

H2020 Work Programme

D4.1 – Report on regional workshops

Lead Contractor: CNR

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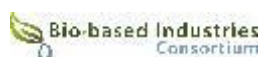
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TABLE OF CONTENTS

1. ACRONYMS AND ABBREVIATIONS	6
2. EXECUTIVE SUMMARY	7
3. INTRODUCTION	8
3.1. BIObec objectives	8
3.2. WP4 objectives.....	8
3.3. Task 4.1 objectives	8
4. METHODOLOGY	9
4.1 Workshop objectives	9
4.2 Agenda	9
4.3 Registration and venue.....	10
4.4 Required equipment, support material and logistics	10
4.5 Attendees.....	11
4.6 Satisfaction survey	12
5. REGIONAL EVENTS	13
5.1 Danish BBEC Regional Event Report	13
5.2 Finnish BBEC Regional Event Report.....	20
5.3 German BBEC Regional Event Report	24
5.4 Irish BBEC Regional Event Report.....	29
Event one.....	29
Event two.....	31
5.5 Mediterranean BBEC Regional Event Report	35
Event one- Italian workshop.....	35
Event two- Spanish Workshop	39
5.6 Central Eastern Europe BBEC Regional Event Report.....	44
6. CROSS-FERTILISATION WORKSHOP	50
7. CONCLUSIONS	54
8. REFERENCES	57
ANNEXES	58
Annex 1 Satisfaction survey	59
Annex 2 – Danish outcome and roll-out	60
Annex 3 – Ireland’s Bioeconomy Action Plan 2023-2025	63



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TABLE OF FIGURES

Figure 1. Save-the-date for the Danish regional event.....	13
Figure 2. Jan Lund presenting educational needs in Denmark	16
Figure 3. Two external presentations and participants listening	17
Figure 4. Co-creation and conceptual design developed by the BIObec project.....	21
Figure 5. The six BBECs pilots in summary with information about geographic dimension, governance structure and physical or online centre in Finnish.	22
Figure 6. Poster announcement for the German regional workshop.	24
Figure 7. Master students' expectations and needs from the German BBEC.....	26
Figure 8. German BBEC roll-out during the different moments of the activity.	27
Figure 9. Announcement of the Bioeconomy Ireland Week with BIObec logo.	32
Figure 10. Agenda for the skills required to grow the bioeconomy industry in Ireland.	32
Figure 11. Announcement of the Mediterranean BBEC roll-out in the Italian context.	35
Figure 12. Announcement of the Mediterranean BBEC roll-out in the Spanish context.	39
Figure 13. Screenshots during the presentation and discussion session in the Spanish event.	43
Figure 14. Central Eastern Europe BBEC regional event during the working group session and the presentation of the BBEC.	46
Figure 15. Number and category of the participants to the regional and international workshops organised for developing the roll-out plan for the identification of potential for collaborations and synergies.....	54

1.Acronyms and abbreviations

DCP	Dissemination and Communication Plan
DOA	Description of the Action
EC	European Commission
GP	General Public
BBEC	Bio-Based Education Centre
WP	Work Package
IRWG	Implementation and Replication Working Group
MOU	Memorandum of Understanding

2. Executive summary

This deliverable presents the main results of Task 4.1 “Roll-out plan for the identification of potential for collaborations and synergies”.

The aim of this task was to identify collaborations and synergies between the BIObec BBECs and relevant stakeholders at regional level, that can facilitate their future implementation with a wider prospective. In this respect, the strategy provided a forum for meetings between them in two different scenarios, one regional and the other international.

In the regional context, the pilot BBECs organised nine events with a common methodology that ensured the homogeneity on the final proposal. However, there was a degree of flexibility on some aspects such as language, target groups, and face-to-face or online events, willing to maximise participation. A total of 192 participants attended the regional events

As regards the international context, the “Cross-fertilization seminar among BBECs and Roadmap co-design experience” was organised in Vienna (Austria) in an hybrid format, to present the results of each regional BBEC, to peer-to-peer exchange of lesson learnt and best practices during the development of the BIObec project and also to present and discuss our roadmap for the replication of BBECs. The first two goals are shown in the current deliverable, while the third one is the main purpose of deliverable 4.2.

In order to maximise participation, this event was organised in collaboration with the European Bioeconomy Scientific Forum 2023 (on the previous day), an international meeting bringing together world experts in the bioeconomy field, to take advantage of the physical presence of relevant stakeholders linked to the European Bioeconomy University, among others, that were invited to the event

A total of 49 participants attended the event.

In summary, task 4.1 has successfully initiated the dialogue and collaboration necessary for the sustainable development of BBECs beyond the work developed within the BIObec project with an afterlife project approach. The rich diversity of participants reflects a broad spectrum of perspectives, setting the stage for a robust and dynamic bioeconomy community.

3. Introduction

3.1. BIObec objectives

The primary objective of the BIObec project is to develop a holistic framework for Bio-Based Education Centres (BBECs) operating at multiple levels. This framework will exhibit the flexibility necessary to address both current and future industry demands, as well as the needs of the surrounding ecosystem at local, regional, national and/or international context. To this end, we have initiated six BBECs pilots' programs, strategically dispersed across Europe to ensure broad geographic coverage. These pilots tackle a diverse array of topics related to various value chains and institutional settings, ranging from vocational education to university-level initiatives and involving participants from primary producers to multinational corporations.

3.2. WP4 objectives

The main objective of WP4 is to provide a roll-out strategy and a roadmap for coordinating the replication of BBECs at European and/or international level, fostering the outcomes exploitation and collaborations. Therefore, the WP4 specific objectives are:

- To identify collaborations and synergies among BIObec BBECs, and provide a meeting forum to them;
- To design a roadmap for collaboration and replication;
- To develop a capacity building tool for collaboration and replication;
- To provide supporting material for collaboration and replication;
- To explore the design and a standard and certification scheme to support collaboration and replication.

3.3. Task 4.1 objectives

Specifically, task 4.1 aims are:

- To organise six regional workshops by the six BBECs leaders targeting mainly industrial, educational and administration stakeholders, being an action to identify potential collaborations and synergies with relevant stakeholders for the developed BBECs.
- To organise a Cross-fertilisation seminar among the BBECs partners to promote a peer-to-peer exchange of lessons learnt and best practices activity.

4. Methodology

To guarantee a common event structure, while allowing some flexibility according to the regional needs, some preliminary event guidelines were provided considering that:

- It is possible to be flexible in the format of the event according to the context and situation of each host and the corresponding region.
- Each BBEC leader (in collaboration with other regional partners) is responsible of formatting the agenda, inviting attendees, disseminating the event and taking care of the registration process and satisfaction survey feedback gathering.
- Regarding communication of the event, each partner should take the lead on this. BIObec social media would support event dissemination when possible.

4.1 Workshop objectives

- To disseminate the work performed at regional level;
- To identify potential collaborations and synergies with further relevant stakeholders for the developed BBECs.

4.2 Agenda

According to the DoA, the agenda followed the same outline and included at least the following 3 sessions:

- **Presentation of the co-creation and conceptual design** developed by each Centre, based on its own dimensions and level of maturity.
- **Explanation of its feasibility and sustainability assessment results**, including governance, budget, scalability and both short- and long-term financial plans.
- **Discussion and exchange of best practices and ideas**, allowing a closer interaction among BBECs leaders and regional stakeholders, including b2b meetings, so as to provide them some further information about the work performed, fostering interactions further potential collaborations within the BBECs developed in the BIObec project framework.

An example of a tentative agenda is provided below. This can be slightly adapted to the format of the event (face-to-face or online) and to the regional needs.

- *Introduction session:*
 - Attendants welcome, brief presentation of the BIObec project and main objectives of the workshop.

- Warm-up session: roundtable presentation of each attendant.
- *Session 1*: Presentation of the co-creation and conceptual design developed by the BBEC.
- *Session 2*: Presentation of the feasibility and sustainability assessments results, including governance, budget, scalability and both short- and long-term financial plans.
- *Session 3*: Discussion of potential next steps to bring the BBEC beyond the results obtained with BIObec and potential collaboration opportunities of new partners.
- *Wrap-up session*.
- Lunch or cocktail networking to foster B2B connections among participants.

The event can be done preferably in the local language or in English. For the project presentation, the one prepared by the project communication leader (SIE) that is available at the project intranet, as well as any other D&C-relevant material can be used.

4.3 Registration and venue

Registration was done by the BBEC leader/partner using their usual platforms and procedures. All data were managed according to the FAIR principles and good data management practices, as well as BIObec ethical guidelines for personal data and recruiting volunteers, which are GDPR compliant, to avoid transferring personal data amongst partners.

It is recommended to ask the attendees for the following information:

- Name
- e-mail
- Entity/Company name
- Position

4.4 Required equipment, support material and logistics

After the event, the presentations used and BIObec dissemination material were sent to attendees by email, together with a satisfaction survey.

In case of face-to-face events, coffee or cocktail catering, name tags, project communication materials (e.g. BIObec brochures) and participant packages were provided.

As for the participant package, this could include a copy of all the presentations used during the event and corporate communication materials from the regional partners as desired. A hard copy of the satisfaction survey was included.

The satisfaction survey was gathered from participants at the end of the event. Alternatively, it could be sent and collected by email to those who have not answered *in vivo*.

For justification purposes, a signature sheet was prepared and circulated among participants during the event.

In case the event was carried out online, each host could decide the most suitable platform for such a purpose.

All the communication materials linked to the project such as brochure could be downloaded from the project intranet.

4.5 Attendees

The main target was regional stakeholders interested in the work performed during the BIObec project, including the IRWG regional members.

A well-balanced combination of profiles from the triple/quadruple helix is desirable.

Invitations

It is recommended to leverage speaker organisations that could support the host in the event dissemination efforts. An example of the email that was sent is provided below so partners could adapt it to the local language, etc.

“Dear Mr./Ms.:

[name of host] is participating in the BIObec project (<https://biobec.eu/>), funded by the European Commission. This project aims to develop a holistic framework for multi-level Bio-Based Education Centers (BBEC) flexible enough to answer the present and future needs of the industry and of the surrounding ecosystem at local, regional, national and/or international levels.

In the frame of this project and given your expertise in the field, we invite you to participate in the [Final name of the event], where you can hear in detail about the project and its main results at the regional level, as well as discuss potential collaboration opportunities.

This event will take place face-to-face/online on xxxx from xxxh to xxh.

The planned program is as follows: [it can be inserted here as text or the link to the online agenda can be provided]

Please feel free to register here [registration link] // or confirm by answering this email.

Thank you for your attention. We hope this initiative will be of interest to you.

Kind regards”

Mail to be sent after the event

Once the event finished, an email was sent to attendees including all the materials used during the event and the satisfaction survey. An example of this email is provided below:

“Dear BIObec regional event attendee,

Thank you so much for joining us during the BIObec regional event. Enclosed/Here[[hyperlink](#)] you can find the materials used during the event. Also, please feel free to check the project website in order to be updated about other BIObec project progress, events and results (<https://biobec.eu/>).

It would be nice if you could answer the following satisfaction survey and provide your feedback about the event. It would not take you more than five minutes! This information is very important for us in order to improve upcoming activities and to offer you the most relevant event content and formats.

Best regards,”

4.6 Satisfaction survey

Once the event is completed, hosts gathered feedback from the attendees in order to assess the success of the action and to learn about attendees' expectations, potential overlooks that might have occurred or tentative improvements that might be considered in further events.

An example of the prepared satisfaction survey template can be found in Annex 1. This could have been performed either online (link sent by email to attendees, implemented in Ms Forms, Google Forms or any other platform) or by providing the hard copies as part of the participant package. It was recommended that, for in-presence events, the satisfaction survey was sent by e-mail to attendees who did not complete it on hard copy at the end of the event.

5. Regional events

The main results and outcomes of the regional events organised following the previous guidelines are provided in the next sections.

5.1 Danish BBEC Regional Event Report

Official event title

Roundtable on Danish BIObec and competence needs

Regional customisation

The language used was mainly Danish, although there was a presentation in English by UNIBIO.

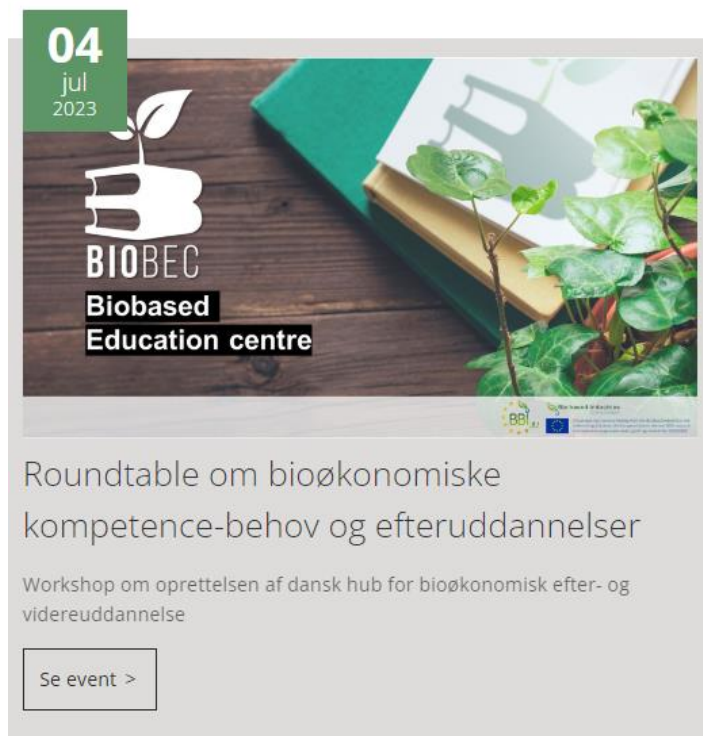


Figure 1. Save-the-date for the Danish regional event

Agenda

July 4 th , 2023		
9:30-10:00	Arrival and coffee	
10:00-10:30	Welcome and introduction to BIObec Results of the 5 other BBECs in Europe were presented	Knud Tybirk (FBCD)

10.30-10:50	Arla's competence and training needs	Thorkild Frandsen (Arla Foods)
10:50-11:10	UNIBIO competence and training needs	Eleni Ntokou, (UNIBIO)
11:30-11:45	Existing competence and job analysis, national/international	Jan Lund (FBCD)
11:45-12:00	Discussion	
12:00-12:45	Lunch and networking	
12:45-14:00	A future Danish BIObec, how should it be implemented? It was a session in which three working groups were formed in order to discuss about: <ul style="list-style-type: none"> • Professional focus, activities and content, • Economy/financing, business model • Marketing and collaboration with existing educational institutions 	
13:40-14:00	Wrap-up discussion and joint strategy from here	
14:00	Coffee and networking	

Date, host, registration and venue

Date: July 4th, 2023

Host: FBCD

Registration: via website

Venue: face-to-face in Foulum, Viborg, one external contributor (UNIBIO)

Required equipment, material, and logistics

Registration took place via FBCD website. Participants were personally invited to the event.

At the beginning of the event, an initial coffee session was held in order to socialise and create an appropriate environment to share ideas during the day. The workshop was organised in two sessions, in the first one took place the speeches and the second one was oriented to discuss three main themes:

- professional focus, activities, and content
- economy/financing, business model
- marketing and collaboration with existing educational institutions

At the end of the event, a standing coffee was offered to the attendees which facilitated networking activities.

Presentations were finally provided to attendees, along with the main results obtained from the workshop.

Participants

Name	Organisation	Position
Participant 1	Arla Foods	Project manager
Participant 2	Asmildkloster Landbrugsskole	teacher
Participant 3	Bygholm Landbrugsskole	Educational manager
Participant 4	Erhvervsakademi Dania, Grenaa	teacher
Participant 5	FBCD A/S	Project manager
Participant 6	FBCD A/S	Project manager
Participant 7	FBCD A/S	Project manager
Participant 8	FBCD A/S	Project manager
Participant 9	Jordbrugets UddannelsesCenter Århus	Senior lecturer
Participant 10	Klimafonden Skive	Project manager
Participant 11	Mercantec	teacher
Participant 12	Mercantec	Educational manager
Participant 13	Roskilde Universitet (RUC)	Education consultant
Participant 14	Skive College S/I	Education consultant
Participant 15	Skive College S/I	Education consultant
Participant 16	Skive Municipality	Project manager
Participant 17	Unibio A/S	Project manager
Participant 18	Vestjyllands Andel A.M.B.A.	Business manager
Participant 19	Viborg Municipality	Educational manager
Participant 20	Viborg Municipality	Development consultant
Participant 21	Aarhus Universitet (AU)	Senior lecturer
Participant 22	Aarhus Universitet (AU)	Senior lecturer

Main results of the event sessions

After welcoming participants, the workshop was initiated by introducing the BIObec project. The introduction summarised the pathway experience during the theoretical development of the six pilot BBECs. Special emphasis was placed in the drafted business plans. In general, the main aim was to give the participants the impression of aligned work within the other regions involved in BIObec project.

More specifically, the co-creative process and the result of many discussions and direct consultancies/visits (B2B meetings) to all key stakeholders were presented as the proposed Danish BBEC business plan, to be further elaborated during this roll-out workshop. During the workshop, it was trying to figure out how can the Danish BBEC to proceed in the regional context to realise all good intentions.



Figure 2. Jan Lund presenting educational needs in Denmark

The intense discussions came after two inspiring business presentations by Arla Foods and UNIBIO on their skills and competence needs for their employees.

The workshop discussions can be summarised as follows:

(1) Economy/financing/the business model of the Danish BBEC

The starting of the BBEC requires external funding, but user payments should be the end-goal for the BBEC. However, there is a clear need for external support in start-up phase to develop the business model.

A range of funding options was suggested (EU, central government, central region, municipalities, foundations -Novo Nordisk, user fees) should be pursued. The options support for 'green transition' differs, depending on the target groups. See also Appendix 1.

It was recommended to start with a defined focus, i.e., to find the lowest hanging user cases, something that works, and find the customers who will pay. This requires a sharp definition of the target groups for each course, a focus on continuing educational training.

It was proposed to start an educational foundation at FBCD - the 'Biobec Fund' that should collect payment from educational stakeholders and curate possible courses in a catalogue (published every 6 months) where students/learners/employees can obtain grants from the fund for following courses.



Figure 3. Two external presentations and participants listening

(2) Collaborations and governance of the BBEC

Collaboration with 'external' education programs is needed - we must create an overview of 'needs' and services of the training programs

We should create a hub that the programs themselves refer to and in contact with the players/the educational institutions. We will use the professional branch organisations, and industry education, to create collaboration, and look at Danish Industry, employee's and employer's organisations. The workshop proposed a series of ideas to develop:

- The hub should define special programs - 'train the trainers' - for retention/development at universities and vocational schools, to reduce 'drop-outs' from the education. A well educated and updated staff is a key asset.
- Establish a platform to apply for courses. Perhaps a counsellor/salesperson could give more interest/'catch' more students

- The concept of “Buy a researcher for a day in a company” was suggested. This could mutually transfer knowledge + practice and perhaps result in new innovation, new products
- An agile hub could make use of ‘missing workdays’ – due to weather conditions or gaps in the order book - for continuing education. This requires a lot of flexibility, e.g. winter for farmers/plant breeders.
- The educational offers should enable students to accumulate ‘points’ for a diploma, and to negotiate salary increases for employees.

Target groups

- School teachers (high school, vocational educations) - update/inspiration, e.g. AI in agriculture and robots
- Municipal employees in environment/planning

BBEC should become a game changer, guide, directory, a place to receive requests and tailor offers to companies or industries.

Activities and professional focus

Many activities and programs were proposed, to be worked on when starting the BBEC

- E-learning and e-manuals can have value in certain contexts.
- Courses in innovation and specifically in interdisciplinarity, flexibility, changeability and they should both be horizontal (between silos/branches) and vertical (between educational levels) to create symbiosis and cross-silo innovations.
 - We should define the good ‘cash cows’ – the courses highly needed – and start there.
- Courses in the understanding of growth economy, we must include it in the bioeconomy, all externalities. Regenerative economy.
- Courses in certifications, ESG, Life Cycle Assessments
- We can rather quickly create courses in vocational education (not ECTS). Courses (1-3 days) with certificate -> diploma
 - Short flexible programs, tailor-made day courses
 - Possibly also longer courses / programs
- New knowledge must enter in the education system, teachers should be trained, it is important to create a knowledge wheel for ‘future research’
- Train the trainers, e.g., agricultural schoolteachers, Re-training, upskilling, internships for teachers
- Business PhDs; Continuing education focus
- Use existing facilities (Greenlab, Ausumgaard, Biocirc, AU Viborg, enorm, Arla, Vestjyllands Andel etc)
- Operator courses for operators of solar parks, biogas, biorefining etc.

A name for the BBEC was proposed: **Competence Center for Circular Bioeconomy og BioKompete.**

The next steps for rollout were discussed

We should find external funds and find the right CEO – a multitasking personality with a strong network within education and biobased businesses.

We will elaborate an MoU with the participants and start seeking funds (Annex 2).

Satisfaction survey results

10 replies to the FBCD evaluation questionnaire:

- 90% satisfied or very satisfied with the event,
- New relations, new inspiration for the business, new contacts, new knowledge were achieved by participants and participants encouraged follow-up meetings for participants.

5.2 Finnish BBEC Regional Event Report

Official event title

Educational ecosystems in Europe – results from projects

Regional customisation

Our workshop was organised in Finnish. The main target audience was our key stakeholders involved in the BBEC development that have taken the lead of the BBEC coordination. Our BBEC has been recently developed further under another project (InnoCity). We organised our event to provide the latest information and findings from the BIObec project and BBEC development. Also, our aim was to exchange ideas on how the BBEC will be developed further. In the InnoCity project the city of Joensuu is taking lead with Business Joensuu in coordinating the BBEC together with other stakeholders that have been involved also in the BBEC development. Hence, it was unnecessary to provide detailed information about the financial and governance plans since these are already in practice. In addition to our own pathway in the project, we wanted to present insights from the other five international BBECs since this would be interesting for our stakeholders to hear. Overall, all relevant key actors participated the event.

In the same meeting we also gave information about another (regional) project (BIOSCOPE) and its findings that were focused on similar hub/ecosystem development.

Agenda

The overall agenda was to provide information on the BBEC development process and financial and governance plans and to exchange ideas on how to develop the BBEC further.

Date, host, registration and venue

Date: November 1st, 2023

Host: University of Eastern Finland

Registration: Webropol platform

Venue: Online, Teams-meeting

Required equipment, material and logistics

PowerPoint presentation

Teams-meeting

Participants

Name	Organisation	Position
Participant 1	City of Joensuu	Head of Economic and International Affairs

Participant 2	Business Joensuu	Key Account Manager
Participant 3	Regional Council of North Karelia	Forest and climate expert
Participant 4	Finnish Forest Centre	Business Director
Participant 5	University of Eastern Finland	Professor
Participant 6	University of Eastern Finland	Doctoral researcher

Main results of the event sessions

Introduction session

Briefly explaining the background of the BIObec project and project objectives, main partners and project structure. Special emphasis was given to each of the work package activities and how they were implemented in the case of the Finnish BBEC. Also the current status of the project was explained.

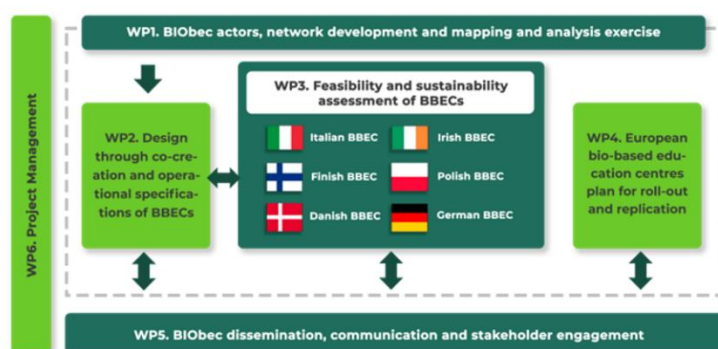


Figure 4. Co-creation and conceptual design developed by the BIObec project.

Session 1: Presentation of the co-creation and conceptual design developed by the BBEC

Explaining the co-creation process and conceptual design of the BBEC through work packages. Here the business model construct was used as a background.

Session 2: Presentation of the feasibility and sustainability assessments results, including governance, budget, scalability and both short- and long-term financial plans.

Budgets and main structures and value propositions of each BBECs were presented. Especially the funding sources were emphasised.

This part of the event was lightly discussed since the coordination of the BBEC has already been taken by Innocity project and it is currently being financed there. Hence, we gain insight into the other BBECs here.

Participants were especially interested in the financial models of the other BBECs.



6 BIOBEC aluetta



6 BIOBEC aluetta

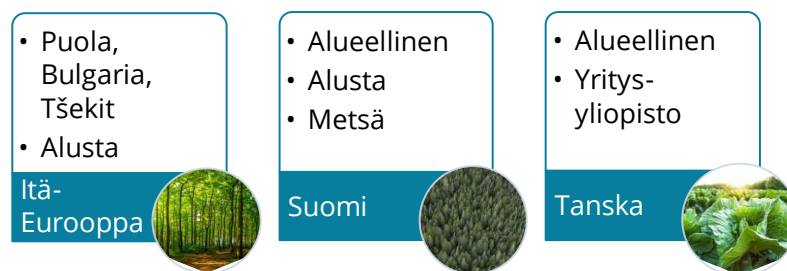


Figure 5. The six BBECs pilots in summary with information about geographic dimension, governance structure and physical or online centre in Finnish.

Session 3: Discussion of potential next steps to bring the BBEC beyond the results obtained with BIObec and potential collaboration / opportunities of new partners.

Future steps were discussed at the end of the meeting together with all the participants.

As explained in earlier sections, the Finnish BBEC is currently being developed further in another project. In the discussions, the plan and structure of the new BBEC and its role within other ecosystems in the region were explained by two of the participants. It was mentioned that it is still difficult to gain executive level support from key stakeholder organisations which is crucial for the establishment of the BBEC. Also, it was discussed how such ecosystems should focus on specific development topics such as carbon farming etc. and not just waiting for something innovative and groundbreaking will emerge in time through the ecosystem.

One important aspect was also mentioned by the participants, which the role of the international network was. Specifically, one participant asked if there is an international BBEC network that could be beneficial for the Finnish BBEC development. In addition, it was discussed that the city of Joensuu could collaborate with other BBEC cities and apply for funding for developing the BBECs. So far, such city funding has not been used in the region so much. Overall, participants mentioned that the work done in the BIOBEC project with the Finnish BBEC has been important and will be applied in the Innocity project.

Wrap-up session

No specific wrap-up session was organised.

Satisfaction survey results

No survey was sent to participants since there were only few people. Although, participants mentioned at the end that they were enlightened by the event.

5.3 German BBEC Regional Event Report

Official event title

Workshop to design a Biobased Education Centre

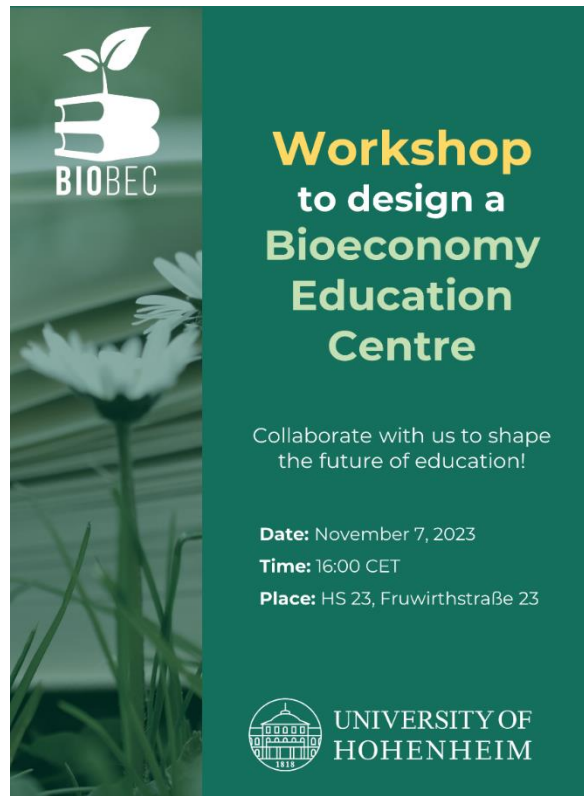


Figure 6. Poster announcement for the German regional workshop.

Regional customisation

The event was held in English and the target group were master students as they are our main target for the German BBEC.

Agenda

1. Introduction to the project
2. Presentation of the BBEC design
3. Discussion

Date, host, registration and venue

Date: November 7th, 2023

Host: University of Hohenheim

Registration: NA

Venue: face-to-face

Required equipment, material and logistics

Laptop, Beamer, cards for participants to write their ideas, boards to pin the cards. Regarding logistics, we book one classroom to carry out the workshop. We had a roundtable discussion and as we had 10 participants, each participant could present their ideas in detail.

Participants

Name	Organisation	Position
Participant 1	University of Hohenheim	Master Student
Participant 2	University of Hohenheim	Master Student
Participant 3	University of Hohenheim	Master Student
Participant 4	University of Hohenheim	Master Student
Participant 5	University of Hohenheim	Master Student
Participant 6	University of Hohenheim	Master Student
Participant 7	University of Hohenheim	Master Student
Participant 8	University of Hohenheim	Master Student
Participant 9	University of Hohenheim	Master Student
Participant 10	University of Hohenheim	PhD student
Participant 11	University of Hohenheim	Professor
Participant 12	University of Hohenheim	Researcher and project coordinator

Main results of the event sessions

Lina Mayorga moderated the workshop. She presented the project and the BBEC design with slides and for the discussion part, the participants were given cards for writing the ideas to the guiding questions. For some questions, we collected the cards and created categories on the boards. For one question, we used Slido to collect the ideas from the participants.

Introduction session

We had a presentation round at the beginning and then the project and the concept of the BBEC were presented.

Session 1: Presentation of the co-creation and conceptual design developed by the BBEC

When presenting the BBEC design, we formulated the following question: What would you expect and want as a student from a Hohenheim Biobased Education Centre? Through this question we wanted students to be in the role of the designers of the centre and motivate them to give as much ideas as possible.

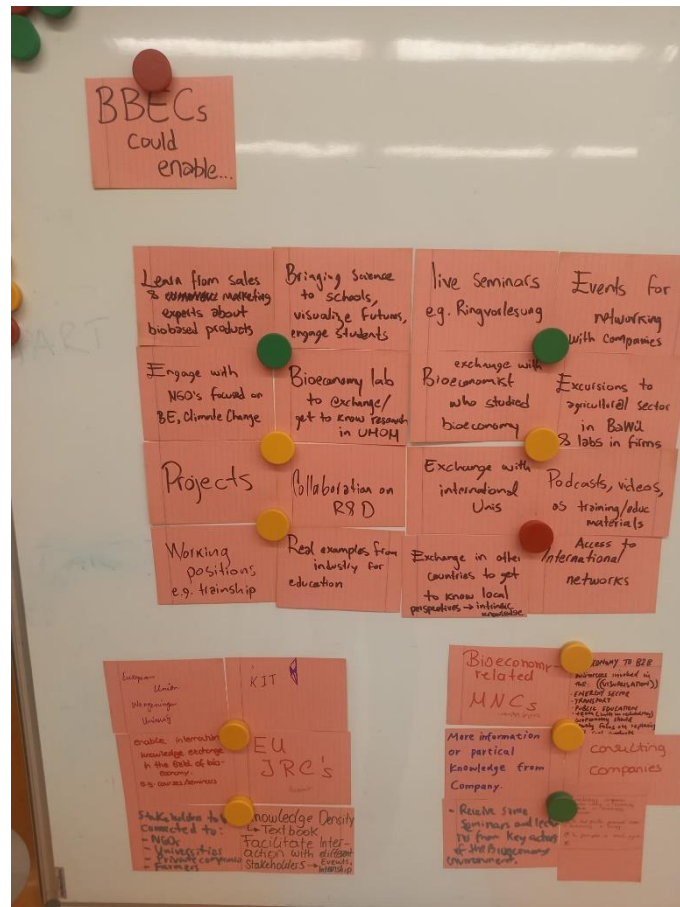


Figure 7. Master students' expectations and needs from the German BBEC.

Session 2: Presentation of the feasibility and sustainability assessments results, including governance, budget, scalability and both short- and long-term financial plans.

There was a focus on the activities, outcomes and topics that the BBEC could integrate. There were some ideas around the implementation of practical courses and workshops, with a specific emphasis on sustainability, Life Cycle Assessment (LCA), bioenergy, and circular economy.

Additional to academic topics and activities, the participants expressed the interest in connecting to external stakeholders such as industry partners through meetings and talks with companies, or industry visits, and conducting workshops that equip students



Figure 8. German BBEC roll-out during the different moments of the activity.

with the skills necessary for learning relevant programs and software useful for the labour market.

The participants stressed the importance of BBEC acting as a catalyst through events, internships, and opportunities for promoting international exchange, whether through online platforms or face-to-face interactions.

Interestingly, the participants also mention their enthusiasm for creating new educational content including the production of videos, podcasts, and Massive Open Online Courses (MOOCs), reflecting the significance of the educational experience aligning it with new learning methods.

Session 3: Discussion of potential next steps to bring the BBEC beyond the results obtained with BIObec and potential collaboration / opportunities of new partners.

We will start creating the BBEC, initially in a digital form as a website where all the current offerings for the master student can be integrated and unified. Parallely, we aim to strengthen the communication with internal and external stakeholders (students, teaching staff, ministries, other universities). We invited students to support us creating the online BBEC and give ideas for further projects and potential new offerings.

Wrap-up session

The activities of the BBEC could be combined and strengthen with future activities of student groups such as “*Beehive. The bioeconomy dialogue*”. The participants also saw as an important step the current connection of students and alumni. There were some exchanges of contacts and information of current informal networks among students of the bioeconomy master. During the wrap-up session, it was highlighted the importance of the integration of all the offerings available for the students and staff.

Satisfaction survey results

Respondents: 10

- Organisation: 4
- Relevance of the topic and content: 5
- Conceptual design of the BBEC (quality and clarity): 4.7
- Participation and dialogue with the audience: 5
- Where did you hear about this event? E-mail, professor, colleague

5.4 Irish BBEC Regional Event Report

The Irish BBEC organised two events:

- The first event was a presentation of the Irish BBEC (by invitation) to Ireland's high-level **Bioeconomy Implementation Group** quarterly meeting.
- The second event was an online forum organised as part of Bioeconomy Ireland Week 2023 entitled **SKILLS REQUIRED TO GROW THE BIOECONOMY INDUSTRY IN IRELAND**.

As a direct outcome of the presentation to the high-level **Bioeconomy Implementation Group** which includes multiple government departments as well as state agencies, the Irish BBEC was invited by the Department of Agriculture, Food and the Marine to participate in further discussions (currently on-going) with other key Irish bioeconomy stakeholders with a view to exploring how the BBEC ideas could be leveraged to form a national platform/framework and link directly with the agendas of the relevant government departments: Department of Agriculture Food and Marine, Department of Environment Climate and Communications, Department of Education and Department of Further and Higher Education, Research, Innovation and Science.

In addition, leveraging the learnings and output from the BIObec project was directly referenced in the recently published National Bioeconomy Action Plan under Pillar 7, knowledge and skills (Annex 3). This Bioeconomy Action Plan is the first national action plan for an Irish bioeconomy and is designed to further develop Ireland's bioeconomy in delivering the vision of the 2018 National Policy Statement on the Bioeconomy. The reference to the BIObec project within this action plan recognises the extensive work that the BIObec project has undertaken in the field of education and skills in the bioeconomy and how the learnings and outputs from the BIObec project have influenced bioeconomy leaders and have the potential to shape education and skills training within the bioeconomy in Ireland in the coming years.

Event one

Official event title

Irish Bioeconomy Implementation Group quarterly meeting presentation.

Regional customisation

This event was a quarterly meeting of the Irish Bioeconomy Implementation Group and the Irish BBEC was invited to present following a discussion around the "Knowledge and Skills" pillar of their forthcoming Ireland's Bioeconomy Action Plan.



This project has received funding from the Bio-based Industries Joint Undertaking (JU) under the European Union's Horizon 2020 research and innovation programme under grant agreement No 101023381. The JU receives support from the European Union's Horizon 2020 research and innovation programme and the Bio-based Industries Consortium.

Agenda

Private agenda of Irish Bioeconomy Implementation Group. The Irish BBEC presented along with BioBeo (primary school programme) and ICOS Skillnet (general bioeconomy awareness programme and platform).

Date, host, registration and venue

Date: September 19th, 2023

Host: Department of Agriculture, Food and the Marine

Registration: none – invite only event

Venue: hybrid event

Required equipment, material, logistics

PowerPoint presentation.

Participants

- Government Departments represented:
 - Department of Agriculture Food and the Marine (3)
 - Department of Environment, Climate and Communications (3)
 - Department of Enterprise, Trade and Employment
 - Department of Further and Higher Education, Research, Innovation and Science (2)
 - Department of Transport (2)
 - Department of the Taoiseach
 - Department of Rural and Community Development
 - Department of Public Expenditure, NDP delivery and Reform
 - Department of Education
 - Department of Finance
- Agencies represented:
 - BIM (Bord Iascaigh Mhara)
 - Teagasc
 - SFI (Science Foundation Ireland)
 - NESCC (National Economic and Social Council)
 - SEAI (Sustainable Energy Authority Ireland)
 - EPA (Environmental Protection Agency)
 - EI (Enterprise Ireland)
- Guest speakers:
 - Tom Curran, UCD, BioBeo Project
 - Fiona Scott-Hayward, MTU, BIObec Project (also Helena McMahon and Eve Savage)
 - Billy Goodburn & John Brosnan, ICOS Skillnet

Main results of the event sessions

The Irish BBEC made a presentation linking the National Bioeconomy Action Plan pillar 7 around knowledge and skills to the proposed National Biobased Education Centre. It explained the concept behind the BIObec project, presented the design of the Irish BBEC, detailed the governance, budget, resource and service offerings of the BBEC, discussed feasibility and sustainability. Once the other guest speakers had presented, a Q&A session took place where the Irish BBEC answered questions about how to involve bioeconomy stakeholders, how to market the platform and achieve buy in, took suggestions on new stakeholders to involve and potential partnerships.

Satisfaction survey results

As this was an invitation to speak at a private meeting, a satisfaction survey was not appropriate. However, feedback from the organisers has been very positive and the partnerships fostered during the event will directly assist further development of the Irish BBEC. Since this initial meeting, a follow up meeting has taken place between stakeholders and the Department of Agriculture Food and Marine are arranging an in-person workshop day to further the collaborative process.

Important Milestone

Following the presentation of the BIObec project and the Irish BBEC to the Irish Bioeconomy Implementation Group quarterly meeting, BIObec was featured under Pillar 7 (Knowledge and Skills) of the Bioeconomy Action Plan published during Bioeconomy Ireland week (Annex 3).

Event two

Official event title

Skill required to grow the bioeconomy industry in Ireland.

Regional customisation

This event was an online forum organised as part of BIOECONOMY IRELAND WEEK which took place from the 16th to 20th of October 2023. The Irish BBEC partnered with ICOS Skillnet (Irish Cooperative Organisation Society) who have also worked on skills needs analysis in the Bioeconomy sector in Ireland and who have developed a course in Bioeconomy Awareness. The focus of the event was outlining the opportunities in the Irish Bioeconomy and the skills required to meet those opportunities. Other Partners were the Department of Agriculture, Food and the Marine and the Irish CAP Network (Common Agricultural Policy). The aim was to reach an audience of agricultural and rural communities, agricultural advisors, ICOS and CAP Network members and the wider bioeconomy community.

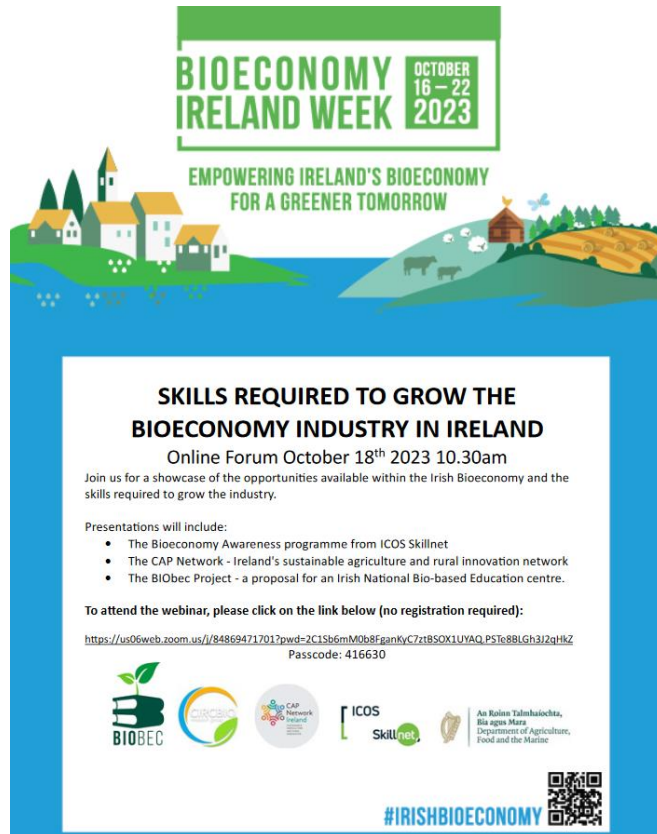


Figure 9. Announcement of the Bioeconomy Ireland Week with BIObec logo.

Agenda



Bioeconomy Week Ireland 2023

2023 European Year of Skills

SKILLS REQUIRED TO GROW THE BIOECONOMY INDUSTRY IN IRELAND

Location: ONLINE
Date: Wed 18th October 2023 **Time:** 10.30am -12.30pm

Schedule	Speaker	Organisation	Projects/Topic
10.30	Dave Barry	CIRC BIO MTU	Introduction and outline of event
10.40	Matthew Halpin	DAFM	Bioeconomy Showcase and Opportunities
10.55	Dr. Helena McMahon	IKC3	Skills required to grow the Irish Bioeconomy
11.10	James Claffey	CAP Network	CAP Network – Ireland's sustainable agriculture and rural innovation network
11.25	Billy Goodburn	ICOS Skillnet	ICOS Bioeconomy Awareness Programme
11.40	Fiona Scott-Hayward	CIRC BIO MTU	The BIObec project - model for an Irish Bio-based Education Centre
12.10	Dave Barry	CIRC BIO MTU	Q&A / Networking
12.30	CLOSE OF EVENT		

Please click the link below to join the webinar:

<https://us06web.zoom.us/j/84869471701?pwd=2C15b6mM0b8FganKyC7ztBSOX1UYAQ.PSTe8BLGh3J2qHKZ>

Figure 10. Agenda for the skills required to grow the bioeconomy industry in Ireland.



This project has received funding from the Bio-based Industries Joint Undertaking (JU) under the European Union's Horizon 2020 research and innovation programme under grant agreement No 101023381. The JU receives support from the European Union's Horizon 2020 research and innovation programme and the Bio-based Industries Consortium.

Date, host, registration and venue

Date: October 18th, 2023

Host: CIRCBIO – Circular Bioeconomy research group at Munster Technological University.

Registration: On-line event, no registration (effort to remove barriers to access), direct zoom link provided.

Venue: On-line

Required equipment, material and logistics

Promotional flyer with agenda used for email and social media publicity, Powerpoint presentations from all participants, media pack from Bioeconomy Ireland week to assist with promotion.

Participants

- Presenters
 - Fiona Scott-Hayward CIRCBIO MTU
 - Dr Helena McMahon CIRCBIO MTU
 - Matthew Halpin Department of Agriculture, Food and the Marine (DAFM)
 - Billy Goodburn ICOS Skillnet
 - James Claffey CAP Network
- Moderator
 - David Barry CIRCBIO MTU
- Attendees
 - There were over 40 attendees at the session. GDPR and removal of the registration requirement means we cannot provide a list of names & organisations however attendees were present from:
 - Department of Environment Climate and Communication
 - Irish and EU universities
 - Agricultural organisations including CAP Network and ICOS
 - Other research bodies including BIORBIC, CleanTechCork
 - Other EU institutions such as SIE, Sustainable Innovation Technology Services Ltd

Report on the event sessions

- The session was moderated by David Barry from CIRCBIO at MTU who introduced presenters and provided links from one presenter to the next to create a flow for the whole event.
- Matthey Halpin (DAFM) introduced the bioeconomy, meaning and context and the range of opportunities within the bioeconomy in Ireland.

- Dr Helena McMahon (IKC3, CIRCBIO) discussed the skills requirements to grow the Irish bioeconomy and the challenges that exist.
- James Claffey, Ireland's CAP Network presented the CAP Network, benefits for the agricultural community and how the CAP Network can provide the linkages between skills & training and the community of primary producers.
- Billy Goodburn, ICOS Skillnet presented around the Irish Cooperative Organisation Society and their Skillnet funding to develop a bioeconomy awareness programme. They discussed their skills needs analysis from a previous FIELDS project which was the impetus for the development of this www.bioeconomyawareness.ie programme.
- Fiona Scott-Hayward (CIRCBIO) presented the bioeconomy at Munster Technological University and then the BIObec project.
 - Overview of the BIObec project and the 6 regional bio-based education centres
 - The Irish BBEC structure
 - MTU and IBF as developers and resource providers.
 - Website platform and staff team to run the centre.
 - Service Offering - discussion of how all the different services could operate and examples of how the Irish BBEC could help promote courses and bring education providers together to develop new courses.
- Question and Answer session moderated by David Barry which included discussions around:
 - How school leavers could enter the bioeconomy.
 - there is a demand from the agricultural/primary producers' sector for skills training and education around the bioeconomy.
 - Entry requirements for the ICOS bioeconomy awareness programme.
 - Importance of biodiversity within the bioeconomy discussions and how sustainability incorporates this, avoiding overextraction of resources.
 - Importance of involving general public in the bioeconomy and how the BBEC envisions being the link that keeps the public informed.
 - How the bioeconomy needs ALL sectors and is so cross-sectoral, all disciplines are part of the bioeconomy and the BBEC can help with this – for example social scientists are needed to encourage uptake of bio-based products from consumers, there will be legal issues as new bio-based products enter the market which require lawyers, economists etc.

5.5 Mediterranean BBEC Regional Event Report

The Mediterranean BBEC (MED-BBEC) has decided to organise two events:

- The first event was an on-line event in Italian, hosted by University of Bologna (Event one).
- The second event was an on-line event in Spanish, hosted by CTA (Event two).

Event one- Italian workshop

Official event title

Mediterranean Roll-Out Event

THE BIOBEC PROJECT

Mediterranean Regional Roll-Out Event

2 NOVEMBRE 2023

14.00-14.30	Accoglienza, presentazione del Progetto e dello BIObec Roadmap Obiettivi, processo di creazione e replicabilità del Bio-based Education Centre (BBEC)	Davide Viaggi (UNIBO) Coordinatore BIObec
14.30-14.40	Un Centro per il Mediterraneo: il Med-BBEC Governance, budget e programmi per costituire il Centro	Giacomo Rinaldi (UNIBO)
14.30-14.45	L'esperienza dell'Implementation and Replication Working Group (IRWG) Il punto di vista degli attori coinvolti nel processo di co-creazione del Centro	Cluster CLAN Cluster SPRING
14.45-15.35	Andare oltre i risultati: come rendere reale o replicare il Med-BBEC Cambiare le potenziali collaborazioni e opportunità di implementazione	Tavola rotonda
15.35-15.50	Conclusioni e chiusura dell'evento	Davide Viaggi

Link per partecipare

PROJECT PARTNERS

Public Bodies (Government), Regions and BBECs, Multipliers, Other, Industrial Clusters and Educational Providers, Producers and Associations of Primary Producers.

BBI JU
Bio-based Industries Consortium

www.biobec.eu

@BIObec_eu BIObec

This project has received funding from the Bio-based Industries Joint Undertaking (JU) under the European Union's Horizon 2020 research and innovation programme under grant agreement No 101023381.

Figure 11. Announcement of the Mediterranean BBEC roll-out in the Italian context.

Regional customisation

In Italy, the organisers decided to avoid a registration form and customised the event for the general public, sharing the meeting link through several forms (emails, newsletters, social media). The main objective was to involve all the professionals not aware of the BIObec project or simply curious about bioeconomy education and

training. Furthermore, the meeting provided CFP (*Crediti Formativi Professionali* - Professional Training Credits) for agronomists and about half of the participants were actually professional agronomists.

Agenda

The final agenda of the event was based on the one suggested in the guidelines.

2 NOVEMBRE 2023		
14.00-14.20	Accoglienza, presentazione del Progetto e della BIObec Roadmap (Welcoming, presentation of the Project and of the BIObec Roadmap)	Davide Viaggi (UNIBO) , Coordinatore BIObec
14.20-14.30	Un Centro per il Mediterraneo: il Med-BBEC (Governance, budget and programs to set up the Centre)	Giacomo Rinaldi (UNIBO)
14.30-14.45	L'esperienza dell'Implementation and Replication Working Group (IRWG) (The IRWG's experience)	Cluster CLAN Cluster SPRING
14.45-15.25	Andare oltre i risultati: come rendere reale o replicare il Med-BBEC (Going beyond results: how to implement or replicate the Med-BBEC)	Tavola rotonda
15.25-15.30	Conclusioni e chiusura dell'evento (Conclusions)	Davide Viaggi

Date, host, registration and venue

Date: November 2nd, 2023

Host: UNIBO

Registration: Not required for the Italian workshop

Venue: on-line

Required equipment, material and logistics

PPT presentations; an online form to collect data of stakeholders interested in future developments of the project.

Participants

37 participants to the Italian workshop (10 BIObec's partners or IRWG and 27 external stakeholders).

Many participants were agronomists.

Main results of the Italian event session

Introduction session + Session 1: Presentation of the co-creation and conceptual design developed by the BBEC

Davide Viaggi (UNIBO), BIObec coordinator, welcomed the participants and introduces the aims of the project, together with the activities carried out to achieve these aims. He also introduced the concept of bioeconomy to avoid misunderstandings. Finally, he explained the steps to replicate the BIObec process and briefly showed the main differences between the 6 BBECs in Europe.

Session 2: Presentation of the feasibility and sustainability assessments results, including governance, budget, scalability and both short- and long-term financial plans.

Giacomo Rinaldi (UNIBO) described the Med-BBEC as it was structured within the BIObec project. The presentation started with the contextualisation of the bioeconomy in the Mediterranean area as well as the peculiarities and opportunities that this sector may have in the basin. Furthermore, he listed the needs of the area following the project's findings. After that, he explained the Centre through: the governance structure, the value proposition, target customers, planned activities, funds opportunities, and costs forecast.

Session 3: Discussion of potential next steps to bring the BBEC beyond the results obtained with BIObec and potential collaboration / opportunities of new partners.

The speeches of two different members of the IRWG assessed their experience within the project and the validity of both the results achieved in BIObec . In particular, the first speaker, a representative from Cluster CLAN, illustrated the synergies that could be developed thanks to initiatives like the Med-BBEC. The speaker also highlighted that a Centre with a Mediterranean vision may help to aggregate different countries on the same topics, creating opportunities for the whole sector.

The other speaker, a representative from Cluster SPRING, pointed out that also in their Cluster, like for the BIObec project, the governance of education and training is nowadays fundamental to create interdisciplinary figures capable of operating in the bioeconomy. Indeed, from their experience, they noted a shortage of technical advisors who can bring bioeconomy concepts to companies, especially farms. In this sense, Cluster SPRING is setting up a specific working group on innovation and technology transfer. The idea is to provide support activities on these topics. The project RuralBioUp (www.ruralbioup.eu) in the Apulia Region was given as an example. This project aims to strengthen the cooperation among regional key actors and knowledge holders by establishing a Regional Hub.

After that, the speaker underlined the importance of different forms of training like coaching and mentoring, aligning with the activities found in the Med-BBEC. Moreover, Cluster SPRING surveyed all the university courses that can be related to the bioeconomy, bringing out 1139 active courses.

Davide Viaggi, due to the high participation of agronomists, invites them to express their opinion on the subject. One of them points out that to have Credits for the activities made by the Centre would be valuable.

An officer from the Agrifood Clust-ER (<https://agrifood.clust-er.it/en/>) - an association of public and private organisations in Emilia-Romagna Region) - brought the experience of the AgriFood4Future project (<https://agrifood4future.com/>) and, even if the project is still at the first stages, she highlighted the similarities with the BIObec's findings in terms of needs and expectations (she pointed out how similar are even the words used). Moreover, the willingness to collaborate with the Med-BBEC was expressed, as well as the interest in using the BIObec's output to design the Centres expected for the AgriFood4Future project.

Susanna Albertini (FVA) introduced the Biogov.net project (<https://www.biogov.net/>) and the event of 3/11/2023, for those who are interested in the bioeconomy related to Arts.

An officer from Dinamica (IRWG member) expressed a positive opinion on the "light" structure in economic terms of the Centre and appreciated the forecast of economic sustainability with the payment of the membership fee. This aspect is contrasted with the "projects-based" approach, where the Centre is expected to survive exclusively through public funds coming from projects; so, this is not possible.

Moreover, another aspect that was pointed out is that nowadays there is the impression that there are more initiatives that try to connect (e.g. hubs) rather than people that want to be connected.

Wrap-up session

Giacomo Rinaldi shared a link for those who want to follow up. In particular, the survey asks for name and surname, company and email address. Those who reply will receive a structured survey on how they intend to collaborate in the future.

Satisfaction survey results

The satisfaction survey will be substituted in the Italian context with another survey to understand how different actors intend to collaborate to implement or replicate the Med-BBEC.

Event two- Spanish Workshop

Official event title

“Despliegue del centro educativo de base biológica de la región mediterránea”
Regional roll-out of the mediterranean BBEC



Figure 12. Announcement of the Mediterranean BBEC roll-out in the Spanish context.

Regional customisation

In Spain, the organisers used two strategies. The first involved personal emails to former collaborators in several bioeconomy projects that CTA is currently developing, such as Scale-up (<https://www.scaleup-bioeconomy.eu/en/home/>) and AgroBridges (<https://www.agrobridges.eu/>). The second was to promote the event by posting it on its website. In addition, it was distributed the announcement on its social networks, generating 3 posts on Twitter, 2 posts on LinkedIn and its inclusion in 4 newsletters. CTA has a strong position on these networks with more than 6660 and 6800 followers respectively and more than 6700 newsletter subscribers.

The target groups were the widest possible audience of representatives from bio-based industry; academia and research institutions; public administration; and civil society.

Agenda

The final agenda has some adaptations to the Spanish context (original language kept):

7 November 2023	
10:00-10:10	Introducción del Proyecto BIObec (Welcoming, and presentation of the Project and of the BIObec Roadmap)

10:10-10:30	Co-creación y diseño conceptual de los BBECs (Co-creation and conceptual desing of BBECs)
10:30-10:50	Presentación de los resultados de las evaluaciones de viabilidad y sostenibilidad del BBEC mediterráneos (Presentation of the feasibility and sustainability assessments results from Mediterranean BBEC, including governance, budget, scalability and both short- and long-term financial plans)
10:50-11:20	Debate sobre los próximos pasos para llevar al BBEC del mediterráneo más allá de los resultados obtenidos (Going beyond results: how to implement or replicate the Mediterranean BBEC)
11:20-11:30	Conclusiones y cierre (Conclusions)

Date, host, registration and venue

Date: November 7th, 2023

Host: CTA

Registration: Person answering to invitation or via specific link in CTA website

Venue: on-line

Required equipment, material and logistics

Powerpoint presentation and Microsoft Teams.

Participants

Name	Organisation	Position
Participant 1	Centro Tecnológico Tecnova	Head of Economic and International Affairs
Participant 2	Andalucía TRADE	Senior Technology Advisor
Participant 3	Student	Student
Participant 4	Departamento de Economía Aplicada III	Researcher
Participant 5	Facultad de Ciencias Políticas y Sociología. Universidad Nacional de Educación a Distancia	Professor
Participant 6	Departamento de Economía Agraria, Finanzas y Contabilidad. Universidad de Córdoba.	Researcher
Participant 7	Ecogestiona S. Coop. And.	President
Participant 8	Sustainable Innovations (SIE)	Communication Manager
Participant 9	Grupo La Caña	Innovation Project Manager
Participant 10	Unión de Consumidores de Andalucía (UCAUCE)	Secretary- General
Participant 11	DCOOP	R&D Technician

Participant 12	Fundación Corporación tecnologica de Andalucía (CTA)	Innovation Consultant
Participant 13	Fundación Corporación tecnologica de Andalucía (CTA)	Communication Technician
Participant 14	Fundación Corporación tecnologica de Andalucía (CTA)	Innovation Consultant

Main results of the Spanish event

Introduction to BIObec project

CTA welcomed the participants and introduced the concept of bioeconomy. This aimed to clarify the economic sectors and activities involved, as well as types of biological resources exploitable by this model. In addition, the BIObec project was explained in the context of the European Bioeconomy Strategy. This included an overview of the project's main goals, specific objectives, a brief introduction on partners involved, an overview of the current definition of BBEC, and the methodology employed to plan these hubs. Lastly, a concise presentation was given on the Roadmap for the replication of BBECs across potential regions interested in establishing this type of centres and have not participate in the project.

Session 2: Co-creation and conceptual design of BBECs

BIObec project has theoretically developed six pilots in which geographic dimension, governance structures, financial and sustainability plans, educational level, main sectors were highly impacted by regional needs and expectations. A summary on the main structures of these six pilots were introduced, having a special emphasis in the benefits and drawbacks that the different groups has reported during the developing of the project. During the presentation it was point out the importance of the Implementation and Replication Working Group as external advisors in the activities developed.

Session 3: Presentation of the feasibility and sustainability assessments results from Mediterranean BBEC

A general description of bioeconomy contexts of Italy and Spain were described to justify conceptual creation of a Med-BBEC. The mission, vision, and value proposition of the BBEC were then explained. A list of current and future needs of the Mediterranean area, planned activities for the Med-BBEC and the target groups were discussed. Special attention was given to the results of the feasibility and sustainability assessments results, showing the estimates of capital and operational expenditures, as well as the funding opportunities identified. In the Spanish meeting we had a special

attention to the risks, good practices and learned lessons that we have experienced during the development of the BIObec project.

Session 4: Going beyond results: how to implement or replicate the Mediterranean BBEC

At the conclusion of the meeting, future steps were discussed with all participants. The overall satisfaction expressed by participants regarding the event and its content was noteworthy. Some participants even indicated their interest in collaborating with the project. We encouraged them to actively participate in upcoming events scheduled for January, specifically the capacity building workshop and the second IRWG meeting. Additionally, participants expressed their proactive interest in being part of similar initiatives in the future.

As it has been pointed out in other regional roll-outs, one participant representing the public administration suggested the need to run the BBECs without relying exclusively on public funding, stating that the fluctuation and competitiveness of these funds could negatively affect the proper development of the centre.

Interestingly, two professionals from the University of Jaen and University of Sevilla, has observed a growing interest among their grade/master students in bioeconomy, therefore, they thought that initiatives like BIObec project are needed. During the discussion, the possibility to expanding the scope beyond bioeconomy concepts to also included social science aspects such as Economy for the Common Good (Felber, 2015) or Doughnut economics (Raworth, 2017) were raised.

Wrap-up session

We have shared the link of BIObec project website and social media for those who want to follow up. The presentation and the event was recorded and shared with the participants.



This project has received funding from the Bio-based Industries Joint Undertaking (JU) under the European Union's Horizon 2020 research and innovation programme under grant agreement No 101023381. The JU receives support from the European Union's Horizon 2020 research and innovation programme and the Bio-based Industries Consortium.

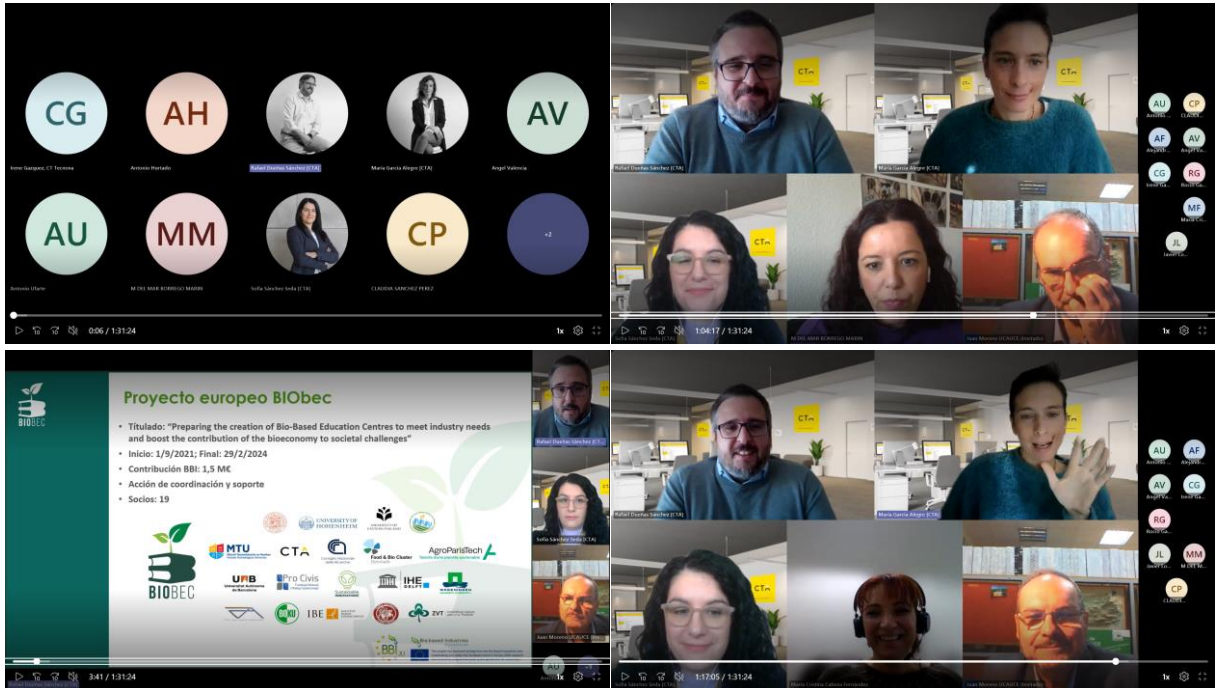


Figure 13. Screenshots during the presentation and discussion session in the Spanish event.

Satisfaction survey results

As all the participants expressed their satisfaction with the outcome of the project, we decided not to bother them with additional requests.

5.6 Central Eastern Europe BBEC Regional Event Report

The Central Eastern Europe BBEC decided to organise two events:

- The first event was an in-presence event hosted by PRO-CIVIS.
- The second event was an on-line event hosted by IBE.

Official event title

Workshop on bioeconomy education. Roll-out workshop for Bio-Based Education Centre for Central Eastern Europe

Regional customisation

During the roll-out workshop we used Polish language. In the first part of the workshop there was brief presentation of the BIObec Project and the concepts of other BBEC's. The main goal was to present the bioeconomy education trends in the EU.

Agenda

1. Education in the bioeconomy – BIObec project and trends in EU countries
2. Concept of the Bioeducation Center for Eastern Europe

Coffee break

3. Group work (comments on the model, planned activities vs. participants needs, possibilities of cooperation in implementing the action plan)
4. Discussion and summary

Lunch

Date, host, registration and venue

Date: October 4th, 2023

Host: PRO CIVIS

Registration: on-line via google forms

Venue: face-to-face, Pałac Czartoryskich, Puławy, Poland

Date: October 27th, 2023

Host: IBE

Registration: on-line

Venue: on-line

Required equipment, material and logistics

BIObec roll-up, presentation, conference hall, working charts

Participants (on-site and on-line workshops)

Name	Institution
Participant 1	Akademia Nauk Stefana Batorego Skierniewice
Participant 2	BIO-MED. Sp. z o.o.
Participant 3	BIO-MED. Sp. z o.o.
Participant 4	EKOPLON sp. z o.o. sp.k.
Participant 5	EKOPLON sp. z o.o. sp.k.
Participant 6	EPRD
Participant 7	Fundacja Edukacji i Dialogu Społecznego "Pro Civis"
Participant 8	Fundacja Karteko
Participant 9	IDFS / AGREGO
Participant 10	INNECO sp z o o
Participant 11	Instytut Uprawy Nawożenia i Gleboznawstwa - Państwowy Instytut Badawczy
Participant 12	Instytut Uprawy Nawożenia i Gleboznawstwa - Państwowy Instytut Badawczy
Participant 13	Instytut Uprawy Nawożenia i Gleboznawstwa - Państwowy Instytut Badawczy
Participant 14	SGGW Warszawa
Participant 15	Sieć Badawcza Łukasiewicz-Poznański Instytut Technologiczny
Participant 16	Sieć Badawcza Łukasiewicz-Poznański Instytut Technologiczny
Participant 17	Sieć Badawcza Łukasiewicz-Poznański Instytut Technologiczny
Participant 18	Stowarzyszenie Agroekoton
Participant 19	Stowarzyszenie Agroekoton
Participant 20	Instytut Uprawy Nawożenia i Gleboznawstwa - Państwowy Instytut Badawczy
Participant 21	Instytut Uprawy Nawożenia i Gleboznawstwa - Państwowy Instytut Badawczy
Participant 22	Instytut Badań Edukacyjnych
Participant 23	Uniwersytet Jagielloński
Participant 24	Independent environmental consultant

Main results of the event sessions

Introduction session

During the introduction session we had a brief presentation of the BIObec Project – aims, timeframe, consortium. One of the aims of the introduction session was to present current trends in the bioeconomy education in the EU. In order to do that in the presentation there were couple of slides showing best case studies of existing solutions in bioeconomy education in the EU. These case studies were mapped during WP1. As a part of presenting the EU trends we have also shown main outcomes of the 5 other BBECs. The aim was to present the differences and similar points between the Centres.



Figure 14. Central Eastern Europe BBEC regional event during the working group session and the presentation of the BBEC.

The introduction was well received by the audience. There were some comments regarding the case studies and the whole concept of the project. One of the participants was a witness of establishing Biorbic (an Irish case) and shared some of its experiences. It was highlighted that there is a need to raise the awareness on the bioeconomy issues and other EU initiatives that align with the concept.

Session 1:

After the introduction there was a presentation describing the concept of the Bioeducation Center for Eastern Europe (BBEC CE). We presented all the main points of the concept: the stakeholders need, value proposition, vision and mission of BBEC CE, governance structure, financing opportunities, budget and suitability assessment. The main aim was to present the concept before the workshop session and plans for further development of the BBEC.

Session 2:

The workshop session was divided into two parts. In the first part, the stakeholders were gathered in three groups: business, science/academia, NGO. Each group received a working chart to assess the BBEC model and planned key activities. The aim was to gain knowledge regarding what are the most important factors that could encourage each group to collaborate with the BBEC.

The business group stated that the most important aspect of the BBEC's vision is to support the government and decision makers in developing regulations and policy for bioeconomy. The stakeholders in this group are being directly affected by the law and regulations so they are willing to participate in consulting valuable and useful solutions for the bioeconomy market. Business group stated also that it is crucial to support the contact between the business and science on various fields of cooperation.

Business group also support the idea of an on-line platform for the stakeholders that will help the exchange of knowledge. They are also interested in receiving information on valuable training and educational offers regarding bioeconomy. The business group would also participate in various events, workshops, and seminars to promote bioeconomy in the region. Furthermore, they are open to collaboration in exchanging students and scientific staff (internships, diploma thesis, participation in R&D projects).

The science/academia group pointed that the most important issue is to raise the awareness on bioeconomy in Central Eastern Europe. It is still a huge problem and they could support it. Moreover, the stakeholders are interested in joining working groups that will facilitate creating new proposals for external funding along with other groups of stakeholders. The knowledge exchange is a very important issue so the representatives of science/academia should participate in creating and developing network of bioeconomy stakeholders in the region. They would like to participate in creating a methodology of assessment of educational and training offers available on the market. The science/academia group would be very interested in supporting the development of national and regional bioeconomy strategies and cooperating with the industry in exchange of students and scientific staff.

The NGO group highlighted that it is necessary the support of the government and decision makers in developing regulations and policy for bioeconomy. Moreover, it is necessary to develop educational offer and strengthen the cooperation between various regional actors, especially science and industry. The NGO group stated that they are willing to participate in supporting the development of the national bioeconomy strategies and policies.

A very important issues are creating and developing network of bioeconomy stakeholders in the region and sharing the knowledge within this network. The stakeholders would participate in match-making events, workshops, study visits. The NGO group also stated that is necessary to promote valuable bioeconomy educational offers and to create rankings and data bases of training institutions. They would also support the creation and development of educational tools and materials

for every stage of education. Lastly, they will support engaging private sector to cooperate with students and academia.

During the on-line workshop additional points were highlighted. Very important element of education should be the development of scientific thinking in young people and students, as well as the use of scientific methods and skills that will allow verifying the reliability of information and distinguishing true from unverified information. The social dialogue that takes place around the bioeconomy requires the identification of experts who will have authority. Constant surveillance promotes disinformation, and authorities are easily undermined. When designing solutions, it is important to take into account technological solutions, such as artificial intelligence - new programs assessing environmental programs, such as chat-GPT, they should play an integrative role. For this purpose, you need to be "one step ahead" of technology and take care of easily accessible and reliable content on the Internet, which would be first absorbed by IT tools. For this purpose, you need to prepare algorithms and use chat-GPT to disseminate reliable information based on proven sources. Constant updating of educational content is important. Some of the materials used even at universities are out of date, research methods and theories change relatively quickly, which requires constant attention, tracking changes and proven solutions that facilitate efficient updating.

Wrap-up session

The business group stated that the BBEC should also provide legal assistance to the enterprises. The stakeholders also outlined what should be done as next steps. The detailed analysis of national bioeconomy should be made. It is also important to map the current educational offer and make a detailed assessment of what have to be changed. The success stories and best practices should be used to promote the bioeconomy in the region. There should be a platform for constant consultation with the government and decision makers, not only *ad-hoc*. It was also mentioned that NGO point of view should be more considered in the action plan of the BBEC. The mobility from the more developed countries to the Central Eastern Europe countries should be also emphasised. The crucial issue is also to invite public administration to the dialogue.

The stakeholders would like to be a part of different working groups that are focused on above mentioned issues. The BBEC coordinators should point leaders to develop each type of mentioned activities.

Among the stakeholders there were representatives of various EU projects and initiatives. Thanks to this fact the regional workshop had an international perspective covering the whole macroregion. The concept of the BBEC as a knowledge exchange hub is in-line with other on-going EU initiatives, especially CEE2ACT funded by Horizon Europe. The main aim of this project is to establish National Bioeconomy Hubs in the Central-Eastern Europe countries (BIOEAST macroregion). There are strong synergies between the BIObec project and CEE2ACT so further steps should be taken to

strengthen the impact on development of bioeconomy and bioeconomy education in the microregion.

The bioeconomy context and capacity in each country is different. It is also important that the BBEC for Central Eastern Europe should have national branches. The national BBEC's could also seek synergies with other EU initiatives.

Satisfaction survey results

The stakeholders gave very positive feedback on the initiative. They found the presentations very interesting and inspiring. The BBEC is needed in the region, and it is a good idea to cooperate with other initiatives to make a higher impact. It is necessary to get the support from various groups and decision makers. The coordinators should focus on getting external funds for further development.



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6. Cross-fertilisation workshop

On the 6th of September 2023, a cross-fertilisation workshop led by CTA was held at the University of Natural Resources and Life Sciences (BOKU) in Vienna (Austria). The workshop was entitled: "Cross-fertilisation seminar among BBECs and Roadmap co-design experience", and was attended by BIObec partners, advisory board members, IRWG members and all attendees that want to participate. The workshop was designed to take advantage of the organisation and audience attraction of the European Bioeconomy Scientific Forum 2023 taking place at the same venue, in order to gather feedback and input from a wider range of stakeholders. The workshop corresponds to the subtask 4.1.2 and 4.2.1 and its main objective was to promote the peer-to-peer exchange of lessons learnt and best practices activities developed during the implementation of the BIObec project and to show the replication roadmap develop for regions not involved in during the project. The event was attended by a total of 49 participants (Annex 4), and the presentations are available on our website (<http://biobec.edu>).

The workshop was divided into three sessions:

- (I) A detailed exposition on the roadmap for the replication of BBECs;
- (II) Each pilot BBEC explained its own experience pathway during the development of the BIObec project, from the initial design to its feasibility validation and sustainability assessments ;
- (III) Stakeholders of the quadruple helix of innovation worked together, sharing their experiences and needs, interests, barriers and opportunities related to the BBECs in the short and long term. In this deliverable, we focus on the session II and III because are related to the cross-fertilisation workshop, while the roadmap has been described in the deliverable D4.2.

The six pilot BBECs

Each pilot BBEC shared its experience of the design pathway, summarised under the following headings:

- Background/Context/Partnerships/Alliances;
- Vision for the BBEC;
- Value proposition of the BBEC;
- Target groups/customers;
- Planned activities;
- Key resources;
- Governance/cooperation structure;
- Budget/financial plan (CAPEX/OPEX);
- External financial opportunities;
- Risks, good practices and lessons learned.

The presentations were followed by a question-and-answer session to discuss or clarify specific issues. In general, the BIObec speakers provided the audience with detailed information on what have they had identified as good practices and the lessons they had learnt during the development of the six BBECs pilots.

Among the good practices, the following could be highlighted:

- **Collaborators and an understanding of the regional context are key to the establishment of a BBEC.** A deep understanding of the regional context ensures that the BBEC is tailored to the specific needs and challenges of the area, and has a higher impact and a greater chance of becoming a reference in bioeconomy.
- **A coordinator is key from the outset, acting as the glue between the actors and the activities to be developed.** One of the main functions of the coordinator is to ensure effective communication and collaboration, being a central point of contact and keeping a coherent approach to achieve the desired results.
- **It is important to identify the main educational gaps and opportunities in the area. This aspect is relevant for the commercial exploitation.** This activity is, in our view, critical to the development of successful centres in both educational and commercial terms.
- **Working in a single country simplifies the process** in terms of the operational model, simplifying regulatory considerations and administrative complexities.
- **Openness to international or interregional cooperation can bring diverse perspectives, expertise and resources, but can complicate governance.** It is important to carefully balance the benefits of global collaboration with the increased risks associated with this type of structure.

Among the lessons learned, we could highlight the following:

- **Using what it is already available helps to get started and could help to avoid uncertain contexts.** The utilisation of an available resource allows for a more efficient start and ensures because of the initiative is under the umbrella of a structure that could provide stability and resources.
- **Organisations with “institutional knowledge” should be able to assess their level of maturity and simplify the process of setting up a new BBEC.** This goes in the direction of a public-private structure for the BBEC or its integration into a university.
- **In regional contexts or small countries, organising several workshops with the same pool of stakeholders could be challenging.** Running multiple workshops or activities in regions with a limited number of stakeholders can be a challenge to engage the same pool repeatedly.
- **International hubs are difficult in terms of governance, language, and culture.** It is therefore more realistic to focus on regions or a single country that is coordinated by an international coordination centre.

- **Although the process may appear to be a simple plan**, its development requires involvement, commitment, and is fully iterative. This is particularly important if the main objective of the BBEC is to be flexible enough to respond to the needs of the bio-industry.
- **Although there is a great interest in the development of BBECs by stakeholders, it is difficult to obtain financial support from them.** In this respect, BBECs need to be seen as really key structures with a value proposition for industry and public administration to ensure long-term support from members.

Working session with stakeholders

The workshop was held in a hybrid format, so rather than grouping stakeholders in parallel sessions as was described in the DoA, the consortium agreed to work all together in the same place. In order to structure the debate, we prepared a short presentation with examples that could stimulate discussion and the exchange of ideas. In this part, the BIObec consortium was interested in knowing what kind of interests, barriers, and opportunities a BBEC might have in working with different types of stakeholders: Academia, Industry, Public Administration and Civil Society. The discussion was enriched by the diversity of stakeholders present at the seminar (more than 50 participants).

Academia

For researchers, a framework like BBECs could be appealing because it **provides an opportunity to share their research with a broader community**. Additionally, it offers a **platform for engaging with a diverse range of stakeholders**, including individuals at various stages of their careers in industry, public administration, or civil society.

Some key barriers the researchers currently face, were identified including the **monodisciplinary model in current education**, the **misalignment** between the training offered and the skills required by the industry, the **disconnect** between academic and industrial language, the **lack of stable channels** for continued private sector involvement, **potential infrastructure limitations in BBECs** compared to universities or vocational education institutions, and the potential **competition** between similar institutions.

Interestingly, also key opportunities were identified, such as the **multidisciplinary approach** employed in BBEC design, the role of BBECs in **raising awareness of training needs** at an early stage, the **promotion of stronger partnerships and interactions between academia and industry**, the potential ability of BBECs to **develop extensive networks**, and their **potential to promote entrepreneurship** among academic staff.

Industry

Industry stakeholders have identified as a key challenge and interest in the form of **demand for new skills that are not adequately addressed by the existing education model**. They also emphasised the potential of BBECs to act as a **bridge between industry's expectations** and the provision of vocational or higher education.

As an important opportunity, they highlighted the potential for BBECs to **tap into industry networks and intermediary institutions**.

Public administration

Public administration and government authorities have as barriers the **periodic changes**, which make difficult to maintain links between different stakeholders and to take **long-term perspective**. It is also a real challenge to **translate international legislation or policies into the local environment**, especially in topic such as bioeconomy or circular economy.

Public administration staff and governments **need to be trained in bioeconomy**, especially since the bioeconomy is included in strategic action plans, which has raised awareness in the administration. BBECs could act as **consultants for the adaptation of programme contents aligned to private needs**. The accessibility to **local governments is easier** than to the national ones, as the BBEC has a regional design, which is a strong point for cooperation between them.

Civil Society

These stakeholders were interested in the **on-stop-shop training modality** of the BBECs, where learners are provided with all the necessary training materials and resources in one place.

However, they were really concerned about the **lack of understanding of bioeconomy concepts** that the average person will have on these issues. In general, awareness of the bioeconomy is increasing, but there is a real needed for both **dissemination and communication campaigns at all levels**, which can be used by BBECs to position themselves in a central role in the development of the bioeconomy.

7. Conclusions

The BBEC regional roll-outs and the cross-fertilisation workshops were organised for identifying potential collaborations and synergies with other relevant stakeholders for the development of BBECs, as planned.

In order to increase the number of participants and promote a peer-to-peer exchange of experiences and best practice activities, the number of events organised at regional level by the BBECs was increased to **nine**, instead of 6 (as planned). The total number of participants, including the cross-fertilisation event, was of more than 240 (Figure 15). The events targeted mainly stakeholders from industry, education, public administration, and civil society.



Figure 15. Number and category of the participants to the regional and international workshops organised for developing the roll-out plan for the identification of potential for collaborations and synergies

As regards the BBEC regional workshops, nine events were held from July to November 2023, due to the interest of the consortium to reach the maximum number of relevant stakeholders for the development of the BBECs. The BBECs with an international structure decided to split their workshops in face-to-face and online events like Central Eastern Europe BBEC or the Med-BBEC into two online because of idiomatic issues. In the case of the Irish BBEC, the event was split into a face-to-face event in the Bioeconomy Implementation Group held by Irish public administration and its contribution the online forum organised as part of the Bioeconomy Ireland Week 2023.

In this regard and although there was no defined KPI for this task in the DoA, the total number of participants were 192, distributed in the following categories:

- Policy officers or public administrators: 34
- Academics and researchers: 74
- Civil society representatives: 15

- Business and SME representatives: 56
- Master students: 13

In general, the grade of satisfaction regarding to the workshops was high, and the discussion sections were productive, in which people was highly participative. From those workshops, we have identified people that wants to collaborate in the BBECs and they have formally written their interest in participate in the next steps.

As regards the cross-fertilisation workshop, it was organised in September 2023 under the title “Cross-fertilization seminar among BBECs and Roadmap co-design experience”. The main objectives of this workshop were to promote the collaboration between the BBECs communities and to exchange best practices. The main conclusions of this event will be included in the best practices document that will be part of the BIObec e-learning materials (D4.4).

The total number of participants in the cross-fertilisation workshop was 49, distributed as follows:

- Policy officers or public administrators: 4
- Academics and researchers: 21
- Civil society representatives: 2
- Business and SME representatives: 19
- Not identified: 3

The first part of the workshop was a hard exercise in compiling and simplifying the information generated by the BIObec project over in the last few years. This was an opportunity to present the results to a public that has not been involved in the project and can positively contribute with their own regional specificities.

In addition, the discussion section was very productive, where people worked together on how they saw the proposal of the six pilot BBECs. They gave us inspiration and points of view that should be addressed for a proper collaborative atmosphere between the BBECs and their main stakeholders, especially on the main barriers and opportunities.

Briefly, some of the main conclusions taken both from the BBEC regional roll-outs and the cross-fertilisation workshops were the followings:

- BBEC should become a game-changer, a place to receive requests and tailor offers to companies or industries. It has the potential to tap into industry networks and intermediary institutions, to promote entrepreneurship among academic staff, and interactions between academia/research world and industry.; From the point of view of students, it should be act as a catalyst through events, internships, and opportunities for promoting international exchange, whether through online platforms or face-to-face interactions
- BBEC’s vision should support the government and decision makers in developing regulations and policy for bioeconomy.

- BBEC should also play a key role in keeping the public informed because of the general lack of understanding of bioeconomy concepts and importance. In addition it should facilitate that school leavers could enter the bioeconomy. The success stories and best practices could be used to promote the bioeconomy in the own region.
- For the creation of a successful BBEC, it is important a deep understanding of the regional context, the specific needs and challenges of the area, as well as collaboration with external education programs is needed.
- The start-up BBEC phase needs for external support as well as external funding, so avoiding uncertain contexts; in addition, a sharp definition of the target groups for each course is important to find the customers who will pay. In this starting phase the creation of a catalogue (published every 6 months) presenting the possible courses could be of help as well as the use of resources already available.
- In a later step BBEC should also provide legal assistance to the enterprises.
- Courses in certifications, Life Cycle Assessments (LCA), circular economy, bioenergy as well as the understanding of growth economy should be included in the bioeconomy. It could be help the creation of tailor-made day courses with short flexible programs with a final certificate.
- New educational contents could be presented by using different kind of communication methods, such as videos, podcasts, and Massive Open Online Courses (MOOCs).
- BBEC working in a single country simplifies the process in terms of the operational model, simplifying regulatory considerations and administrative complexities, although openness to international or interregional cooperation can bring diverse perspectives, expertise and resources;
- The lack of stable channels for continued private sector involvement, potential infrastructure limitations in BBECs compared to universities or vocational education institutions, and the potential competition between similar institutions, are some of the key barriers that BBECs will have to face.

8. References

- Ireland's Bioeconomy Action Plan 2023-2025. Department of the environment, climate and communications and the Department of Agriculture, Food and the Marine. Government of Ireland (<https://www.gov.ie/pdf/?file=https://assets.gov.ie/273984/64aa20ef-3907-46fe-a599-73ba208a1edf.pdf#page=null>).
- Christian Felber: "Change everything. Creating an Economy for the Common Good". Zed Books, limited. ISBN 9781783604722
- Kate Raworth: "Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist. Vermont: White River Junction. ISBN 9781603586740.

Annexes



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Annex 1 Satisfaction survey

With the aim of gathering information about your experience at the [Name of the event], we have created this survey. Your input will help us in the planning and implementation of future activities.

This survey will take no longer than 5 minutes. Thank you very much for your collaboration.

*Mandatory

Please, evaluate the following aspects of the event:

- Organisation *
From 1 (Poor) to 5 (Excellent)
- Relevance of the topic and content *
From 1 (Poor) to 5 (Excellent)
- Conceptual design of the BBEC (quality and clarity) *
From 1 (Poor) to 5 (Excellent)
- Completeness of the presentation of feasibility and sustainability *
From 1 (Poor) to 5 (Excellent)
- Participation and dialogue with the audience *
From 1 (Poor) to 5 (Excellent)
- Where did you hear about this event?
 - Social Media
 - e-mail / Newsletter
 - Direct invitation
 - Other: ...

Please, write below any comment or feedback about the event and/or the tool.
Thank you!

If the event is done face-to-face, an additional question related to the location and catering can be included.

Annex 2 – Danish outcome and roll-out

Below is the translated MoU among the Danish IRWG and other stakeholders which is the result of the workshop and forms the basis for the establishment of BBEC Denmark and a specific application for funds ultimo August 2023.

Memorandum of Understanding

Bioeconomic Competence Center (BioKompete)

This is a MoU on the way from the preliminary work under the auspices of the BIOBEC project (<https://biobec.eu/>) towards a formal establishment of a Biobased Education Center - a Bioeconomic Competence Center (BioKompete). The participating parties have been in dialog/participated in a series of workshops under the auspices of the BIOBEC project in 2022-23 to discuss form and content.

This MoU shows the overall goal and content, who is behind it and who commits to contribute to the realisation of a BioKompete.

Who

The following organisations together have the will and ability to contribute to creating a Bioeconomic Competence Center anchored in FBCD, Viborg:

Food and BioCluster Denmark (FBCD) (Lead partner), Asmildkloster Agricultural College, Viborg Municipality, Mercantec, SEGES Innovation, Klimafonden Skive, Aarhus University, Roskilde University, University of Copenhagen, Bygholm Agricultural College, Erhvervsakademi Dania, Jordbrugets Uddannelsescenter, Arla Foods, UniBio, Nature Energy, Biorefine and other companies.

The circle can be expanded.

Content and framework of the agreement

- BioKompete is established as a project that aims to establish and develop BioKompete into a self-sustaining competence center in very close collaboration with the signatory parties.
- BioKompete is a development platform, physically in Foulum and virtually a web platform where the continuing education offerings of the future are developed and offered.
- The framework is initially for 3 years, after which the agreement is renewed/replaced by specific formal and binding cooperation agreements.

Goals and delimitation



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The overall goal is to improve the skills of employees in the bioeconomy and create continuing education programs that can improve the competitiveness of bioeconomic companies, and create new innovations and new companies.

Specifically, the goals are:

- To attract more course participants with active and coordinated communication about the possibilities of a new platform and to run these courses with relevant educational partners.
- To develop new course offerings and continuing education programs that are adapted to future needs (nationally and internationally) for cross-cutting competencies such as a combination of theoretical and especially practical knowledge, as well as a focus on innovation and start-ups.
- Develop a business model that is sustainable - financially and organisationally.

Roles and responsibilities

- BioKompete will develop and coordinate, while existing formal education units will deliver courses.
- BioKompete has the responsibility and obligation to hold development workshops with participating organisations.
- BioKompete is responsible for developing and implementing a platform for the presentation and coordinated marketing of bioeconomy continuing education programs, which also refers to the websites of participating educational entities.
- The participating educational units commit to actively contributing professionally to the development and implementation of (parts of) new interdisciplinary bioeconomy courses according to defined criteria and specific agreements.
 - Recruitment for courses: Biokompete and the organizing organisation
 - Delivery of courses: by agreement
- The participating educational entities commit to contribute to -and refer to- the BioKompete platform for other relevant educational opportunities.
- Agro Business Park/FBCD commits to seek funding and provide the framework to develop a BioKompete in Foulum once funding is obtained.

Funding and financing

FBCD is seeking funding to start BioKompete for a 3-year period, where the concept and business model will be developed in close collaboration with signatory partners. External funding is sought from public and private donors to start up the project and develop the concept. A self-sustaining business model must be developed with mutual

financial agreements with the participants so that there can be a sustainable business overall in BioKompete.

The MOU is an appendix, for application to the Novo Nordisk Foundation <https://novonordiskfonden.dk/grant/projektstoette-til-naturvidenskabelig-uddannelse-og-uformelle-laeringsmiljoeer-2023/>

A total grant is sought for FBCD with the signatory parties (to this MOU) as suppliers/co-players with an expected budget that can be triggered during the 3-year life of the project.

Steering Committee

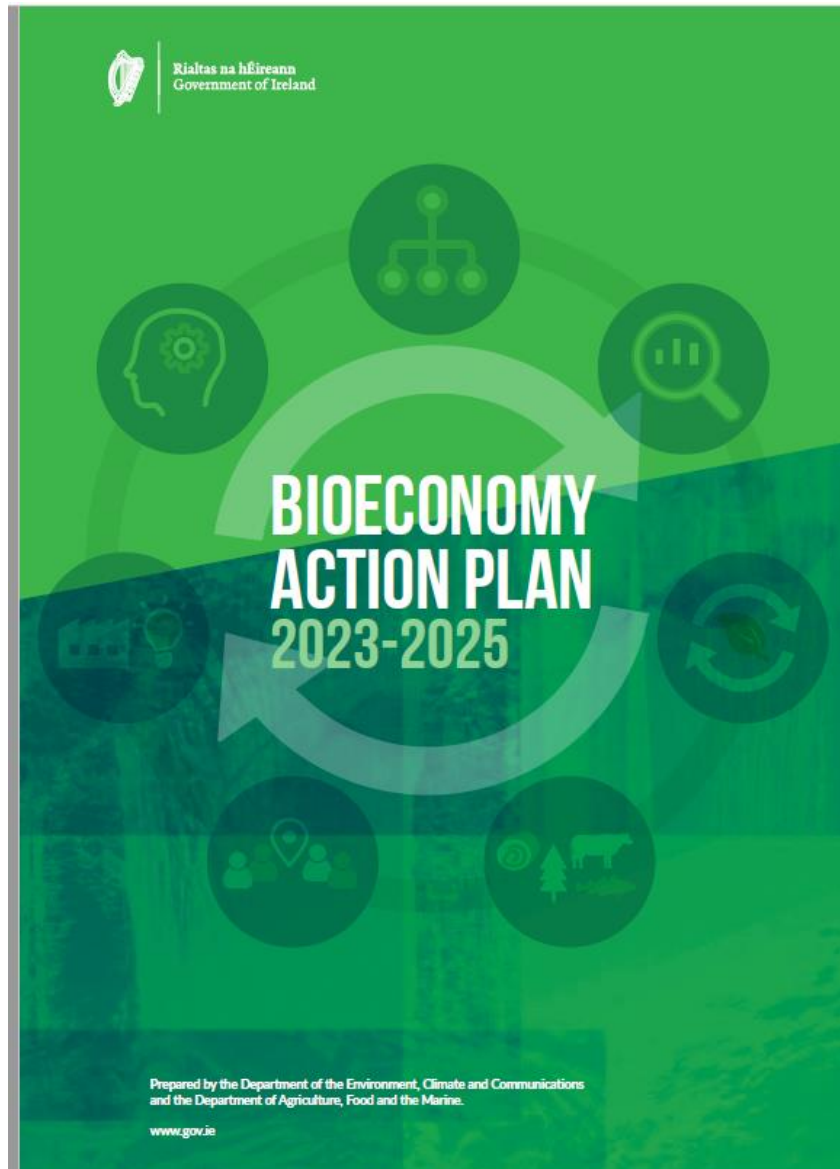
A steering committee will be established with the participation of 1) funding parties, 2) a university, 3) a vocational education and two other appointed members. The chairmanship is held by FBCD a/s



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Annex 3 – Ireland's Bioeconomy Action Plan 2023-2025

The BIObec project has been mentioned in the Irish Government's Bioeconomy Action Plan, which recognises the potential of the project to help Ireland achieve its bioeconomy goals.





ACTIONS AT A GLANCE

- Promote the bioeconomy in primary, second level, further and higher-level education where appropriate.
- Develop bioeconomy advisory services and continuous professional development programmes.

To support our biobased industries, we need an educated and skilled workforce and to create a career path for bioeconomy professionals in Ireland.

Impact 2030, Ireland's research and innovation strategy recognises that knowledge and talent is at the very heart of Ireland's research and innovation ecosystem and our future prosperity. Ireland's National Smart Specialisation Strategy for Innovation 2022-2027 (S3)²⁵ identified bioeconomy as a key and emerging strength in all three regions. Creating the skilled workers for the bioeconomy we need is an integral part of this strategy.

Further action is needed in education, training, and upskilling to ensure we have an appropriate workforce for the bioeconomy both now and in the future.

To achieve this, our primary, post-primary and third level education systems can assist to increase understanding, interest, and awareness of the bioeconomy at a young age. Collaboration on curricula development from primary and post-primary school education through to further and higher education and advisory systems is required.

There is a need to engage with primary and post-primary schools to raise awareness and understanding of the bioeconomy and its cross-sectoral and system-wide impacts, in line with wider objectives of our second national strategy on Education for Sustainable Development (ESD to 2030).

Additionally, the bioeconomy will be promoted in primary and post-primary schools through awareness campaigns, including during the annual Bioeconomy Ireland Week.

The further and higher education sector can also play a key role in boosting knowledge and skills on the bioeconomy including through systems thinking and research-led teaching and learning approaches particularly considering the EU Commission study to explore the development of bioeconomy educational and training content.²⁶ The Further and Higher Education Institutes will be invited to consider how their education and university courses will reflect bioeconomy development at a policy and industry level, while respecting their autonomy for administrative and academic affairs.

The National Strategy on Education for Sustainable Development in Ireland (ESD to 2030) also includes an action for higher education institutions to progress the development of micro-credentials on ESD related topics, such as biodiversity and bioeconomy, to support upskilling and reskilling for a sustainable economy and society.

There is also demand for primary producers, agricultural, forestry and enterprise advisors, Local Action Groups and LEADER project development officers and other cooperation-facilitators and innovation intermediaries to receive awareness-raising training on the bioeconomy.

Overall, the BIDG will consult with the Expert Group on Future Skill Needs to identify the skills gap that needs to be addressed to adequately harness the full potential of both the circular economy and bioeconomy, including in areas such as continuous professional development.

²⁵ The smart specialisation (S3) approach offers a reinforced environment for increasing the interaction and cooperation among the different innovation ecosystems stakeholders, both at local, regional, national and international levels.

²⁶ [Promoting bioeconomy education in Europe \(europea.eu\)](https://europea.eu)



NO.	ACTION	STEPS TO DELIVERY	TIMEFRAME	RESPONSIBLE
7.1	Promote the bioeconomy in primary education through integration into the new primary curriculum framework	7.1.1 Leverage the knowledge outputs from the EU-funded BioBee project to support integration of the bioeconomy in the new primary curriculum framework	Q4 2024	<ul style="list-style-type: none"> • DED (Lead) • NCCA • DECC, DAFM • UCD – Leveraging the EU-funded BioBee project
		7.1.2 As revised curricula and their specifications are developed from early childhood to senior cycle opportunities and linkages to ESD and the bioeconomy within the NCCA's Subject Development Groups will be explored, as considered appropriate	Q4 2025	<ul style="list-style-type: none"> • DED (Lead) • NCCA • DECC, DAFM
7.2	Update the second level junior and senior cycle curriculum to include the bioeconomy where appropriate	7.2.1 Explore the integration of the concept of bioeconomy in line with the redevelopment of the Senior Cycle, across a range of relevant learning experiences in subjects and modules, where appropriate	Q4 2024	<ul style="list-style-type: none"> • DED (Lead) • NCCA • DECC, DAFM
		7.2.2 Leverage the knowledge outputs from the EU-funded Leveraging education to boost EU bioeconomy's potential (biobec.eu) , IKC3 , and BioBee projects for the second level curriculum	Q4 2024	<ul style="list-style-type: none"> • DED (Lead) • NCCA • DECC, DAFM • MTU – Leveraging the EU-funded Biobec project and IKC3 • UCD – Leveraging the EU-funded BioBee project
		7.2.3 Coordinate with the second national strategy on Education for Sustainable Development to explore for programmes and competitions (e.g., Young Scientist) to promote and support consideration of the bioeconomy within these activities	Q4 2024	<ul style="list-style-type: none"> • DED (Lead) • NCCA • DECC, DAFM
7.3	Review and update relevant further and higher education programmes, to ensure that courses refer to and include bioeconomy where appropriate	7.3.1 Identify where bioeconomy education, training and skill gaps currently exist and how that might be remedied	Q4 2024	<ul style="list-style-type: none"> • Higher Education Institutions • Education and Training Boards • Apprenticeship training providers and apprenticeship consortia • Teagasc Education
		7.3.1.1 Evaluate and adapt current programmes and models of delivery to enable current education, training, and skills programmes to effectively address the needs of the bioeconomy		
		7.3.1.2 Consider new technologies and practices to enable soft skills and to develop multi- and inter-disciplinary understanding and communication between core disciplines related to the bioeconomy		

continued

NO.	ACTION	STEPS TO DELIVERY	TIMEFRAME	RESPONSIBLE
7.3 <i>(cont'd)</i>		7.3.1.3 Develop the ability to understand and communicate with other STEM and non-STEM disciplines that occupy roles within the bioeconomy and are all vital to enable co-operation		
		7.3.1.4 Consider the need to develop bioeconomy education and training within apprenticeships, micro-credential courses that include bioeconomy in scope and support graduate conversion, upskilling in enterprise, multi- and trans-disciplinarity		
		7.3.2 Leverage the knowledge outputs from the EU-funded leveraging education to boost EU bioeconomy's potential (biobec.eu) project and IKC3 for consideration by the further and higher education system	Q4 2024	• DFHERIS (Lead)
7.4	Support upskilling and reskilling for the bioeconomy	7.4.1 Provide opportunities for re-skilling and upskilling for the bioeconomy via funding calls for Springboard + programmes and HCI Pillar 1	Q4 2024	• Higher Education Authority
		7.4.2 Disseminate the outputs from the BioBEC project to relevant Irish stakeholders such as the regional skills fora and further and higher educational institutions when available	Q4 2024	• Higher Education Authority
7.5	Develop Bioeconomy Advisory Services and Continuous Professional Development Programmes	7.5.1 Embed bioeconomy into farm, forestry, marine, cooperative, and industry advisory services including integration of bioeconomy within the Teagasc Signpost Programme	Q4 2024	• DAFM, DETE (Joint-Lead) • Teagasc KT and Advisory • ICOS, BIM, Enterprise Ireland
		7.5.2 Develop CPD programmes to support bioeconomy development	Q4 2024	• DAFM, DETE (Joint-Lead) • Teagasc KT and Advisory • ICOS, BIM, Enterprise Ireland, Skillnet Ireland
7.6	Consult with the Expert Group on Future Skill Group - Skills (skillsireland.ie)	7.6.1 Examine the proposal of analysing and identifying skills gap for the circular economy and bioeconomy	Q4 2024	• DECC (Lead) • DAFM

MONITORING, IMPLEMENTATION AND DEVELOPMENT

The success of this action plan will depend on effective implementation and oversight.

A revised terms of reference will be established for the Bioeconomy Implementation Group, which will become a new High Level Bioeconomy Implementation and Development Group (BIDG) to support the implementation of the action plan.

The group will meet quarterly to ensure delivery on priority actions and to monitor progress across the action plan. The group will also meet and take submissions from stakeholders, as required.

The membership of the group will be as follows and will be reviewed on an ongoing basis to ensure that it is fit for purpose.

CO-CHAIRS

- Department of the Environment, Climate and Communications
- Department of Agriculture, Food, and the Marine

DEPARTMENTS/AGENCIES

- Taoiseach
- Enterprise, Trade and Employment
- Rural and Community Development
- Further Higher Education, Research, Innovation and Science
- Housing, Local Government and Heritage
- Transport
- Finance
- Education
- Public Expenditure, NDP Delivery and Reform
- Teagasc
- Marine Institute
- EPA
- Enterprise Ireland
- Science Foundation Ireland
- Sustainable Energy Authority of Ireland
- Bord Iascaigh Mhara
- National Economic and Social Council

The Implementation and Development Group will report back to Government each year in line with supporting governance approaches for accountability, transparency, and fairness in balancing the delivery of the bioeconomy vision, guiding principles and strategic objectives.

In carrying out these tasks, the group will also continue to work with the bioeconomy forum and the wider bioeconomy network liaising with relevant stakeholders within and beyond the bioeconomy.

Annex 4: Roadmap co-design experience and Cross-fertilisation seminar agenda and list of participants

<h1 style="color: #0070C0;">BIObec</h1> <p style="color: #0070C0;"><i>Preparing the creation of Bio-Based Education Centres to meet industry needs and boost the contribution of the bioeconomy to societal challenges</i></p> <p style="color: #0070C0;">GA nr 101023381</p>	
Event	Roadmap Co-design Experience/Cross Fertilisation seminar
Venue	University of Natural Resources and Life Sciences, Vienna (BOKU) Peter-Jordan-Strasse 82/II, 1190 Vienna, Austria
	September 6, 2023
Agenda prepared by	Davide Viaggi (UNIBO) Project scientific coordinator Maria Grazia Attianese (UNIBO) Project manager With the contribution of all partners
Attendees to the meeting	BIObec partners Advisory Board members IRWG members

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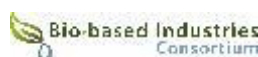
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