

ISSUE 2

# NEWSLETTER

19 June, 2025

Welcome to the second issue of the BIOSHIELD Project newsletter.

The primary aim of BIOSHIELD is to develop a tailored curriculum and teaching materials focused on novel biotechnological solutions to mitigate climate change and its resulting disasters.

The project responds to the increasing demand for biotechnology professionals across multiple sectors, including biology, chemistry, energy, biochemistry, genetics, plant science, and microbiology and strives to enrich the student experience by integrating blended learning (specifically flipped learning) and educational technologies into the course delivery process



## In this issue...

### Project Workshops

**BIOSHIELD consortium successfully conducted data collection process by organising 5 workshops in the partner countries with the participation of 110 stakeholders.**

### Curriculum Development

**BIOSHIELD curriculum is designed to allow students to work on and develop a conceptual prototype of a biotechnology product, to help bridge the gap between academic theory and industrial reality before they even enter the workforce**

### 2nd Meeting and Events

- **2nd Meeting in Varazdin, Croatia took place on 1-3 July 2025. All partners worked on video tutorial development process in detail.**
- **Upcoming Events include the Handbook preparation, LTTA and pilot processes.**



## DATA COLLECTION WORKSHOPS

### CANAKKALE ONSEKIZ MART UNIVERSITY

- ➔ The BIOSHIELD workshop at Çanakkale Onsekiz Mart University (17.01.2025) gathered students, academicians, and industry professionals to discuss biotechnology's role in combating climate change, highlighting gaps in practical training, climate awareness, and use of tools like AI and data analysis. Participants emphasized the need for stronger academia-industry-public collaboration, multidisciplinary skills, and scalable, economically viable solutions such as microbial fertilizers, CRISPR-based stress-resistant crops, and synthetic biology for nutrient uptake.
- ➔ Ethical concerns around GMOs, waste utilization, and state incentives were also discussed, with the event underscoring the importance of bridging research and real-world application.



### IONIAN UNIVERSITY



- ➔ The BIOSHIELD Curriculum workshop at Ionian University on 23 January, hosted by Associate Professor Nikolaos Kopsahelis, brought together academics, industry partners, scientific committee members and students in a hybrid format.
- ➔ Structured into four sessions, it focused on climate change impacts, the role of biotechnology in mitigation, and enhancing food system sustainability.
- ➔ Participants engaged in collaborative discussions and responded to structured questions, providing valuable feedback to inform the development of the BIOSHIELD curriculum and future program activities.

### UNIVERSITY OF MARIBOR

- ➔ The BIOSHIELD workshop at the University of Maribor on 7 February gathered 19 participants from academia, business, and student communities to shape an interdisciplinary curriculum bridging education, research, and bioeconomy needs.
- ➔ Discussions highlighted integrating natural, social, and educational sciences with technology and policy to tackle interconnected challenges. Participants stressed collaborative, problem-based learning, systems thinking, and cross-sectoral engagement linking research, innovation, and policy.

This workshop marked a key step in co-creating a relevant, impactful BIOSHIELD curriculum.





## WORKSHOPS & CURRICULUM DEVELOPMENT

### DEMOCRITUS UNIVERSITY OF THRACE

- ➔ The BIOSHIELD workshop at Democritus University of Thrace on 23 January 2025 gathered academics, industry experts, and students to explore biotechnology solutions for climate change and co-create an innovative curriculum. Discussions covered climate-smart agriculture, gene editing, microbial biofertilizers, and the role of AI in biotech, leading to the design of a new module on food and microbiome innovations for climate resilience.
- ➔ Participants emphasized aligning the BIOSHIELD curriculum with the European Green Deal and UN SDGs, promoting hands-on learning, interdisciplinary training, and strong academia-industry collaboration to prepare future leaders in climate-conscious biotechnology.



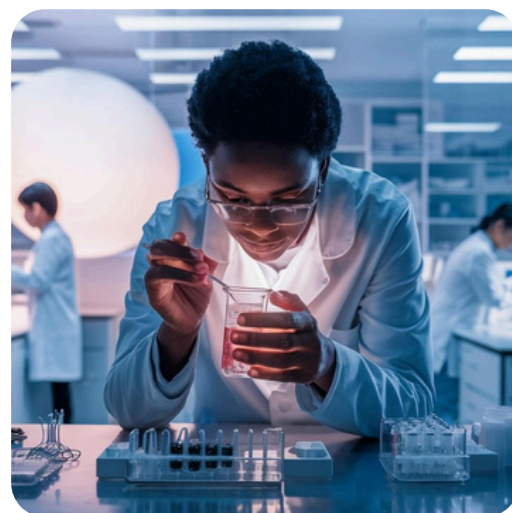
### UNIVERSITY NORTH



- ➔ On 19 February 2025, University North in Croatia hosted a BIOSHIELD workshop focusing on climate change fundamentals, data modelling, programming, and relevant national, European, and international regulations. Participants explored key data sources such as databases and specialised websites.
- ➔ The event also highlighted biotechnological solutions for climate change mitigation, including CRISPR technology, microbial biofertilizers, green technologies, and waste management strategies for reducing industry carbon footprints.
- ➔ Discussions, projects, and student practices emphasized practical applications and industry examples to connect theory with real-world impact.

### BIOSHIELD CURRICULUM NOW AVAILABLE

We are proud to announce the successful completion of the BIOSHIELD Curriculum, marking a major step forward in enhancing biotechnology education in the context of climate change and disaster mitigation. Through intensive collaboration among partners, WP2 has delivered a cutting-edge higher education curriculum titled "From Lab to Field: Biotechnology's Role in Climate Change and Disaster Mitigation". Developed through a series of expert workshops and transnational meetings, the curriculum integrates theoretical foundations with hands-on skills across five comprehensive modules, designed to equip students with future-proof competencies. Shared with higher education institutions and enriched by direct feedback from academics and industry professionals, this curriculum bridges science and application—empowering the next generation of biotechnologists to tackle global challenges.





## 2ND MEETING & UPCOMING EVENTS

### VARAZDIN MEETING

On July 1 and 3, 2025, the project partners met in Varaždin and Koprivnica, Croatia. The meetings took place at the Varaždin and Koprivnica Campuses of the University of North. During these meetings, the partners discussed the progress of their project tasks and the project results.

The partners gathered to discuss the agenda items. Assist Prof. Dr Dunja Šamec and Dr Barbara Medvedec warmly welcomed everyone and provided information about the meeting location. Prof. Dr Yiannis Kourkoutas then gave a brief speech about the project, including completed tasks and ongoing activities.

Elif Anda (MELLIS) then gave a presentation on the editing of the WP3 videos and the WP4 process. The video and guidebook evaluation processes were reviewed, and some steps were detailed. The partners concluded the meeting with warm wishes. Partners also toured the BioManufactura organic farm and pumpkin seed oil production facility, as well as the Podravka food company and factory production facilities, getting information about agricultural and production activities. The partners also had the opportunity to closely examine the laboratories and research facilities at the Department of Food Technology on the Koprivnica Campus.



### UPCOMING EVENTS

In April 2025, the partners will meet again in person in Maribor, Slovenia, for the next transnational project meeting, where they will finalise preparations for the upcoming activities. One of the key focuses will be developing educational videos that visually support the BIOSHIELD curriculum and enhance learning engagement. Simultaneously, the team will coordinate the online Learning, Teaching, and Training Activity (LTTA), offering an interactive platform for students and educators to explore the curriculum's content in a digital format.

The piloting process will begin shortly after, where selected universities will implement the newly developed curriculum in real classroom settings to evaluate its effectiveness and gather valuable feedback. Additionally, all handbooks and learning materials will be translated into partner languages, ensuring accessibility and impact across diverse educational and regional contexts. These upcoming steps will play a crucial role in validating and disseminating the BIOSHIELD outputs, paving the way for long-term integration into European biotech education.