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THE USE OF WETLANDS

Trainer's Booklet



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

THE USE OF WETLANDS

Trainer's Booklet

Target Audience: 16+ years old

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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





About The Booklet


This training booklet is a part of the training set prepared under the “BIOLEARN-BSB142 / Eco-Conscious Minds to Stop Pollution in the Valuable Wetlands of Black Sea Basin” project. The booklet is prepared to attract the attention of the countries in the Black Sea basin to the importance of wetlands, to prevent pollution in wetlands and to develop ecological literacy of the participants accordingly.


This training material targets groups age 16 and older and consists of two parts which are the educator booklet and participant booklet. The trainer booklet has detailed activity application instructions, necessary information on the subject, assessment questions and recommendations to enrich the activity.


Application Notes


 Before starting the activity, it is recommended to view the entire booklet and to get ready for the topic by using the information in the booklet.

 At the beginning of the activity, necessary materials and worksheets should be distributed to the participants.

 When activities are applied, it is important to undertake a facilitator/guide role and to ensure the active participation of the participants.

 The activities in this booklet are planned to be completed in a short time. All of these activities can be applied consecutively or one or two of the activities can be applied in desired order depending on the development stages and interest levels of the participants.

 Presenting the activities with a natural narrative rather than reading the information text in the instructions and keeping the interest of the participants with questions and answers would present positive benefits.

 The activity instructions can be followed exactly or adapted based on participants' ages, development stages and interest levels without diverging from the activity purposes.



The Use of Wetlands

Human settlements in almost all places around the world have developed around wetlands and other water resources.

Use of Wetlands for Socio-Economic Purposes

Wetlands undertake various tasks for the sustainability of living and non-living things in the ecosystem. Wetlands are indispensable natural structures for our planet with features such as protecting water, feeding groundwater resources, preventing floods and overflows and being home to many living beings thanks to nutrient richness.

These properties of the wetlands bring certain socio-economic benefits for humans. For thousands of years, human communities all around the world have safely lived thanks to these benefits of the wetlands, met their basic needs such as finding food, developed the civilisations and laid the





foundation of today's world. For example, the first settled communities and first agricultural activities in the world emerged on wetlands and fertile land around the Euphrates and Tigris rivers called Mesopotamia (today's Iraq and Syria lands). In addition to Mesopotamia, human settlements in almost all places around the world have developed around wetlands and other water resources. A similar situation is visible for the countries around the Black Sea basin. Capitals such as Kyiv and Tbilisi were established around the fertile lands near the great rivers. In this sense, it is not a coincidence that Tokyo, Delhi and Shanghai which are the world's 3 largest cities have large rivers running through the middle of the city!

Did you know?


Approximately half of the world population (more than 3 billion people) meet the basic water needs from freshwater wetlands far from the coastline. The other half is dependent on groundwater resources. In some cases, groundwater is fed with the functions of the wetlands.

For thousands of years, human communities all around the world have safely lived thanks to benefits of the wetlands, met their basic needs such as finding food, developed the civilisations and laid the foundation of today's world.

In the past, the relationship between people and wetlands focused on using reeds and trees as construction materials to meet the sheltering needs and to find food by catching animals like fish and birds. Over time, this relationship developed and the wetlands started to take an important place in agriculture and animal husbandry activities. Especially the fertile nature of the soil around the wetlands provides ideal conditions for agriculture and helps a significant increase in product diversity and product amount in agricultural production.





 Paddy agriculture has a large share in agricultural production in wetlands.

Today, we can see that these socio-economic utilizations are proceeding in a similar way. Wetlands still play an important role in agricultural production activities in most places around the world. Both the water used for irrigation and the fertile soil structure around the wetlands offer opportunities for this production. For example, rice is one of the main agricultural products produced in the wetlands. On the global scale, 750-million-ton rice is produced around the world every year and the majority of this production is in the wetlands of densely populated countries such as China and India. In addition to agriculture, animal husbandry is among the most important socio-economic benefits. Wetlands are mostly used for grazing cattle and these areas offer easy and cheap food options for the animals.

Did you know?

Kafue Flats Wetland in Zambia which is protected under Ramsar Convention becomes a pasture of more than 250 thousand cattle every year when the dry season starts.

Wetlands still play an important role in agricultural production activities in most places around the world. Both the water used for irrigation and the fertile soil structure around the wetlands offer opportunities for this production.



Salt production and medical clay production are among the benefits of the wetlands. Especially lakes with high salt concentration and wetlands on the seashore play an important role in salt production on a global scale. Since the salt concentration of the Black Sea is low, salt production in wetlands in the Black Sea basin is low but the wetlands in the Mediterranean basin have a significant share in salt production. Similarly, producing medical clay from wetlands is an important socio-economic benefit. The rich mineral structure of the soil attracts high attention to health tourism.

Although hunting is highly controversial, it is among the socio-economic benefits of wetlands. Hunting activities are divided into two as fishery and bird hunting. The rich ecosystem and biodiversity of the wetlands enable these socio-economic benefits. Especially fishery is a socio-economic benefit that can feed a large amount of the world population as basic food sources. On the other hand, bird hunting means hunting native and migratory bird species under certain rules and limits. However, problems such as poaching and the inability to identify the species while hunting have negative effects on endangered bird species.

Producing medical clay from wetlands is an important socio-economic benefit. The rich mineral structure of the soil attracts high attention to health tourism.



 *Wetlands provide important socio-economic benefits with their rich fish and aquacultural resources.*



Lastly, eco-tourism and recreational activities are among the benefits. The unique natural beauties and biodiversity of the wetlands provide an environment where individuals can spend an enjoyable time. Especially in recent years, wetlands are becoming popular natural areas with an increasing number of visitors with well-planned ecotourism strategies and practices in these fields. Recreational applications such as visitor centres, walking paths, observation towers and information boards in wetlands increase the knowledge and interest of visitors.

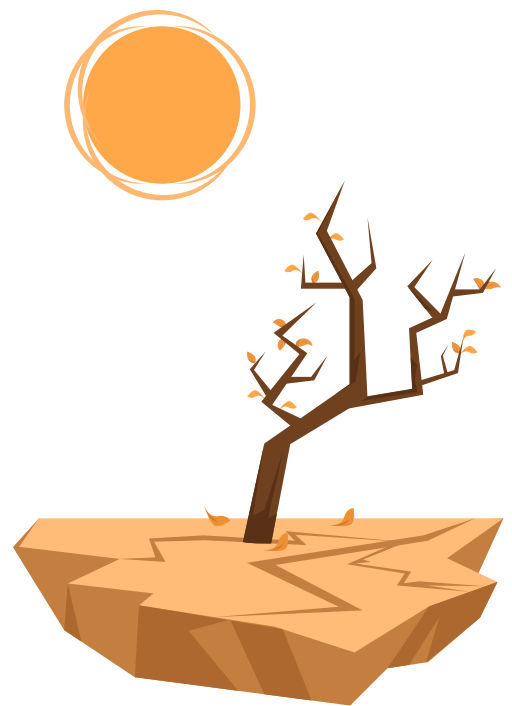
Effects of Socio-Economic Practices on Wetlands

Although wetlands offer various socio-economic benefits to millions of people on a global scale, human activities can cause damage to these natural ecosystems. When



these activities are not restricted, regulated and when steps to reduce their impacts are not taken, wetlands lose their characteristics and disappear completely.


The most important effects of socio-economic applications are increasing pollution in wetlands, water quality degradation, decrease in the water level and drying of the wetland. Chemical fertiliser uses in agricultural activities, intensive monoculture farming practices, stubble burning after paddy harvest and intensive animal husbandry cause salt, heavy metal and chemical accumulation in the soil. The increased industrial activities in wetland basins and discharging the production waste to wet-



Although wetlands offer various socio-economic benefits to millions of people on a global scale, human activities can cause damage to these natural ecosystems.

lands deteriorate the acidity balance in the water causing poor water quality, damage living beings interacting with wetlands and accelerate the extinction of biodiversity. All of this pollution, at the same time, harms the socio-economic benefits people gain from wetlands. The soil pollution reduces agricultural productivity and makes the soil unworkable in the long run. The drop in water quality has negative effects on agriculture and at the same time, damages the benefits from water products such as fishery. The abundance of fish species that can be hunted decreases.



 Problems threatening wetlands cause wetlands to lose their functions and disappear completely.



On the other hand, the water level changes in wetlands bring serious problems. Water withdrawal from wetlands for agricultural irrigation, dams built on rivers and streams feeding the wetlands cause the water level in the wetlands to drop, the surface area to shrink and wetlands to dry up completely. These problems can emerge as a result of socio-economic practices as well as a result of planned drying efforts. With these practices, the water body of the wetlands is emptied by drainage channels opened into these areas. Then, the wetland is dried and turned into a settlement, industrial facilities and agricultural areas. This drying activity that results in the complete destruction of the wetland habitat is mostly irreversible.

The most important effects of socio-economic applications are increasing pollution in wetlands, water quality degradation, decrease in the water level and drying of the wetland.

Did you know?

According to the Living Planet Index of the World Wide Fund for Nature (WWF), the population of freshwater species has decreased by **76%** between 1970 and 2010.

For example, Kuyucuk Lake in Kars city of Turkey which is protected under the Ramsar Convention since 2009 experiences this fate. Kuyucuk Lake dried completely after water was drained from the lake for agricultural activities followed by irregular precipitation. Although the lake has been tried to be recovered with various conservation projects in the following years, complete success has not been fully achieved. The lake which is an important area for thousands of birds on their migration routes can host few birds in recent years.





Legal Arrangements for Wetland Use

Prevention of socio-economic activities and their environmental effects in the wetlands is only possible with certain legal arrangements to protect the wetlands. These arrangements can be action plans and area-based strategies by the government on the national scale as well as certain restrictions and applications at an international scale.

Socio-economic benefits from the wetlands might change depending on the structure of that wetland. For example, while a wetland has benefits for the fishery, another one can be rich in terms of agricultural ac-

Prevention of socio-economic activities and their environmental effects in the wetlands is only possible with certain legal arrangements to protect the wetlands.



tivities. At this point, legislations specially prepared for the structure of that wetland both increase the success of applications of these legislations and ensure the sustainability of the area.

On a global scale, there are certain basic rules and prohibitions in these legislations for protecting wetlands. These can be roughly listed as follows:

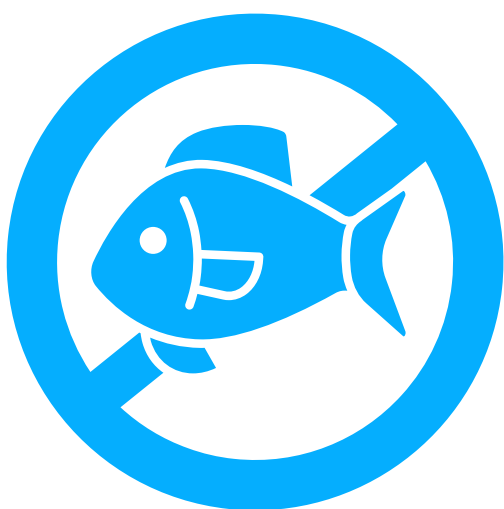
- Structures such as power plants, ports, terminals, industrial facilities cannot be constructed in a wetland.
- Mining activities cannot be carried out within a wetland.



- Any type of waste cannot be dumped into a wetland.
- Drainage and drying activities that will have negative effects on water quality and water level cannot be undertaken in a wetland.
- All kinds of natural structures such as trees, reeds, dunes cannot be cut, dismantled and carried from the wetland.
- Activities such as boats, jet skis and canoes that carry humans to bird breeding colonies and stress the birds cannot be done in the wetlands.

On a global scale, there are certain basic rules and prohibitions in these legislations for protecting wetlands.





- Any vegetation within the wetland, especially reeds, cannot be burned.
- Reeds in the wetlands cannot be cut down except the planned amount and time frame by legislation.
- Hunting is forbidden other than designated areas and limits in the wetland and living and non-living beings cannot be collected.
- Any type of fishery other than legal permissions and limits is forbidden.



Activities



Wetland Problem Tree



Objective

To identify the causes and effects related to a problem of wetlands.



Learning Outcomes

- ✎ S/he will discuss the problems of the wetlands.
- ✎ S/he will go to the root of problems that wetlands are exposed and guess the consequences.



Target Audience

16+ years old



Materials

Whiteboard, board marker



Duration

40 min.



Method

Brainstorming

Application

1. Talk about the functions of the wetlands with participants and learn what they know about it. Then, you can make the explanation below.

Wetlands help the ecosystem to function smoothly thanks to their important tasks. Wetlands are indispensable natural structures for our planet with features such as protecting water, feeding groundwater resources, preventing floods and overflows and being home to many living beings thanks to nutrient richness. Additionally, they have lots of socio-economic benefits for humans. Using reeds and trees as construction materials to meet the sheltering needs, using animals like fish and birds as food with hunting, salt production, agriculture and animal husbandry activities are among the important activities. Especially the fertile nature of the soil around the wetlands helped a significant increase in product diversity and product amount in agricultural production. Also, they became popular natural



areas with ecotourism and recreational activities. But intensive human activities create pressure on wetlands and cause damage.

2. Then, ask participants questions about the state of the wetland you are in. You can use the following questions or draw attention directly to the problems in your region.

- Is the wetland in your region healthy? How do you know?

- Is it facing any threats?
- How is the water level?
- Are there agricultural activities around the wetlands? Do you think these activities impact wetlands? How?
- Does the wetland have a waste problem?
- Is there hunting in this wetland? How does this impact the wetland?

3. Based on the answers, identify

- the most common problem(s) for the wetland in that region.
4. Draw a tree with roots and branches on the board (You can draw more trees to work on multiple problems). Write the **main problem** to the **trunk** of the tree. For example, “The water amount decreased in the wetland.”
 5. Ask the **causes** of the problem to the participants and write these to the **roots** of the tree or ask the participants to come and write them on the board. For example, “drying wetlands to open up agricultural lands” or “irregular precipitation due to climate change”.
 6. Then, ask the **effects** of the problem and write them to the **branches** of the tree. For example, “reduction of plant species” or “degradation of an ecosystem”.
 7. At this stage, you can add more details with indirect causes and effects by creating separate layers on the roots and branches.
 8. Then, ask the participants what they can do to solve the problem. Add the **solutions** by drawing **leaves** or **fruits** on the branches.
 9. After completing your tree, talk about going deep to the root of the problem and the importance of seeing the big picture.

Assessment Questions

You can ask the following questions to the participants during or at the end of the activity.

- ▶ Is there one or multiple reasons at the root of a problem?
- ▶ Do the changes in the tree’s root affect the branches? How?

Extensions

- ▶ You can prepare a questionnaire study. Thus, you can learn whether people have any idea about the problems of the wetlands and organise an awareness project.

Looking for the Most Effective Action



Objective

To look for the most effective action to move against the problems related to wetlands.



Learning Outcomes

- ✎ S/he will discuss actions to protect wetlands.
- ✎ S/he will make selections by assessing the cons and pros of the actions.



Target Audience

16+ years old



Materials

Paper pieces or sticky papers, pencil, Diamond Ranking Cards



Duration

50 min.



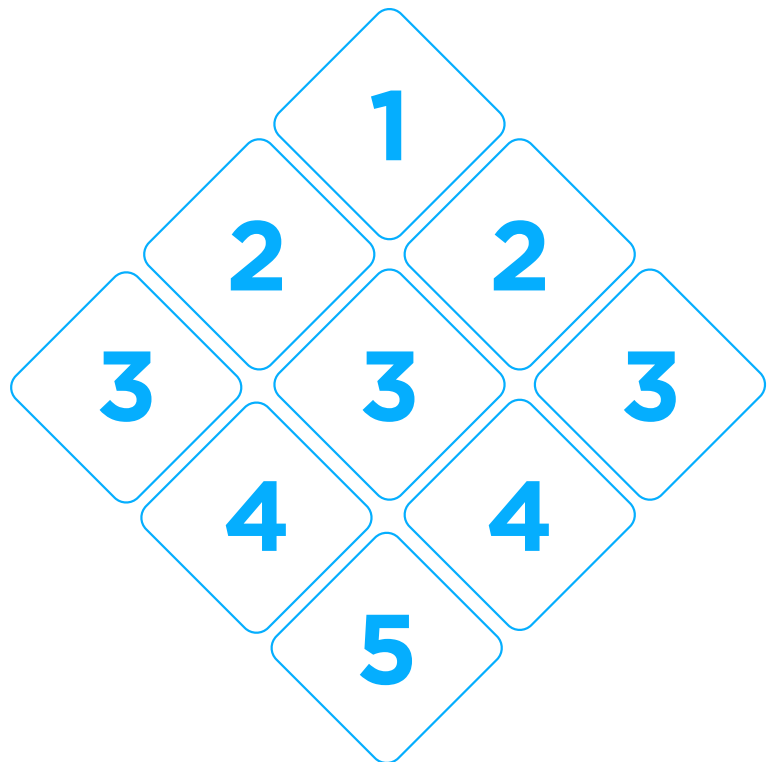
Method

Brainstorming, critical thinking, group work

Application

1. Talk about the problems faced by wetlands with participants. Choose one of the problems.
2. Divide the participants into groups. Ask the groups to find nine different actions to solve this problem. Write these nine different solution recommendations on pieces of paper or sticky paper. If you want, you can apply the activity by using “ready-made” cards (the Diamond Ranking Cards).
3. Then, explain the “diamond ranking” method to the participants. *We will assess and rank the 9 different methods with the diamond ranking method. We will start by placing 1 idea that we think is the most important to the top. Then we will place 2 important ideas under it, 3 less important ideas under them, 2 less important ideas under them, and finally at the bottom 1 least important idea under them until we form a diamond shape. We will obtain a ranking like this picture.*

4. Give time to the groups to think. Tell them that there is no right or wrong answer and each method has different advantages and disadvantages. Ask them to give reasons for the most important and least important method while they do the ranking.
5. Finish the activity when the groups complete the ranking. Ask everyone to share their choices and reasons.



Assessment Questions

You can ask the following questions to the participants during or at the end of the activity.

- ▶ What is the strongest side of the selected action? What is the weakest side?
- ▶ Is it possible to apply all these actions in real life?

Extensions

- ▶ You can apply the most effective method with the participants at the end of the activity or do a planning project about how to apply this action.

DIAMOND RANKING CARDS

<p>The best action is to lobby with decision-makers. For example, writing a letter, an email, a petition or visiting them.</p>	<p>The best action is to find which organisations can help us and to join their local, national or global campaigns.</p>	<p>The best action is to perform a show/ theatre play about how the issue will impact people.</p>
<p>The best action is to use social media to raise awareness and inspire others.</p>	<p>The best action is to prepare an explanatory brochure or poster on the issue and to display it to local people.</p>	<p>The best action is to watch out for our lifestyle and to change it if necessary. For example, changing what we eat, wear and spend money on.</p>
<p>The best action is to make a video or photograph presentation to draw attention to the issue.</p>	<p>The best action is to raise money and to donate it to an organisation working on the issue.</p>	<p>The best action is to work with the media. For example, giving a speech on local radio or television or inviting the media to an event.</p>

Notes

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