

Applying Circular economy principles in biodiversity protection in Natura 2000 sites

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Keywords: Natura 2000, circular economy, ecosystem services, biodiversity.

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Introduction

Biodiversity provides ecosystem services that are essential for the functioning of our societies and for human well-being. In this regard, it was created at European level Natura 2000 network which includes breeding and resting sites for rare and threatened species, and some rare natural habitat types which are protected listed under both the Birds Directive and the Habitats Directive.

The approach to conservation and sustainable use of the Natura 2000 areas is much wider, largely centered on people working with nature rather than against it and Member States must ensure that the sites are managed in a sustainable manner, both ecologically and economically. It is important to understand biodiversity conservation issues from a territorial perspective, taking into account local ecosystem issues.

This paper analyses how the principles of the circular economy can be applied in the Natura 2000 sites in Bacău County.



Fig.1 Romania's development regions

The Bacău County is located in the eastern half of Romania, North-East Region, in the middle basin of Siret and Trotus Rivers. There are declared by various normative acts (ministry orders, government decisions) a number of 14 protected natural areas integrated in the European Network Natura 2000. The total area occupied by Natura 2000 sites is 110,885.56 ha (Table 1).

Table 1. Natura 2000 sites in Bacău County

| Special Protection Areas (SPAs) | Sites of Community Importance (SCIs) |
|--|---------------------------------------|
| ROSPA0063 Lacurile de acumulare Buhuși - Bacău - Berești | ROSCI0059 Dealul Perchiu |
| ROSPA0071 Lunca Siretului Inferior | ROSCI0318 Măgura - Târgu Ocna |
| ROSPA0072 Lunca Siretului Mijlociu | ROSCI0047 Creasta Nemirei |
| ROSPA0138 Piatra Șoimului - Scorțeni - Gîrleni | ROSCI0162 Lunca Siretului Inferior |
| | ROSCI0230 Slănic |
| | ROSCI0309 Lacurile din jurul Măscurei |
| | ROSCI0323 Munții Ciucului |
| | ROSCI0327 Nemira - Lapoș |
| | ROSCI0351 Culmea Cucuieți |
| | ROSCI0434 Siretul Mijlociu |

Six of these Natura 2000 sites are located entirely in Bacău County: ROSPA0063, ROSCI0059, ROSCI0318, ROSCI0230, ROSCI0351, ROSCI0434, the rest extend over the territory of two or more counties, the proportion within the county being different. The dominant ecosystems in these areas are forest and aquatic.

Results & Discussion

The studies carried out to establish the potential to apply the principles of the circular economy in activities carried out in protected natural areas.

The main economic areas in Bacău County are: agriculture, forestry and fishing, industry, of which: manufacturing industry, production and supply of electricity and heat, gas, water, extractive industry, water distribution, sanitation, waste management, decontamination, construction, trade and other sectors and services. The pressure of these economic areas on the use of natural resources is high. Economic activities may be carried out on the surface of Natura 2000 sites, in compliance with the environmental legislation in force, the measures established by the management plans and the conservation objectives established for the conservation of species and habitats of community interest. The sectors most critical in Bacău County that have the largest terrestrial biodiversity impact are: agriculture, forestry and construction (according to INSSE data).

In 2020, the European Commission has proposed and adopted “A new Circular Economy Action Plan for a cleaner and more competitive Europe”. Among the measures proposed in this plan we can mention the following (European Commission, 2020):

- designing sustainable products;
- reducing (over)packaging, packaging waste and another types of waste (food waste, textile waste);
- high-quality sorting and removing contaminants from waste;
- using of biodegradable plastics and of bio-based plastics;
- water reuse including in industrial processes.
- creating a well-functioning EU market for secondary raw materials etc.

Each circular economy principle has a part to play to reduce threats to biodiversity. Designing out the release into nature of substances harmful to biodiversity in the form of waste or pollution, redesigning products for multiple use cycles, and developing infrastructure to enable circulation, reducing the negative effects of economic activity on biodiversity, towards employing it actively to regenerate natural systems, keeping existing buildings and materials in use can reduce the impacts on biodiversity associated with the extraction and processing of virgin raw materials, and those impacts brought about by the construction and demolition of buildings could be solutions to the problem of natural resource management and can mitigate the causes of biodiversity loss.

Conclusions

Taking into account the status of protected natural areas, circular economy can promote goals of sustainable development and can be added protection of forest, water and energy resources and conservation of biodiversity.

The circular economy can offers solutions to the problem of natural resource management and many of the action levers of the circular economy can be activated to address this issue, including the political and economic dimension.

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