Convention 1973; Protocol 1978) , which provides for comprehensive measures to prevent and minimize accidental and operational discharges of waste from shipping. Its Annex V addressing garbage from ships (1988),



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has consistently introduced improvements and measures and has now imposed a complete ban on the disposal of all forms of plastics into the sea. Improvement in basic international tools leads to harmonization of the EU legislation with them. More detailed survey of international regulations will be provided in the next chapter.

Improvement in EU legislation reveals a further tendency seeking to address the marine pollution issue. Directive (EU) 2019/883 of 17 April 2019 on port reception facilities for the delivery of waste from ships, amending Directive 2010/65/EU and repealing Directive 2000/59/EC, reveals a tendency to improve the functioning of ship waste collection in ports and further reduce discharges at sea.

The Directive (EU) 2019/904 of 5 June 2019 on the reduction of the impact of certain plastic products on the environment, a recent development, address the issue of marine litter from plastics. It would introduce a series of measures regarding the top 10 single-use plastics found on the European beaches, as well as fishing gear, with a view of reducing their impact on the environment and ensuring a functional internal market.

Bulgaria, in terms of regional seas engagements, is also a signatory of the Convention on the Protection of the Black Sea against Pollution (Bucharest Convention) and protocols, the only legally binding instrument for the Black Sea basin. The Convention does not include environmental management principles and targets, so the parties employ additional tools and instruments for abating marine pollution.

The most significant tool for marine litter in the Black Sea is the Black Sea Integrated Monitoring and Assessment Programme (BSIMAP) for the years 2017-2022. Development and implementation of the BSIMAP is stipulated in Article XV of the Bucharest Convention and its Protocols. BSIMAP is based on national monitoring programs, financed by the Black Sea states. Marine litter Guidelines for the Black Sea are developed under this programme. In addition, Bulgaria is also party to the Convention on co-operation for the protection and sustainable use of the Danube River (1994). The International Commission for the Protection of the Danube River (ICPDR), its operational management structure, supports work for the reduction of plastic waste in the large river basin, which ultimately has an impact on the state of the Black Sea ecosystem.

The existing legal framework relevant to Bulgaria can be divided into international - of multilateral and regional nature, arising from international law and the European Union law and national, comprising the set of Bulgarian legal norms relevant to the protection of the marine environment, including prevention of pollution with solid





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waste from offshore and land-based sources and activities. The main components and hierarchy of the legal framework are as follows:

- International multilateral agreements
- International regional agreements
- International bilateral agreements
- Acts of the European Union law
- National regulations
  - Legal acts
  - By-laws
  - Local regulations
  - General and individual administrative acts

The key conventions in the field of international law relating to marine litter are:

- United Nations Convention on the Law of the Sea (UNCLOS), 1982
- International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto and by the Protocol of 1997 (MARPOL)
- Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 (London Convention), as amended and
- 1996 London Protocol to the 1972 London convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter
- The Convention on Persistent Organic Pollutants (POPs) Stockholm, 2001

All of them have been adopted and ratified by Bulgaria and published in the Bulgarian State Gazette, a process which started earlier and was completed in the period of pre-accession to the EU.

Other international acts relating to the protection of the marine environment from different sources of pollution are:

- Convention on the International Maritime Organization (IMO), 1958
- Convention on the Continental Shelf, 1958
- Convention on the Territorial Sea and the Contiguous Zone, 1958
- Convention on the High Seas, 1958
- Convention on the Protection and Use of Transboundary Watercourses and International Lakes, 1992 (UNECE Water Convention)
- Convention on Facilitation of International Maritime Traffic (FAL), 1965
- Convention on the International Regulations for Preventing Collisions at Sea (COLREG) 1972



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- International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004
- The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009
- •Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention), 1991
- Convention on Biological Diversity (Rio Convention), 1992
- Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), 1979
- Convention for the Conservation of Wild European Flora and Fauna and Natural Habitats (Bern Convention), 1979
- Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention), 1998

### The basic instruments

The general framework set by the United Nations Convention on the Law of the Sea (UNCLOS), 1982, for protecting the marine environment is observed by Bulgaria which is party to the Convention. Bulgaria is actually dually represented: through the European Union and as sovereign state.

The International Convention for the Prevention of Pollution from Ships, MARPOL, and especially Annex V, dedicated to the prevention of pollution by garbage from ships is also implemented by Bulgaria.

As at 22/10/2019	IMO Convention 48	SOLAS Convention 74	SOLAS Protocol 78	SOLAS Protocol 88	SOLAS Agreement 96	STCW Convention 78	STCW-F Convention 95	SAR Convention 79	FACILITATION Convention 65	MARPOL 73/78 (Annex I/II)	MARPOL 73/78 (Annex III)	MARPOL 73/78 (Annex IV)	MARPOL 73/78 (Annex V)	MARPOL Protocol 97 (Annex VI)	London Convention 72	London Convention Protocol 96
BG	X	X	X	X		X		X	X	X	X	X	X	X	X	X



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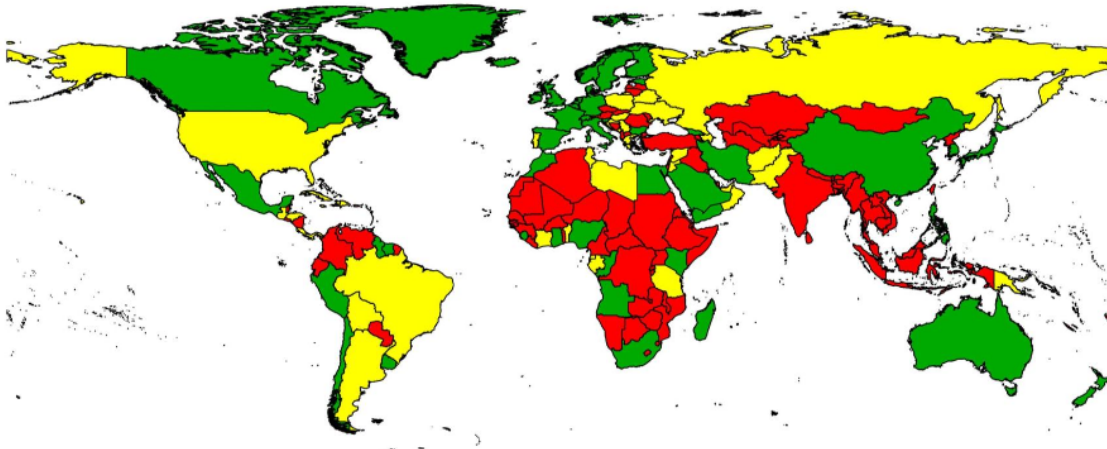


GE	X	X		X		X		X	X	X	X	X	X			X
RO	X	X	X	X		X	X	X	X	X	X	X	X	X		
RU	X	X	X	X		X	X	X	X	X	X	X	X	X	X	
TR	X	X	X			X		X	X	X	X	X	X	X		
UA	X	X	X	X		X	X	X	X	X	X	X	X	X	X	

The picture of international engagements of the country related to diminishing sea-based pollution as embodied in the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention and Protocol).

Bulgaria is the only country in the basin which is party to both the London Convention, 1972, and the Protocol of 1996. The London Protocol, which introduced the “precautionary approach” and the “polluter pays principle” in effect prohibited all dumping, except for possibly acceptable wastes on the so-called “reverse list”.

### Map of Parties to the London Convention/Protocol



### Legend

Green: Protocol Parties  
Yellow: Convention Parties  
Red: Non-Parties

Status as of 22 February 2019

#### 2.4.2.17. Port Reception Facilities for Ship Waste - MARPOL and EU Directive

Marine litter and pollution put the marine environment at risk. While a great proportion of marine litter originates from land-based sources, limiting waste discharges from ships also plays an essential role in efforts to preserve marine and coastal ecosystems. Based on international law, EU legislation requires vessels to bring the waste they generate on voyages to waste-reception facilities in port, and obliges EU ports to provide such facilities to ships using the port.

Despite these developments, discharges at sea continue. In January 2018, the European Commission put forward a new legislative proposal seeking to improve the collection of ship waste while ensuring efficient maritime transport operations in ports. Interinstitutional negotiations concluded on 13 December 2018. The final text was adopted by the Parliament on 13 March 2019 and then by the Council on 29 March. The Directive was then signed on 17 April by the presidents of the two institutions and Member States have until 28 June 2021 to transpose it into national law.



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The improvement of port reception facilities for ship generated waste is the aim of Directive (EU) 2019/883, Directive of the European Parliament and of the Council on port reception facilities for the delivery of waste from ships, repealing Directive 2000/59/EC and amending Directive 2009/16/EC and Directive 2010/65/EU. It is an important EU directive addressing the problem of marine litter pollution from sea-based sources.

#### 2.4.2.18. Ship Generated Waste

Several types of waste are generated on board ships. These include oily waste, sewage and garbage (such as plastic, food waste, cooking oil, fishing nets) as well as residues of any cargo material left after unloading and cleaning operations. The type and quantity of waste produced depend on the type, size and speed of the ship, its motor and type of fuel used, the length of journey and the waste management practices applied on board. The international Convention for the Prevention of Pollution from Ships (MARPOL, see box), managed by the International Maritime Organization (IMO), introduced general prohibitions on discharges from ships at sea, and established conditions under which certain types of waste can be discharged.

MARPOL requires its contracting parties, among them all EU Member States, to provide port reception facilities for the waste from ships that is not allowed to be discharged into the sea. Facilities, such as storage tanks, collecting vehicles or vessels, must meet the needs of ships normally using the port, without causing them undue delay.

MARPOL set a comprehensive framework, but did not provide effective enforcement mechanisms. To ensure better enforcement, the EU incorporated MARPOL obligations into its law by Directive 2000/59/EC on port reception facilities for ship-generated waste and cargo residues (the 'PRF Directive'). While MARPOL focuses on operations at sea, the directive deals with operations in port.

#### 2.4.2.19. International convention for the prevention of pollution from ships (MARPOL) (Convention 1973; Protocol 1978)

MARPOL sets rules to prevent and minimise accidental and operational pollution from ships. It has six technical annexes:



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Annex I – oil and oily water (in force since 1983), later amendments introduced double hulls for oil tankers.

Annex II – noxious liquid substances in bulk (1983). No discharge of residues containing the 250 listed noxious substances is allowed within **12 miles of the nearest land**.

Annex III – harmful substances carried by sea in packaged form (1992). Standards on packing, marking, labelling, documentation, stowage, quantity limitations, exceptions and notifications of harmful substances.

Annex IV – sewage from ships (2003). Prohibits discharge of sewage. Exceptions: 1. the ship operates an approved sewage treatment plant; 2. the ship discharges comminuted and disinfected sewage, more than three nautical miles from the nearest land; 3. the ship discharges sewage which is not comminuted and disinfected, more than 12 nautical miles from the nearest land.

Annex V – garbage from ships (1988), with a complete ban on the disposal of all forms of plastics into the sea.

Annex VI – air pollution from ships (2005). Limits SO<sub>x</sub> and NO<sub>x</sub> emissions in ship exhaust gas, bans deliberate releases of ozone-depleting substances and designates emission control areas with stricter standards for SO<sub>x</sub>, NO<sub>x</sub> and particulate matter.

#### 2.4.2.20. Port reception facilities for ship waste Directive (EU) 2019/883

The directive proposal was developed under the Regulatory Fitness Programme (REFIT), devised to simplify and clarify existing EU legislation. It is included in the Commission Work Programme 2016 and part of the EU strategy for plastics in a circular economy and linked to the legislative proposal on reducing marine litter. It repealed the PRF Directive, replacing it with the new directive, and further aligning the EU regime with MARPOL.

Important new requirements of Directive (EU) 2019/883:

- harmonise and update definitions and norms the directive would cover all waste from ships, including residues from exhaust gas cleaning systems and passively fished waste (collected in nets during fishing operations);



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- ensure availability of adequate port reception facilities by requiring separate collection of waste in ports and by consulting waste reception and handling plans with stakeholders;
- provide effective (cost) incentives for delivery of waste in ports by a cost recovery system based on a fixed indirect fee for garbage and passively fished waste, irrespective of quantities delivered. The fee could reflect the category, type and size of ship and the type of traffic. Other waste and cargo residues would be covered by a direct fee, based on the type and quantities delivered. Ships that can demonstrate sustainable on-board waste management would pay a reduced fee (the 'green ship' concept). Fees would have to be fair, transparent, non-discriminatory and clearly communicated to port users;
- enforce the mandatory delivery requirement a waste receipt issued upon waste delivery would have to be recorded electronically, except in small unmanned ports and remotely located ports. Exceptions from waste delivery - based on sufficient storage capacity - would be limited, and PRF inspections integrated into the port-state control regime. Ships in scheduled and regular traffic would be exempted from mandatory delivery;
- adapt rules for fishing vessels and recreational craft these would have to pay the indirect fee, but only vessels and craft of 45 metres and above would be subject to advance reporting and waste receipt recording.

The Commission would define how to calculate the sufficient storage capacity and specify the 'green ship' concept. The Directive 2019/883 would bring changes to Directive 2009/16/EC on port state control, concerning the inspections regime, and to Directive 2010/65/EU on reporting formalities for ships (under review), as regards the management of electronic advance waste notifications.

Operation of waste reception facilities being a service provided by a port to its users, the proposal builds on the Port Services Regulation, adding transparent cost structures and extending its scope to all EU ports (while the regulation applies only to the trans-European transport network ports). Compliance costs include investment in new facilities or upgrades of existing ones, running separate collection of waste, adjustments to the cost recovery systems as well as administrative costs related to enforcement and management of exemptions regimes. While these costs would mostly be borne by ports and competent authorities, the Commission expects them to be limited and counterbalanced by the positive environmental impact and reduced administrative burden.





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## Prospects for garbage fee improvement

Currently, most EU ports apply a single fee to cover the delivery of both oily and garbage waste, based on the ship size (in gross tonnes). Research has been conducted to determine to what extent other known factors affect waste generation, examining the relevance of the ship typology, age and average speed, the distance from the last and to the next port of call and the people on board. From a sample of about 5 000 ships, a survey has concluded that while the generation of oily waste most depends on the ship size, the main factor in the volume of garbage generated is the number of people on board. It may be useful to consider how to establish a differentiated fee for each type of waste.

As EU member Bulgaria is applying the European legislation related to protection of the marine environment. The Marine Strategy Framework Directive is of particular importance with regard to reduction of pollution from marine litter in the Bulgarian territorial waters and in the basin and is at the implementation stage of the national Programme of Measures, encompassing also marine litter. For this purpose, Bulgaria is taking part in a series of projects involving state authorities in capacity building and preparation of legislative measures for protecting the marine environment (e.g. MARLEN, MARLISCO etc.).

Bulgaria is party to all global conventions described above. It is also an active member of the Convention on the Protection of the Black Sea against Pollution (Bucharest Convention). The most significant tool for marine litter in the Black Sea is the draft Black Sea Integrated Monitoring and Assessment Programme (BSIMAP) for the years 2017-2022. Development and implementation of the BSIMAP is stipulated in Article XV of the Bucharest Convention and its Protocols. BSIMAP is based on national monitoring programs, financed by the Black Sea states. Marine litter Guidelines for the Black Sea are expected to be developed under this programme. In addition, Bulgaria is also party to the Convention on co-operation for the protection and sustainable use of the Danube river (1994). The International Commission for the Protection of the Danube River (ICPDR) supports work for the reduction of plastic waste in the large river basin, which ultimately has an impact on the state of the Black Sea ecosystem.

As an EU member state since 2007, Bulgaria has transposed all relevant legislation concerning marine litter. The MSFD and the Programme of Measures of the Marine Strategy of Bulgaria 2016-2021 have been covered under national regulations as they are associated with national programme of measures.



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#### 2.4.2.21. Black Sea Marine Litter Regional Action Plan 2018

The Black Sea Marine Litter Regional Action Plan (BS ML RAP) adopted in October 2018 is the first regional document focusing on marine litter. It includes definition of marine litter and basic guiding principles.

The overall objective of the BS ML RAP is to consolidate, harmonize and implement necessary environmental policies, strategies and measures for sustainable integrated management of marine litter issues in the Black Sea region.

The main objectives of the BS ML RAP are to:

- (a) Prevent and reduce to the minimum marine litter pollution in the Black Sea and its impact on ecosystem services, habitats, species, in particular the endangered species, public health and safety;
- (b) Remove to the extent possible already existent marine litter by using environmentally respectful methods;
- (c) Enhance knowledge on marine litter;
- (d) Achieve that the management of marine litter in the Black Sea is performed in accordance with accepted international standards and approaches as well as those of relevant regional organizations and as appropriate in harmony with programmes and measures applied in other seas;
- (e) Contribute to the full implementation of the Joint Work Plan on Marine Litter between UNEP/MAP and the BSC PS in order to achieve synergistic effects through coordinating activities; and
- (f) Contribute to the full implementation of the Memorandum of Understanding between the UNEP/MAP-Barcelona Convention and the BSC PS with the objective to consolidate and intensify their cooperation in order to achieve their common goals and objectives.

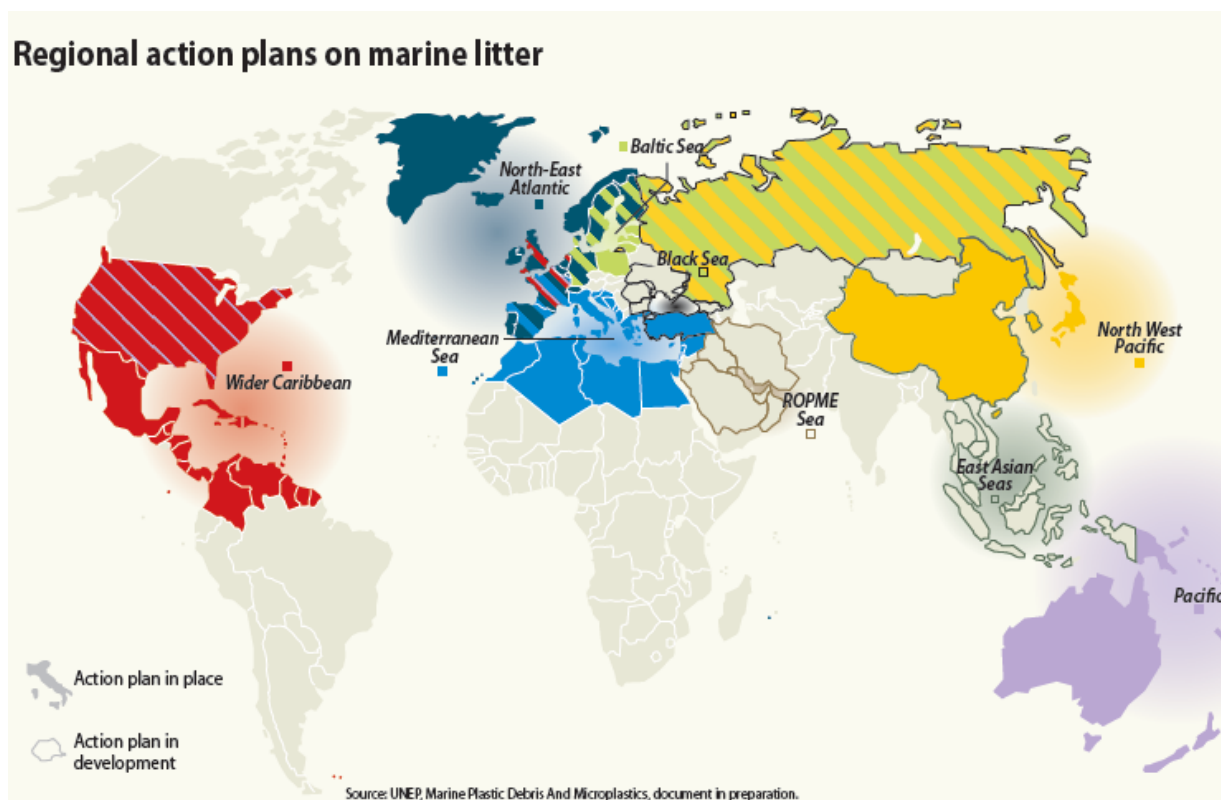
The BS ML RAP will be implemented as an integrated mechanism for the Black Sea cooperation in the field of management and abatement of marine litter pollution in order to achieve the BS ML RAP objectives and objectives set up in the Bucharest Convention and its Protocols.



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The Contracting Parties to the Bucharest Convention may incorporate the provisions of the BS ML RAP into their national marine strategies, plans and/or programmes for the protection and rehabilitation of the Black Sea and the sustainable use of marine and coastal resources paying due attention to national, sectoral and intersectoral interactions.



The Black Sea is now part of the ocean areas and seas with regional action plans on marine litter.

#### 2.4.2.22. The Circular Economy Package and the EU Plastics Strategy

Published by the European Commission in 2014, the Circular Economy Package is the main policy framework to adopt, update, and develop legislation to promote a circular economy within Europe. As such, waste management, particularly plastic waste, is at the core of the Package and of the related Circular Economy Action Plan, which presents the strategy that the Commission will take in order to boost the market for secondary raw materials, to improve waste management, and to make production and consumption processes more sustainable.

**Common borders. Common solutions.**



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As for marine litter, the Circular Economy Package confirms the target for reducing marine litter of 30% by 2020 for the ten most common types of litter found on beaches, as well as for fishing gear found at sea. To this purpose, the Commission declared the intention to adopt a strategy for plastics in the circular economy, which was adopted in 2018 with the aim of “transforming the way plastic products are designed, used, produced and recycled in the EU”.

The aim of the EU Plastics strategy is to protect the environment from plastic pollution while at the same time to foster growth and innovation. The Plastics Strategy set ambitious targets, whereby all plastic packaging on the EU market will be recyclable by 2030, the consumption of single-use plastics will be reduced and the intentional use of microplastics will be restricted.

The EU Plastics Strategy Annex I includes a list of future EU measures, while Annex II provides a list of measures recommended to national authorities and industry, both centred on: improving the economics and quality of plastics recycling; curbing plastic waste and littering; driving investment and innovation towards circular solutions; and harnessing global action.

#### 2.4.2.23. The Plastic Bags Directive

The aim of the Plastic Bags Directive (2015/720/EU) is to implement measures that will ensure that the annual per capita consumption of lightweight plastic bags will not exceed 90 bags by 31 December 2019 and 40 bags by 31 December 2025, and/or that lightweight carrier bags will not be provided free of charge at the point of sales of goods or products by 31 December 2018. These targets do not apply to very lightweight plastic bags.

#### 2.4.2.24. Other EU Waste legislation

Several other EU legal acts aim to foster waste prevention, reduction/reuse/recycle, and to regulate waste discharge and disposal activities. As such, they are indirectly relevant to the issue of marine litter, as they include provisions to avoid the generation of waste, or to establish structures and mechanisms to recycle waste, as well as to avoid waste disposal into the environment. Table 4 summarises the main EU waste-related legal acts, which are relevant for the issue of marine litter.



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List of the EU legal acts for waste management that are relevant for the issue of marine litter, and their objectives

EU legal act	Objective
Waste Framework Directive	<p>Measures for preventing and reducing adverse effects from the generation and management of waste, for reducing the overall impacts of resource use and improving resource efficiency.</p> <p>The Waste Framework Directive also includes targets for the reuse and recycling of waste to 2020:</p> <ul style="list-style-type: none"> <li>• Preparing a minimum of 50% by weight of household and similar wastes (at least paper, metal, plastic and glass) for reuse and recycling;</li> <li>• Preparing a minimum of 70% of construction and demolition waste for reuse, recycling and recovery.</li> </ul> <p>To help them achieve these targets, Member States are obliged to develop waste management plans and waste prevention programmes.</p>
Packaging and Packaging Waste Directive 94/62/EC	Harmonize national measures concerning management of packaging and packaging waste to prevent or reduce its impact on the environment
Port Reception Facilities Directive	Reduce the discharges, especially illegal discharges, of ship-generated waste and cargo residues into the sea by improving the availability and use of port reception facilities in EU Member State ports
Landfill Directive	In addition to defining technical requirements for landfill design and operation, the Landfill Directive also includes targets regarding the amount of waste that can be landfilled, eventually ensuring that landfilled waste would not exceed 35% of the total amount of biodegradable waste produced in 1995.
Waste from Electric and Electronic Equipment (WEEE)	Requirements for the provision of separate collection systems for WEEE from private households, and targets for minimum collection rates.
Battery Directive	Protect the environment by minimizing the negative impacts of batteries and waste batteries by prohibiting the



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	marketing of batteries containing certain hazardous substances, defining measures to establish high level collection and recycling schemes, and fixes targets for collection and recycling activities.
End-of-life Vehicles (ELV) Directive	Setting of targets for reuse, recycling and recovery of ELVs and their components, pushes producers to manufacture vehicles without hazardous substances and aims at making the recycling of ELVs more environmentally friendly
Urban Waste Water Treatment (UWWT) Directive	Provisions for the collection, treatment and discharge of domestic waste water, mixed waste water and some industrial waste water.
REACH	Under the REACH, plastics recyclers are required to provide information on the types of chemicals included in recycled plastics. This will in turn facilitate the recycling of plastics, contributing to the EU vision of a circular economy.
Industrial Emissions Directive	Control of the emissions of solid particles, e.g. plastic pellets, from industrial operations

#### 2.4.2.25. Macroregional Strategies and the Black Sea Region - focus on marine litter

The EU Strategy for the Danube River, the EU strategy for the Black Sea leading to the Burgas Vision Paper 2018 and Ministerial Declaration further process leading up to up to the Black Sea Strategic Research and Innovation Agenda BS SRIA of 2019, Blue Growth Strategy and the EU Green Deal all incorporate environmental priorities related to the qualities of waters, pollution prevention, biodiversity protection, climate change, development of innovation and science, introduction of the circular economy principles, educational and institutional capacity and security. Various aspects of marine litter abatement are associated with those policies. The prospects of new scientific knowledge about marine litter and the strategic policies aspects would be useful for awareness raising and capacity development for effective measures against marine litter pollution in the Black Sea.



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### **3. PROJECTS FUNDED BY NATIONAL AND INTERNATIONAL SOURCES IN THE TURKISH BLACK SEA COASTAL AREA**

#### **3.1. TURKEY**

##### **3.1.1. National Projects**

**3.1.1.1.Updating the National Action Plan for the Protection of Our Seas against Land Based Pollutants (LBP-NAP) (2001-2004; 2005; 2016-2017 periodically updated). (Supported by Turkish Ministry of Environment and Urbanization):**

Land based pollutants consist of all types of pollutants such as domestic, industrial, agricultural wastes and their impact on coastal and marine ecosystem. Under this title, the impact of marine litters on ecosystem has been assessed. The LBP-NAP is subjected either Barcelona or Bucharest Conventions.

***3.1.1.2.Integrated Marine Monitoring Projects (DEN-IZ) (2011; 2014-2016; 2017-2019 periodically supported national project) (Supported by Turkish Ministry of Environment and Urbanization):***

The aim of these serial projects is to improve research capacity and research parameters according to the necessities of the WFD and MSDF all around the Turkish Seas. The understanding of the ecological and pollution status of Turkey surrounded seas, consisting of the transitional, coastal and marine waters and ecosystem parameters, to carry out pressure and impact analysis of water bodies according to these data to review their typologies and to perform the necessary monitoring studies for quality classification. The long-term integrated (pressure-state-impact) monitoring studies planned to be carried out are also aimed to form a basis for the EU legislation in line with WFD (2000) and MSFD (2008) by evaluating the previous period studies. In 2018, the number of the sampling stations in coastal and open Black Sea area are 97 and measuring parameters are classified under three categories such as physico-chemical, ecological and chemical (pollutants). Marine litters are also sampled under these categories. The scope of this project is to cover whole surrounding seas of the Turkey. The aim of the project is performed required measurements, analyzed and reported the parameters according to the national legislation, regional (Barcelona end Bucharest Conventions) and international agreements and also to EU criteria and regulations ((WFD (2000), MSFD (2008)).

***3.1.1.3.Zero-Waste (2017-ongoing):***

The national project is carried out under the auspices of the Turkish President together with all ministries and municipalities and legal entities. The aim of the project is to build an idea and action plan for the prevention of wastage, efficient





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usage of resources, the reduction of the amount of waste generated, the establishment of an effective collection system, and the recycling of waste.

***3.1.1.4. Project for Standardization of the Marine Monitoring Studies (DISSP). (2015-2017) (Supported by Turkish Ministry of Environment and Urbanization) (Project managing institution: TUBITAK-MRC<sup>11</sup>):***

In this project, the guidelines were prepared according to the MSFD descriptors and their parameters. The guidelines were consisted of sampling and analyzing methods, evaluation of the results, and reporting strategies were standardized and prepared for four Turkish bordered seas. In addition to that, the "Marine Monitoring Strategy Document" was prepared.

***3.1.1.5. The project for the determination of the quality state of the marine and Coastal waters and classification (2011-2014) (DeKoS) (Supported by Turkish Ministry of Environment and Urbanization) (Project managing institution: TUBITAK-MRC):***

Within the scope of the project, for the implementation of the EU WFD (2000/60 / EC) and the EU Marine Strategy Directive (MSFD) (2008/56 / EC), It was aimed to create the necessary information and application tools. In this project, the principle of "Ecosystem Approach Management" applications for necessary information and application tools for marine waters were targeted. In this direction, information and suggestions for the sustainable use of Turkish coastal and marine resources, based on to reach "Good Environmental Status", have been created and presented to decision makers and implementers who need to make joint planning. In the Turkish coastal area, 37 coastal types and 76 water management units were identified according to the WFD.

***3.1.1.6. Solid waste management and reduce marine litter (2001-ongoing):***

Trabzon Environmental and Education Provincial Directorates prepare and special info day for "the Environment Day" every year on 5th of the June to pilot schools to aware students and the local public on the solid wastes and their separation, reduction, collection, and management. Under these activities, beach cleaning activity also organize.

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<sup>11</sup> TUBITAK-MRC: Turkish National Scientific and Technical Research Council, Marmara Research Center



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### **3.1.1.7. Ghost nets and waste cleaning activity in the Trabzon province (2018):**

Municipality of Trabzon and Fisheries Cooperative organize this activity to collect ghost nets and solid wastes collected by nets on the sea bed.

## **3.1.2. Project Supported by International Funds**

### **3.1.2.1. Marine Litter in Europe Seas, Social Awareness and Co-Responsibility (MARLISCO) (2012-2015) (Supported by EU 7<sup>th</sup> FP).**

The aim of the project is to create social responsibility and social awareness to reduce litter in European seas consisted of the Black Sea (the Black Sea was the part of the project area). (Turkish partner: Turkish Marine Research Foundation (TUDAV)).

### **3.1.2.2. Assessing the vulnerability of the Black Sea marine ecosystem to human pressure (ANEMONE) (2018-2020) (EU-CBC, BSB):**

The objectives of the ANEMONE is to enhance cross-border contacts within the Black Sea Basin (scientists and stakeholders networking, forums, and establishment of lasting partnerships), to enhance knowledge and skills (the exchange of experience and good practices, innovation, harmonized methodologies, and joint research) and to concrete and visible outputs (pilot projects, information and communication technologies shared tools, online open-access resources). Marine litters and public awareness is the subject of the Project also. (Turkish partners: TUBITAK-MRC and Turkish Marine Research Foundation (TUDAV)).

### **3.1.2.3. Clean Rivers, Clean Seas! (2013-2015) (Supported by EU; Turkish Partner: Samsun Nature and Wildlife Conservation Society and Rize Province Special administration):**

Project aims to improve the capacity of non-governmental organizations on international water management and to contribute to the reduction of pollution in the Black Sea. With the campaign to be carried out within the scope of the project, it is aimed to raise public awareness and draw attention to many issues such as water pollution, pollution of the Black Sea, water management, and river basin management. In addition to that, online training course were done for 30 people from each Partner Countries on water management, water pollution, water policy.



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#### **3.1.2.4. Zero Waste Strategy For Good Environmental Status, ZEWSGES BSB 257 Project.**

Project has started in 2020 and aims contributing to overall reduction in, (1) the number of visible (> 2.5 cm) litter items including plastic, fishing and sanitary litter items on coastlines; (2) the number of litter items per square meter on the sea bed including fishing related litter items on the sea bed from 2012 levels by 2020, in Odessa, in Ukraine; Bourgas, in Bulgaria; Guria, in Georgia and Tekirdağ, in Turkey via adequate collection, sorting, and environmentally sound disposal of min. 1,5 tonnes of litter from the sea bed and min. 0,5 tons of litter from coasts/beaches, in these regions. In this regard, main activities of the action will include project management activities, communication activities, integrating activities and joint zero waste activities, in which ILMM-BSE project's already started Ecosystem Education Program (EEP) will be extended to Ukraine, Bulgaria and Georgia involving schools, NGOs and local media organizations in EEP activities for more public awareness. Target groups of the action will be 7-16 age group primary and secondary school students and their teachers, local fishermen and local communities. As a consequence, estimated results will include proper implementation of waste management legislation, reduction of marine litter on beaches and seas, improvement of residents and tourists' waste related behavior, creation of a monitoring programme, and the coherence of relevant initiatives contributing to reaching a regional Good Environmental Status (GES) based on, and guided by, ecological knowledge to achieve the maximum degree of ecosystem protection commensurate with the highest sustainable quality of living for mankind. Project is carried out under the leadership of Namık Kemal University, Turkey, with partners from Bulgaria, Ukraine and Georgia.

#### **3.1.2.5. Marine and River Litter Elimination New Approach (BSB 139):**

Project is set towards union of the forces against pollution near the Black sea, rivers, protected areas and nature reserves or in the vicinity of the Black sea basin. All 5 target regions are in BS Basin and have rich biological diversity and tourism potential. Project aims at jointly raising public awareness and education regarding river and marine litter problems, the value of biodiversity and environmental protection for target audiences such as youth, tourists, business, local communities and authorities, educational organizations. Particular attention is paid to development of environmentally and responsible-citizenship and ecological behavior among youth. Partners are Turkey, Bulgaria, Romania, Republic of Moldova and Ukraine.

### **3.1.2.6. Eco-Conscious Minds to Stop Pollution in the Valuable Wetlands of Black Sea Basin (BilLearn)( BSB-142):**

Biolearn project stresses the main pollution problems threatening very important biodiversity sites of the BSB, namely its wetlands. The project is established by 6 partners - public institutions, environmental NGOs and national park bodies from Turkey, Ukraine, Georgia, Bulgaria and Greece, responsible for management, promotion and protection of the valuable nature of the Black Sea Basin. They join their efforts, combine resources and knowledge for realization of common activities aiming attracting the attention of the local communities and the visitors / tourists to the negative results that their unconscious daily activities have to the local eco-system relating to the pollution of the waters trough using of illegal dumping areas placed in watercourses, abandonment of old torn nets in watersheds, reckless use of plastic bags or unregulated disposing of agricultural, chemical and fishing equipment to the territory of these very important wetlands.

### **3.1.2.7. Zero Waste Strategy: Methods and Implementation in Black Sea Basin, ZeroWasteBSB (BSB 788):**

The overall objective of the project is to increase awareness and knowledge of environmental issues of Black Sea Basin by promoting joint sensibilization action, by creating a positive model and positive behaviors of young, and by wide spreading of this model, for contribute to joint environmental protection. The project is built on four groups of activities: First group of Research Program will be represented by activities of information and search of dates and facts. There will be conducted two research: one about current status of pollution in BSB. All area of the program will be subject of the research, to have the whole imagine of the BSB. The team will focus too on defining an external area of BSB with a pollution impact on BS, and the potential pollution risks from these areas. The second research is about current status of environmental education. The project will identify and define the educational model in the schools of the three partner countries. In the second group, of Development Program, the project will work on the development of innovative tools in the field of environmental education, with the main subject of Black Sea protection, but also with subjects on general aspects of pollution. On the basis of the research group partners set out to develop a "Pollution and solutions in BSB - Handbook for everyone" and a New Environmentalist Education Model. The project will develop ecological education tools that use IT and the Internet. We propose to develop a video game, especially for ecological education, but also an online



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platform, in which to create an on-line spirit for the Black Sea. Through the third group Develop the integrated training program “Young environmentalist” the project created a training designed to take place on three plans: classic education through lessons in classes, education through the game, using the digital phase of the game, and then it will go to the level of ecological education in real context, in nature. The four group of Environmental Campaign Program will be developing on several levels at once. An one year online campaign “10.000 online for Black Sea” will be organized through the platform. Four environmental events will be organized in the territory to celebrate The International Black Sea Day. A Joint Online Petition Action “Not just eight are using the Black Sea” will be developed. Finally, an international environmental conference will be held. Project consortium is formed by Turkey, Greece, Ukraine and Bulgaria.

### **3.1.2.8. Protecting streams for a clean Black Sea by reducing sediment and litter pollution with joint innovative monitoring and control tools and nature-based practices Protect-Streams-4-Sea (BSB 963):**

The Protect-Streams-4-Sea project focuses on a joint environmental monitoring of nonpoint source pollutants and litter that end up in the Black Sea. This is a main priority of the Black Sea Programme and essential, because once the enclosed Black Sea is polluted, it is very difficult to depollute. Most cleaning efforts focus on the sea itself or along the coastal areas. The watersheds that end in the Black Sea have not been focal points despite providing many of the pollutants and litter. A similar example is the Mississippi Basin that transports the pollutants that have created the dead zone in the Mexico Gulf. The idea of this project is to stop the nonpoint source pollutants and litter from reaching the streams and rivers and consequently not reaching the Black Sea. If successful, this can cost-effectively maintain a clean Black Sea that will benefit the welfare of the entire region. This will be achieved by using innovative methods (fingerprinting) to correlate landscape position with the pollutants in the stream water and bed. Soil samples will be taken along stream banks, soil surfaces and in-stream. This way the origins and the contributions of sediment and other nonpoint source pollutants to the stream water and bed will be estimated. The origins could be the stream banks (e.g. steep, non-vegetated, etc.) or soil surface with different land covers (e.g. burnt areas, flooded areas, forests, degraded or specific crops). In addition, traditional (erosion pins, runoff plots) and new innovative (remote sensing, indices and drones) methods will be used for the pollutant estimations. Hydrologic models will be applied to simulate the pollutants at the watershed scale based on the project data from the fingerprinting method and the stream bank and bed and soil surface plots. A Multi-Criteria Decision Analysis and a



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Decision Support System will be developed to find the “hot spots” and recommend best management practices in each pilot area. Hot spots are the areas that contribute most pollutants and/or litter. The recommended practices will be nature-based and applicable to the entire region. The final part will develop and/or test innovative tools/machines: 4 litter traps (in Armenia, Greece, Moldova and Turkey) and 1 skimmer vessel (in Romania) in the pilot area water bodies to collect litter and other pollutants. The pilot areas will be in five different Black Sea countries allowing testing the tools and methods in different environments representative of the region. This should help the tools and methods adoption by all Black Sea countries and lead to a joint monitoring program for inland nonpoint source pollutants and litter. With Universities, NGOs and public authorities partnering on this project the methods and tools developed will be science-based and practical. Finally, numerous and diverse communication activities will help reach all target groups and lead to the adoption of these joint monitoring methods and tools in the region. Project partners are Greece, Romania, Armenia, Republic of Moldova and Turkey.

### **3.1.2.9. Integrated Coastal Monitoring of Environmental Problems in SeaRegion and the Ways of Their Solution (ICME):**

The Project ICME (Integrated Coastal Monitoring of Environmental Problems in Sea Region and the Ways of Their Solution) aims at developing innovative tools for the monitoring and management of sea regions with pilot implementation in four countries (Greece, Georgia, Armenia and Turkey). The main aim of the project is to define the main problems faced by the Ports of Thessaloniki, Trabzon and Poti, to develop management tools able to downscale regional information for solving local problems and to upscale local field data in order to create the bases of a regional information service. Project activities focused on water quality in the coasts, to develop regional and local models, create public awareness about mechanisms to control water quality, hydrodynamics and water quality in the ports essential for validating model results and very useful for assessing eutrophication and pollution status. The data were for the implementation of the Marine Strategy Directive and also for the Water Framework Directive.

### **3.1.3. Other projects:**

The completed and ongoing projects related with ML are given in Table x.





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Table x: National and international projects related with marine litter

Project Name	Period	Supported by
National baseline budget and national experts reports (NNB) (Project managing institution: TUBITAK-MRC)	2005; 2008; 2014	UNEP-MAP
Project for the Determination of the area for the bathing water profiles and wastewater management in tourism Project (YÜTAY) (Project managing institution: TUBITAK-MRC)	2012-2015	National funds
Project for the Determination of the Amount of Seabed Sludge (Project managing institution: TUBITAK-MRC)	2013-2016	National funds
Project for the Strengthening of the Coastal and Marine Protected Areas	2009-2014	National funds
Catchment Area Protection Action Plan for 25 catchment areas (Project managing institution: TUBITAK-MRC)	2009-2011-2014	National funds
Implementation of Ship Waste Tracking System		National funds
Project for the Preparation of Action Plan for Marine litters	2019- ongoing	National funds
Capacity development in the context of the Marine Strategy Framework Directive (MSFD) in Turkey (MARinTURK)	2016-2017	<u>EU-EuropeAid</u>
National Waste Management and Action Plan (Project managing institution: TUBITAK-MRC)	2016-2023	National funds
Establishment of Emergency Response Centers and Determination of Current Situation in Our Seas Project (AMM) (Project managing institution: TUBITAK-MRC)	2005-2018	National funds
Marine Litter Action Plan of Samsun Province) (Project managing institution: RTEÜ)	2019-2023	National funds
The Project for the Detection of Hazardous Substances in Turkish Coastal and Transitional Waters and Ecological Coastal Dynamics (KIYITEMA) (Project managing institution: TUBITAK-MRC)	2012-2015	National funds
Survey and Research Project for Determination of the location for Landfill Areas and Alternative Solid Waste Disposal Systems (Project managing institution: TUBITAK-MRC)	2015	National funds
Distribution, Composition, Sources and Ecological Interactions of Micro- and Nanoplastics in the Southeast Black Sea Ecosystem. (Project managing institution: RTEÜ)	2018-2020	National funds

## 3.2. GEORGIA

### 3.2.1. National Projects

The Ministry of Environmental Protection and Agriculture of Georgia (MEPA) is responsible for the development of the National Black Sea Protection Strategy and the Action Plan for Achieving Good Quality of the Marine Environment. Also, together with the relevant state agencies MEPA is responsible for fulfillment of the international obligations (conventions and agreements) undertaken by Georgia in the field of protection of the Black Sea and water resources management.





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The functions of the MEPA's subordinate agency - Department of Environmental Supervision - include state control over the protection of the Black Sea and the use of natural resources. It is also responsible for the prevention, detection and suppression of Black Sea pollution, which is carried out through the Black Sea Conventional Protection Service located in Batumi.

Coastal and marine monitoring programs to assess the Black Sea environment are carried out by the National Environment Agency (NEA) under the MEPA and its Environmental Pollution Monitoring Department, by the Adjara AR Department of Fisheries, Aquaculture and Aquatic Biodiversity and by the Black Sea Monitoring Department.

The Ministry of Health is involved in the monitoring process of the marine environment of Georgia in terms of health issues related to the marine environment.

The Ministry of Economy and Sustainable Development of Georgia assesses the parameters of economic activities that depend on the coastal and marine environment and are considered in the maritime strategy.

The role of the Ministry of Regional Development and Infrastructure of Georgia is vital. The Ministry is responsible for the construction and management of wastewater treatment plants, arrangement and management of non-hazardous waste landfills/municipal waste disposal facilities except in Adjara.

At the international level, Georgia, under the auspices of the Commission on the Protection of Black Sea against Pollution, cooperates with the neighbouring countries of the Black Sea basin.

### 3.3. ROMANIA

In Romania there were no national or regional programs for strict monitoring of marine litter. In the last years were developed a few projects funded by European Commission and projects that were developed and implemented at regional level with private funds.

#### 3.3.1. National Projects

Mare Nostrum NGO had started in 2005 the ongoing project COASTWATCH. This is a European project initiated in Ireland in 1987 in order to evaluate with young



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volunteers the problems faced by the European coastal areas. Mainly, the anthropic impact is analyzed, with an emphasis on numerical inventory of waste present on beach. In Romania, this project was dedicated to teachers and students. Annually, at least 18 schools and more than 500 students inventoried the Romanian beaches, usually in October - November, marking in this way the International Black Sea Action Day. According the Mare Nostrum reports, more than 340 000 litter was inventoried and the artificial polymer materials predominated in all years.

In addition to this, Mare Nostrum NGO started in 2014 the marine litter monitoring using the methodology included in the "Guidance on Monitoring of Marine Litter in European Seas", a guidance document within the Common Implementation Strategy for the Marine Strategy Framework Directive, published in 2013. The monitoring takes place twice per year, in April and in October, before and after summer season and were established 8 sampling sectors: Vama Veche, Saturn, Costinesti, Eforie, Constanta, Mamaia Nord, Navodari and Corbu, with a total surface of 41.547 m<sup>2</sup>. These suffered some modifications during years, as Costinesti was changed with Tuzla and in 2020 was included a new sector situated in Danube Delta Biosphere Reserve, Edighiol. In this way, Romania's obligation to monitor Descriptor 10 - Marine litter in beach area is covered. All items found on the sampling unit are entered on the survey forms. On the survey forms, each item is given a unique identification number. The litter collected is disposed of properly. At the end, all data is introduced in Marine Litter Watch App, developed by the European Environment Agency and EmodNET Chemistry. The recorded data shows that in 7 years, Mare Nostrum collected 174.576 items, and 2019 was the "dirtiest" year with more than 45.800 items (figure 2). The artificial polymeric material represents 80% of total and the cigarette butts are the most numerous: 76.516. Constanta sector is in the top of the list with 40.096 items, being followed by Navodari (30.554) and Mamaia Nord (26.803). This monitoring will continue in the following years. Each time, is prepared a report per each session that is sent to the competent authorities, at national and regional level to inform them about the results and ask for new measures to reduce the amount of litter that ends on Romanian beaches, as each year the number is higher.

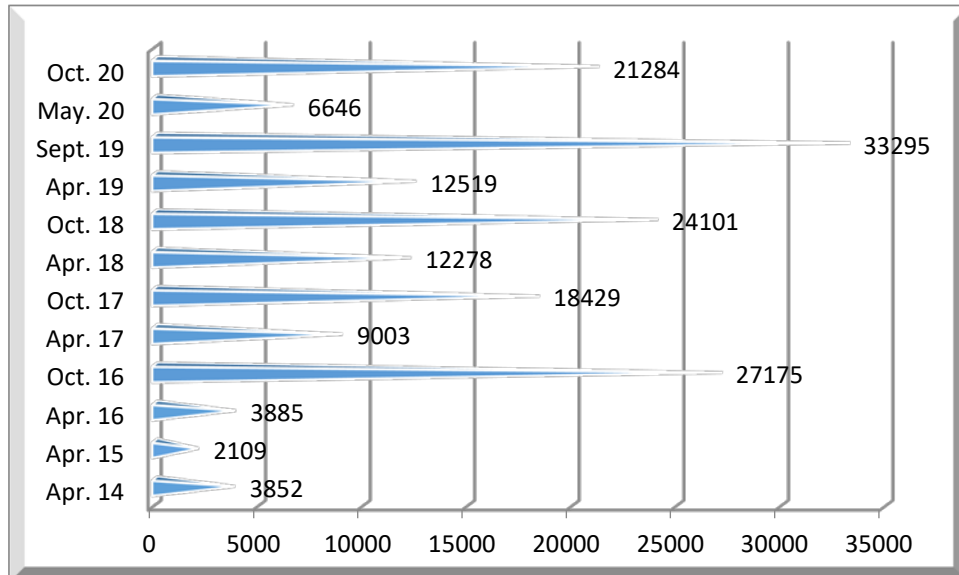


Figure 2 - Monitoring of marine litter in Romania (2014 - 2020), Source: Mare Nostrum reports

Furthermore, the National Institute for Marine Research and Development “Grigore Antipa” was also involved in some international projects that tackled marine litter and had some pilot studies related to it. One of this was “A comparative study of marine litter on the seafloor of coastal areas in the Eastern Mediterranean and Black Seas” (2014) when abundance, spatial distribution and qualitative composition, of benthic marine litter, were investigated in five study areas from the Eastern Mediterranean and Black Seas (Saronikos, Patras and Echinades Gulfs; Limassol Gulf; Constanta Bay). Then, in 2012 was published “Marine Litter Watch App as a tool for ecological education and awareness raising along the Romanian Black Sea coast”. This publication presents the results of a monitoring action of NIMRD on 2 sandy beaches (Amnos and Flora) and 1 mixed beach (Vama Veche - 2 Mai). Surveys have been made in January - April 2015, as well as during the high tourist season (Summer 2015). The main wastes were cigarette butts and plastic containers. With reference to the litter categories identified, artificial polymer materials were by far the most common category of litter items on European beaches, as well as on the Romanian beaches investigated, which once again confirms the fact that plastic and related materials are the most severe threat to the marine and coastal environment, being hardly degradable.

### 3.3.2. International Projects



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- "Marine Litter in Europe Seas: Social Awareness and CO-Responsibility - MARLISCO (2012 - 2015) which goal is to raise public awareness, facilitate dialogue and promote co-responsibility among the different actors towards a joint vision for the sustainable management of marine litter across all European Seas. During this project were developed innovative mechanisms and tools, by effectively engage, inform and empower society, reaching the widest possible audience.
  - "Policy-oriented marine Environmental Research in the Southern European Seas" (2012-2015)-the overall scientific objectives of PERSEUS are to identify the interacting patterns of natural and human-derived pressures on the Mediterranean and Black Seas, assess their impact on marine ecosystems and, using the objectives and principles of the Marine Strategy Framework Directive as a vehicle, to design an effective and innovative research governance framework based on sound scientific knowledge.
  - "Towards a Clean, Litter-Free European Marine Environment through Scientific Evidence, Innovative Tools and Good Governance" - CLEANSEA (2013 - 2015) aimed to generate new information on the impacts (biological, social and economic) of marine litter, develop novel tools needed to collect and monitor litter and protocols needed for monitoring data (litter composition and quantities) and evaluate the impact of mitigation strategies and measures in order to provide options to policy makers in the EU.CLEANSEA tackled the marine litter problem from a broad interdisciplinary perspective.
  - "Sustainable technologies for the production of biodegradable materials based on natural chitin-nanofibrils derived by waste of fish industry, to produce food grade packaging" - N-CHITOPACK (2012 - 2014) - the project focused on the use of bio-based materials (chitin waste material from the fishing industry) to offer a highly promising alternative to plastic food packaging. Chitin nano-fibrils are bacteriostatic, 100% biodegradable and can be used by European packaging SMEs, and may contribute to increase their competitiveness in the market and to solving environmental challenges.
- Projects funded by the Joint Operational Programme Black Sea Basin 2014-2020
- ✓ "Assessing the vulnerability of the Black Sea marine ecosystem to human pressures, ANEMONE BSB-319". Project proposal aims to deliver, through collaborative efforts among partners, a common strategy related to the Joint Monitoring of the Black Sea, using the most adequate common agreed assessment criteria and indicators, in order to assess the status of the Black Sea, as a basis for further actions. Specific project results obtained following the implementation of the project will contribute to an increased level of availability of environmental data and information, being related to: improved understanding of the knowledge gap and further needs; common agreed methodologies for



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monitoring, new tools and indicators for integrative assessment of the ecological status, based on Harmonized Black Sea Monitoring and Assessment Guidance (BSMAG); quality controlled and comparable data sets for the Black Sea environmental status assessment, collected in the framework of specific pilot monitoring studies in selected study areas: coastal and open sea; updated list of Black Sea Hot Spots following testing of the methodology for identification and prioritization of Hot Spots; Guideline tool on the adaptive criteria for monitoring of the maritime activities impact will be developed; Report on the state of Black Sea environment /Thematic assessments; collected new data on chemical contamination of aquatic organisms and potential risks, thus filling knowledge gaps identified for Black Sea region. The results of the study cases on beach litter and dolphins will represent the ground of the educational and awareness raising campaigns materials focusing on data collected from the field, analysed and transposed for public acknowledge.

- ✓ "Joint actions for environmental protection in Black Sea Basin (BeECO)". The BeECO project derives from the shared idea within the project consortium that common education, awareness and river clean-up campaigns to reduce river and marine litter are extremely beneficial for environmental protection in the Black Sea.
- ✓ "Cleaner Rivers - Cleaner Seas (CRoCuS)". The project will contribute with a rapid and assessment of the magnitude of the impact of river litter and the potential for its reduction, through sensitizing and mobilizing of key local stakeholders of target communities located on the banks of Prut river (Romania and Moldova), Dniepr river (Ukraine) and Bulgaria (Tundja river). By reducing the river litter, the project will add to a reduction of marine litter within the Black Sea basin
- ✓ "Marine and River Litter Elimination New Approach (MARLENA)". MARLENA is set towards union of the forces against pollution near the Black sea, rivers, protected areas and nature reserves or in the vicinity of the Black sea basin. Project aims at jointly raising public awareness and education regarding river and marine litter problems, the value of biodiversity and environmental protection for target audiences such as youth, tourists, business, local communities and authorities, educational organizations. The main result from the implementation of the project will be raised public awareness and education regarding river and marine litter problems, promotion of the good environmental management practices related to treatment and disposal of wastes, reduction of illegal dumping and landfill sites (through investment activities and on-line system for signalization),



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strengthening the community action, promotion and organization of various clean-up campaigns, eco camps, awareness events. etc.

- ✓ "Improving online public access to environmental monitoring data and data tools for the Black Sea Basin supporting cooperation in the reduction of marine litter - MARLITER, BSB 138" The project enhances knowledge-based cross-border cooperation, information exchange, use of IT technologies and innovative capacity building between five partners (NGOs, higher education and scientific research institutes) from five programme countries. It addresses some specific aspects of the territorial challenges in the Black Sea Basin related to the marine environment: cross-border pollution with marine litter and its reduction. It aims to improve the availability and interoperability of online public access data and data tools for environmental monitoring and adaptive management policies, supporting innovative non-formal education and capacity building and joint measures on the reduction of marine litter across the region. To achieve this it will perform three symmetrical groups of activities: information exchange and integration, development of ICT based tool and capacity building for youth and other regional stakeholder groups. Central output of the project is the tool with public online access and interactive components to provide information support, decision making support and innovative forms for non-formal education and training for representatives of public administrations, national and regional institutions, business associations, sectoral experts, scientists, students, NGOs, volunteers, coastal communities and the regional public.
- ✓ "Waste Free Rivers for a Clean Black Sea (MWM-GMR)". Project is aimed at facilitating the enhancement of the quality of the environment and contribute to reducing river and marine litter in the Black Sea Basin countries through the promotion of cross-boundary cooperation between Georgia, Moldova and Romania for introduction of modern waste management practices and increasing environmental awareness.
- ✓ "Protecting streams for a clean Black Sea by reducing sediment and litter pollution with joint innovative monitoring and control tools and nature-based practices (Protect-Streams-4-Sea)". The Protect-Streams-4-Sea project focuses on a joint environmental monitoring of nonpoint source pollutants and litter that end up in the Black Sea. The project main results will lead the protection to the Black Sea by reducing the pollutants and litter originating from the inlands from reaching the Black Sea that is the main objective of the proposal.
- ✓ "Innovative techniques and methods for reducing the marine litter in the Black sea coastal areas (RedMarLitter)". The main objective of the project is to analyze the load of the Black Sea basin, in specific representative areas, with waste and





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tracking the main polluting flows and carrying out waste cleaning through the developed measures in a specific demonstration pilot site through innovative methods. The results to be obtained following the implementation of the project are: Database with information about the aspects of transboundary marine litter pollution; Waste distribution model; Guidelines and methodology for environmentally friendly management of marine waste; Innovative technological measures for marine waste reduction implemented into the selected pilot site as well as conducting cleaning campaigns on endangered seashores. The obtained results will lead to increasing the awareness about the state of Black sea in terms of waste loading and waste management. It will be ensured by the wide accessible database as well as dissemination of Guidelines and methodology among the stakeholders.

### 3.4. BULGARIA

#### 3.4.1.National Projects

Institute of oceanology, BAS had the ongoing project 2019 - 2020 Agreement between MOEW and IO-BAS for fulfillment of the obligations of IO-BAS, arising under art. 171, para 2, item 3 of the Water Act (WA) for implementation of the monitoring requirements of the Water Framework Directive (WFD) and the Marine Strategy Framework Directive (MSFD), contract № Д-33-28/26.07.2019, MOEW

One of the parts of the monitoring program is Analysis and interpretation of data according to Descriptor 10 Marine litter, criterion C1 indicator 2 (Marine litter > 2.5 cm). The objective of this assessment is to determine the good status of the marine environment (DSMOS) in relation to Descriptor 10 Marine litter, criterion C1, indicator 2 (Marine litter waste > 2.5 cm) - D10C1, indicator 2.

#### 3.4.2.International Projects

Completed and ongoing national and international projects:

##### 3.4.2.1.ANEMONE, 2018-2020.

Assessing the vulnerability of the Black Sea marine ecosystem to human pressures, contract № 83530/20.07.2018, ENI CBC Joint Operational Programme Black Sea Basin 2014-2020. It is aiming to develop a joint Black Sea monitoring strategy,





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<http://anemoneproject.eu>. The Project's objectives are to enhance cross-border contacts within the Black Sea Basin: scientists and stakeholders networking, forums, and establishment of lasting partnerships; to enhance knowledge and skills: the exchange of experience and good practices, innovation, harmonized methodologies, and joint research; to concrete and visible outputs: pilot projects, information and communication technologies shared tools, online open-access resources.

#### **3.4.2.2.MARLENA PROJECT, 2019-2021.**

"Marine and River Litter Elimination New Approach" ENI CBC Black Sea Basin Program 2014-2020, BSB 139,2019-2021. Project aims at jointly raising public awareness and education regarding river and marine litter problems, the value of biodiversity and environmental protection for target audiences such as youth, tourists, business, local communities and authorities, educational organizations. Particular attention is paid to development of environmentally and responsible-citizenship and ecological behavior among youth.

#### **3.4.2.3.RedMarLitter, 2018-2021.**

RedMarLitter "Innovative Techniques and Methods for Reducing Marine Litter in the Black Sea Coastal Areas", priority 2.2. "Awareness Raising and Joint Actions for Reducing River and Marine Litter", Joint Operational Programme "Black Sea Basin 2014-2020", BSB 552. The project aims to elaborate new approaches and methods to reduce and mitigate the problem of pollution of the Black Sea with marine litter, <https://redmarlitter.eu>. One of the parts of the monitoring program is Analysis and interpretation of data according to Descriptor 10 Marine litter, criterion C1 indicator 2 (Marine litter> 2.5 cm).The objective of this assessment is to determine the good status of the marine environment (DSMOS) in relation to Descriptor 10 Marine litter, criterion C1, indicator 2 (Marine litter waste> 2.5 cm) - D10C1, indicator 2. The main objective of the project is to reduce pollution of the Black Sea basin by tracking and analyzing the main waste streams and carrying out pilot activities to clean pre-defined areas of marine litter.

#### **3.4.2.4.MARLITTER, 2018-2020.**

"Improved online public access to environmental monitoring data and data tools for the Black Sea Basin supporting cooperation in the reduction of marine litter". ENI CBC Black Sea Basin Programme 2014-2020, BSB 138. The overall objective of the project is to promote stronger cross-border integration of information, knowledge and expertise on environmental monitoring and marine litter issues in the Black Sea Basin. The aim is to improve the availability and conditions for effective use of online public access to monitoring data and data products for marine litter reduction. <http://marliter.bsnn.org/>.



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#### **3.4.2.5.MELTEMI, 2017-2019.**

Marine litter transnational Legislation Enhancement and Improvement, contract № BMP1/23/2231/2017, Interreg-Balkan-Mediterranean. The overall objective of the MELTEMI project is Along with the assessment of marine litter in beaches and sea, MELTEMI foresees an active engagement of the society and the key-players by informing, 'educating' training and networking them on a science and policy assessment framework of marine litter. MELTEMI's approach is based on the creation of transnational networks among GR, CY, BG and AL, where coastal marine litter will be assessed, with the aim to review world's best practices and tools and adapt them to countries' needs. <https://meltemi-balkanmed.eu/wp-content/cache/all/index.html> and <http://www.meltemi.bsnn.org/>.

#### **3.4.2.6.MARLEN, 2015-2017.**

Marine litter, eutrophication and noise assessment tools Contract № Д-34-10/31.03.2015, priority BG 02.03: "Increased capacity to assess and predict the environmental status of marine and inland waters", co-financed by the European Economic Area (EEA) Financial Mechanism 2009-2014. The main goal of MARLEN is to build up tools for assessment of marine environment by implementing new technologies and best practices for addressing three main areas of interest with lack of marine data in particular: a) Marine litter detection and classification in coastal areas ; b) Regular near real time surface water eutrophication monitoring on large aquatories; c) Underwater noise monitoring . The partnership within the project will increase capacity for environmental assessments and training of personnel and will enhance collaboration between scientific institutes, regional and local authorities. Project results will support implementation of MSFD in Bulgarian marine waters for the benefit of coastal population, marine industry, tourism, marine research and marine spatial planning.

#### **3.4.2.7.ISMEIMP, 2015-2017.**

Investigations on the State of the Marine Environment and Improving Monitoring Programs developed under MSFD /Д 34-13/02.04.2015, Program BG 02 "Integrated Maritime and Inland Water Management", priority BG 02.02: "Improved monitoring of marine waters", the Financial Mechanism of the European Economic Area Financial Mechanism 2009-2014. Objectives of the project: Partial filling of the existing missing data on the marine environment according to the descriptors defined by the Marine Strategy Framework Directive (RDMS) 2008/56 / EC, by conducting a study in a pilot area - water area bounded between cape Galata and cape Emine; Based on the studies carried out: - further development of the definitions for good status of the marine environment by the individual descriptors, -updating /precising the objectives for



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good status of the marine environment (DSMOS); - development or validation of the indicators for achieving the objectives or for determining the distance from good status of the marine environment (DSMOS); Development of proposals for improved monitoring programs; Improving cooperation between research institutes, regional and local authorities.

#### **3.4.2.8.BS MFC.**

Black Sea-Monitoring Forecasting Centre: A public service to support maritime safety, weather forecasting, marine resources and coastal environment management, <https://marine.copernicus.eu/about-us/about-producers/bs-mfc>

#### **3.4.2.9.EMODnet BlackSea Checkpoint:**

Assesses how well the available marine monitoring data in the Black Sea meet the needs of institutional stakeholders and policy makers, <https://www.emodnet.eu/en/black-sea>

#### **3.4.2.10.MASRI.**

Infrastructure for sustainable development of marine research linked to the membership of Bulgaria in Euro-Argo EU infrastructure, <http://masri.io-bas.bg>

#### **3.4.2.11.BCSEA.**

The Black and Caspian Sea project, raising safety, security and protection of marine environmental standards for Black and Caspian Seas through a project managed by the European Maritime Safety Agency, [www.emsa.europa.eu](http://www.emsa.europa.eu)

#### **3.4.2.12.Black Sea CONNECT.**

Coordination of Marine and Maritime Research and Innovation in the Black Sea, supporting the development of the blue economy in the Black Sea region, <http://connect2blacksea.org>

#### **3.4.2.13.Euro-Argo RISE.**

Euro-Argo Research Infrastructure Sustainability and Enhancement, as the new phase of the Argo programme implemented at international level, <https://www.euro-argo.eu/EU-Projects/Euro-Argo-RISE-2019-2022>

#### **3.4.2.14.ENVRI-FAIR.**

ENVironmental Research Infrastructures building Fair services Accessible for society, Innovation and Research, connecting the cluster of ENVRI to the European Open Science Cloud (EOSC), <https://envri.eu>.



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#### **3.4.2.15. ODYSSEA.**

Operating a network of Integrated Observatory Systems in the Mediterranean Sea, aiming to the development, and operation of an interoperable and cost-effective platform that fully integrates networks of observing and forecasting systems across the Mediterranean basin, <http://odysseaplatform.eu>

#### **3.4.2.16. MOCCA.**

Monitoring the Oceans and Climate Change with Argo, aiming to progress the Euro-Argo objectives in "Monitoring the Oceans" of the international Argo programme, <https://www.euro-argo.eu/EU-Projects/MOCCA-2015-2020>

#### **3.4.2.17. DANUBIUS-RI.**

Preparatory Phase for The Pan-European Research Infrastructure, aiming to encourage to invest in and connect research infrastructures across the Black Sea region, <https://danubius-pp.eu>

#### **3.4.2.18. PERSEUS.**

Policy-oriented marine Environmental Research for the Southern European Seas, a multidisciplinary research project that explicitly focused on the impact of CC in the BSB, <http://www.perseus-net.eu/site/content.php>

#### **3.4.2.19. Black Sea NGO Forum**

The project is providing space for debate, mutual knowledge and cooperation among civil society representatives in the Black Sea region, [www.blackseango.org](http://www.blackseango.org)

#### **3.4.2.20. COCONET**

Towards Coast to Coast NETworks of marine protected areas (from the shore to the high and deep sea), coupled with sea-based wind energy potential, aiming to identify groups of putatively interconnected MPAs in the Mediterranean and the Black Seas, <https://cordis.europa.eu/project/id/287844>

#### **3.4.2.21. EMBLAS Plus**

Improving Environmental Monitoring in the Black Sea, aiming at developing an online Black Sea water quality database providing much more detailed information about the state of the sea, <http://emblasproject.org>



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#### **3.4.2.22.MONINFO**

Environmental Monitoring of the Black Sea Basin: Monitoring and Information Systems for Reducing Oil Pollution, aims to enable the coastal states to better prevent and respond to oil pollution, to improve the safety of oil transport and mitigate the risk of oil spill risks, [http://www.blacksea-commission.org/\\_projects\\_MONINFO.asp](http://www.blacksea-commission.org/_projects_MONINFO.asp).

#### **3.4.2.23.EnviroGRIDS**

Building Capacity for a Black Sea Catchment Observation and Assessment System supporting Sustainable Development, promoting the use of web-based services, <http://www.envirogrids.net/>

#### **3.4.2.24.Facility for Blue Growth in the Black Sea.**

The project is providing guidance and support to public authorities and stakeholders in the coastal countries helping them unlock the potential of the blue economy, [www.blackseablueeconomy.eu](http://www.blackseablueeconomy.eu)

#### **3.4.2.25.MSFD Project.**

Support to the Black Sea Commission for harmonization with the EC Marine Strategy Framework Directive, aiming to promote EU environmental objectives, [http://www.blacksea-commission.org/\\_projects\\_BSCMSFD.asp](http://www.blacksea-commission.org/_projects_BSCMSFD.asp)

#### **3.4.3.26.DBS GATEWAY REGION**

Aiding the Regional and Transport Development in the Danube-Black Sea Region towards a Transnational Multiport Gateway Region, [www.interreg-danube.eu/approved-projects/dbs-gateway-region](http://www.interreg-danube.eu/approved-projects/dbs-gateway-region)

#### **3.4.2.27.Baltic2Black.**

Environmental Monitoring of the Black Sea for nutrients, to promote measures to facilitate delivery of BSC regional monitoring and assessment products, [http://www.blacksea-commission.org/projects\\_Baltic2Black.asp](http://www.blacksea-commission.org/projects_Baltic2Black.asp)

#### **3.4.2.28.HERACLES:**

Heritage Resilience Against Climate Events on Site. Built up the methods for assessing the impact of climatic and environmental conditions on underwater archeological sites <http://www.heracles-project.eu/PONTOS> Copernicus assisted environmental monitoring across the Black Sea Basin -Aims to enhance transboundary cooperation for harmonized environmental monitoring, <https://ace.aua.am/pontos/>



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#### **3.4.2.29.TECTONIC:**

Technological Consortium TO develop sustainNability of underwater Cultural heritage. Built up the methods for identify and study underwater archeological sites.  
<https://www.tectonicproject.eu/>

#### **3.4.2.30.Black Sea Scene.**

Establishing a Black Sea Scientific Network of leading environmental and socio-economic research institutes, universities and NGO's, <http://www.blackseascene.net>

#### **3.4.2.31.MENTOR.**

Blue Career Centre of Eastern Mediterranean and Black Sea, establishing a blue economy careers centre that aims to attract young people and experienced workers, [www.bluecareers.org](http://www.bluecareers.org)

#### **3.4.2.32.E-RIHS:**

European Research Infrastructure for Heritage Science. Built up the instruments, sensors methods and for identifying and study underwater archeological sites  
<http://www.e-rihs.eu/>.

#### **3.4.2.33.MISIS. MSFD Guiding Improvements in the Black Sea Integrated Monitoring System.**

#### **3.4.2.34.Clean Rivers – Clean Sea:**

NGOs actions for environmental protection within the Black Sea area –BlackSea Basin JOP Programme <http://www.riversea.bsnn.org/> and <http://www.rekimore.bsnn.org/>.

#### **3.4.2.35.Marine Litter Watch.**

Reduction of litter in the marine and coastal environment and sustainable use of natural resources – Marine Litter Watch – EEA Financial Mechanism  
<http://mlwatch.bsnn.org/>.

#### **3.4.2.36.MSFD-Descriptor 10 - Marine litter.**

Assessment of the condition by descriptor 10 marine litter on the beach / coastal area, floating on the sea surface and deposited on the sea bed, as well as their impact on the different groups as marine animals, mammals, coastal fish, etc.

#### **3.4.2.37.IMAMO, 2015-2017.**

Project "Improved monitoring of sea water, Program BG 02 "Integrated management of marine and inland waters", Priority BG 02.02: "Improved monitoring of marine waters", co-financed by the Financial Mechanism of the European Economic Area (EEA FM) 2009-2014.

## 4. GAPS and LEGAL SUNCTION

Although, there are many national and international sanctions related with litter pollution in the partner countries, still have some gaps to polluted our environment. One of these gaps is awareness of the people who do not interested in by their own decision. In the project, we want to raise awareness of unaware people and making them believe in this work. On the other hand, we believe that many people have aware of the litter pollution in their environment and take some responsibilities to protect in their living places.

According to the Bulgarian partners, riverine litter data is poorly reported for the Bulgarian sector of Danube river and for the rivers present at the Bulgarian territory. In Turkish riverine and coastal areas, the awaking is started in the national level since 2017 together with supporting with decision makers and have taken scientists advise serious.

### 4.1. GAP Analysis

**BULGARIA:** Regarding the existing and currently implemented waste management actions, the main environmental problems are related to:

- Insufficiently efficient systems for separate waste collection from settlements;  
as well as facilities for preparation for re-use, leading to larger amounts of waste for disposal;
- waste oils and waste oil products - the existing problems are related to organizational measures and the need for effective control for tracking, prohibition and sanctioning of such discharges into the sea, as well as the need for sufficient facilities and installations for water treatment containing oil products and other wastewater from ships
- sludges from wastewater treatment - an environmental problem is their storage, recovery and disposal. They will generate new, significant amounts of sludge, and it must be ensured that they do not end up in marine waters due to non-compliance with technology and their storage.
- The state should ensure better connection between its programs of measures and its monitoring programs (Екологична оценка на проект „Морска стратегия и програма от мерки“), 2016. Proposals for national measures, according to the Gaps:  
1) Amendment of national legislation to include the topic of "marine litter"





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- 2) Prevention of fishing waste (ghost fishing) - to be specified and included as an additional activity to measure descriptor-10 Marine waste
- 3) The project for a regional program of Bulgaria and Romania at the basin level
- 4) Development of a Regional Action Plan for Marine Waste
- 5) Improving the management of ship - generated waste. Evaluation and control of the activities for collection and transportation of waste from the operation of ships
- 6) Annual awareness-raising campaigns aimed at business and the general public about the effects on the marine environment caused by marine litter, as well as the need to recycle waste.

## 4.2. Legal Sanctions And Measures At Present

### TURKEY:

The Criminal code law of Turkey (No.5237) has been published in official Gazette no. 25611 on 12 October 2004. The last amendment Law No. 6217 is Law No. 6217 (March 31, 2011). The objective of Criminal Code is to protect the individual rights and freedom, public order and security, state of justice, public health and **environment**, and communal peace, as well as to discourage commitment of offences. This Law defines the basic principles for criminal responsibility and types of crimes, punishments and security precautions to be taken in this respect. Offences against the environment has regulated in second section of the law. Intentional pollution of environment, Article 181-(1) any person who intentionally drains refuses or wastes to the ground, water or air contrary to the technical procedure defined in the relevant laws and in such a way to cause environmental pollution, is punished with imprisonment from six months to two years. (2) any person who engages in transfer of refuses or wastes into the country without permission is punished with imprisonment from one year to three years. Pollution of environment by negligence, Article 182 - (1) Any person who drains refuses or wastes to the ground, water or atmosphere by negligence in such a way to cause environmental pollution, is imposed punitive fine. Where the refuses or wastes are observed to have remaining affect in the ground, water or atmosphere, punishment of imprisonment is imposed from two months to one year.

Administrative fines determined by the Ministry of Environment and Urbanization in accordance with the Environment Law No. 2872 for 2020; 351 TL for those who pollute the environment in public places; 15.16 TL for those who do not sell plastic bags with money; Those who bury the wastes in the soil and fill the wetland 88.499,0 TL; 7



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million 376 thousand TL for those who import waste without permission; Those who collect, transport, temporary and interim storage, recycle, reuse and dispose of non-hazardous wastes against the legislation, 265 thousand 497 TL; The penalty given to those who collect, transport, temporarily and interim storage, recycle, reuse and dispose of hazardous wastes against the legislation is 1 million 106 thousand 367 TL.

**BULGARIA:** Waste Management Act. Promulgated, SG No. 86/30.09.2003, last amended and supplemented, SG No.30/12.04.2011, amended, SG No. 33/26.04.2011, effective 27.05.2011, SG No. 99/16.12.2011, effective 1.01.2012, amended by Judgment No. 3/21.03.2012 of the Constitutional Court of the Republic of Bulgaria - SG No. 26/30.03.2012 regulates the measures and control for protection of the environment and human health by preventing or reducing the harmful impact of the generation and management of waste, as well as by reducing the overall impact of the use of resources and by increasing the efficiency of this use. It determines the requirements for the products that in the process of their production or after their final use form hazardous and / or widespread waste, as well as the requirements for extended liability of the producers of these products in order to encourage reuse, prevention, recycling. and another type of recovery of the generated waste. The waste management shall aim at preventing or reducing their harmful impact on human health and the environment and shall be carried out in accordance with the requirements of the normative acts regarding:

1. protection of water, air, soil, plants and animals;
2. noise and odors, and
3. protection of the natural environment and the places, which are object of special protection.

Legal sanctions and measures at present are described in Section II of the Waste management act: Administrative violations and penalties - art. 133 to art. 160 and sanctions for individuals vary from 10.00BGN to 5000.00BGN depending on the violation character and weight and in the event of a repeated infringement, a fine shall be imposed within the range between 600.00BGN and 10000.00BGN. And respectively for legal entities from 1500.00 BGN to 50000.00BGN and in the event of a repeated infringement from 2800.00BGN to 100000.00BGN:

## 5. THE REACTION OF THE LOCAL GOVERNMENT FOR PROTECTION OF THE COUNTRIES' FROM SOLID WASTES (ALLOCATING BIN, WASTE COLLECTING FACILITIES, PROGRAMS, RECYCLING, ETC)

**TURKEY:** (This information is taken from EEA, 2016).

Waste generation and management have been recognized as a priority for Turkey and policies are being developed to overcome existing obstacles. Furthermore, MSW management has been a pressure point for Turkey while being a candidate country for EU accession (TCA, 2007). The By-Law on Waste Management (02.4.2015-29314) is an important step towards successful waste management in Turkey. Although it is shown to have some shortcomings in its implementation, the MSW management system has been improved by new studies and new regulations. The main reasons of shortcomings can be identified as:

- ✓ Waste management systems development was not a priority policy area;
- ✓ Duties and powers are distributed among many institutions and organizations, with inadequate coordination and cooperation among them;
- ✓ The fees and taxes collected in return for services were inadequate;
- ✓ The infrastructure (facilities and the existing technical capacity) was limited and the majority of facilities were in need of modernization.

According to the Metropolitan Municipality Law (10.7.2004- 5216) and the Municipality Law (3.7.2005 - 5393), sole responsibility for the management of municipal waste falls on the municipalities. They are responsible for providing all services regarding collection, transportation, separation, recycling, disposal and storage of solid wastes, or to appoint others to provide these services (ETC/SCP, 2009). In 2016, according to National Waste Management Plan and Action Plan (NWMP&AP) data, 61.07 % of the municipal waste is sent to sanitary landfills and 28.25 % is dumped into municipal dumpsites. 11 % of the MSW (packaging waste included) was reported as recycled, composted or disposed of by other methods. The number of sanitary landfills is increasing rapidly in Turkey, as in 2003 there were 15 sanitary landfills, whereas in the 3<sup>rd</sup> quarter of 2016 this number has increased to 82 (MoEU, 2016).

Turkish Ministry of Environment and Urbanization (MoEU) gives licenses to collection,



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separation and recycling facilities. Whereas there were only 28 licensed facilities in 2003, this number increased to 521 for collection and separation and to 676 for recycling facilities in 2015.

Out of 28,6 million tons of MSW generated in 2014, 28 million tons or 90% were collected and about 99.1 % of this collected waste was landfilled either in sanitary landfills (61.07 %) or dumpsites (28.25 %), while around 11% were recovered. (NWMP&AP-2016). There is no available information regarding the fate of the uncollected amount of MSW.

Turkish Ministry of Environment and Urbanization reports the total amount of recycled packaging waste in 2013 to be 2.300.345 tons, and certainly part of this recycled packaging waste is from MSW sources, but the share is unknown. The data shown below therefore current situation of MSW recycled, landfilled and dumpsited.

The By-law on Landfill of waste (No: 27533 2010/03) aimed to decrease the amount of landfilled biodegradable municipal waste in a scheduled period. The preparation of a strategy to decrease the amount of biodegradable waste is on-going according to the Turkish Ministry of Environment and Urbanization.

The metropolitan municipality and other municipalities are responsible for providing collection, transportation, separation, recycling, disposal and storage of waste services. Legislation came into force in October 2010 to provide and state principles to bring sustainability to environmental infrastructure services and waste services. These principles involve regulation of fees to be paid to the relevant municipality by subscribers who benefit from these services. Municipalities should be able to cover the expenditure of infrastructure services though the fees collected from households.

**BULGARIA:** According to the Waste Management Act in force in Bulgaria, individuals or legal entities representing products on the market, after the use of which widespread waste is generated, are responsible for their separate collection and achieving the respective goals for separate collection, reuse, recycling and recovery:

- ✓ not less than 60% by weight of packaging waste must be recovered or incinerated in energy recovery plants;
- ✓ not less than 55% and not more than 80% by weight of packaging waste must be recycled by recycling at least
- ✓ 60% by weight of glass packaging waste;
- ✓ 60% by weight of packaging waste of paper and cardboard;
- ✓ 50% by weight of metal packaging waste;



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- ✓ 22.5% by weight of plastic packaging waste, the recycling of which results in only plastic;
- ✓ 15% by weight of wood packaging waste.

Bulgaria is successfully fulfilling the goals set in the European legislation with the adoption of the Directive on reducing the impact of certain plastic products on the environment, performance in packaging waste, obsolete electrical and electronic equipment, end-of-life vehicles and unusable batteries and accumulators has traditionally been around and above the average for Member States," he said.

## 6. STATISTICAL ANALYSIS OF PRODUCED WASTE BASED ON POPULATION

### TURKEY

In Turkey, waste management has been subjected of legal arrangements since 1930s and municipalities are assigned as the main implementation authority. The tasks of policy making and directing the implementation at national level, which was initially within the mandate of the Ministry of Health, are today carried out by the Ministry of Environment and Forestry. However, it is a well-known fact that, several bodies and institutions share authorities and responsibilities in this area and that this causes overlapping powers and duties in the fields such as determining standards, principles and policies related to environment. The related authorities also monitored illegal acts and punish them.

The legal waste management arrangements in Turkey go back to very early years. Two laws that came into force in 1930, the Municipality Law (No: 1580) and General Health Law (No: 1593) include some provisions on collection and landfill of waste, measures to be taken to protect human health etc. In many legal arrangements since today, there are provisions directly related to waste management or provisions indirectly related to the protection of environment and human health.

Since 1990s, various projects for development of a waste management system and strengthening the institutional and technical capacity have been implemented through external financing. These projects are mostly implemented by means of technical and financial support of World Bank and the EU, and have contributed to the efforts to determine the steps that should be taken for the compensation of the shortcomings



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and deficiencies found out by comparing the existing state of Turkey with the optimal one (<https://www.sayistay.gov.tr...>).

Statistics on MSW management have been compiled in Turkey by the Turkish Statistical Institute since 1994. The data are compiled by survey via web based software and processed by the Turkish Statistical Institute (Turkstat, 2018). Data on packaging waste has been collected by the MoEU. Legislative targets for recycling of packaging waste according to Turkish law responding to the EU Packaging Waste Directive is shown in Table.

Table : Targets for recycling of packaging waste in Turkey (as % of generated) per material

Years	Glass	Plastic	Metal	Paper/Cardboard	Wood
2005	32	32	30	20	-
2006	33	35	33	30	-
2007	35	35	35	35	-
2008	35	35	35	35	-
2009	36	36	36	36	-
2010	37	37	37	37	-
2011	38	38	38	38	-
2012	40	40	40	40	-
2013	42	42	42	42	5
2014	44	44	44	44	5
2015	48	48	48	48	5
2016	52	52	52	52	7
2017	54	54	54	54	9
2018	56	56	56	56	11
2019	58	58	58	58	13
2020	60	60	60	60	15

Source : By-law on Control of Packaging Waste (MoEU, 2012)

The responsibility for waste management has mostly been given to municipalities (Table). Municipalities construct and operate the required waste management infrastructure and provide related services such as waste collection. Nevertheless, a great deal of municipalities do not have necessary financial resources for high cost investments such as waste treatment and disposal facilities.

Table : Packaging wastes generated and recycled in 2018 (MoEU, 2020)



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Waste Code	Type	manufactured Packaging Materials (ton)	B-1 <sup>1</sup> Kapsamında		
			Released (Ton)	recycling (ton)	recycling (%)
15.01.02	PLASTIC	4.099.951	943.567	590.923	63
15.01.04	METAL	179.438	130.981	89.488	68
15.01.05	KOMPOSITE	102.636	96.773	62.110	64
15.01.01	PAPER-CARTON	2.529.403	1.314.154	1.227.249	93
15.01.07	GLASS	955.721	860.239	234.699	27
15.01.03	WOOD	1.070.084	547.681	171.048	31
	<b>TOTAL</b>	<b>8.937.232</b>	<b>3.893.396</b>	<b>2.375.518</b>	<b>61</b>

It is aimed to set up a waste management system in Turkey acting in accordance with the related national legislation and EU legislation, covering the establishment of necessary waste treatment facilities (pretreatment facilities and landfills) and transfer stations, reduction of the amount of waste, ensuring recycling and reuse, and reducing the waste transportation costs (MoEU, 2012). As a first step to achieve these objectives, studies are being carried out across Turkey. Table show waste disposal and recovery facilities at 2016 and 2018.

Table: Population of Black Sea Coastal municipalities served by waste services and amount of waste collected, waste per capita 2018 (Turkstat, 2018)

Province	Total population	Total municipal population	Total number of municipalities	Number of municipalities providing waste services	Population of municipalities served by waste services	Rate of municipal population served by waste services in total municipal population (%)	Collected waste (Tonnes)	Waste per capita (Kg/capita-day)
Turkey	82 003 882	76 888 607	1 399	1 395	75 952 539	98,8	32 209 222	1,16
Artvin	174 010	102 882	9	9	102 882	100	45 102	1,20
Giresun	453 912	298 094	24	24	288 137	96,7	118 912	1,13
Ordu	771 932	771 932	20	20	699 758	90,7	256 826	1,01
Rize	348 608	224 057	18	18	219 737	98,1	100 152	1,25





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Sakarya	1 010 700	1 010 700	17	17	998 580	98,8	394 119	1,08
Samsun	1 335 716	1 335 716	18	18	1 123 063	84,1	402 064	0,98
Sinop	219 733	129 425	9	9	128 686	99,4	65 175	1,39
Trabzon	807 903	807 903	19	19	801 087	99,2	237 235	0,81
Zonguldak	599 698	427 646	25	25	424 003	99,1	160 733	1,04

Recovery of wastes through the methods of reuse, recycling, composting, generating energy ensures a great deal of saving both in the costs of production through transforming the materials which have economic value to an input to economy and in the costs of waste disposal through decreasing the amount of waste. Total waste combusting and recycling rate is lower than EU and OECD countries. But waste management strategies and activities getting to be higher year to year. Table and Figure show 2018 combusting and recycling rate of total solid waste.

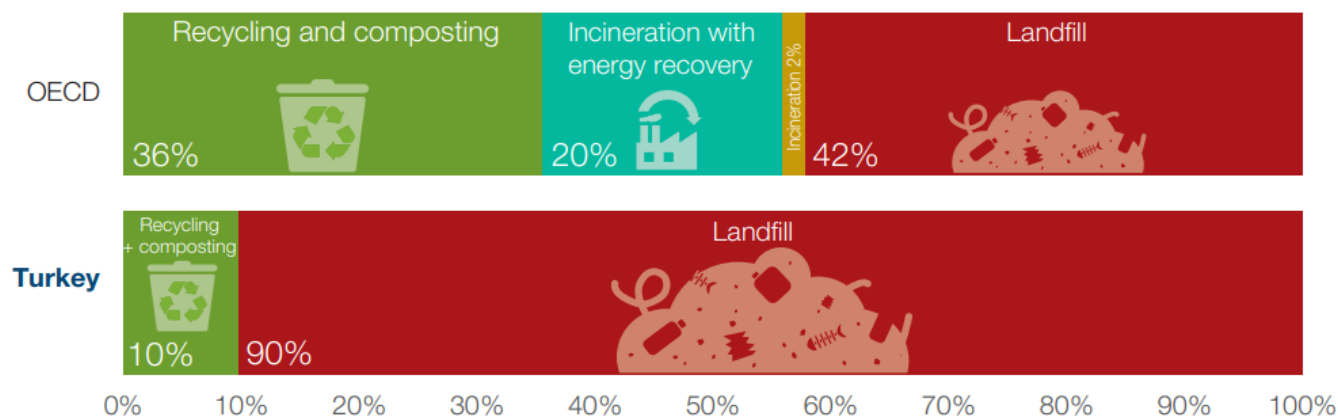


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Table: Waste disposal and recovery in 2016 and 2018 (Turkstat, 2018)

Waste disposal and recovery facilities statistics, 2016, 2018(1)(2)		
YEAR	2016	2018
<b>Number of waste disposal and recovery facilities</b>	<b>1 698</b>	<b>2 223</b>
<b>Number of waste disposal facilities</b>	<b>140</b>	<b>166</b>
<b>Controlled landfill site</b>		
Number	134	159
Capacity (m <sup>3</sup> )	822 077 838 <sup>(1)</sup>	798 926 893
<b>Total amount of waste landfilled (Tonnes)</b>	<b>43 815 135</b>	<b>55 878 883</b>
Amount of hazardous waste landfilled (Tonnes)	6 385 423	16 753 047
Amount of non-hazardous waste landfilled (Tonnes)	37 429 712	39 125 836
<b>Incineration plant</b>		
Number	6	7
Capacity (Tonnes/year)	643 962	757 002
<b>Total amount of waste incinerated (Tonnes)</b>	<b>310 127</b>	<b>493 885</b>
Amount of hazardous waste incinerated (Tonnes)	62 571	64 567
Amount of non-hazardous waste incinerated (Tonnes)	247 557	429 319
<b>Number of waste recovery facilities</b>	<b>1 558</b>	<b>2 057</b>
<b>Composting plant</b>		
Number	7	8
Capacity (Tonnes/year)	423 850	482 890
<b>Total amount of waste composted (Tonnes)</b>	<b>140 467</b>	<b>138 054</b>
Compost produced (Tonnes)	19 728	35 437
<b>Co-incineration plant</b>		
Number	35	40
<b>Total amount of waste co-incinerated (Tonnes)</b>	<b>738 908</b>	<b>1 069 360</b>
Amount of hazardous waste co-incinerated (Tonnes)	317 917	521 516
Amount of non-hazardous waste co-incinerated (Tonnes)	420 991	547 844
<b>Other recovery facilities<sup>(3)</sup></b>		
Number	1 516	2 009
<b>Total amount of waste recovered (Tonnes)</b>	<b>35 769 611 <sup>(1)</sup></b>	<b>46 872 420</b>
Amount of hazardous waste recovered (Tonnes)	696 145	1 166 380
Amount of non-hazardous waste recovered (Tonnes)	35 073 466 <sup>(1)</sup>	45 706 040



Source: OECD (2018), "Municipal waste, generation and treatment", OECD Environment Statistics (database)

Figure. Solid waste recycling and combusting rate in OECD and Turkey.

Common borders. Common solutions.

## Future possible trends

Currently, most of the EU waste management directives concerning MSW have been transposed into Turkey's National legislation in (MoEU, 2012):

- By- Law on Waste Management (02.04.2015 29314);
- By- Law on Control of Packaging Waste (24.082011);
- By- Law on Landfilling of Waste (26.032010).
- By-Law on Control of Waste Electrical and Electronic Equipment (22.05.2012-28300)
- Amendment on By Law on Control of Hazardous Waste (05.11.2013-28812)
- Amendment on By on Control of Landfilling of Waste ( 11.03.2015-29292)
- By-law on the Control of Waste Vegetable Oils (06.06.2015-29378)

By-law on the landfilling of waste makes provisions for the monitoring, control, closure and after-care procedures of landfill facilities. It has also created a reporting mechanism and database to support this.

The National strategy on the reduction of biodegradable waste to be disposed of in landfill facilities has also been developed at a draft stage. This strategy shall include the measures to be taken with the methods such as recycling, composting, biogas production or energy/material recovery. According to the strategy for the reduction of biodegradable waste amounts, the implementation of the EU Landfill Directive (99/31/EC) will be carried out by 2025 (MoEU, 2012). An extraordinary effort and an improvement in communication and cooperation between the government, local authorizes and the public and private sectors are required if the proper implementation of the regulations mentioned above is to be achieved

**BULGARIA:** The generated packing waste in Bulgaria increased for the four years period and was presented on Table 1. Municipalities in Bulgaria (264 in total) play an important role in the implementation of the policy in the environmental sector. Municipalities are organized in Regional Municipal Associations, which are responsible to implement the national waste management policy on the regional level.

Table 1. Generated packaging waste total for the country

Material	2014	2015	2016	2017	2018
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Plastic	102093	99532	108247	119962	131359
Paper/cardboard (incl. composites)	129580	135642	148229	153212	168840
Metal	15998	25147	31890	33594	37625
Wood	48725	45612	51400	59589	65011
Glass	78251	82017	77421	83517	90950
Other	4021	4597	3958	3320	3708
<b>Total</b>	<b>378668</b>	<b>392547</b>	<b>421145</b>	<b>453194</b>	<b>497493</b>

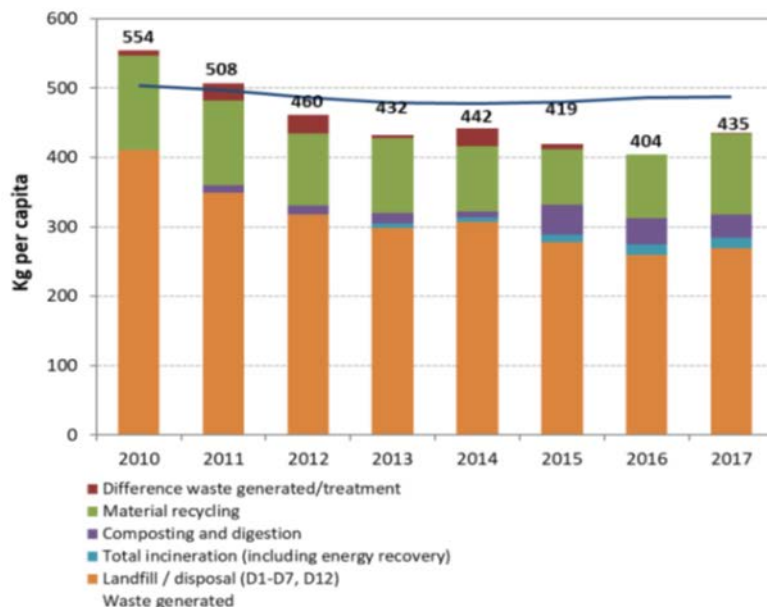
Municipal waste (Table ) generation in Bulgaria increased in 2017 (Figure 3), stopping a slightly downward trend since 2014, but remaining below the EU average (435 kg/y/inhabitant compared to 487 kg/y/inhabitant). Figure 3 depicts municipal waste by type of treatment in Bulgaria in kg per capita. It shows the landfilled amounts have fallen since 2010, composting has increased, and a small amount of waste has been diverted from landfill to incineration.

Table . Municipal waste

MUNICIPAL WASTE	Measure	2011	2012	2013	2014	2015	2016	2017	2018
<b>GENERATED MUNICIPAL WASTE</b>									
Total generated municipal wastes	thousand tons	3572	3249	3135	3193	3011	2881	3080	2862
Delivered for landfilling municipal waste	thousand tons	2568	2323	1860	1297	1856	1383	1142	834
Delivered for preliminary treatment	thousand tons	.	.	1005	1598	1002	1418	1789	1813
Delivered for recycling municipal waste	thousand tons	979	841	271	298	153	81	149	215
Generated municipal wastes per capita	kg/year/per capita	488	446	434	442	419	406	435	407
<b>FACILITIES SITES FOR MUNICIPAL WASTE</b>									
Landfill sites and installation for treatment of municipal waste	number	164	157	144	147	134	125	104	72
Area occupied by landfill sites and installation for treatment of municipal waste	decares	5046	4885	5126	3935	4435	3893	2838	2614
Overcapacity of landfill sites and installation for treatment of municipal waste	thousand m <sup>3</sup>	13618	11391	15079	16281	14557	13227	16312	16429
<b>SERVED SETTLEMENTS</b>									
Served settlements	number	4364	4431	4556	4578	4593	4616	4642	4698
Share of population served by municipal waste collection systems	%	98.9	99.2	99.5	99.6	99.6	99.7	99.7	99.8



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**Figure 4: Municipal waste by treatment in Bulgaria 2010-2017**

Measures are needed for improving the effectiveness of separate collection of paper, glass, plastics and metal from packages and other sources by covering a larger number of municipalities in Bulgaria by the systems of extended producers responsibility with changes in the criteria for covered population, as well as improving the partnership between the municipalities and the organizations in construction of new common systems for separate collection of recyclable waste.

Recycling of municipal waste (including composting) has slightly increased, to 35 % in 2017 (Figure 4). The recycling rate remains considerably lower than the EU average of 46 %; and significant efforts will be needed to meet the 50 % EU recycling target by 2020. One of the root causes of the lack of progress in separate collection of recyclable materials other than metals is the competition between the formal and the informal waste collection systems. This competition affects the incentives both of extended producer responsibility schemes to invest in separate collection and of citizens to participate in it.



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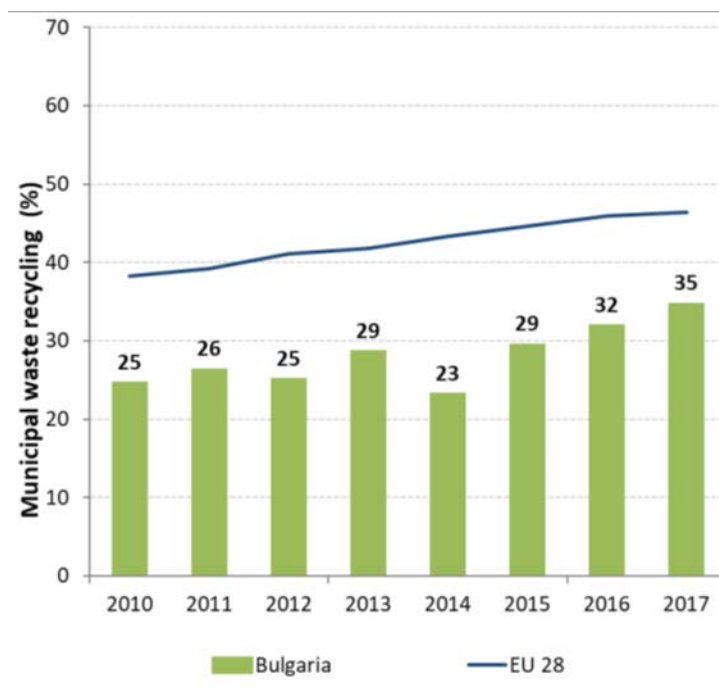


Figure 4: Recycling rate of municipal waste 2010-2017

For this reason, in its 'Early Warning Report', the Commission listed Bulgaria among the Member States at risk of missing the 2020 municipal waste recycling target, and recommended country-specific actions to close the gap. Even more effort will be necessary to comply with recycling targets for the post-2020 period. Notable progress has been made in increasing composting, which stood at 8 % in 2017 but is still below the EU average of around 16.5 %. Most of this increase, however, relates to non-household biodegradable waste (e.g. from businesses and parks). Bulgaria still has one of the highest landfill rates for municipal waste in the EU (at 62 % in 2017 compared to the EU average of around 24 %).

## 7. CONCLUSION

The implementation and enforcement of regulations and management measures at national levels is a key component to combat marine litter. Policy makers, managers and scientists involved in implementing MSFD or other framework on marine litter are faced with complex and diverse issues, including questions relating to the harmonization of monitoring tools and strategies, the definition of 'harm' to the marine environment, the assessment of land and sea-based sources from which marine



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litter enters the sea and the development of a common understanding of the application of appropriate operational/environmental targets.

The conducted monitoring on the Black Sea coast will be useful for gathering information on the trends of the indicator 10.1.1. "Quantity of ML accumulated on the coastline", Descriptor 10 "Marine litter" and will help to develop appropriate strategy for achieving good environmental status of the marine environment by 2020. Organization of yearly based campaigns for ML monitoring, mapping the sources and ML quantities will ensure collection of data which will serve to plan effective measures to reduce the negative impact on the marine environment.

It is important to enhance participation and cooperation of state in international/regional initiatives. The transboundary nature of marine litter underlines that the problem is global in scale and international in impact. In this regards, national measures alone are insufficient to control marine debris, and international/regional cooperation is required. A wide range of international/regional initiatives on marine litter (such as UNEP, Bucharest Convention or GPML and various regional sea instruments) have established a platform for concerned states to engage in cooperation; participation and cooperation should be enhanced and strengthened both in terms of the number of participating states and the substantiality of cooperation. This would promote a dialogue among states on good practices in marine litter management and allow for substantial coordination and cooperation in research and developing and implementing more effective and practical management measures, such as the standardization of litter monitoring methods, the technologies for solid waste management, the waste notification system and the fee system for ship-generated waste.

The Black Sea coasts play a vital role in the economy of Black Sea Countries and are an essential source of income for the country. The deterioration of the Black Sea environment and the degradation of biodiversity will have a negative impact not only on the Black Sea ecosystems but also on the economy of this region.

Pollution of the Black Sea coastal waters threatens and worsens the marine environment. In spite of the fact, eutrophication in the coastal waters of many coastal area are stagnant and chronic, it is still observed the hypoxia of the lower layers of the water and individual cases of anoxia in separate sections of the coastal waters.

Municipal waste is found in the coastal waters of the Black Sea, one of the reasons for this, along with the weaknesses of the waste management system, is the lack of public awareness and participation.





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Water pollution negatively affects not only the aesthetic side of the marine environment but also the marine flora and fauna. Plastic (macro and micro plastic) wastes are especially dangerous for marine mammals. Thus, the development and implementation of an effective marine litter management system, the permanent implementation of “marine litter awareness-raising” measures will contribute to the reduction of the pollution risk of the Black Sea and improvement the marine environment.

As a conclusion, we as project partners are managed beside national legislations, together with regional and international agreements too (Table). These common purposes will help increase our project success. Legal framework is almost ready, we only need to wake our public up about marine litter problem and find the common solution.

Table: The regional and international legislations related with Common obligations of Project Partners

Legislations	Partner Countries			
	Turkey	Georgia	Romania	Bulgaria
Bucharest Convention	x	x	x	x
Black Sea Marine Litter Regional Action Plan of the Bucharest Convention	x	x		x
UNCLOS	x	x	x	x
IMO-MARPOL	x	x	x	x
London Convention	x	x	x	x
FAO	x	x	x	x
RIO Declaration	x	x	x	x
UNEP	x		x	x
MSFD	x	x	x	x
WFD	x	x	x	x
Black Sea Marine Litter Regional Action Plan (BSMLRAP)	x	x	x	x
Black Sea Commission	x	x	x	x
Ballast Water Management	x	x	x	x

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