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ENVIRONMENTAL POLLUTION

Participant's Booklet



Common borders. Common solutions.

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**BIOLEARN-BSB142
ECO-CONSCIOUS MINDS TO STOP POLLUTION
IN THE VALUABLE WETLANDS OF BLACK SEA BASIN**

ENVIRONMENTAL POLLUTION

Participant's Booklet

Target Audience: 12+ years old



Common borders. Common solutions.

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District Government of Enez

Gaziömerbey Mahallesi
Cumhuriyet Meydanı Hükümet Konağı
Enez / Edirne
Phone: +90 284 811 6006
E-Mail: enezkaymakamligi@gmail.com

Prepared By

Bilgesu Güngör Tural
Tora Benzeyen

Design

OmaOma Medya ve Yayıncılık
Erden Gümüşçü / Creative Director
Emirhan Demirci / Graphic Designer

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Joint Operational Programme Black Sea Basin 2014-2020 is co-financed by the European Union through the European Neighbourhood Instrument and by the participating countries: Armenia, Bulgaria, Georgia, Greece, Republic of Moldova, Romania, Turkey and Ukraine.

This publication was produced with the financial support of the European Union. Its contents are the sole responsibility of Enez District Governorship and do not necessarily reflect the views of the European Union.

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 www.bio-learn.org

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About The Project

BIOLEARN (Eco-Conscious Minds to Stop Pollution in the Valuable Wetlands of Black Sea Basin - BSB142), which was initiated on 01.01.2020 within the scope of the first call for proposals of “Joint Operational Programme Black Sea Basin 2014-2020” where the Directorate for EU Affairs is the national authority, is led by District Government of Enez.

Representatives of the following partners are as follows:

1. District Government of Enez-Turkey
2. Division Directorate of Edirne under First Regional Directorate under General Directorate of Nature Protection and Nature Parks of Ministry of Agriculture and Forestry - Turkey
3. Foundation Caucasus Environment - Georgia
4. Agricola NGO - Ukraine
5. Green Balkans / Stara Zagora NGO - Bulgaria
6. Management Body of Evros Delta and Samothraki Protected Areas - Greece

The overall objective of the project is to provide information, experience transfer and capacity building training between partners and develop a common environmental protection and education approach, methodology and organizing campaigns that will raise awareness in the society to reduce pollution in important wetlands in the Black Sea Basin.

The main activities to be carried out within the scope of the 26-month project are as follows:

1. Establishment of a total of 4 environmental protection and training centres, one of which is on the shores of Gala Lake, and providing environmental protection training to visitors and especially to students. By providing equipment for the other 6 existing centres, there will be a network of 10 activity and training centres.
2. Workshops to be held in Bulgaria and Greece, focusing on discussions about examples of

successful training and awareness-raising campaigns for the protection of wetlands, sharing experiences and preparing the materials to be used in training which will be applied in all centres. Capacity building training for trainers.

3. Organizing massive and synchronized cleaning campaigns to reduce pollution in wetlands.
4. Award-winning photo contest and exhibition focused on wetland protection.
5. Organizing a wetland pollution-based painting contest and exhibition in primary and secondary schools.

Outputs of the Project:

1. “Stop Pollution” and “Save Nature” environmental education and activity centres, one of which is mobile, will be established in 5 countries and will sustainably carry out training and awareness-raising activities.
2. A report will be prepared on the nature and rate of pollutants in 5 wetlands in the Black Sea Basin.
3. A guide with examples of good practices consisting of training and campaigns focused on protecting wetlands will be prepared.
4. A wetland protection training set consisting of 12 sections will be prepared especially for students. Training sets will also be shared on the internet.
5. After 10 people from 2 each partner country received trainer’s training, they will train 25 people in each region (totally 125 people) and the sustainability of training activities will be ensured in the established centres.
6. A painting competition on environmental protection will be held in at least 15 primary and secondary schools and paintings selected by the jury will be exhibited.
7. Pictures taken in 5 regions with the participation of professional photographers will be exhibited. With the mobile ‘Stop Pollution’ vehicle, the exhibition will travel to 5 countries.
8. An environmental cleaning campaign will be held simultaneously with the participation of 1500 people in 5 regions.
9. With the international conference to be held in Georgia, the outputs of the project and future action plans will be shared with the public.

For more information, you can visit the project website: www.bio-learn.org



Environmental Pollution

Pollution and Pollution Types

People create certain waste materials harmful to nature as a result of their activities. These wastes can be in various forms including solid material, chemical liquids or poisonous gases. Discarding all these waste materials to nature and damage created by them on all living and non-living beings is called **pollution**. While this pollution can be at a visible level in some cases, sometimes it might be invisible with a significant impact on others.

Basically, pollution is classified into four types. These are air pollution, land pollution, water pollution and noise pollution.

Discarding waste materials to nature and damage created by them on all living and non-living beings is called pollution.



 Human activities lead to various pollution types and threaten natural life.



Did You Know?

Pollution impacts everywhere from the deepest point in the ocean to space. While plastic particles have been found in the Mariana Trench which is the deepest point in the world with 10.975 meters, it is known that there are 34 thousand waste particles larger than 10 cm in Earth's orbit.

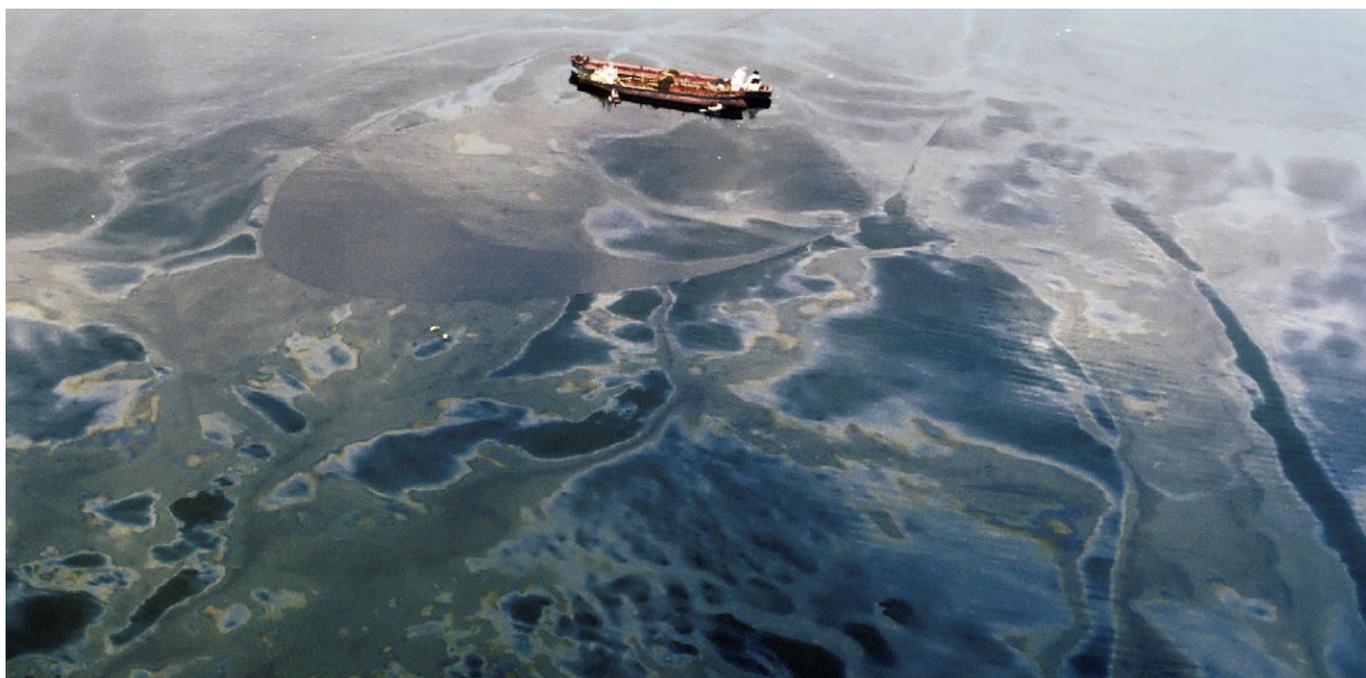
Air pollution is mostly invisible pollution with large-scale impacts. Toxic gases (such as carbon dioxide, sulphur dioxide, nitrogen oxide and carbon monoxide) emerging from burning fossil fuels are released into the atmosphere as microscopic particles. Thermal power plants operating with fossil fuels such as coal and natural gas; fuels that we use in vehicles, planes and trucks for transportation; natural gas that we use for heating our houses; fuels in the industry and other chemicals cause air pollution.

Contrary to air pollution, **land pollution** is mostly visible. As a result of almost all activities, we release waste with various organic materials, heavy metals and chemical materials. Improper agricultural practices, domestic and industrial waste are the main causes of this pollution. These wastes pol-

lute the soil, reach groundwater by rainwater or mix with the atmosphere through evaporation.

When we consider the fact that 70% of our planet is covered with water, **water pollution** has a large-scale impact. Dumping the land-based chemical wastes to the water sources like the seas, lakes and rivers; toxic substances spreading to the sea after oil tanker accidents in the sea and plastic wastes thrown into nature in various ways damage water resources. Today, water pollution has reached serious levels. For example, there is a giant mass of plastic waste continuously moving in the Pacific Ocean. This mass is so huge that it is called “The Seventh Continent”.

Pollution is classified into four types. These are air pollution, land pollution, water pollution and noise pollution.

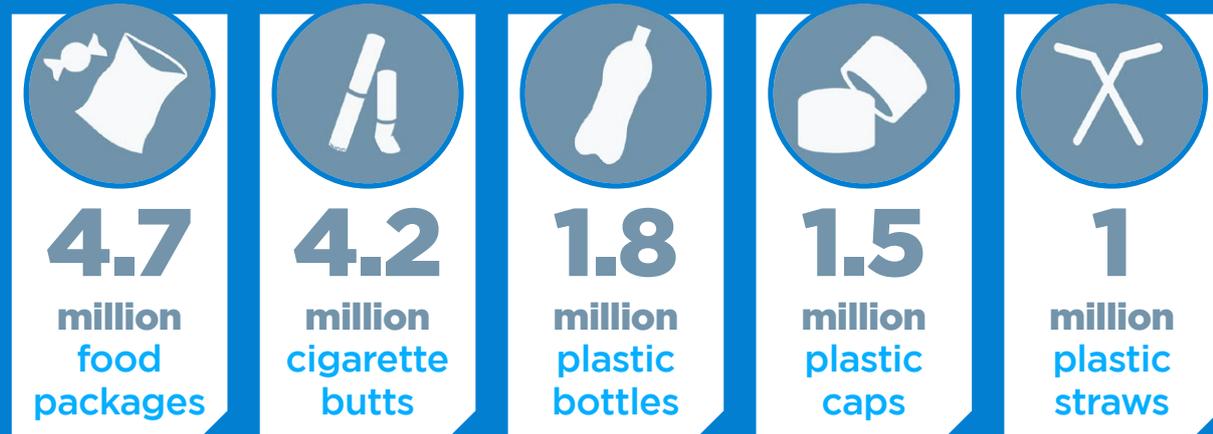


 Since the accidents by petroleum tanks impact a large area, cleaning is a challenging process. This pollution threatens living-beings both on the surface and underwater and causes many of them to die.

Did You Know?

In 2019, approximately **10 thousand tons** of waste was collected in the coastal cleanup with the participation of nearly 1 million people around the world.

The 5 most common waste types are as follows:



Although we don't notice that we are exposed to noise pollution in our daily lives, it has been found that noise pollution has negative impacts on various animals including humans.

Lastly, **noise pollution** which is an invisible threat has negative impacts on humans and other creatures on land and in the water. The loud noise of motor vehicles, factories creating high noise levels, loud music for entertainment and the ships on the sea cause noise pollution. Although we don't notice that we are exposed to this pollution in our daily lives, it has been found that noise pollution has negative impacts on various animals including humans. For example, marine mammals such as whales and dolphins communicating with sound waves called sonars under the water lose their way due to noise pollution and struggle to communicate with their groups. It is thought that the mass deaths of dolphins and whales on the coastlines are because of noise pollution.

Non-living elements such as wetlands, oceans, and rivers are exposed to pollution and the life here is adversely affected. In short, pollution poses a great threat to every living and non-living things on our planet.

Effects of Pollution

It is possible to encounter pollution and its negative impacts on various aspects of our daily lives. While these negative impacts decrease the quality of life of living beings, they can sometimes cause creatures to lose their lives. Non-living elements such as wetlands, oceans, and rivers are exposed to pollution and the life here is adversely affected. In short, pollution poses a great threat to every living and non-living things on our planet.

The most common pollution that we see in nature today is **plastic pollution**. Land-based plastic waste causes pollution both on land and in water. Plastic is a durable, easy to manufacture and inexpensive material. Lots of the products that we use in our daily lives are either made of completely plastic or contain some plastic. Almost all products including plastic products are sold in plastic bags. When the product completes its life cycle, it is mostly thrown into the nature without any recycling and causes plastic pollution.



Single-use or disposable plastic materials are the most important reason for plastic pollution. Single-use plastic products such as plastic water bottles, forks, spoons, glasses, plates, straws do not disappear in nature for a long time. For example, a plastic bottle can take up approximately 500 years to decompose in nature. In the meantime, it breaks down to smaller pieces and turns into particles called **microplastic** and **nanoplastic**. Nanoplastics are so small that they can be found in the water we drink, in the seafood we eat and even in the snowflakes. These particles that start to accumulate in the bodies of living beings over time cause certain diseases both for humans and all other living things. Most of the time, these particles mix with the respiratory and digestive systems of the creatures such as seabirds, fish and aquatic mammals and cause them to die.



 Every year, more than 1 million seabirds die due to plastic pollution.



Did You Know?

A reusable water bottle prevents more than 800 single-use plastic bottles from becoming waste.



Land pollution is not only limited to plastic pollution. The uncontrolled use of pesticides and fertilizers in agricultural land harms the soil and all living creatures that benefit from the soil. Almost everything that is not recycled and reused causes land pollution as well. For example, **domestic wastes** are stored in dumps and solid waste facilities without recycling. If these wastes are not properly stored, they will cause pollution of water resources and soil and also increase the air pollution with the gases they emit. If materials such as **metal** and **glass** are not recycled, they will remain in nature for long years without decomposing. For example, while a metal beverage can decompose in 40 to 100 years, a glass bottle takes 4000 years to break down completely! Apart from these, **debris** and **excavation** from the construction activities; the wastes from factories; cars, trains, planes and ships with completed lifecycle and no longer used cause great pollution as the chemicals are mixed with soil and water.





 *Power plants operating with fossil fuels both increase air pollution and cause global climate change with the released gases. The resulting solid wastes will pollute the soil and water resources and damage natural life.*

Air pollution is important because it impacts all living beings at a global scale. The poisonous gas and toxic substances gathered in the atmosphere accumulate in our body in every breath we take and trigger numerous diseases. For example, according to the World Health Organization, 4.2 million people die each year due to air pollution. We are exposed to the effects of air pollution not only with every breath we take but also with the food we eat. This situation called **acid rain** means that toxic materials in the air come down the surface with precipitations. While such precipitations cause various skin diseases and even vision loss, agricultural products are impacted as well. For example, in the 1970s, air pollution in the UK came down as acid rain and led to destructive impacts on the environment.

Almost everything that is not recycled and reused causes land pollution as well.



The toxic gases that lead to air pollution at the same time cause the climate of our planet to change. Our atmosphere consists of a mixture of different gases in different ratios. Gases such as carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), water vapour (H_2O) which are called **greenhouse gases** cover our planet like a blanket and keep the Earth at a liveable temperature. Increasing air pollution causes an increase in greenhouse gases and further warming of our planet. Various adverse situations such as droughts, floods and ocean acidification increase due to air pollution.

How to Prevent Pollution?

The most basic and easiest way to prevent pollution is to eliminate the problems causing pollution. Various actors including both individuals and governments and companies have their tasks to achieve that.



Structures such as governments, international organisations and NGOs apply various methods to eliminate or limit the causes of pollution. At the national level, governments apply certain regulations and determine rules and punishments for those who do not follow these rules. If this pollution crosses borders and impacts other countries, these regulations are carried to an international level. For example, pollution in the Black Sea will have negative impacts on all countries on the Black Sea coast. For this reason, these countries are gathered and determine common rules. Signed in 1992, the “Convention on the Protection of the Black Sea against Pollution” also known as the Bucharest Convention is a good example of this collaboration.



Did You Know?

“Recycle bins” are used for collecting recyclable products. These bins are placed at different points in the city by municipalities and have different colours indicating the type of waste. If there are no such bins around you, you can contact your municipality to demand these recycle bins.



1. Paper, 2. Plastic, 3. Glass, 4. Waste Battery, 5. Organic, 6. Metal, 7. Non-Recyclable Materials



We can take our waste with us when we are in nature, avoid making noise not to stress the animals and prevent pollution on our planet.

Local authorities in cities like municipalities have certain practices to minimise pollution. For example, they regularly collect domestic wastes and store them in suitable solid waste facilities. In some cities, these solid wastes are used as fuel to generate electricity. In addition, recycling facilities recycle materials such as plastic, paper, glass and metal to produce new raw materials.

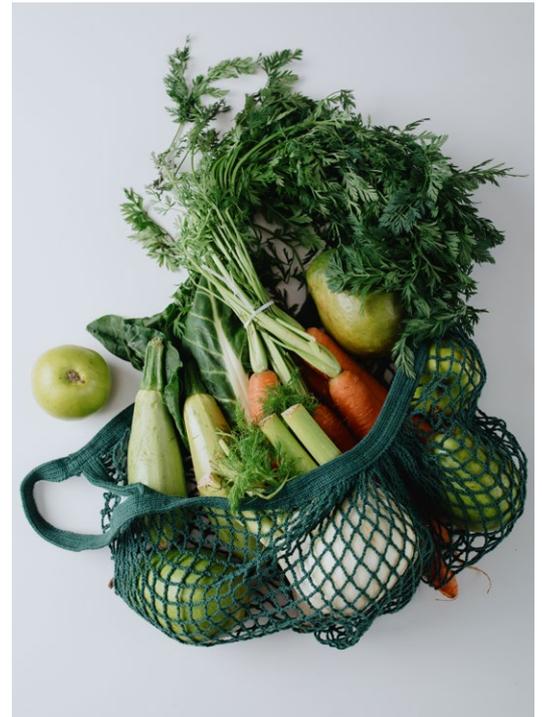
Still, recycling is not a sufficient solution to prevent pollution. More than half of the wastes generated worldwide are irregularly stored in landfills. Only 13% of all wastes is recycled. This is why we as individuals have lots of tasks. First of all, we can start with simple practices that we generate less waste in our daily life. When we buy less, we not only have less garbage but also prevent air and water pollution generated during the production of the products we buy. We can choose glass or metal bottles which we can reuse instead of single-use plas-



tic water bottles. We can eliminate disposable products such as plastic straws, forks, spoons and plates from our lives. During shopping, we can use cloth bags instead of plastic bags.

Our actions are not limited to these. We can prevent water pollution by disposing of the waste oil in the waste oil containers instead of pouring it down the sink. We can choose alternative products that do not damage nature instead of cleaning products containing harmful chemicals. When we buy vegetables and fruits, we can prefer products without agricultural pesticide use. We can take our waste with us when we are in nature, avoid making noise not to stress the animals and prevent pollution on our planet. Because our planet is the only home that we share with all living beings.

During shopping, we can use cloth bags instead of plastic bags.





Worksheets



WASTE MONITORING

You can note the waste types and numbers. (plastic, glass, paper, metal, battery, electronic waste, domestic waste, etc.)

What are the sizes of wastes?

What is the most common waste you see?

**What might be the source of pollution?
(Industry, tourists, fishermen, local people, etc.)**

Other notes

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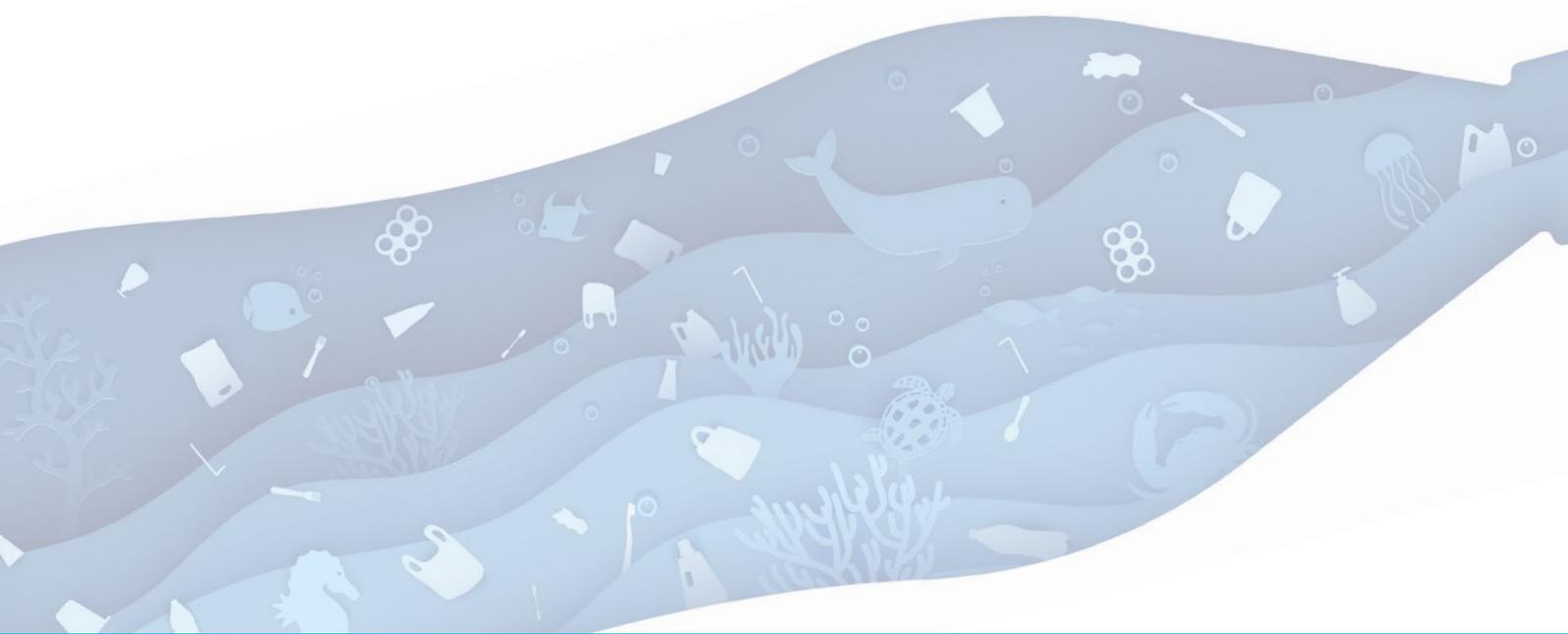
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The Editor of the Material
District Government of Enez
Address: Gaziömerbey Mahallesi, Cumhuriyet Meydanı
Hükümet Konağı 22700 Enez / Edirne
Phone: +90 284 811 60 06
E-Mail: enezkaymakamligi@gmail.com
Website: www.enez.gov.tr

The Title of the Programme
Joint Operational Programme Black Sea Basin 2014-2020

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