



WASTE AND PROTECTED AREAS OF BOSNIA AND HERZEGOVINA

Dr Elvira Hadžiahmetović Jurida
University of Tuzla

INTRODUCTION

- Due to increasing quantities of waste and the damage to the environment, waste is considered one of the most significant environmental problems of the modern world.
- Human kind, through its activities, is a decisive factor in changing the environment. These activities are related to meeting human needs. Much of the need has been created artificially and the question is whether we really need so many different products that, after use, will become waste.
- Waste includes things and objects that we plan to dispose of because we no longer need them, but they can be reused or recycled.

TYPES OF WASTE

- ❖ glass;
- ❖ metal packaging and cans;
- ❖ paper;
- ❖ plastic;
- ❖ textile;
- ❖ bio-waste;
- ❖ hazardous waste;
- ❖ municipal (mixed) waste.



HAZARDOUS AND HARMFUL HOUSEHOLD WASTE

- ❖ batteries;
- ❖ motor oils;
- ❖ stove, oven and grill cleaners;
- ❖ chemicals for floors and furniture;
- ❖ stain removers;
- ❖ mercury thermometers
- ❖ e-waste (electronic waste)



How to properly sort waste?

Waste can be separated in the following ways:

- in the household, bins "on the doorstep"
- in city containers;
- special places for recycling.

Waste collection

- ❖ The system of separate collection of municipal waste, as a dynamic system that is constantly updated, includes: special containers placed in public areas with containers for the disposal of mixed municipal waste and special containers for various types of household waste,
- ❖ containers grouped in the so-called "Green islands" (groups of containers for separate collection of waste in public areas),
- ❖ recycling yards.



- ❖ Unavoidable waste should be reused as much as possible with balanced environmental and economic conditions. For this purpose, it is especially important to collect it separately (by type) at the place of its origin, with a dual purpose:
- ❖ separation of usable part (paper, glass, cardboard, biowaste, plastic, etc.) with the aim of recycling, i.e. recovery, and
- ❖ separation of hazardous waste (oils, batteries, medicines, chemicals, etc.) with the aim of detoxification and recycling / recovery.



Waste management

- ❖ Progress in addressing waste offers environmental benefits, even for countries with high recycling and recovery rates.
- ❖ Unfortunately, our current production and consumption systems do not offer much incentive to prevent and reduce waste. From product and packaging design to material selection, it is necessary to redesign the entire value chain by first taking care to prevent waste, and then by using the "residues" of one process as input for another.
- ❖ Progress in addressing waste requires the concerted efforts of all stakeholders: consumers, producers, policy makers, local authorities, waste management facilities, etc.



Waste prevention

- ❖ Waste prevention and waste reduction measures refer to processes or places of waste generation in all areas of activity, and include appropriate procedures, i.e. changes in production or use processes for the purpose of reducing waste by quantity, volume and harmful ingredients. Measures to avoid and reduce waste generation should be implemented in:
- ❖ production of material goods,
- ❖ consumption of material goods.



Waste – affects ecosystems, our health, marine and other waters

- ❖ Poor waste management and waste disposal can seriously threaten some ecosystems, such as marine and coastal ecosystems. Marine litter is a growing problem, and not just for aesthetic reasons: entanglement and ingestion pose serious threats to many marine species.
- ❖ Waste affects the environment in an indirect way. Waste that is not recycled or recovered represents the loss of raw materials and other input materials used in the chain, i.e. during the production, transport and consumption of products. The environmental effects in the life cycle chain are significantly greater than those in the waste management phases.



Waste – affects ecosystems, our health, marine and other waters

- ❖ Waste directly or indirectly affects our health and well-being in many ways: methane gases contribute to climate change, air pollutants are released into the atmosphere, drinking water sources are contaminated, crops are grown in contaminated soil, and fish swallow toxic chemicals and then end up in our plates ...
- ❖ Illegal activities such as illegal dumping, incineration or export are also affected, but it is difficult to estimate the full scope of such activities or their impact.



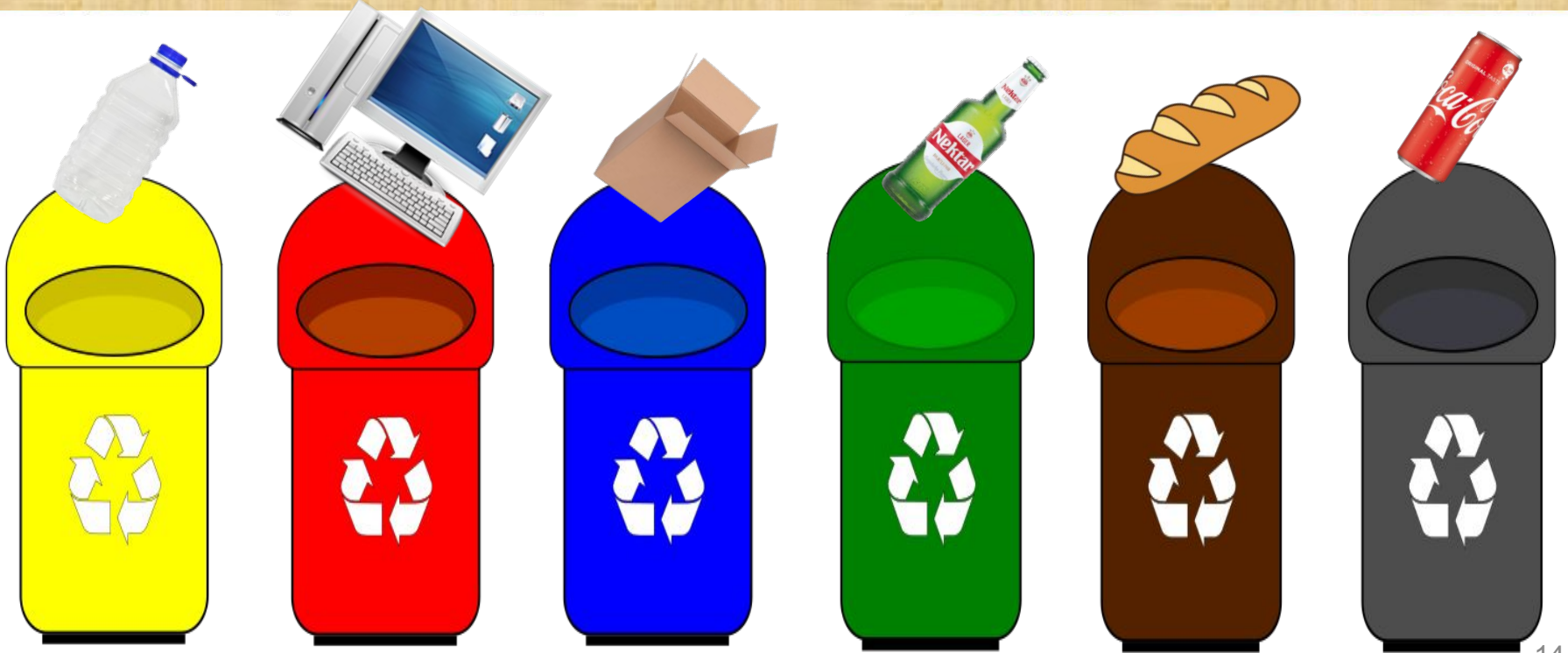
Regulations

- ❖ In the process of integration of Bosnia and Herzegovina into the EU, our country has decided to harmonize its legislation with the relevant EU laws. The harmonization of legal obligations is performed in all segments, including the environmental protection segment.
- ❖ The possibility of a packaging economy, ie. legal obligors: packaging manufacturers, fillers, importers, distributors and traders, establish their own system operator through which they fulfil legal obligations, is a good practice taken from European countries, which has proven to be the most efficient and rational.
- ❖ Seven leading companies from various packaging industries from all over Bosnia and Herzegovina founded Ekopak d.o.o. in accordance with the principle of "extended producer responsibility" which is incorporated into the Rulebook on Management of Packaging and Packaging Waste of the Federation of BiH

RECYCLING

- ❖ The issue of recycling is one of the most important issues today.
- ❖ Recycling is key to conserving energy and protecting the environment.
- ❖ Recycling is the process of collecting and processing materials that would otherwise be thrown away as waste and processing them into new products. The benefits of recycling are huge. Recycling reduces the amount of waste that ends up in landfills, thus preserving natural resources (forests, springs and healthy land).
- ❖ By opening recycling plants, new jobs and employment opportunities are being created in order to improve the living standards of people in every way.

WASTE CLASIFICATION



PROTECTED AREAS

- ❖ Protected areas are those parts of the territory that are important for biodiversity, relative preservation of the original landscape and / or aesthetic and tourist potentials.





CLASSIFICATION OF PROTECTED AREAS

STRICT NATURE RESERVE

area of unaltered natural characteristics, intended exclusively for the preservation of native nature, genetic resources, ecological balance, monitoring of natural phenomena and processes, scientific research that does not disturb natural features, values, phenomena and processes.

SPECIAL NATURE RESERVE

an area with unaltered or slightly altered, which includes habitats of endangered wild species of plants, animals and fungi, without settlements or with rare settlements in which man lives in harmony with nature, intended for preservation of existing natural features, genetic resources, ecological balance, monitoring of natural phenomena and processes, scientific research and education, controlled visits and preservation of the traditional way of life.

NATIONAL PARK

an area with a large number of diverse natural ecosystems, prominent landscape characteristics and cultural heritage in which man lives in harmony with nature, designed to preserve existing natural values and resources, overall landscape, geological and biological diversity, and meet scientific, educational, spiritual, aesthetic, cultural, tourist, health and recreational needs and other activities in accordance with the principles of nature protection and sustainable development.



MONUMENT OF NATURE

minor, unaltered or partially altered, natural spatial whole, object or phenomenon, physically clearly expressed, recognizable and unique, as well as botanical value formed by human work of scientific, aesthetic, cultural or educational significance.

PROTECTED HABITAT

an area that includes one or more types of natural habitats important for the conservation of one or more populations of wild species and their communities.

PROTECTED LANDSCAPE

areas with recognizable appearance with significant natural, biological-ecological, aesthetic and cultural-historical values, which have developed over time as a result of the interaction of nature, natural potentials of the area and the traditional way of life of the local population.

PROTECTED AREAS OF NATURE IN BIH

In Bosnia and Herzegovina, 37 areas are protected on a total area of 105,602.18 hectares, which represents less than 3% of the territory of BiH.

The standard and recommendations of the European Union are that each country should protect at least 10% of its territory.

The table shows Protected Areas of Nature in Bosnia and Herzegovina according to the IUCN categorization.

Some areas are protected under international conventions and regulations to which Bosnia and Herzegovina is a signatory.

Br.	Naziv	Entitet	IUCN kategorizacija	Površina u ha
STROGI REZERVAT PRIRODE				
1.	SRP Prašuma Janj	RS	I a	295,00
2.	SRP Prašuma Lom	RS	I a	297,82
POSEBNI REZERVAT PRIRODE				
	–	–	I b	–
NACIONALNI PARK				
1.	NP Kozara	RS	II	3.907,54
2.	NP Sutjeska	RS	II	16.052,34
3.	NP Una	FBiH	II	19.800,00
4.	NP Drina	RS	II	6.315,32
SPOMENIK PRIRODE				
1.	SP Pećina Orlovača	RS	III	27,01
2.	SP Pećina Ljubačevo	RS	III	45,45
3.	SP Žuta bukva	RS	III	0,50
4.	SP Pećina Rastuša	RS	III	11,39
5.	SP Prokoško jezero	FBiH	III	2.225,00
6.	SP Skakavac	FBiH	III	1.430,70
7.	SP Tajan	FBiH	III	3.510,00
8.	SP Vrelo Bosne	FBiH	III	603,00
9.	SP Jama Ledana	RS	III	28,26
10.	SP Vaganska pećina	RS	III	12,00

Br.	Naziv	Entitet	IUCN kategorizacija	Površina u ha
STROGI REZERVAT PRIRODE				
11.	SP Pećina Đatlo	RS	III	43,42
12.	SP Pavlova pećina	RS	III	13,40
13.	SP Girska pećina	RS	III	25,37
14.	SP Pećina pod lipom	RS	III	6,10
15.	SP Pećina Ledenjača	RS	III	7,40
16.	SP Velika pećina	RS	III	820,92
17.	SP Pećina Kuk	RS	III	-*
18.	SP Liječanski knez	RS	III	0,34
PODRUČJE ZA UPRAVLJANJE STANIŠTEM – ZAŠTIĆENO STANIŠTE				
1.	ZŠ Gromiželj	RS	IV	831,30
2.	ZŠ Tišina	RS	IV	196,49
PARK PRIRODE – ZAŠTIĆENI PEJZAŽ				
1.	PP Blidinje	FBiH	V	35.800,00
2.	PP Hutovo blato	FBiH	V	7.411,00
3.	PP Cicelj	RS	V	330,76
4.	PP Una	RS	V	2.772,60
5.	ZP Konjuh	FBiH	V	8.016,61
6.	ZP Bijambare	FBiH	V	497,00
7.	ZP Trebević	FBiH	V	400,20
8.	ZP Bentbaša	FBiH	V	160,90

Br.	Naziv	Entitet	IUCN kategorizacija	Površina u ha
PODRUČJE ZA UPRAVLJANJE RESURSIMA – PARK ŠUMA – SPOM. PARKOVSKE ARHITEKTURE				
1.	SPA Univerzitetski grad	RS	VI	27,38
2.	PŠ Slatina	RS	VI	35,73
3.	PŠ Jelića brdo	RS	VI	2,96

RAMSARSKA PODRUČJA				
1. Hutovo blato (FBiH)				
2. Livanjsko polje (FBiH)				
3. Bardača (RS)				
IBA PODRUČJA (Important Bird Areas)				
1. Hutovo blato (FBiH)				
2. Boračko jezero (FBiH)				
3. Bardača (RS)				



WASTE PREVENTION OF PROTECTED AREAS



Regarding the prevention of waste generation in protected areas by public institutions themselves, given the specificity of the location, several mitigation measures are available. Reduction measures apply to public nature protection institutions, local utility company, local community, but also visitors to protected areas.

Depending on the type of protected area, it is also possible to ban the introduction of certain products that have proven to be major contaminants.

- ❖ Disposal of unnecessary packaging and useless products (plastic souvenirs, plasticized information leaflets, etc.) reduces the pressure on the waste management system and prevents improperly disposed waste from ending up in the environment.
- ❖ If they exist, catering establishments within protected areas should also adhere to preventive practices and be provided with sufficient reusable utensils to avoid the influx of plastic waste due to the holding of various events involving catering establishments.

PROTECTED AREAS



Ice Cave

Natural monument (Ribnik)



Vrela Sane

Natural monument (Mrkonjić Grad, Ribnik)



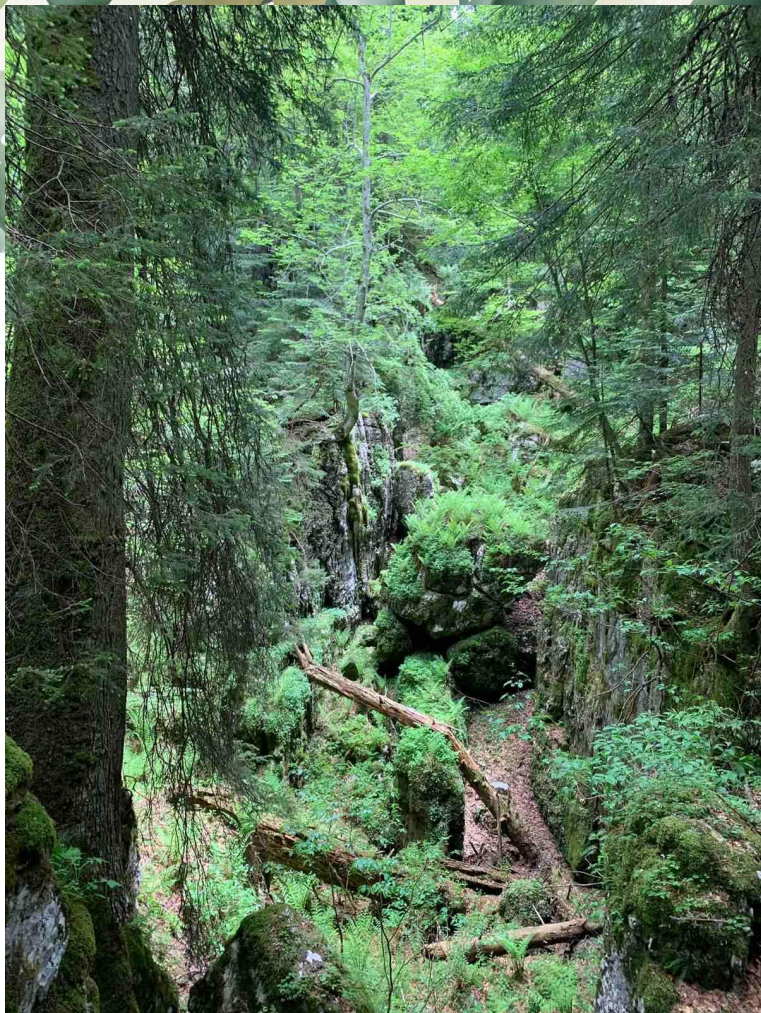
RAINFOREST JANJ

- ❖ Janj Rainforest is the only natural asset in BiH that is included in the UNESCO World Heritage List.
- ❖ Strict nature reserve in which the exploitation of forests and any human activity is prohibited.



RAINFOREST LOM

- ❖ is a strict nature reserve located in the massif of the Klekovača mountain.
- ❖ 75% of the vegetation consists of beech-fir-spruce forest communities.
- ❖ More than 400 species of fungi grow in the rainforest, of



NATIONAL PARK KOZARA







ODJE JE MALA SREĆA, BUJESAK STAKLA,
LASTAVIČJE GNJEZDO, IZ VRTIČA DAH;
ODJE JE KUGAJ ZIPKE, ŠTO SE MAKLA,
I NA TRAKU SUNGA ZLATNI KUĆNI PRAH?

I. G. KOVAČIĆ, JAMA

An inscription at the entrance to Kozara National Park

MONUMENT OF PARK ARCHITECTURE

MOUNTAIN LISINA

Monument of park architecture "University City". The protected area covers 27.38 ha. It was declared a protected area in 2012.

It had temporary protection (Mrkonjić Grad, Šipovo). Over 400 species, 60 of which are on the Red Lists of most European countries.



NATIONAL PARK SUTJESKA

It is the oldest NP in BiH.

It houses the Perućica rainforest, as well as the highest mountain peak in BiH, Maglić. The river Sutjeska passes through the heart of the NP, including the Skakavac waterfall, one of the largest in Europe (74m).

A huge wealth of flora and fauna is concentrated in the NP, many of which are endemic. Over 300 species of birds have been recorded, as well as about 2,600 species of vascular plants, and approximately 100 species of edible fungi.



In conclusion, it is the human kind that can, through its activities, be the decisive factor in changing the environment

Waste management is crucial when it comes to sustainability of protected areas world-wide, and in Bosnia and Herzegovina in particular, keeping in mind the lack of waste management awareness among the local population.



"Nature can be explored and loved in a small way: in a drop of water, in a test tube, in a cage. But it is the greatest honor and pleasure to explore nature in the great and greatest - from the foothills to the top of a gigantic mountain. "

From the autobiography of Dr. Sergei Matveyev



Thank You
For Your Attention!