

INTRODUCTION: BIODIVERSITY AND SUSTAINABLE INNOVATION

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Abstract

This article reflects the introduction to the topics of Biodiversity and Sustainable Innovation which was presented at the Workshop on “Biodiversity of Sea, Sky and Earth: Research and Technological Innovation”, held at Otranto Castle (Italy) on May 24-25, 2024, on the occasion of the International Biodiversity Day (2024).

Keywords

Biodiversity, Sustainable Innovation, International Biodiversity Day

The International Day for Biodiversity (IDB) is celebrated every year on May 22nd. This celebration was established by the United Nations, through the 1992 Convention to protect nature, which is increasingly threatened by human activities and climate change. It aims to increase understanding and awareness of biodiversity issues, reminding us of the beauty of nature and its fundamental role in our survival.

This year, CEIT of the University of Salento¹ celebrates IDB with two days of meetings dedicated to ‘Biodiversity of Sea, Sky and Earth: Research and Technological Innovation’.

The workshop was organized in partnership with the Municipality of Otranto, the Department of Mathematics and Physics of the University of Salento and the Polytechnic University of Bari, with the collaboration of the associations ‘Italia Nostra Sud Salento’, ‘Pro Loco Porto Badisco’, and ‘Associazione Otranto è di tutti’, as well as the digital publisher ‘CLIOedu’.²

The theme of the 2024 International Biodiversity Day is ‘Be part of the Plan’. This is a call to action to all stakeholders to halt and reverse biodiversity loss by supporting the implementation of the Global Biodiversity Framework (GBF), also referred to as the

Biodiversity Plan, adopted on December 19th, 2022, in Montreal, Canada, at the 15th meeting of the Conference of the Parties of the United Nations Convention on Biological Diversity.

The Biodiversity Plan offers opportunities for cooperation and partnerships among diverse actors. Governments, indigenous peoples and local communities, non-governmental organizations, lawmakers, businesses, and individuals are encouraged to highlight the ways in which they are supporting the implementation of the Biodiversity Plan. Everyone has a role to play and therefore can “Be Part of the Plan” (IDB, 2024). They can also show their support for biodiversity by customising the World Biodiversity Day logo, as we did by adding CEIT-Salento University and Otranto City (Fig. 1).

The agreement includes four goals and 23 targets to be achieved by 2030: regenerating at least 30% of degraded ecosystems, protecting 30% of Earth's lands, oceans, coastal zones, and waters, and halting and reversing biodiversity loss. It envisages a gradual cut of USD 500 billion per year in nature-damaging government subsidies, and the provision of at least USD 200 billion per year in public and private resources by 2030 to support less developed countries, nature

¹ CEIT - Centro Euromediterraneo di Innovazione Tecnologica per i Beni Culturali e Ambientali e la Biomedicina [Euro-Mediterranean Centre for Technological Innovation for Cultural and Environmental Heritage and Biomedicine]: <http://www.ceit-otranto.it/>

² Workshop programme: <http://www.ceit-otranto.it/index.php/notizie/9-notizie/430-giornata-mondiale-biodiversita>

conservation, and the economic, political and social stability of the Planet.

It is the first wide-ranging global agreement on Biodiversity, adopted by one hundred and ninety countries to ensure the stability of ecosystem services essential for human security, economic development, nature conservation, and the fight against climate change.

The agreement also requires countries to monitor and report on a broad range of "headlines" and other indicators related to progress towards the GBF objectives and targets, at least every five years.

The Convention on Biodiversity will review national reports during meetings in 2026 and 2029 to assess whether countries are fulfilling their commitments or neglecting the agreement. It will be up to civil society and business to pressure governments to keep their promises.

The Global Biodiversity Framework has been hailed as a 'huge, historic moment' and a 'great victory for our planet and for all humanity.'

I will now provide a brief overview of the topics that will be covered in more depth and from more perspectives by the other speakers.

What is Biodiversity and why is it important? Biodiversity, or biological diversity, is defined as the variety, richness, diversity of all forms of life on Earth. It encompasses millions of plants, animals and microorganisms, the genes they contain, the complex ecosystems they form, in which they coexist and interact, influencing each other. Biodiversity also includes human cultural diversity, which is influenced by the same factors that impact ecological biodiversity.

Biodiversity is our natural capital and a wealth that must be safeguarded. Yet, as we all know, it is disappearing at an alarming rate, due to human activities such as changes in land use, deforestation, overfishing, pollution and climate change. The loss and depletion of biodiversity have severe impacts on economies and societies, reducing the availability of food, energy, and medicinal resources.

Biodiversity needs to be monitored, preserved and restored through modern technologies, making it a central element of sustainable development.

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It aims to reconcile economic growth with the preservation of social

and environmental balance. Sustainable innovation can change the world and improve our planet.

Only a few years ago, sustainability and innovation were considered substantially opposite concepts, because many technological and industrial innovations had (and, unfortunately, in some cases still have) a negative impact on nature and people's well-being. Today, however, innovation can be crucial to improving the environment in which we live.

The topic of sustainability has exploded in recent years and, in some cases, unfortunately, it has also become a fad. Sustainable innovation consists of a reinterpretation of economic development, based on wealth creation for both individuals and society, but with the ultimate aim of eliminating the negative impact of this process on ecological systems, human health and community well-being.

To achieve sustainability goals, we need to implement the circular economy, which focuses on avoiding waste by reducing the use of natural resources, sharing, reusing, and recycling materials and products for as long as possible. This is in contrast to the traditional linear economic model, based on the opposite pattern: extracting, producing, using, and throwing away, ultimately resulting in the disposal in landfills and incinerators.

We need to implement the energy transition to renewables, freeing ourselves from fossil fuels, and the food transition, which focuses on producing food in an environmentally friendly way.

New digital technologies, as well as artificial intelligence (if used appropriately) will play a fundamental role and should therefore serve in the medium to long term to

- reduce the use and waste of natural resources to produce products or services
- improve the energy efficiency of plants and buildings; use alternative and renewable energies
- reduce wastage of water resources
- reduce consumption and pollution
- recycle waste products and packaging
- adopt circular economy models
- adopt new forms of remote working and collaboration models that contribute to people's well-being and social inclusion
- finally, analysing and managing data to monitor results.

The European Union initiated this transition process with a series of directives between 1979 and 2014, followed by the *Green Deal* in 2019 (the *New Green Pact* - a plan for economic and social reforms focusing on climate change and economic and social inequalities), the *Mission on the Health of the Oceans of Oceans, Seas, Coastal and Inland Waters* in 2021, and the *Nature Restoration Act* in 2022. This act aims to contribute, by 2030, to the fulfilment of the EU's international commitments, in particular those set out in the UN *Global Biodiversity Framework*, which I mentioned earlier.

The Ministers of the Environment of the G7 countries (Canada, France, Germany, Japan, Italy, the United Kingdom, and the United States of America) met in Turin, in the Reggia di Venaria, from 28 to 30 April 2024 and discussed climate, energy, environment, and global water crisis. They then adopted a joint declaration to respond adequately and effectively to the challenge of climate change, to ensure a transition to clean energy in developing countries, with particular

reference to Africa.

The 'MAREVIVO' Foundation and the 'Dohrn Foundation' (with its president, Ferdinando Boero, internationally renowned professor of Zoology and Marine Biology) were present, in a room at the Reggia, with the exhibition *ONLY ONE: One Planet, One Ocean, One Health*. A travelling exhibition focused on the themes of energy, ecological and food transition, the concept of circular economy, plastic pollution and the warming of seas and oceans.

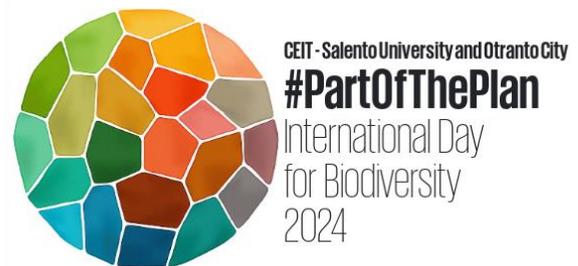


Fig. 1: IDB 2024 logo

REFERENCES

CEIT - Centro Euromediterraneo di Innovazione Tecnologica per i Beni Culturali e Ambientali e la Biomedicina [Euro-Mediterranean Centre for Technological Innovation for Cultural and Environmental Heritage and Biomedicine]. Retrieved from <http://www.ceit-ottranto.it/>

Convention on Biological Diversity (2022). Montreal, Canada. Retrieved from <https://www.cbd.int/doc/decisions/cop-15/cop-15-dec-04-en.pdf>

International Day for Biodiversity (IDB). (2024). 22 May. Retrieved from <https://www.cbd.int/biodiversity-day>

Kunming-Montreal Global Biodiversity Framework (2022). Retrieved from <https://www.cbd.int/gbf>

MAREVIVO, & Fondazione Dohrn (2024). *ONLY ONE: One Ocean, One Planet, One Health*. Retrieved <https://marevivo.it/en/activities/pollution/only-one/>

The Biodiversity Plan. For Life on Earth (2024). Retrieved from <https://www.thenewdivision.world/thebiodiversityplan>

Workshop Giornata mondiale della Biodiversità. Due giorni di incontri dedicati alla Biodiversità di Mare, di Cielo e di Terra, alla ricerca e all'innovazione tecnologica (2024). 24-25 maggio 2024, Castello di Otranto (Lecce, Italy). Retrieved from <http://www.ceit-ottranto.it/index.php/notizie/9-notizie/430-giornata-mondiale-biodiversita>