



CEE2ACT

**Empowering the Central and
Eastern European Countries to Develop
Bioeconomy Strategies and Action Plans**

D3.3 Impact Evaluation Report



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ABBREVIATIONS

CEE	Central and Eastern Europe
KPI	Key performance indicator
MoU	Memorandum of understanding
NBH	National Bioeconomy Hub
NGOs	Non-governmental organisations
SMART	Specific, Measurable, Achievable, Relevant, Time-bound
SMEs	Small- and medium-sized enterprises
SOs	Specific objectives
ToC	Theory of Change
WP	Work Package

AI contribution disclosure

During the preparation of this work, the author(s) used ChatGPT (OpenAI, version 4o, accessed July 2025) to state purpose: e.g., suggest wording, refine grammar, and desktop research. After using this tool, the author(s) reviewed and edited the content and take full responsibility for its accuracy and integrity.

GOOD PRACTICE SUMMARY

The CEE2ACT project has identified a broad set of good practices in stakeholder engagement that can inform similar projects fostering circular bioeconomy transitions. One key success factor is **anchoring bioeconomy hubs within existing networks**—such as clusters, bioeconomy platforms or similar initiatives—that already have stakeholder trust, access to policymakers, or thematic expertise. This approach can enable **faster outreach, smoother coordination, and early credibility**. A strong emphasis on **stakeholder mapping** prior to launching engagement activities proves essential to identify relevant actors, understand their roles, and tailor outreach efforts accordingly.

To encourage stakeholder participation, it is important to present a **clear business case for the bioeconomy** and to demonstrate how it connects with stakeholders' existing work. Clarifying the **definition of bioeconomy** early, providing **practical examples**, and **educating** newcomers to the topic helps to clear out any misconception that prevents further engagement. The CEE2ACT hub coordinators who built on their **organisational strengths**—for instance, access to scientific knowledge, policy channels or business networks—are especially effective in reaching broader stakeholder groups. Associations served as strong multipliers, extending reach through their members.

In-person engagement emerged as a cornerstone of trust-building and dialogue. While flexibility through hybrid formats allowed wider participation, face-to-face meetings were most effective in enabling open discussion, knowledge exchange, and relationship-building. Hubs functioned as a safe and neutral space where stakeholders could voice challenges, propose solutions, and learn from others. **Peer learning**—particularly about how other regions are implementing bioeconomy approaches—was a powerful motivator, as was the opportunity to contribute to national planning processes. **Facilitating feedback loops to policymakers** reinforces the relevance of hubs as consultative platforms, while prioritising stakeholder-identified challenges helped focus collective efforts.

Another key element was the development of **Memoranda of Understanding (MoUs)** to formalise collaboration. MoUs that were **concise, non-binding, and inclusive**—yet grounded in concrete, shared intentions—proved more appealing to stakeholders. Co-creation of MoUs with a core group of committed actors fostered ownership and credibility. The inclusion of simple monitoring or review mechanisms can help maintain accountability and track progress. Hub coordinators typically led the drafting process, drawing on relationships developed through ongoing collaboration. Timing an MoU process with political or institutional windows of opportunity further supported success. Many CEE2ACT hubs view the MoU as a sustainability strategy—a means of ensuring stakeholder engagement and cooperation continues beyond the project's lifecycle.

EXECUTIVE SUMMARY

A circular bioeconomy has the potential to unlock the benefits of sustainable use of biomass by transforming it into value-added products. However, most Central and Eastern European countries presently lag behind in the adoption of national strategies, though many stakeholders in these countries already engage in bioeconomy. To facilitate transition to a circular bioeconomy, it is necessary to foster public engagement to respond to local challenges.

This report provides a structured evaluation of the stakeholder engagement activities undertaken within Work Package 3 (WP3) of the CEE2ACT project, which aims to support the development of national circular bioeconomy roadmaps across ten Central and Eastern European (CEE) countries: Bulgaria, Croatia, Czech Republic, Greece, Hungary, Poland, Romania, Serbia, Slovakia and Slovenia. At the core of WP3 was the establishment of National Bioeconomy Hubs (NBHs), the collaborative platforms that facilitate inclusive, bottom-up processes of stakeholder engagement. The hubs foster dialogue, knowledge exchange, and coordination among key stakeholder groups, including governmental bodies, academic institutions, industry actors, etc.

To evaluate the impact of the CEE2ACT's stakeholder engagement activities, an impact evaluation was undertaken, applying the Theory of Change approach. It assesses the extent to which WP3 met its three specific objectives: (1) raising awareness among relevant stakeholder groups of the benefits of a circular bioeconomy; (2) seeking stakeholders' inputs and understanding their interests and motivations regarding national bioeconomy strategy development; and (3) fostering stakeholder connections to build broad-based support for circular bioeconomy.

Findings indicate that all ten hubs have effectively met the objectives through establishing operational platforms for local stakeholder engagement. This has resulted in strengthened dialogue and networks, improved stakeholder capacities and a heightened profile of the bioeconomy agenda at national levels. The Memoranda of Understanding (MoU) developed by each hub plays a role as a non-binding key instrument to institutionalise cooperation beyond the project's timeframe. While uptake remains uneven, the MoUs are seen as important tools for ensuring continuity.

However, some challenges remain, which include securing private sector engagement, resource constraints, and fragmented policy landscapes. The hubs can contribute to addressing these persistent challenges in the long run. This will require stable financial support, facilitated peer learning within and among CEE2ACT countries as well as matchmaking with financiers for innovative bioeconomy projects.

DISCLAIMER

The CEE2ACT project is funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency (REA). Neither the European Union nor the granting authority can be held responsible for them.



1. Purpose of this document

The purpose of this document is to evaluate the results of stakeholder engagement activities undertaken by the 10 CEE2ACT National Bioeconomy Hubs (NBHs), and analyse the results in their relation to the Specific Objectives (SOs) of the CEE2ACT's Work Package 3 (WP3). WP3 comprises various bottom-up stakeholder engagement activities that seek to promote circular bioeconomy in each of the 10 Central and Eastern European (CEE) countries. An NBH has been established in each of the 10 CEE2ACT countries: Bulgaria, Croatia, Czech Republic, Greece, Hungary, Poland, Romania, Slovakia, Slovenia and Serbia.

Moreover, this report also seeks to collect lessons learned and good practices from the 3.5 years of the CEE2ACT project's implementation of a bottom-up stakeholder engagement. The lessons learned and good practices can be useful for future stakeholder engagement initiatives for bioeconomy implementation in the CEE region and beyond. The bottom-up approach aims to advance the uptake of a circular bioeconomy in CEE region by engaging with a wide range of actors. This is undertaken particularly through the NBHs as platforms for multi-stakeholder engagement. This document is developed based on the two previous documents, i.e. D3.1 CEE2ACT Stakeholder Engagement Plan and D3.2 CEE2ACT National Bioeconomy Hubs.

2. Introduction

The bioeconomy, also referred to as the bio-based economy, is an emerging model that focuses on the sustainable use of renewable biological resources to produce food, feed, bio-based products, energy, and services. According to the CEE2ACT definition,¹ the bioeconomy encompasses renewable resources from land and marine ecosystems, including agriculture, forestry, fisheries, aquaculture, and other sources such as insects, algae, and microorganisms. It also includes the circular use of organic residues and waste, with ecosystem services considered an integral part. The shift from a fossil-based to a bio-based economy is anticipated to decrease society's reliance on fossil fuels, enhance sustainability, and contribute to environmental and climate protection. All members of the society, particularly industry and science must work more collaboratively than ever before, forming new connections that were previously non-existent, both within and between value chains. The bioeconomy extends beyond just value creation chains and aims to integrate all sectors of the economy.

¹ CEE2ACT, Deliverable 2.1: *Baseline assessment report on bioeconomy implementation and policy development in CEE2ACT target countries* (2023).

In this context, **national strategies** play a key role in fostering the transition to a circular bioeconomy and improving resource management. The CEE2ACT countries in Central and Eastern Europe currently lag behind other European countries in the development of such national strategies and action plans (European Commission, 2021). The need to develop a national strategy becomes even clearer considering that many private actors in the CEE2ACT countries are already engaged in bioeconomy activities, highlighting the untapped potential in these countries' bioeconomy. Developing a national strategy makes it possible to adapt the principles of a circular bioeconomy to country-specific characteristics and needs, unlocking new opportunities not only for business innovation, but also education and research in the country. Furthermore, having a national bioeconomy strategy provides stakeholders with a sense of direction and security, reducing their hesitation to engage by signalling potential governmental and financial support. To support the CEE2ACT national governments in developing a national bioeconomy strategy, the 10 hubs have engaged with key stakeholders in their countries to build momentum, and invited them to contribute to the development of national bioeconomy roadmaps that the CEE2ACT project is currently undertaking. Through these roadmaps, the project seeks to contribute to the formulation and implementation of national bioeconomy strategies in the CEE2ACT countries.

2.1 Short summary of the following chapters

Chapter 3 defines key concepts related to stakeholder engagement. It highlights the role of National Bioeconomy Hubs (NBHs) in fostering collaboration and policy influence, and Memoranda of Understanding (MoUs) as tools to sustain engagement. Additionally, it outlines national conditions shaping bioeconomy strategies and introduces the impact evaluation framework used to assess engagement effectiveness.

Chapter 4 details the evaluation methodology, describes the measurement framework, structured around specific objectives and indicators, and explains the data collection process. It also discusses the evaluation roll-out and categorisation systems used to analyse engagement data.

Chapter 5 presents country-specific findings, analysing participation levels, discussion topics, successes, and challenges. It assesses whether project objectives were met and identifies key trends, gaps, and outliers in stakeholder engagement.

Chapter 6 synthesises evaluation results, identifying effective engagement practices and shortcomings. It reflects on the methodology, explores future prospects for sustaining the hubs, and provides recommendations for ongoing stakeholder collaboration in the bioeconomy sector.

Chapter 7 lists down some key sources and references used in this D3.3 report.

3. Concepts and definitions

3.1 Stakeholder engagement in CEE2ACT

Multi-stakeholder engagement refers to the process of involving diverse actors who share an interest in a particular issue and collaborate to achieve a common goal (Waddock, 2013; European Commission et al., 2018; European Commission et al., 2018). This process aims to incorporate diverse stakeholders across scales, sectors and knowledge systems with different perspectives, experiences and needs, and is based on principles of cooperation, inclusiveness and dialogue (Reed et al., 2018). It enables the integration of different points of view and helps to overcome sectoral silos.

Stakeholder engagement is essential to overcoming challenges and unlocking the full potential of the circular bioeconomy in the CEE2ACT countries. The current state of bioeconomy in these countries presents both great potential and significant challenges. The bioeconomy holds strong potential in sectors such as agriculture, forestry, food production, and bioenergy. However, the 10 countries lag behind in bioeconomy strategy development compared to Western Europe. While some have established national bioeconomy strategies, others have only started developing them. The slow uptake of bioeconomy is reflected by infrastructure gaps, particularly in biowaste management, organic farming, and biomass utilisation. Experts also highlight biomass production and organic farming as key growth areas, though progress is hindered by financial, policy, and knowledge barriers (see Deliverable 2.1; Stegmann et al. 2020; European Commission et al., 2018).

Against this backdrop, stakeholder involvement can support the development of national bioeconomy roadmaps that can contribute to the processes of updating or developing national bioeconomy strategies by CEE2ACT countries. By mobilising actors from government, academia, industry and civil society, the CEE2ACT project fosters collaboration for bioeconomy. CEE2ACT combines both **top-down** and **bottom-up** approaches to ensure broad participation and shared responsibility, as well as to strengthen coordination between different stakeholder groups (see Deliverable 3.1; European Commission et al., 2021; Waddock, 2013).

To help tackle the identified challenges and harness the opportunities brought by the circular bioeconomy potentials, stakeholder engagement contributes to the following:

- The transition to a circular bioeconomy requires a multi-stakeholder approach, integrating government, industry, research institutions, and civil society. This approach helps overcome sectoral silos and align diverse interests (see Deliverable 3.1).
- Many CEE2ACT countries face governance challenges, such as lack of inter-ministerial coordination, limited staff capacity, and unclear mandates for bioeconomy policy. Engaging stakeholders will help ensure that strategies are more representative,

relevant, and practical, fostering commitment among key stakeholders (see Deliverable 3.1).

- A National Bioeconomy Hub was established in each CEE2ACT country in order to facilitate local engagements and provide structured platforms for collaboration (see Deliverable 3.2).

3.2 National Bioeconomy Hubs (NBHs)

National Bioeconomy Hubs (NBHs or simply “hubs”), as defined in the CEE2ACT project, are country-specific platforms designed to support the transition to a sustainable and circular bioeconomy. They act as collaborative ecosystems that bring together key stakeholders – including companies, ministries, public administrations, research institutions and civil society organisations – to jointly develop national bioeconomy roadmaps. With the roadmaps, the CEE2ACT hubs seek to contribute to the development of formal national bioeconomy strategies and action plans by their national governments. The hubs facilitate a bottom-up stakeholder engagement through workshops, training and knowledge-sharing forums to promote inclusive dialogue and the co-creation of roadmaps tailored to national circumstances (European Commission et al., 2018; European Commission et al., 2021; Stegmann et al. 2020).

The concept is based on the realisation that CEE countries often lack formal national bioeconomy strategies, although the involvement of private actors in bioeconomy-related sectors is increasing. The hubs therefore serve as important facilitators that bridge this strategic gap by localising the principles of the circular bioeconomy – shifting resource use from non-renewable materials to renewable biomass – while adapting them to the socio-economic, environmental and institutional realities of each country (Stegmann et al. 2020; European Commission et al., 2018; European Commission et al., 2021).

Each hub is coordinated by a national lead organisation and supported by digital tools and e-solutions developed by CEE2ACT, such as good practice inventory, e-learning modules and matchmaking platform. Although the hubs were established within the time frame of the CEE2ACT project, some of which build on pre-existing initiatives, they are intended as long-term structures that can sustain stakeholder collaboration beyond the lifecycle of the project and strengthen national capacities for the transition to a resilient, circular bioeconomy (CEE2ACT, 2023; European Commission et al., 2018; European Commission et al., 2021).

3.3 MoU in the CEE2ACT context and its role in stakeholder engagement and impact evaluation

A memorandum of understanding (MoU) is a non-legally binding agreement between two or more parties that outlines their intentions, roles, and collaborative commitments. Within the CEE2ACT project, MoU serves as self-determined agreements co-created by the hubs and their members to ensure long-term stakeholder collaboration in realising a circular bioeconomy.

While actions under an MoU remain voluntary, it provides a structured framework for hub members to collaborate, ensuring alignment in vision and approach. Additionally, MoU acts as a common ground for the hubs and their members when developing national bioeconomy roadmaps, guiding collective action. Each hub was responsible for drafting a MoU that was tailored to its local context and aligned with key stakeholders' needs, fostering ownership and long-term sustainability (European Commission et al., 2021).

Through integrating the MoU into the stakeholder engagement strategies within CEE2ACT, the project ensures that the effectiveness of stakeholder engagement achieved during its lifetime is sustainably strengthened and maintained beyond the project duration. A MoU serves as a valuable instrument to support this goal by fostering (European Commission et al., 2021):

- **Stakeholder commitment** to advancing national bioeconomy strategies through intrinsic motivation, collaboration and shared understanding. Achieving a sustainable bioeconomy transition requires cross-sector collaboration, particularly between policy and business actors.
- **A flexible, non-legally binding framework**, which helps mitigate concerns and hesitations among stakeholders who might be reluctant to engage due to uncertainties related to governance structures and policy changes.
- **A participatory and engaging MoU creation process**, which helps in identifying stakeholder needs and expectations while reinforcing mutual trust and collaboration. This process can enhance stakeholders' clarity on their potential contributions and long-term impact, increasing their motivation to remain engaged in bioeconomy development efforts.

3.4 Stakeholder engagement evaluation

Evaluating stakeholder engagement is essential for several reasons:

First, it is to ensure long-term sustainability beyond the CEE2ACT project and to maximise the effectiveness of engagement. Evaluating stakeholder engagement is crucial to assess how the NBHs (or “the hubs”) function and whether they achieve the intended goals. Beyond the CEE2ACT project’s duration (2022 – 2025), the hubs need to be able to continue cultivating stakeholder engagement. Building trust, cooperation, and collaboration among various local stakeholders is indispensable. If these elements are well established during the project, they can be further leveraged to drive bioeconomy implementation (European Commission et al., 2021; Waddock, 2013).

Second, it is to measure progress against the project objectives. The **overarching goal** of CEE2ACT is to provide an enabling environment that empowers stakeholders to act for more circular bioeconomy. An effective stakeholder engagement is the key enabler in integrating bioeconomy principles into national strategies. This evaluation helps assess (Stegmann et al, 2020, European Commission et al., 2021):

- The extent to which the bioeconomy principles are being considered or adopted by key actors.
- The effectiveness of hubs in engaging key actors and fostering bioeconomy development.

Third, it is to understand stakeholder needs and impact. On one hand, evaluating the engagement activities can shed some light onto stakeholder expectations, challenges, and motivations. On the other hand, stakeholder engagement can contribute to the adoption of national bioeconomy strategies in CEE countries (Waddock, 2013; European Commission et al., 2021).

Fourth, to mitigate political and institutional challenges. Political shifts and changes in government structures can significantly impact stakeholder engagement efforts. Evaluation helps track how engagement strategies can adapt to these changes, ensuring continuity in bioeconomy policy discussions despite evolving political landscapes (European Commission et al., 2021; Stegmann et al. 2020).

Last but not least, the evaluation can help identify areas for improvement. This is done through identifying challenges that exist in stakeholder engagement, such as low response rates or limited collaboration and the unique barriers that some countries may face that require specific interventions. This evaluation exercise offers opportunities for addressing the identified challenges, providing clear direction to improve stakeholder engagement strategies, and ensuring a more effective participation (European Commission et al., 2018; European Commission et al., 2021).

3.4.1 Typical challenges in evaluating stakeholder engagement

Despite the importance, the process of evaluating a stakeholder engagement presents several challenges as summarised in Table 1. This is primarily due to the lack of standardised metrics and the complexity of attributing outcomes to a particular engagement effort. Since stakeholder engagement is often qualitative in nature, defining universal benchmarks or quantitative indicators is difficult.

Success is highly context-dependent, requiring tailored evaluation approaches that limit comparability across different projects and countries. Furthermore, establishing causality between engagement efforts and tangible outcomes is challenging, as external factors such as political shifts, economic conditions, or sectoral developments can influence results.

Another key difficulty lies in the diverse perspectives and varying levels of participation among stakeholders. Engagement involves a broad range of actors with different motivations, expectations and levels of involvement. Measuring success across such a heterogeneous group requires balancing subjective feedback, which may be inconsistent or even contradictory.

Further, incomplete or inconsistent data availability can hinder evaluation efforts, as some stakeholders may be more responsive than others, leading to skewed findings. This is further compounded by **evaluation fatigue**, where stakeholders become disengaged when asked to provide feedback repeatedly, especially if they do not perceive direct benefits from their participation.

Lastly, the long-term nature of stakeholder engagement impact might complicate the assessment, as meaningful changes often take years to materialise. Short-term evaluations may fail to capture the full extent of engagement-driven transformations, requiring follow-up assessments that extend beyond typical project time frames. Not only that, contextual factors such as changing landscape of national policies and priorities, governance structures, and economic conditions play a significant role in shaping engagement effectiveness, making cross-country comparisons difficult.

<ul style="list-style-type: none"> • Lack of standardised metrics (D3.1).
<ul style="list-style-type: none"> • Diverse stakeholder interests with conflicting priorities and consistency issue (D3.1).
<ul style="list-style-type: none"> • Limited and inconsistent data availability from stakeholders, dependency on response rates. Some stakeholders may be more active than others, skewing results and making it difficult to obtain a comprehensive picture of engagement effectiveness.
<ul style="list-style-type: none"> • Temporal and long-term impact assessment: The effects of stakeholder engagement often unfold over long periods, making it challenging to assess immediate impacts. At the same time, short-term evaluations may not capture the full extent of engagement-driven change. However, these can provide quick information on the effectiveness of an approach for immediate improvements.
<ul style="list-style-type: none"> • Influence of contextual factors: National policies, governance structures, and economic conditions can impact engagement effectiveness, complicating cross-country comparisons. Evaluation frameworks must be adaptable to different contexts, adding complexity to the process.
<ul style="list-style-type: none"> • Risk of evaluation fatigue: Stakeholders may become disengaged if they are repeatedly asked to participate in evaluations, particularly if they do not perceive direct benefits from their involvement.
<ul style="list-style-type: none"> • Capacity constraints: Limited staff and funding for stakeholder coordination can reduce effectiveness (D3.1, p. 7).

Table 1 Typical difficulties in stakeholder engagement evaluation

Addressing the above-mentioned challenges requires a structured and multi-pronged approach. This report considers the following key points when shaping its evaluation framework presented in section 4 (Table 2).

<ul style="list-style-type: none"> • Establishing a combination of qualitative and quantitative measures can help balance subjective stakeholder perceptions with measurable outcomes.
<ul style="list-style-type: none"> • While universal benchmarks may not be feasible, defining context-specific success criteria tailored to each country's bioeconomy landscape ensures relevance and comparability. Given the influence of national policy and governance contexts, evaluations should remain adaptable to country-specific conditions while following a core framework for coherence.
<ul style="list-style-type: none"> • Ensuring a broad and representative participation requires simplifying evaluation mechanisms to reduce stakeholder burdens. • This can be achieved by embedding feedback collection within regular engagement activities, using streamlined surveys, structured reflections, and participatory evaluation workshops to gather insights efficiently. Moreover, triangulating findings from multiple data sources, such as stakeholder surveys, interviews, policy analysis and participation records can provide a more comprehensive picture of engagement effectiveness. To mitigate attribution

challenges, evaluation should incorporate longitudinal tracking, capturing both short-term outputs and potential estimated long-term impacts.
<ul style="list-style-type: none">Addressing evaluation fatigue involves clear communication on how stakeholder input contributes to decision-making and tangible outcomes, reinforcing motivation to engage. Collaborative efforts with other work packages (WPs) can integrate engagement evaluation into broader project activities, ensuring minimal disruption and maximising synergy across project components.

Table 2 The design of the evaluation framework

3.5 Impact evaluation

Impact evaluation in the context of the CEE2ACT project is undertaken to evaluate the real impact of WP3 activities, i.e. ensuring that WP3 objectives are met. Following the logic of Theory of Change (see Methodology), an evaluation plan was developed along with a methodology, time plan and key performance indicators (KPIs) that follow SMART principles², paying attention to the gender dimension. Following the evaluation plan, data collection was undertaken through questionnaires and interviews (European Commission et al., 2018; European Commission et al., 2021).

4. Methodology

4.1 Theory of change

The evaluation framework of this report relies on the concept of theory of change. A **Theory of Change** (ToC) is a way to explain how certain actions or interventions are expected to lead to a specific goal, based on causal analysis and available evidence. It should be built on sound analyses, consultation with key stakeholders, and lessons learned from what works and what doesn’t—especially from the experience of CEE2ACT hub coordinators. A ToC helps to identify effective solutions to tackle the root causes of challenges that hinder progress. It also serves as a decision-making tool in the selection of approaches by considering their benefits, effectiveness, feasibility and the uncertainties involved in any change process. The concept helps to identify the underlying assumptions and risks that need to be understood and regularly revisited to make sure that the selected approach leads to the desired results (change) (UNDG, online).

² SMART is a principle that helps in the formulation of goals to establish criteria for effective goal-setting and objective development. SMART stands for Specific, Measurable, Achievable, Relevant, and Time-bound.

4.2 Evaluating WP3 objectives

To understand the methodology applied in this report, it is essential to first outline the overall approach of Work Package 3 (WP3), as it forms the basis of the evaluation.

The work carried out in WP3 is based on the **three specific objectives** (SOs) described in the CEE2ACT Grant Agreement. These objectives were based on the vast experience in stakeholder engagement that the project partners have, and include the following:

- SO3.1 Raise awareness among relevant stakeholder groups of the benefits of a circular bioeconomy
- SO3.2 Seek their inputs and understand their interests and motivations for a national bioeconomy strategy
- SO3.3 Build connections between stakeholder groups to create broad-based national support for circular bioeconomy

WP3 adopted a **bottom-up approach** to foster support for national bioeconomy strategies across the CEE2ACT target countries. Its goal was to build a diverse coalition of engaged and motivated stakeholders capable of driving systemic change, while also mitigating risks posed by political turnover and enhancing the continuity of national bioeconomy development.

At the heart of WP3 was the establishment of **National Bioeconomy Hubs** (NBHs) in ten countries, i.e., Bulgaria, Croatia, Czech Republic, Greece, Hungary, Poland, Romania, Serbia, Slovakia, and Slovenia. Prior to the hub establishment, a comprehensive planning phase was carried out, which includes stakeholder mapping and development of a “bespoke” stakeholder engagement plan that takes into consideration the specific contexts of each country.

Local key actors were identified through existing networks and in-depth analysis of national contexts, including stakeholder relationships, motivations and barriers to engagement. The resulting **Stakeholder Engagement Plan** (Deliverable 3.1) provided a country-specific yet coherent framework for outreach, combining diverse and creative formats to foster dialogue and collaboration across a diversity of stakeholder groups. It emphasised inclusivity, particularly with respect to gender and sectoral representation.

4.2.1 Three workshop series and MoU development

In the implementation phase, the hubs functioned as national platforms to engage stakeholders through a series of workshops and continuous interactions, both online and in person. **Three workshop series** were held in each of the 10 countries, each with a specific focus, as shown in Figure 1.

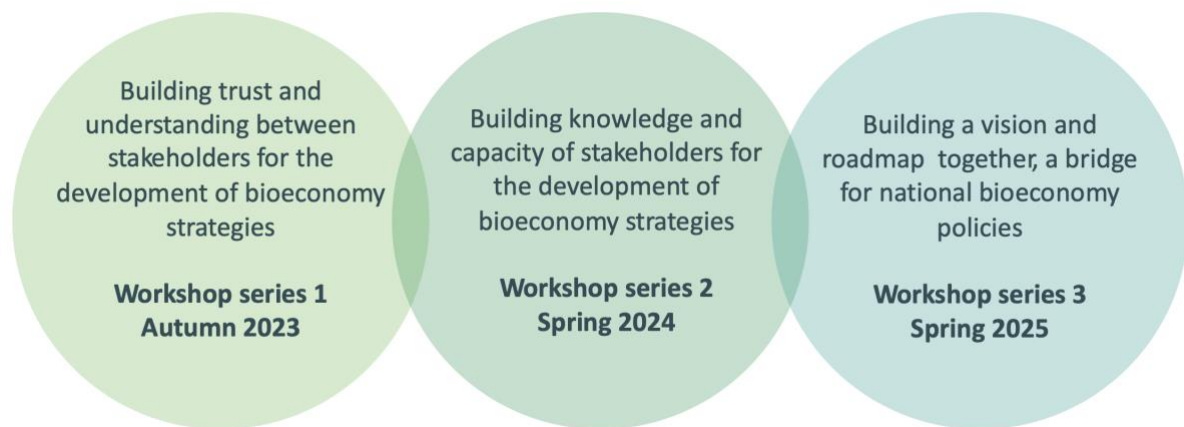


Figure 1 Focus of the three CEE2ACT workshop series

This ongoing process also laid the groundwork for the CEE2ACT **Memorandum of Understanding** described in section 3.3, which is a voluntary commitment by NBH members to collaborate on national circular bioeconomy strategies.

In this evaluation:

MoUs contribute to the WP3 specific objectives (SOs), particularly in evaluating the project's efforts in awareness-raising (SO1), collecting stakeholder inputs (SO2), and building connections across diverse stakeholder groups (SO3).

MoUs help determine whether stakeholders seek to actively contribute to policy discussions or otherwise.

4.2.2 Stakeholder engagement evaluation

The final phase of WP3 centred on evaluating the impact of the stakeholder engagement activities to determine whether the intended objectives were achieved. An evaluation plan was developed to guide the process, followed by data collection, analysis, and synthesis, the results of which are presented in this report.

The evaluation of our stakeholder engagement activities was designed to assess both the successes and challenges within WP3 (see 4.2). As mentioned above, the evaluation framework was grounded in a ToC approach (see 4.1), providing a structured logic model to link our long-term impact with intermediate outcomes, outputs, activities, and measurable indicators.

We began by articulating the overall intended impact of the work package. From this, we developed a cascading logic model that outlined:

- | |
|--|
| <ul style="list-style-type: none">• Outcomes – the medium-term changes we aimed to achieve,• Results – the specific outputs that would contribute to these outcomes,• Activities – the actions undertaken as part of hub development and stakeholder engagement,• Indicators – the measurable aspects used to track progress and effectiveness. |
|--|

Table 3 The cascading logic model

4.3 Methodological perspective

To ensure alignment with the WP3 specific objectives, we evaluate the components of the ToC directly against these specific objectives. This step allows us to derive a clear set of evaluation categories, essentially our indicators, structured to reflect both our operational logic and strategic aims.

To sharpen the methodological perspective, a description of how the described model was applied allows for deeper understanding. With the specific objectives and the nature of the work package that is being analysed in mind, we identified a core impact: the creation of an **enabling environment that empowers stakeholders to take concrete action towards advancing the circular bioeconomy**. To achieve and measure this expected impact, we need to collect evidence on a) cooperation realised by stakeholders and b), increase of stakeholders’ capacity for the circular bioeconomy. Figure 2 illustrates the connection between the impact that the project seeks to achieve (project goal) and how to achieve it (target values).

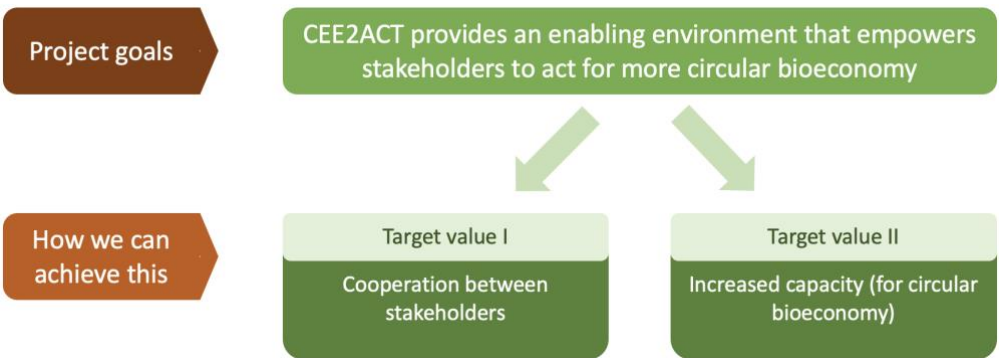


Figure 2 Evaluation model linking the project's impact goal to two target values

4.3.1 Value #1: Cooperation between stakeholders

While it may seem obvious and simple to measure **cooperation between stakeholders**, the analysis is not as trivial as it involves more than just the attendance of the workshops. Participation does not necessarily equal cooperation. Thus, the **logic** developed to measure cooperation between stakeholders (value #1) was to evaluate if the participants of WP3 activities would want to work together. To achieve this, the **outcome** of WP3 activities should be trustful and reliable relationships. Such relationships will **result** in functional ways to communicate and work together. This logical model is illustrated in Figure 3.

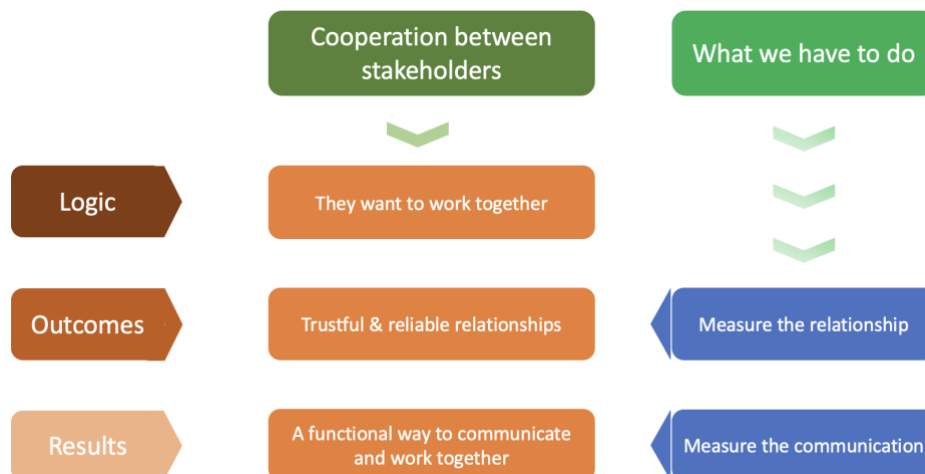


Figure 3 Evaluation framework with target value 1 (Source: Authors)

4.3.2 Value #2: Increased capacity for circular bioeconomy

To measure the **increased capacity** for circular bioeconomy (value #2), three distinct yet interconnected logics were developed, each of which reflects a different way in which capacity can be built among stakeholders.

The **first logic** focuses on the assumption that larger networks increase the influence and potential of stakeholders in the field of circular bioeconomy. In this case, the **outcome** of project activities would be expanded networks, while the concrete **result** would be new or enhanced networking opportunities created through the project's efforts. The logic here assumes that greater connection between stakeholders directly contributes to stronger capacity in the long term. This logic model is illustrated in Figure 4.

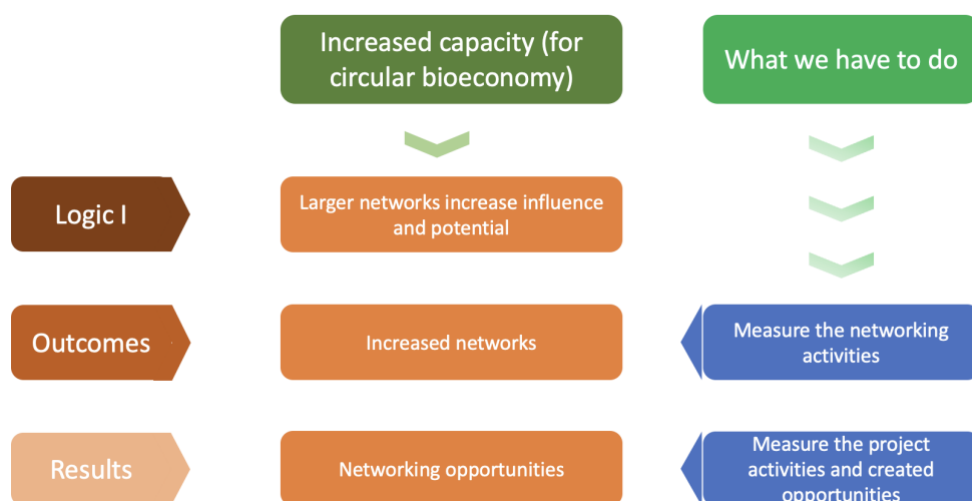


Figure 4 Evaluation framework with target value II – logic I (Source: Authors)

The **second logic** is based on the idea that stakeholders need a clear understanding of what is required, what is possible, how to act, and the benefits involved. Therefore, the desired **outcome** is increased knowledge of stakeholders, while the expected **result** is knowledge transfer and exchange. This logic recognises that informed stakeholders are better equipped to engage meaningfully and sustainably with the circular bioeconomy. This logical model is illustrated in Figure 5.

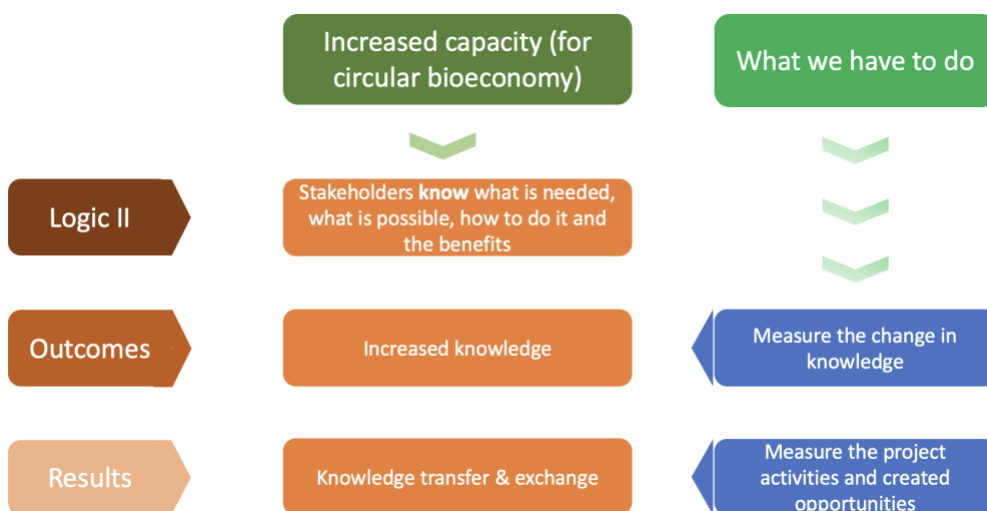


Figure 5 Evaluation framework target value II – logic II (Source: Authors)

The **third logic** addresses the motivational aspect of capacity building. It assumes that stakeholders should want to actively pursue the goals of the circular bioeconomy. Here, increased motivation is the **outcome**, and the **result** is the stakeholders seeing the benefits, such as through success cases and good practices, further reinforcing their engagement with the circular bioeconomy topics. This logical model is illustrated in Figure 6.

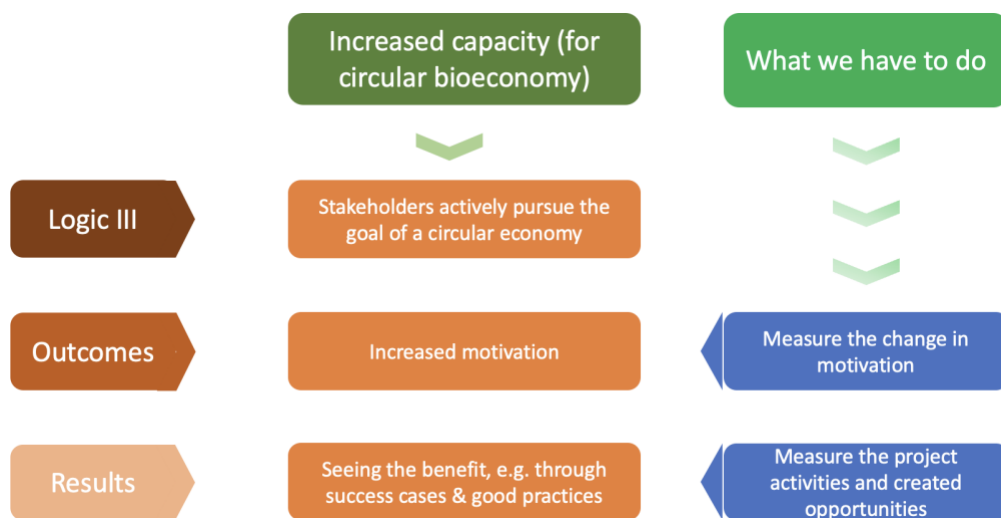


Figure 6 Evaluation framework target value II – logic III (Source: Authors)

In relation to each of the expected results, the corresponding project activities have been identified. These activities can relate to any planned actions or provide a lens through which existing project actions can be interpreted. The corresponding project activities serve as the operational basis for this impact evaluation.

To ensure the coherence and relevance of the evaluation process, indicators have been developed across the “theory of change” levels that consist of outcomes, results, and activities of WP3. Eventually, these indicators were systematically cross-checked against the specific objectives of the CEE2ACT project. This exercise ensures the alignment of indicators with the objectives of WP3 and CEE2ACT project. Hence, evaluating the indicators will shed some light into the achievement of the WP3 and CEE2ACT project.

4.4 Multi-method data collection

A multi-method data collection strategy was selected. Data was gathered mostly through a combination of surveys, interviews, and documentation reviews. This combination helps capture both quantitative and qualitative insights into how stakeholder engagement was taking place across the hubs and in different national contexts.

Surveys form the **first data source** of this evaluation report. The surveys were conducted with participants attending the CEE2ACT third workshop series which were organised by the 10 hubs in the first quarter of 2025 (see 4.2.1). The survey questions were initially developed in English based on the Evaluation Framework Logic (see 4.3). Examples illustrating how the survey questions align with the Specific Objectives of WP3 are presented in Table 4.

In close collaboration with the hub coordinators, the questions were translated into their respective national languages. To minimise the need for re-translation and to streamline the coordination efforts, the survey consisted solely of closed-ended questions, including single-choice and Likert scale formats. This approach ensured that responses could be analysed directly without additional linguistic processing, thereby reducing misunderstanding due to language barrier as well as reducing the overall workload. The complete list of survey questions is provided in Annex 1.

Survey Question	Specific Objective
How has your knowledge on relevant bioeconomy challenges and solutions changed since joining the CEE2ACT activities?	SO3.1 Raise awareness among relevant stakeholder groups of the benefits of a circular bioeconomy
Did you have sufficient opportunities to voice your expectations and goals within the CEE2ACT activities you participated in?	SO3.2 Seek their inputs and understand their interests and motivations for a national bioeconomy strategy
How impactful have hub meetings and other CEE2ACT project activities/offers been for you in terms of building your network in the field of bioeconomy in (insert country)?	SO3.3 Build connections between stakeholder groups to create broad-based national support for circular bioeconomy

Table 4 Examples of the connection between survey questions and WP3 specific objectives

Following the hub surveys, semi-structured interviews were conducted with the 10 hub coordinators. The hub coordinator interviews form the **second data source** of this evaluation report.

The interviews covered four thematic areas: 1) introductory questions, 2) hub-related questions, 3) questions related to the Memorandum of Understanding (MoU) and, 4) closing and feedback questions. Some questions were directly aligned with the Evaluation Framework (section 4.3) and reflected the WP3 specific objectives. Others were additional evaluation questions, not directly linked to the framework. These supplementary questions were included based on project developments in WP3 and served as a direct feedback mechanism for both WP3 and the European Commission.

Examples illustrating how the interview questions align with the specific objectives of WP3 are presented in Table 5. A prioritisation of the questions was also carried out to ensure that key topics could be addressed within the available interview time, should time constraints prevent full coverage of all items. The full interview guide is provided in Annex 2.

Interview Question	Specific Objective
Have you identified formats within the hub in which the stakeholders could communicate their expectations? If yes, which? If not, why not?	SO3.1 Raise awareness among relevant stakeholder groups of the benefits of a circular bioeconomy
In percentage, how many hub members have participated in the co-creation of the MoU? Are you satisfied with the participation? What could be improved, should you be given more time and resources?	SO3.2 Seek their inputs and understand their interests and motivations for a national bioeconomy strategy
Did the hub provide an adequate setting (stakeholder constellation, physical space, etc.) for the hub meetings or were there any significant shortcomings to the CEE2ACT approach?	SO3.3 Build connections between stakeholder groups to create broad-based national support for circular bioeconomy

Table 4 Examples of the connection between interview questions and WP3 specific objectives

The **third data source** consists of a review of relevant hub documentation. Anonymised and aggregated participant information from three workshop series (see 4.2.1) was collected, along with survey data provided by the Wageningen University (WP5 leader), which relates to the CEE2ACT’s second workshop series and Wageningen site visit, which took place in 2024 (see 4.2.1). These materials were analysed to assess the diversity of workshop participants, particularly in terms of gender balance and types of organisations (stakeholder groups) represented.

The signing of the MoU by local stakeholders will serve as **an additional factor to evaluate the impact** of WP3’s stakeholder engagement activities. At press time, the 10 hub coordinators are still in the process of obtaining endorsement for the MoUs from potential signatories.

4.5 Structured and contextually sensitive assessment

By grounding the methodology in an explicit ToC and tailoring the data collection tools to reflect both strategic intent and practical implementation, we were able to assess stakeholder engagement in a way that was both structured and contextually sensitive.

Collaboration played a central role in both the design of the Evaluation Framework (see 4.3) and the implementation of its data collection tools. Given that other work packages (WPs) also conducted evaluations, close coordination was essential to minimise stakeholder fatigue and avoid duplication. Notably, questions from WP5 on knowledge transfer and capacity building were integrated into the hub coordinator interviews, ensuring alignment and coherence, particularly between WP3 and WP5.

Coordination with WP6 on policy and roadmaps was also particularly important, as WP6 partners conducted their own interviews to facilitate the drafting of national bioeconomy roadmaps by the hubs. WP3 has provided feedback to WP6's questionnaire to help identify and avoid redundancy. In addition, both the survey and interview questions developed under WP3 were openly shared with relevant WP leaders to gather feedback and foster transparency.

Both the surveys at the CEE2ACT's third workshop series and the hub coordinator interviews which took place in 2025 (see 4.4) present certain methodological limitations that should be acknowledged transparently. The survey was intentionally kept short and focused to encourage completion and minimise stakeholder fatigue. As a result, certain contextual data such as respondents' gender, organisational affiliation, or whether they had participated in all three hub workshops or otherwise, was not collected.

Additionally, while the original survey questions were developed in English, the questions were later translated into the 10 CEE national languages. The translation process may have introduced subtle shifts in meaning, potentially affecting how questions were interpreted by respondents.

Another limitation concerns the timing of the survey. As it was conducted after the third workshop series, it serves as an ex-post evaluation and does not capture baseline (ex-ante) perspectives. Consequently, any perceived changes are reported solely through stakeholder self-reflection, which introduces subjectivity.

The hub coordinator interviews, while offering deeper insights, also carry two key limitations. First, given that both interviewers and interviewees had longstanding professional relationships through the project, there is a risk of bias in how questions were asked and answered. Second, all interviews were conducted in English, which may have posed challenges in expression or understanding, as none of the participants were native English speakers.

5. Main findings and discussions

This section consists of the analysis of the individual national bioeconomy hubs highlighting country-specific contexts, followed by a cross-country analysis that acknowledges common aspects shared by the hubs. The section presents key findings resulting from the WP3 stakeholder engagement's impact evaluation framework and its data sources (see 4.3, 4.4).

5.1 Bulgaria

The Bulgarian National Bioeconomy Hub (NBH) was launched in June 2023 and is coordinated by the Executive Forest Agency (EFA). It has developed to a platform fostering cross-sectoral collaboration, stakeholder dialogue, and the development of a coordinated national approach to the bioeconomy. Bulgaria does not yet have a dedicated national bioeconomy strategy. However, the hub has made notable progress in building momentum toward such a strategy by convening diverse stakeholders and highlighting the potential of integrated bioeconomy planning. Ministries including Agriculture, Economy and Industry, Innovation and Growth, Energy, Science, and agencies and the private sector, including industry organisations, and companies have actively participated in hub activities, reflecting growing political interest despite ongoing institutional instability and frequent leadership changes.

Bottom-up Stakeholder Engagement

The Bulgarian hub's stakeholder engagement was grounded in face-to-face workshops that brought together representatives from ministries, academia, industry organisations, and companies. Even though some initial members were later replaced or withdrew due to lack of activity, the coordinators were able to attract new stakeholders.

The three workshops organised during the project lifetime promoted dialogue, knowledge exchange, and capacity building. Particular emphasis was placed on mutual learning, bringing together sectors that seldom interact. Structured agendas included best practices from other EU countries, insights from international experts, and thematic presentations from national stakeholders. The coordinators observed that participants appreciated the opportunity to hear how other countries with more advanced bioeconomy strategies approached the topic, and several stakeholders expressed interest in adapting some of these approaches to the Bulgarian context. The diversity of the stakeholder groups participating in the three national workshops are presented in Figure 7.

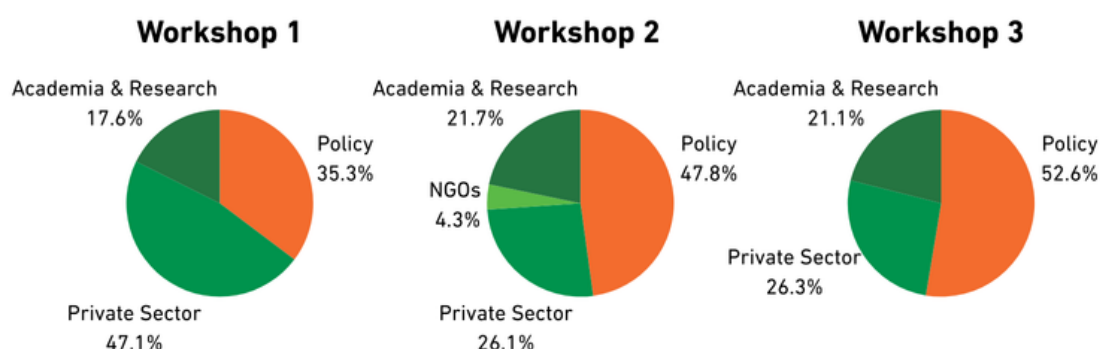


Figure 7 Stakeholder Groups across the three national workshops in Bulgaria

A balanced gender participation in bioeconomy is one area where the hub can play a bigger role. In the three workshops organised by the hub, women's participation tends to be low (average 24%).

The survey conducted with workshop participants in early 2025 revealed generally positive feedback. While 41% were very satisfied with the duration, 33% reported being not at all satisfied. Satisfaction with the participant group was mixed, with 37% very satisfied and 22% not at all satisfied. Views on gender balance were more favourable, with 56% very satisfied, although 30% expressed dissatisfaction. The relevance of the content was highly rated, with 67% very satisfied, and the format was positively received by 44%, though 30% were not at all satisfied. In terms of the wider CEE2ACT activities, 70% of respondents found the hub meetings and other offers impactful in helping them build networks within the Bulgarian bioeconomy field. The majority (85%) felt they had sufficient opportunities to express their expectations and goals. Communication with other bioeconomy stakeholders improved for 67%, and 93% reported an increase or some increase in their confidence in discussing bioeconomy topics. All participants reported a growth in knowledge, with 63% indicating a significant increase. While 60% noted no change in their organisation's resource allocation towards bioeconomy, 37% reported some level of increase. Encouragingly, 93% stated that they intend to continue collaborating with stakeholders they met through CEE2ACT.

Key Successes

One key achievement of the Bulgarian hub has been successfully bringing together diverse stakeholders from different sectors in a single room that wouldn't otherwise meet and exchange. The strong participation of ministries—especially the Deputy Minister of Agriculture—and academic institutions like the Agricultural University of Plovdiv and the Bulgarian Agricultural Academy, added credibility and visibility.

Collaboration among stakeholders and other initiatives is regarded by the hub coordinators as a cornerstone of the bottom-up approach employed and the hub succeeded in collaborating with other ongoing initiatives, such as BIOEAST, fostering synergies and reducing fragmentation.

Key Challenges

A key challenge of the Bulgarian hub has been engaging SMEs. Although the coordinators invested substantial time and effort in outreach – using email invitations, phone calls, and direct contacts with business associations – engagement remained low. As the coordinators explained, this was partly due to the challenging economic climate, which made it difficult for smaller companies to priorities involvement in longer-term strategic initiatives. Another factor was the perceived lack of immediate benefits or incentives, especially in the absence of a national strategy and/or insufficient experience or funding instruments. Although some larger companies in timber processing showed interest by attending workshops, broader involvement was limited. Coordinators stressed the importance of engaging SMEs to better understand their needs and expectations. They also noted that the overall visibility and clarity of the hub’s purpose suffered without a national strategy to anchor their efforts, making it difficult to communicate a clear and motivating vision across sectors.

In addition, the hub faced logistical issues in organising meetings outside Sofia. Although one workshop was held in the countryside to encourage participation from regional actors, it proved difficult to gather stakeholders, as some of them preferred to stay close to their workplaces in the capital. As a result, most activities eventually centred in Sofia, where policymakers and knowledge institutions are concentrated to work for bioeconomy researches.

MoU for Bioeconomy Alliances

The Memorandum of Understanding (MoU) was drafted by the Executive Forest Agency and refined through stakeholder input, particularly from the Ministry of Agriculture and academic institutions. The MoU outlines goals for supporting better communication among stakeholders, jointly seeking funding opportunities, and promoting capacity-building activities. One feature that was especially valued by participants was the inclusion of a comprehensive contact list of all signatories, enabling easier direct exchanges beyond formal project meetings. Several stakeholders signed the MoU during the third workshop, with more signatories expected in the coming months. While the MoU serves as a symbolic commitment, coordinators acknowledge the need to translate this into concrete actions.

Hub’s Sustainability

Ensuring sustainability is a shared priority for the Bulgarian hub members. Coordinators propose formalising the hub as a legal non-profit entity once the MoU is fully endorsed

by all of the hub members. This would allow the hub to apply jointly for funding, organise training activities, and represent stakeholder interests in national and EU policy processes.

Maintaining close ties with the Ministry of Agriculture and public institutions will be essential for future legitimacy and alignment with national priorities. Other possible sustainability pathways include forming a stakeholder consortium to jointly pool resources and pursue project opportunities.

Role of CEE2ACT in Bulgarian Hub

The CEE2ACT project played a central role in supporting the establishment and functioning of the Bulgarian hub. Coordinators highlighted several aspects of this support: the provision of structured materials and knowledge resources; the organisation of bilateral and group meetings to exchange experiences; and the availability of tools such as the e-learning platform and B2B services. According to the coordinators, these resources were not only valuable for building the hub itself but also contributed to strengthening individual skills and institutional capacities.

Lessons Learned and a Way Forward

The Bulgarian hub experience underscores the value of structured, face-to-face engagement combined with practical tools and political support. The joint preparation and discussion of a Roadmap and Action Plan for the development of the bioeconomy in Bulgaria and the MoU process proved instrumental in clarifying shared goals and enhancing stakeholder coordination, despite the absence of a national strategy.

Going forward, formalising the hub as a legal entity, deepening SME engagement, and securing financial resources will be critical. Lessons from this experience point to the importance of practical value, consistent communication, and institutional continuity for sustaining bioeconomy cooperation in a complex policy environment.

5.2 Croatia

The Croatia National Bioeconomy Hub was established in September 2023 and is led by the WWF-Adria. The development of the Croatian hub coincided with the presence of similar initiatives, which led stakeholders to perceive multiple, parallel hubs requiring a more unified front. In Croatia, a draft of national bioeconomy strategy exists. It was developed under the leadership of the Ministry of Agriculture, with a planned horizon extending to 2035 and official adoption targeted for 2024. However, the strategy has not yet been adopted in 2025 due to ministerial changes and ongoing discussions about funding responsibilities.

Bottom-up stakeholder engagement

The experience of the Croatian hub shows that engaging stakeholders who are already active in bioeconomy is essential for advancing the bioeconomy since these stakeholders have already possessed substantial knowledge and experience. The hub's function was to coordinate these stakeholders, where they can recognise the added value of cooperation.

The hub, in collaboration with the BOOST4BIOEAST project, established 'mirror working groups' (MWGs). These smaller, topic-focused groups allow hub members to concentrate on specific areas of bioeconomy aligned with their interests. At the BIOEAST macro-regional level, thematic working groups already focus on certain topics. The hub's MWGs are parallel groups whose members actively engage with the BIOEAST thematic groups, ensuring alignment between national and EU-level activities. The hub formed three MWGs focused on: bioeconomy education, biomass mapping, and forestry and agriculture. The hub coordinator noted that the MWGs maintain a balanced participation of women and men, fostering inclusivity in discussions and decision-making.

Moreover, the hub is currently developing a national bioeconomy roadmap. Ensuring continuity, the roadmap will serve as a basis for an action plan that the BOOST4BIOEAST project will develop. Ultimately, both documents will support the Ministry of Agriculture in updating the national bioeconomy strategy.

Key successes

The Croatian hub has constructively engaged with the BOOST4BIOEAST project at an early stage and agreed to coordinate joint activities. This collaboration was essential, as duplicating similar activities with the same group of stakeholders would not have been well received. As a result, the hub is successful in involving academia, research institutes, and universities in the hub. Importantly, the hub managed to include a knowledge transfer agenda in the national roadmap draft.

The participation of the knowledge actors is well reflected by their attendance in the hub's second workshop (2024). Also, the event was attended by both policymakers and NGOs. Clearly there is a connection between WWF-Adria as a well-known international NGO and its ability to bring on board particular groups of stakeholders.

Key challenges

The hub's development took place in an environment where similar initiatives were present. At that time, the Croatian Ministry of Agriculture had just formed a working group to update the national bioeconomy strategy. Most hub stakeholders were part of the working group. Not long after, the BOOST4BIOEAST project began, and it also aimed to organise a hub. This was followed by the launch of a regional project in Adria seeking

to create a hub, and the Ministry launched a virtual platform, namely the “CroBioHub.” All this has created a stakeholder perception of multiple, parallel hubs, causing initial confusion about roles and structures.

The hub coordinator managed to clarify roles and expectations and with that, the situation: within the frameworks of CEE2ACT and BOOST4BIOEAST, a unified network of stakeholders was established to support the implementation of bioeconomy. However, the hub found it challenging to bring companies on board as they were sceptical about their need for a national bioeconomy strategy. Hence, the hub plans to organise bilateral meetings with business associations to present a clear business case for companies to join forces.

MoU for bioeconomy alliances

A core group of Croatian hub members—comprising five to six of the most active organisations—is currently involved in drafting the Memorandum of Understanding (MoU). At the time of the interview, it was not yet determined how many hub members would sign the MoU. There is no formal target number for signatories.

As previously noted, private sector participation in the Croatian hub remains limited. To address this, specific action points for enhancing private sector engagement have been identified. In December 2024, WWF Adria and CSCP (Work Package 3 lead) held a bilateral meeting to discuss potential solutions such as building a national bioeconomy alliance, which WWF Adria subsequently shared with BOOST4BIOEAST. However, the project expressed a preference to remain an informal network. Despite this, the hub coordinator remains committed to pursuing the institutionalisation of the hub.

Hub’s sustainability

Currently, the hub coordinator is in discussion with BOOST4BIOEAST about the hub’s sustainability, as the two projects have slightly different approaches. The CEE2ACT uses MoU to promote cooperation between hub stakeholders, while BOOST4BIOEAST uses Terms of Reference (ToR). Despite this, the hub coordinator saw an opportunity: the existing draft of national bioeconomy strategy foresees the establishment of a coordination body responsible for overseeing and monitoring the implementation of the strategy. This body will consist of a policy component and an expert component. The Croatian hub could evolve into this expert component, giving it an institutional role. However, it is uncertain whether institutionalisation can be achieved by the end of 2025, as it is beyond the scope of CEE2ACT.

The hub coordinator also explored viable ideas together with BOOST4BIOEAST about applying for new projects in 2026. Instead of the hub applying as a single entity, their members could form a consortium to seek funds jointly. The other possibilities include an engagement with the Ministry of Agriculture and securing national-level funding to support the hub's sustainability.

The role of CEE2ACT in the Croatian bioeconomy hub

The hub coordinator expressed a high satisfaction with the support provided by the CEE2ACT project, highlighting the value of its structured framework, extensive materials, and data. These resources have significantly aided both hub coordination and the broader bioeconomy efforts of hub members. The bilateral meetings, which addressed specific needs, and the group meetings of CEE2ACT hub coordinators for peer-to-peer exchanges (organised under WP3), were seen as beneficial.

However, areas for improvement were identified. The hub coordinator suggested replacing some technical update meetings with more informal exchanges focused on bioeconomy development and innovative ideas. They also noted limited peer-to-peer experience-sharing among CEE2ACT hub coordinators unless actively facilitated by the CEE2ACT project team, acknowledging that this is partly due to a lack of initiative and time on the part of coordinators themselves.

Lessons learned and a way forward

The hub's bottom-up stakeholder engagement approach seems to be effective as the hub engages with local stakeholders that already have an interest in the topic. In the hub, most stakeholders involved are already active in the bioeconomy and are interested in scaling up their efforts beyond daily activities. They aim to explore new opportunities, engage in funding programs, and develop flagship projects. However, the Croatian stakeholders are concerned about a potential shift of the EU's funding priorities following recent geopolitical developments in Europe. This uncertainty makes it challenging to position bioeconomy and circularity within the evolving funding landscape.

The Croatian hub coordinator sees the need for facilitating hub members to participate in cooperation on large-scale projects as well as for improving coordination both within and across the 10 CEE2ACT countries. It would be beneficial for hubs in the CEE2ACT countries to collaborate not only at the project level but also at the policy level. This could involve jointly applying for funding, sharing positions on bioeconomy strategy updates, and advocating for increased EU support. The goal is to strengthen bioeconomy networks in the CEE region and enhance their influence on the EU's bioeconomy policy.

5.3 Czech Republic

The National Bioeconomy Hub of Czech Republic was established in September 2023 and led by the Czech University of Life Sciences Prague (CZU). From the outset, the hub faced the dual task of introducing the bioeconomy concept to stakeholders unfamiliar with the term and demonstrating its practical relevance for existing bioeconomy activities. Through dialogue and communication that took place in meetings organised by the hub, the stakeholders found a unique platform to discuss not only the potentials of bioeconomy but also the surrounding issues.

The hub format was deemed unique in the way that it could invite a broad spectrum of actors and work with them through regular meetings and exchanges. To date, the hub has brought together diverse groups of stakeholders—including research, industry, regional authorities, and ministries—to collaboratively develop a common understanding of bioeconomy. The diversity of the stakeholder groups participating in the three national workshops are presented in Figure 8.

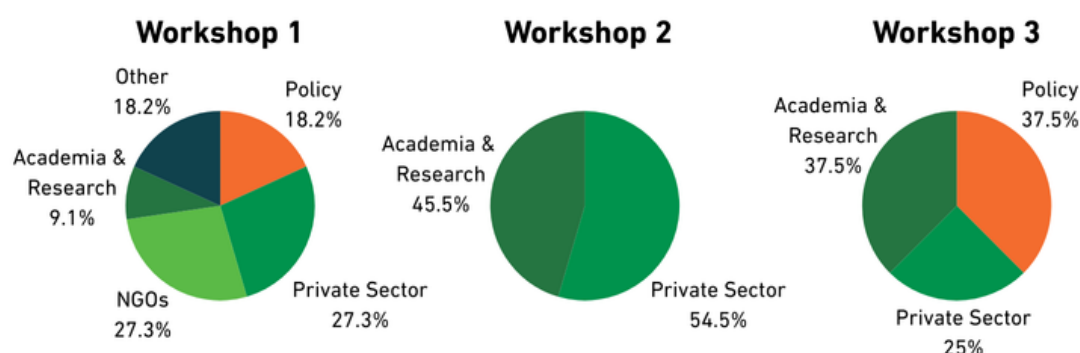


Figure 8 Stakeholder Groups across the three national workshops in Czech Republic

Bottom-Up Stakeholder Engagement

The hub sees great value in face-to-face meetings. However, flexibility is often required to allow stakeholders to join, for example through online or hybrid meetings. The hub coordinator reported a progression in terms of contents in the workshops. The first workshop (2023) was conducted to clarify definition and key principles of bioeconomy, linking these principles as much as possible with what the stakeholders were already undertaking. Often the stakeholders were not aware that their activities are connected to bioeconomy.

In the second workshop (2024), the hub discussed more details about biomass utilisation and some challenges that came with it. The meeting concluded with a new awareness of the need for scientific studies in support of biomass utilisation (particularly on renewables) and bioeconomy to increase public acceptance. What's more, realising the potential of the bioeconomy in the country will call for a collaboration between relevant ministries, aligning their policies and initiatives to drive growth across all bioeconomy sectors. However, there is not yet any national bioeconomy strategy in the Czech Republic. The third workshop (2025) saw the hub discussing a concept of national bioeconomy roadmap as part of WP6 and a memorandum of understanding (MoU) as part of WP3.

These meetings have enabled the stakeholders to perceive bioeconomy as a solution to some of their challenges in the future, opening pathways for new funding sources and collaboration. The meetings helped stakeholders express their expectations and connect local challenges to the national priorities. This bottom-up approach has attracted the attention of policymakers as ministries on the lookout for feedback.

Associations have played an important role in raising awareness among their members, helping to broaden the hub's reach beyond traditional networks. All in all, providing clear examples, practical benefits, and peer learning (e.g., how other countries approach similar challenges) has proven effective in encouraging stakeholders to see themselves as part of the bioeconomy ecosystem.

According to a hub survey (as part of WP3) conducted during the third workshop, there was a general satisfaction among the respondents about the workshop (around 30% “satisfied” and 60% “very satisfied”). More than half of participants, on average, found the hub meetings to be impactful. Most respondents (almost 90% felt they had sufficient opportunities to articulate their expectations and goals. Most respondents (almost 90%) also reported improved communication with other bioeconomy stakeholders, noting increased confidence in discussing bioeconomy topics. This improvement is further reflected in over 60% of respondents’ self-reported growth in knowledge about bioeconomy challenges and solutions, facilitated by the hub. Most respondents (almost 90%) reported no noticeable change in their organisations’ resource allocation toward bioeconomy. This is likely because they already represent entities actively engaged in bioeconomy-related activities. It is worth noting that most participants (almost 90%) expressed strong interest in continuing their engagement with the hub. Additionally, participant lists show that the three workshops achieved a relatively balanced gender representation.

Key Successes

One of the Czech hub's main achievements has been its success in fostering discussion and networking among stakeholders who previously lacked a forum to share and align their perspectives on bioeconomy. Specific highlights include:

- **Progressive Workshops:** The hub designed its three core workshops to evolve from foundational awareness-raising (clarifying definitions and providing examples) to concrete outputs like a roadmap and MoU.
- **Diverse Representation:** Bringing together academia, companies (including large businesses outside the forestry sector), regional governments, and associations allowed unexpected connections and new project ideas.
- **Tangible Best Practices:** The hub facilitated detailed discussions on key national topics such as the sustainable use of biomass, Czechia's main renewable energy resource, as well as of hemp utilisation. These discussions also identified concrete needs for new scientific studies.

Key Challenges

The hub's main challenge has been achieving active, in-person participation, especially from ministry representatives with limited time and shifting responsibilities. It also faced the task of maintaining stakeholders' engagement despite their varying levels of familiarity with bioeconomy. Coordination has required significant effort to align perspectives from very different sectors, each with its own priorities and technical focus. The private sector is still not active for this initiative and their participation is crucial to implement bioeconomy at national level. Defining a clear business case for each stakeholder is vital. Moreover, some stakeholders are new to the topic of bioeconomy. It is therefore important to educate stakeholders and create awareness about what bioeconomy means and what principles it entails.

Language barriers present another obstacle, especially engaging with pan-European projects workshops or initiatives. While many stakeholders understand English, hesitation around participating in English-language webinars and using English materials has at times limited broader engagement.

MoU for Bioeconomy Alliances

The Czechia hub is currently drafting a Memorandum of Understanding (MoU) to formalise the ongoing collaboration. The MoU aims to be short and flexible and balance concrete commitments with the need to avoid deterring stakeholders, wary of signing overly specific obligations. It draws on insights gathered from the three workshops while ensuring the final text remains general enough for wide acceptance across sectors. Future steps include adding checkpoints to monitor progress under the MoU and using it as a tool to deepen collaboration over the next three to five years.

Through the MoU, the Czech hub coordinator seeks to link the hub with the Bioeconomy Platform of the Czech Republic, whose goal is to systematically deepen knowledge in the bioeconomy and promote its practical application, especially through research and education activities. CZU as the hub coordinator sees the benefit of having the hub as a real-life forum for stakeholders to meet and discuss issues surrounding bioeconomy. So far there is little opportunities as the ones offered by the Czech hub, for stakeholders to discuss various issues surrounding bioeconomy.

Hub's Sustainability

Currently coordinated by the Czech University of Life Sciences Prague, the hub plans to continue operating under this leadership, with the option to hand over coordination to the Bioeconomy Platform if conditions change. Keeping the hub under a research institution's guidance ensures strong connections to knowledge, networks, and policy discussions, that's why maybe only academia and research organisations are mostly active for this agenda.

The Role of CEE2ACT in the Czech Hub

Stakeholders value the tools, guidelines, and peer exchanges provided by CEE2ACT, particularly bilateral and group meetings. Practical advice, including flexibility in designing the MoU, has helped the hub navigate national constraints. Peer learning from other countries proved motivating for stakeholders, helping to demonstrate how Czechia's bioeconomy can connect to wider European efforts.

Lessons Learned and a Way Forward

Key lessons from the Czech hub include the need for continuous awareness-raising, especially for those stakeholders who are new to bioeconomy concepts but also to bring new members. Bringing diverse sectors together generates valuable discussions that would help to generate new ideas but also open the door for collaborations and innovations. Combining national and local perspectives helps highlight where practical actions and studies are needed most biomass and hemp being prime examples.

In the years ahead, the hub aims to maintain this bottom-up engagement, deepen collaboration through its MoU, and grow as a trusted national platform supporting the Czech Republic's transition to a sustainable, circular bioeconomy.

5.4 Greece

The Greek National Bioeconomy Hub was launched in September 2023 and led by the Cluster of Bioeconomy and Environment of Western Macedonia (CluBE). It set out to bring together diverse stakeholders in an open dialogue and collaboration focused on the present state and future possibilities of bioeconomy in Greece. What began as a core group of actors has since doubled its network, successfully mobilising research and academia, NGOs, businesses, policymakers (ministries) and regional stakeholders around a shared vision for Greece's circular bioeconomy.

The hub's development is tightly linked to a push for a national bioeconomy strategy, which remains a crucial motivating factor for stakeholders to join the hub or participate in its activities. Greece's Ministry of Environment and Energy (MoEE), initially represented mainly through the Forestry Department, has now been joined by the waste department (MoEE) and Ministry of Agriculture (MoA), expanding the scope of bioeconomy discussions to a broader policy context. Both ministries had already started to make initial steps towards a National Bioeconomy Strategy before the project. However, their addition to the hub and contact with CluBE through specific relevant policy-makers (e.g. the Secretary General for Waste) ensures that the ministries' initiatives will be in line with CEE2ACT's insights and the strategy will be partly co-developed with hub members.

CluBE's parallel work on a regional bioeconomy strategy through the BIOMODEL4REGIONS HE project has also reinforced its work on national level with CEE2ACT. By positioning regional achievements as leverage for national alignment and vice versa, the Greek hub has created a mutually reinforcing relationship that helps push bioeconomy higher on the policy agenda. For example, the Managing Authority of the ROP Western Macedonia noted that while they would not create a new programme axis on their own, the existence of a national framework would enable them to act, highlighting the interdependence between regional and national levels. The diversity of the stakeholder groups participating in the three national workshops is presented in Figure 9.



Figure 9 Stakeholder Groups across the three national workshops in Greece

Bottom-up stakeholder engagement

The Greek hub's "Mediterranean" engagement model is characterised by a highly personal, win-win and relationship-driven approach. A detailed initial stakeholder mapping helped CluBE prioritise contacts strategically and then expand the hub step by step. Face-to-face interactions are seen as crucial for meaningful exchange, formal meetings are combined with informal networking, as well as spontaneous follow-ups at other partners' and industry events. Hub stakeholders value the hub's three workshops for staying informed about national developments, especially the upcoming national strategy and potential funding opportunities. The latter remains a strong incentive for continued involvement.

Beyond workshops, CluBE actively coordinated with its partners that would organise events, to ensure hub stakeholders were invited to relevant meetings. This keeps stakeholders engaged, connected, and motivated without requiring standalone budgets for multiple hub-specific events every year. The hub's pragmatic approach also ensures that engagement always focuses on a win-win business case, offering concrete value for each stakeholder involved. Furthermore, the aim is for the hub itself to organise one key event each year. For early 2026, this is planned to take place in conjunction with the "Agrotica" International Fair taking place in Thessaloniki, Greece.

The hub focused on reaching out to more stakeholders. As the next step in the future, it plans to establish thematic groups addressing different bioeconomy topics that are important to the country. Since the hub relies on external events to meet with its members, it is often not possible to organise its own thematic meetings at such events.

A hub survey conducted during the third workshop under WP3 reveals strong participant satisfaction with the hub's activities (over 70% "very satisfied" and 20% "satisfied"). Around two-thirds of participants considered the hub meetings and related initiatives to be highly impactful, while almost 80% indicated they had ample opportunities (with 20% reported "partially sufficient") to voice their expectations and goals within hub activities. On average, about 90% of respondents reported improved communication with other relevant bioeconomy stakeholders, supported by a similar proportion expressing increased confidence in communicating about bioeconomy topics. Nearly all participants stated that their knowledge of key bioeconomy challenges and solutions had grown through their engagement with the hub. Regarding organisational impact, almost 40% of participants noted an increase in resource allocation toward bioeconomy within their organisations since joining the hub, with an additional 30% reporting a slight increase. The majority (90%) expressed interest in continuing collaboration with hub stakeholders. Across the three workshops, attendance was moderately skewed toward male participants, with men comprising approximately 60% of attendees on average.

Key successes

A sound stakeholder mapping at the beginning, combined with personal approach and targeted outreach have been fundamental in the stakeholder engagement of the hub. At the start the hub focused on identifying key actors and gradually expanding its network by engaging the "low-hanging fruit" stakeholders who were already open to dialogue. Personal connections, well-timed interventions at external events, and leveraging existing relationships have helped CluBE open doors to ministries and new sectors.

A key success story has been the hub's ability to integrate a large part of public actors relevant to bioeconomy and build trust through a win-win approach. For example, ministries could gain valuable insights from the hub stakeholders, while the stakeholders could express their opinions to the ministries. This approach has created common understanding, helping bridge the gap between bottom-up initiatives and top-down policymaking, something that CluBE sees as vital in a Mediterranean context.

Key challenges

While the hub's expansion has been impressive, some thematic gaps remain notably the underrepresentation of fisheries, which is under the Ministry of Rural Development and Food, despite Greece has a significant maritime sector. Engaging companies, especially SMEs, has also proven challenging, as their time availability often conflicts with public

sector meeting schedules. Striking a balance between accommodating business hours and ensuring ministry participation remains a logistical challenge.

However, these challenges are being currently addressed although the actions have been delayed by national events, the hub is in contact with the Ministry of Agriculture to approach and include the fisheries sector as well. Similarly, an opening to more SMEs is planned with the assistance of both the MoA and MoEE. CluBE is already planning hub events through its presence in the Thessaloniki International Trade Fair, in September 2025, to connect with additional companies and stakeholders in general.

Financial and human resource limitations constrain the hub's ability to hold frequent dedicated meetings. To overcome this, CluBE has cleverly leveraged its partners' events, such as the University of Athens' Summer School or the Hellenic Biomass Association's assemblies, to convene stakeholders and keep discussions alive throughout the year. As mentioned above, a hub meeting is already being planned for early 2026 in the context of an international agricultural fair.

MoU for bioeconomy alliances

The Greek hub uses the Memorandum of Understanding (MoU) process primarily as an internal tool to demonstrate collective commitment when engaging with ministries. While the drafting is done mainly by the hub coordinator, feedback from key stakeholders is incorporated where feasible. Practical engagement with the MoU text remains limited, as many partners are unfamiliar with European project jargons. The MoU remains broad in scope, deliberately avoiding restrictive specifics to ensure wide buy-in.

Hub's sustainability

The hub intends to continue leading bioeconomy efforts nationally and regionally after CEE2ACT project ends. Working on a national level is more demanding in terms of financial as well as human resources. Hence, it plans to maintain its strategy of co-leading by collaborating closely with core partners such as the Hellenic Biomass Association, creating a self-reinforcing loop of mutual support and invitations. The hub coordinator also plans to apply for new fundings and secure slots for bioeconomy topics at high-profile national events, such as the Delphi Economic Forum. This will help raise awareness among major companies and the public. Dedicated panels at industry-focused events like the biannual meetings of the association and the annual assemblies of InnovaWood are also strategies to boost sector-specific dialogues.

The role of CEE2ACT

The CEE2ACT project has been instrumental in launching Greece's hub, providing credibility and opening doors to new members thanks to its high-profile consortium. The knowledge transfer elements, tools, and guidance, particularly from Work Package 3, have been valuable. While hub sees the need to adapt EU-level frameworks to Greece's

local context, the core support and peer exchange with other hubs have been a significant benefit. A wish for the future is more in-person cross-hub exchanges, as these create the informal space for deeper conversations and practical lessons that digital meetings can't fully replicate.

Lessons Learned and a Way Forward

The Greek hub demonstrates that building trust through personal relationships, smart timing, and win-win scenarios is highly effective for expanding bioeconomy communities in contexts where top-down directives alone cannot mobilise stakeholders. The flexibility and resource-efficient model of leveraging external events shows how to sustain engagement with limited resources.

The path ahead will be defined by the upcoming national bioeconomy strategy and its dedicated funding stream, that will likely transform stakeholder interest and momentum into tangible action.

5.5 Hungary

The Hungarian National Bioeconomy Hub was launched in October 2023. Led by Geonardo, the hub positioned itself as the Hungarian Bioeconomy Forum (HBF). Its creation followed efforts to avoid duplication with the pre-existing Hungarian Bioeconomy Cluster, but differences in goals and structure made full integration unfeasible. Instead, the HBF was established as a new hub, with the Cluster now a member and cooperation formalised through an agreement.

The hub operates against a backdrop of similar projects and limited political support on the national level. The lack of a national bioeconomy strategy contributes to this situation, despite the existence of sectoral plans such as the Biogas and Biomethane Action Plan, developed by the Ministry of Energy in 2024 as a response to the recent energy crisis, with contributions from the Ministry of Agriculture (MoA). Responsibility for different segments of the bioeconomy (e.g. bioenergy, agricultural waste valorisation) is spread across ministries, and while some cooperation exists, it remains fragmented.

The MoA retains the formal mandate to develop the national bioeconomy strategy and is reportedly close to finalising a draft. However, the process has been delayed due to repeated pushback from higher-level decision makers. In this context, the MoA has been engaging with the HBF, hoping that its bottom-up, stakeholder-driven approach can create the momentum needed to bring the strategy onto the government agenda.

The hub operates in a context where interest in certain bioeconomy subsectors – especially bioenergy – was growing, but with little coordination among the various actors. It positions itself as a convening platform that creates a space for dialogues between industry, academia, NGOs, and public institutions, particularly in strategic coordination with other similar projects.

The diversity of the stakeholder groups participating in the three national workshops are presented in Figure 10 below.

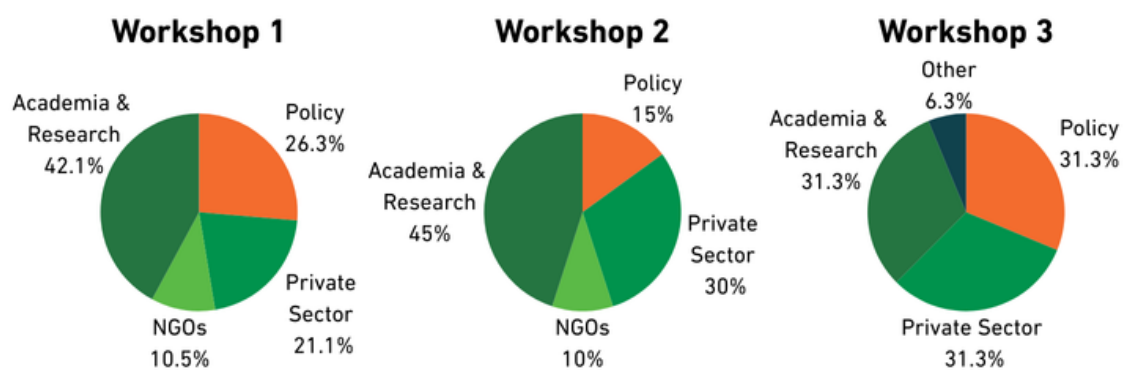


Figure 10 Stakeholder Groups across the three national workshops in Hungary

Bottom-up Stakeholder Engagement

In the hub, face-to-face meetings were the most effective format for engagement, as opposed to email communication and surveys. Short meetings – ideally not exceeding four hours in length – seem to be more optimal. One-on-one sessions, e.g. breakfast meetings, were introduced at a later stage, but have proven to be effective.

The hub has organised three workshops. The first workshop (2023) featured presentations of bioeconomy concepts and video materials from other EU countries, which were especially well received. The second workshop (2024), focused on knowledge transfer tools and methodology. The hub coordinator saw a lot of value in the workshop materials. However, they observed that some participants found the materials not readily relatable, requiring adjustment to local contexts. Practical examples – such as YouTube videos and site visits – helped bridge the gap. The third workshop (2025) has seen the highest engagement and more substantive discussions. The primary focus was the development of a national bioeconomy roadmap, which stakeholders viewed as an opportunity to contribute to a national-level document, and where they were the most active.

A hub survey conducted during the third workshop under WP3 yielded only a limited number of responses, despite the workshop being relatively well attended. As a result, the findings may not fully reflect the range of participant views. Nonetheless, the responses indicate a trend consistent with other CEE2ACT hubs: more than half of

respondents expressed satisfaction with the hub workshop. According to the participant lists, the hub workshops achieved a balanced gender representation, with female participants, in average, making up a slight majority. The hub focuses on inclusive participation regardless of gender.

Key Successes

In the country's current bioeconomy contexts, the establishment of the hub, or the Hungary Bioeconomy Forum, is an achievement. It plays a role as an umbrella structure incorporating partners from previous and ongoing initiatives. A core group of engaged stakeholders were present and contributed actively through information sharing. The hub successfully gained recognition from other projects and international organisations. For example, the Bioeast initiative acknowledged the hub, leading to more invitations to their activities. The Food and Agriculture Organisation (FAO), a member of the Hungarian hub, also invited the hub coordinator to participate in a consultation event on bioeconomy, during which the CEE2ACT project was mentioned.

The presence of similar initiatives requires a high level of synergy, as they address the same groups of stakeholders. The hub coordinator has successfully collaborated with such initiatives through bilateral cooperation agreements. These include, a sister project BOOST4BIOEAST – led by the Hungarian Research Institute of Organic Agriculture (ÖMKi), and Hungary Bioeconomy Cluster – led by Zoltán Non-Profit Ltd. Despite being non-binding, the agreements enabled mutual participation in events and information sharing.

Key Challenges

The Hungarian hub deals with a low level of stakeholder motivation. The private sector tended to “wait and see”, anticipating clearer policy signals or funding availability before committing. Differing interests existed among stakeholder groups, where industry representatives focused more on bioenergy-related topics, while academia and policy stakeholders focused on sustainable food, agriculture and forestry. Despite this, a representative from the Ministry of Agriculture saw initiatives like CEE2ACT, which follow a bottom-up approach, could help bring the message to higher political levels to give more priority to bioeconomy.

The participant lists of the three workshops organised by the Hungarian hub reflected the dynamic. Academia and research institutions were the most consistently represented, followed by policy actors. Notably, SMEs were also represented—especially in the second workshop, where their numbers equalled those of academia and research participants. Although the creation of thematic groups that would allow for the development of different topics was initially considered, the idea was not pursued further due to the limited number of participants.

Establishing a presence in the country and gaining recognition from other projects required considerable time and effort. The hub participated in various bioeconomy-related events. While full collaboration was not always possible due to scheduling conflicts and other challenges, the attempt to create synergies with similar projects is perceived as a good practice. At the same time, a key challenge is the difficulty of organising events that appeal equally to all stakeholder groups, as industry actors tend to prioritise issues such as funding, legislation, and long-term policy goals, whereas academic stakeholders are more focused on research agendas.

MoU for Bioeconomy Alliances

The Hungarian hub is currently co-creating a Memorandum of Understanding (MoU), intended to consolidate the hub's membership and outline shared objectives. The draft MoU and its proposed structure were presented during the third workshop, although the primary focus of that event was the development of a national bioeconomy roadmap. The MoU draft will be distributed widely to gather input. They acknowledged that the process of drafting and socialising the MoU had been slow and, in many ways, reflected the broader challenges of limited stakeholder proactivity. Nevertheless, they considered it an important step, especially in the context of the long-anticipated national bioeconomy strategy. To this end, they seek to keep the MoU general and avoid narrowly defined thematic working groups or highly specific commitments, being convinced that this would lower barriers to participation.

Hub's Sustainability

Regarding the hub sustainability, the hub coordinator expressed a positive outlook. A cooperation agreement was recently signed between Geonardo, ÖMKi, and the Secretary General of BIOEAST, securing the continuation of the Hungarian hub ("Forum") beyond the CEE2ACT project. ÖMKi, as a strong and strategic partner, will work with Geonardo to maintain the Forum as an umbrella platform able to host multiple projects and serve as a neutral space for exchange. Importantly, the Forum will also function as BIOEAST's Hub while remaining open to all stakeholders working on bioeconomy, not limited to its members.

The Role of CEE2ACT in the Hungarian Bioeconomy Hub

The hub coordinator emphasised that CEE2ACT has played a critical role in enabling the hub to take shape, through the structured methodologies, tools, and templates, and especially the stakeholder engagement framework and knowledge transfer materials. They valued the peer-to-peer learning opportunities provided by CEE2ACT, noting that hearing about the experiences of other CEE2ACT hubs helped them adapt their approach. While cultural and contextual differences limited how much could be replicated, the examples provided inspiration and practical ideas. Overall, the Hungarian hub coordinator described the support as both necessary and highly beneficial.

Lessons Learned and a Way Forward

The Hungarian hub experience offers several lessons about bottom-up stakeholder engagement in environments where bioeconomy is not yet a high political priority. The hub's experience demonstrates that combining face-to-face engagement with practical examples—such as site visits, video materials, and peer learning—was most effective in building awareness and initial trust. Clear and credible institutional backing, whether through cooperation agreements or public endorsements, is needed to overcome scepticism. Third, patience and persistence are critical; as the hub coordinator noted, it took many months of consistent outreach to achieve even modest engagement. This persistence was particularly important in reassuring stakeholders that the Forum would outlive the CEE2ACT project, making them more willing to engage. Looking ahead, hub stakeholders agreed that formalising cooperation through the MoU and maintaining an open Forum will be essential. Equally important will be aligning future activities with emerging policy frameworks and funding opportunities to provide a more compelling value proposition for private sector actors.

5.6 Poland

The Polish National Bioeconomy Hub was launched in October 2023 under the majority coordination of the Institute of Soil Science and Plant Cultivation (IUNG-PIB), in partnership with the Foundation for Education and Social Dialogue – PRO CIVIS and Economic Policy and Regional Development – EPRD. From the outset, the Hub was deliberately designed as a joint platform bringing together partners with complementary profiles—science, business, and civil society—to ensure diverse perspectives and foster inclusive engagement. At the very beginning, the partners formalised their collaboration by signing a Memorandum of Understanding, laying the foundation for a long-term and effective partnership.

Supported by these strong partnerships, particularly with the Polish National Centre for Research and Development, the Hub has grown from an initial concept into a nationally recognised forum for stakeholder dialogues and collaboration. Its evolution reflects an increasing visibility of the hub and growing trust among bioeconomy stakeholders, expanding from small meetings to large-scale conferences and known for strategic platform driving the development of Poland's bioeconomy.

The diversity of the stakeholder groups participating in the three national workshops are presented in Figure 11.

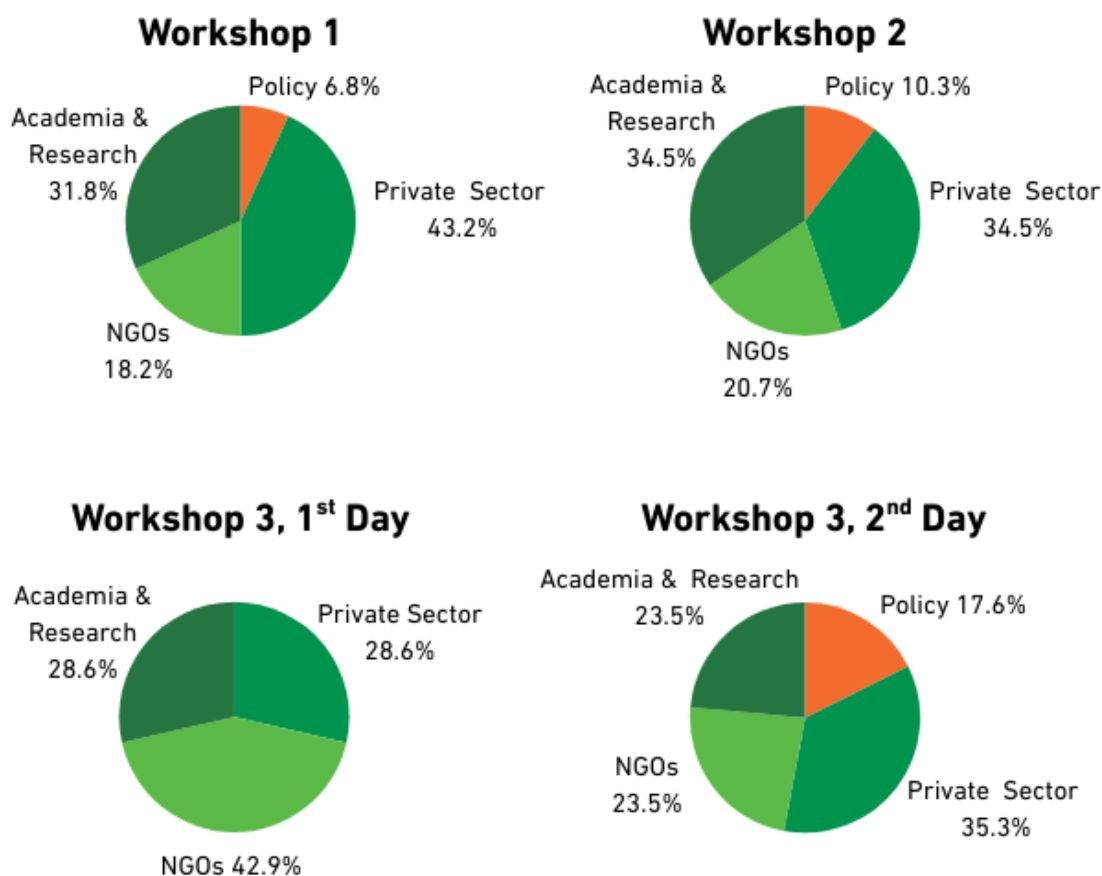


Figure 11 Stakeholder Groups across the three national workshops in Poland

Bottom-up Stakeholder Engagement

IUNG highlighted the importance of good stakeholder mapping before the hub was launched. The mapping allows for a more efficient stakeholder outreach and more effective engagement as the exercise does not only identify which organisations to approach, but also their unique expertise and capability to pursue the bioeconomy agenda in the country.

The hub's bottom-up engagement model emphasises regional cooperation, regular meetings and workshops as well as face-to-face meetings. Stakeholders' expectations are gathered through multiple channels, including Delphi group method and workshops.

One notable practice is the co-creation and living lab methods, which not only identify needs but also test and demonstrate solutions with local communities and businesses. This approach aligns well with Poland's diverse local contexts, ensuring that bioeconomy development is both practical and inclusive. Another key feature is the emphasis on capacity building. The hub continuously shares knowledge gained through CEE2ACT with hub stakeholders, building long-term understanding and capacities.

Although a hub survey conducted during the third workshop under WP3 yielded only a limited number of responses, this outcome was largely due to the highly dynamic and content-rich nature of the three-day event. The workshop, held in March 2025 and organised by IUNG-PIB in cooperation with the National Centre for Research and Development (NCBR) and members of the Polish Hub, was structured around several high-profile components. On the first day, key thematic experts engaged in in-depth discussions on the national bioeconomy roadmap. The second day gathered a diverse group of around 40 stakeholders, providing a broad spectrum of perspectives, while also hosting a joint conference with NCBR and CBE JU that attracted more than 150 participants. Finally, the third day was dedicated to connecting the Hub with business actors through a study visit, where companies, including start-ups, presented their innovative solutions.

All respondents expressed satisfaction with the workshop, with approximately 60% reporting they were very satisfied and 40% satisfied. On average, 85% rated the workshop as impactful (combining “impactful” and “very impactful”). More than 75% felt they had adequate opportunities to express their expectations and goals. In terms of outcomes, around 40% of respondents noted increased communication with relevant bioeconomy stakeholders, with another 40% reporting a major increase. Approximately 60% said their confidence in communicating about bioeconomy topics had improved. Around 45% reported a significant increase in knowledge about bioeconomy challenges and solutions through their hub participation, while 30% noted a slight increase. Regarding resource allocation, about 70% reported no change in their organisations’ investment toward bioeconomy, while 30% reported an increase. It is worth noting that all respondents indicated their intention to continue participating in the hub moving forward.

Key Successes

The hub’s success is guided by a clear vision and mission, which were co-developed in the early days of CEE2ACT. During this time, the hub coordinator attended events and conferences so as to reach out to various actors and organisations, including companies, that already have their operations in bioeconomy. This broadening of strategic partnerships is intentional so as to facilitate multi-actor and multi-level synergies, leverage existing structures, and optimise resources.

Setting a clear vision and mission helps guide the hub’s stakeholder engagement strategy as well as guide the hub’s thematic groups (clusters). The hub’s collaboration with Poland’s National Centre for Research and Development has provided valuable physical space in Warsaw for hub meetings and events, helping sustain engagement among hub stakeholders.

As part of CEE2ACT, the hub adopts a clear bottom-up approach. It actively collaborates with key specialisation groups working on projects supported by the Ministry of

Technology, thereby extending engagement beyond the Ministry of Agriculture to also include the Ministries of Technology, Education and Science, and Climate and Environment. Together with these specialisation groups and other stakeholders, the hub is co-developing a national roadmap for Poland's bioeconomy development under CEE2ACT Work Package 6.

As a result, the hub has visibility across four key ministries. This enables the hub to organise the CEE2ACT third workshop series (in Spring 2025) with ministries' participation. At the event, the hub coordinator could present a concept of national bioeconomy roadmap for Poland, as part of the CEE2ACT Work Package 6.

Visibility and recognition have been key milestones for Poland's NBH. The hub has grown from initial workshops of around 50 participants to national bioeconomy conferences attracting up to 150 people. Stakeholders now broadly recognise the hub as a credible, trustworthy actor facilitating dialogue and cooperation in the bioeconomy.

Key Challenges

Clearly, the Polish hub is facilitating a large and diverse group of stakeholders spanning research, academia, policymakers, industry, and associations. This requires ample resources in terms of personnel, technical expertise and finance. Despite good contacts with the ministries their roles remain limited in the hub. Balanced gender participation in bioeconomy is another area where the hub can play a bigger role. In the three workshops organised by the hub, women's participation tends to be low (25%). According to the hub coordinator, this is likely due to the fact that Poland's bioeconomy is largely shaped by the agri-food value chain, including bioenergy, where men continue to be strongly represented.

While thematic working groups exist, their functioning could be strengthened. The hub plans to streamline the number of groups and introduce monthly webinars on specific bioeconomy topics to maintain engagement and knowledge flow.

MoU for Bioeconomy Alliances

A draft Memorandum of Understanding (MoU) has been developed by IUNG as hub coordinator, with input from core partners. While the private sector shows less interest in formal commitments, the hub aims to finalise the MoU with broad participation from various stakeholder groups. To remain bottom-up, the hub plans to have the MoU signed by non-governmental actors. Currently, IUNG is consulting with partners to secure signatories before formal adoption towards the end of 2025.

Hub's Sustainability

The long-term sustainability of the Polish NBH will depend on securing a dedicated budget, institutional support, and a clear governance structure. The hub coordinators envision forming a board with dedicated staff to monitor direction, match stakeholders'

needs, and secure funding. The vision for the next five to ten years considering the financial, technical and collaboration aspects would be useful for the success of the hub at national level. Exploring financing options, including pilot investments like biorefineries and international collaboration projects, will be key to ensuring continuity. At present, IUNG is actively seeking to secure resources for the continued operation of the Hub, notably by submitting multiple project proposals under the Horizon Europe programme, as well as by exploring opportunities to attract private funding.

The Role of CEE2ACT in Polish Hub

The CEE2ACT project has been instrumental in Poland's hub development. Practical resources, structured methodologies, and bilateral consultations have supported the hub's evolution. Monthly workshops and peer exchanges have strengthened stakeholder engagement skills within the team, enhancing facilitation and co-leadership capabilities. Going forward, the Polish hub team recommends more informal knowledge exchanges and improved online tools to connect hub board members more effectively.

Lessons learned and a way forward

Poland's NBH demonstrates that visibility, trust-building, and regional cooperation are crucial for advancing the bioeconomy in the country. Existing structures and networks should be leveraged, and decentralised leadership needs to be empowered through, for example, split leadership within the hub coordination role and thematic groups or clusters that can act interdependently. Ensuring practical benefits and continued funding will be vital to sustaining momentum and attracting diverse stakeholders, including greater female participation. A permanent, well-financed hub playing a role of facilitator on the national level, with strong local and regional roots, will be essential to maintain momentum and ensure Poland's bioeconomy grows sustainably in the coming years.

Despite there is not yet a national bioeconomy strategy guiding Poland to realise the full potential of bioeconomy, there is clearly a growing interest in the country. Several bioeconomy-related projects and initiatives are being implemented in the country, pointing out a need for a more unifying pathway. The CEE2ACT Polish National Bioeconomy Hub should continue beyond the project's lifetime in order to facilitate intersectoral dialogues and multi-level partnerships for bioeconomy.

5.7 Romania

The Romanian National Bioeconomy Hub (NBH) was launched in September 2023 and is coordinated by the Association of Small- and Medium Size Enterprises of Covasna County (ASIMCOV). It has developed to become a bridge between government institutions and a broad range of bioeconomy actors, successfully engaging academia, clusters, SMEs, and research institutions. Its coordination benefits from ASIMCOV's



experience and trusted relationships across stakeholder groups, further supported by regular interactions and linkages with national and regional initiatives—particularly through collaborations with sister projects and the Department for Sustainable Development.

Bottom-up Stakeholder Engagement

The Romanian hub employed a pragmatic and personal engagement approach. Direct communication (especially phone calls) and interactive in-person meetings—often held at the ASIMCOV-managed business incubator—have proven effective in fostering trust and open dialogue, providing participants the space to actively share their views. The hub actively collaborates with other initiatives, i.e. BOOST4BIOEAST project, and the Department for Sustainable Development to co-organise events and ensure visibility of bioeconomy discussions. This mutual collaboration ensures regular invitations to each other's events, creating valuable opportunities to expand networks and strengthen partnerships. A major national closing event for CEE2ACT and other sister projects is planned for late 2025, hosted by the Department for Sustainable Development.

The diversity of stakeholder groups participating in the three national workshops are presented in Figure 12.

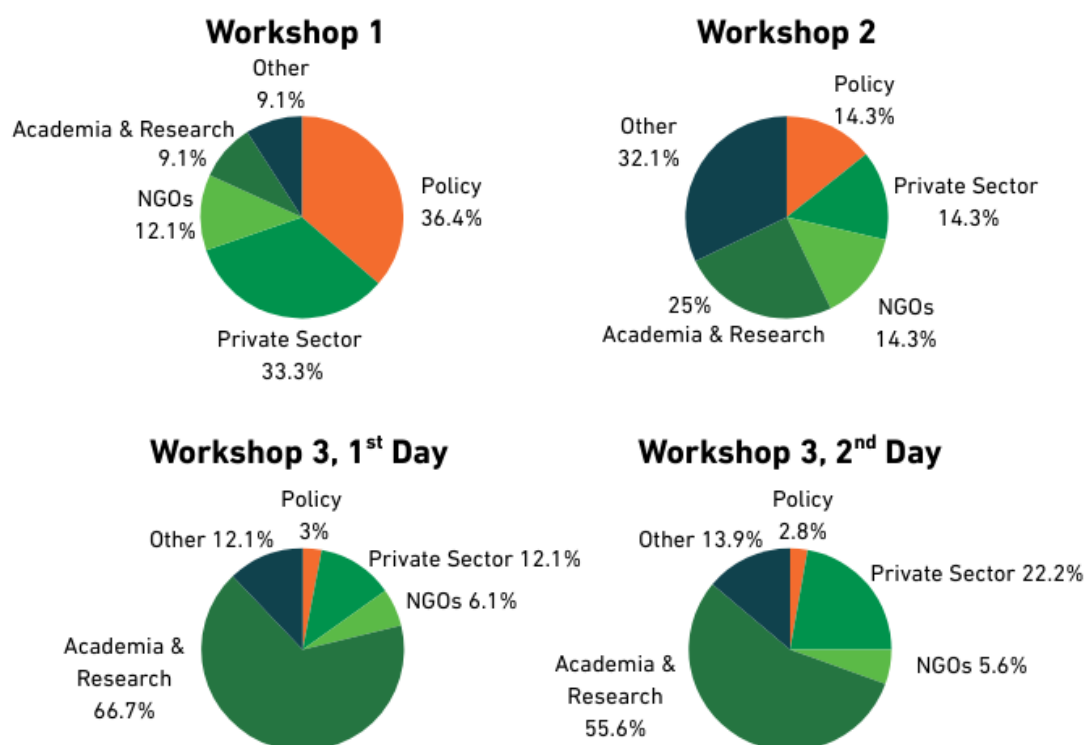


Figure 12 Stakeholder groups across the three national workshops in Romania

The hub supports five thematic working groups focused on key sectors of the bioeconomy in Romania, i.e., wood industry, bioenergy, biomaterials, aquaculture, and agri-food. These are coordinated by relevant clusters³, which also lead independent outreach and engagement activities.

The survey conducted with workshop participants in early 2025 shows a high level of satisfaction across key aspects. Regarding workshop duration, 91% were very satisfied, and similarly high satisfaction rates were noted for participants (82% very satisfied), gender balance (79% very satisfied), content relevance (85% very satisfied), and format (85% very satisfied). Engagement beyond the workshops also proved impactful: 76% of respondents reported that hub meetings and related activities had a high impact on building their network in Romania's bioeconomy sector. Nearly all participants (97%) felt they had sufficient opportunities to express their expectations and goals. Since joining CEE2ACT, 94% observed an increase—either somewhat or major—in communication with other bioeconomy stakeholders, and 100% reported greater confidence in communicating about the bioeconomy. Knowledge gains were also significant, with 97% noting increased understanding of bioeconomy challenges and solutions. Regarding organisational change, 78% reported at least some increase in resource allocation toward bioeconomy. Finally, a strong majority (97%) intend to continue collaborating with stakeholders they connected with through the project.

Key Successes

A key achievement of the Romanian hub has been securing the involvement of the Romanian Department for Sustainable Development as an active member of the hub. This department, which is responsible for the development of the national Circular Economy Strategy, has committed to supporting the hub through the development of a Romanian national bioeconomy roadmap as part of the CEE2ACT project processes, and facilitating its presentation and dissemination across various ministries. A key strength of this partnership lies in the department's institutional stability. As part of the government, it has remained consistent over time, providing a valuable element of continuity for the hub.

Another success of the hub has been maintaining steady participation across its three workshops and the engagement of a diverse group of stakeholders. Attendance lists show consistent engagement with research and academic institutions forming the most stable and active group. Also, SMEs have been well represented, particularly during the first and third workshops. Gender balance was maintained throughout.

³ Since 2010 several clusters were established in Romania, e.g., Pro-Wood Regional Cluster in forest-based industry, Green Energy Innovative Biomass Cluster in the field of bioenergy, Transylvania Balneotourism Cluster, Agro-food Innovative Cluster, and Transylvania Textile and Fashion Cluster (source: <https://www.cee2act.eu/hub/romania/>).

Key Challenges

While ministries value the bottom-up approach to get insights into SME needs, maintaining steady governmental participation and interest was a key challenge of the Romanian hub. The country's political system has seen regular rotations within the government, which made it difficult to establish a lasting engagement with the policymakers. Policymakers' participation in the hub workshops declined from 36% in 2023 to just 3% in 2025.

Another challenge has been bridging the gap between policymakers and the private sector. The hub sees itself as a bridge between these two groups, especially through the involvement of research institutes that are part of the hub. These institutes, which often operate under the supervision of government bodies, are well-positioned to facilitate communication and help align the needs of SMEs with the priorities of policymakers in relation to the circular bioeconomy.

Although the Romanian hub is pleased with its current stakeholder base, it acknowledges the need to enhance outreach and make participation more attractive. A recent step in this direction is a partnership with a Bucharest research institute to open a technology transfer centre offering lab services for SMEs in the food sector—an initiative aimed at expanding the hub's services and deepening SME engagement.

MoU for Bioeconomy Alliances

The draft Memorandum of Understanding (MoU) was co-developed with 10 key hub members and is aligned with the CEE2ACT Romania's national bioeconomy roadmap. This target was intended to ensure effective coordination and meaningful input during the MoU development process. The draft will be circulated to all hub members so as to invite feedback, spark interest, and identify others who may be willing to join forces. The MoU is voluntary and open to all stakeholders wishing to express commitment to the hub's objectives. It reflects shared priorities, particularly those of research institutes and sector clusters actively engaged in bioeconomy development of the country. Notably, the hub received strong support from the National Research Institute for Bioresources and from various clusters.

Hub's Sustainability

ASIMCOV, in partnership with the Agro-Food Cluster, will continue to lead and sustain the Romanian NBH. Its operations are supported by three ongoing projects that are closely aligned with the hub's objectives and provide a solid foundation for the next five years. The hub will maintain its current structure, operating within the existing business incubator co-managed by ASIMCOV, which offers access to a wide range of facilities and programs for hub members.

To ensure long-term sustainability, ASIMCOV is actively applying for new projects and securing financial resources to retain staff and expand activities. A key part of the hub's future strategy includes collaboration with a technology transfer centre, which will support continued bioeconomy-related work and help maintain stakeholder engagement well beyond the end of the CEE2ACT project in 2025.

Lessons Learned and a Way Forward

Romania's experience highlights the importance of trusted facilitators, face-to-face engagement, and cross-project collaboration. The hub has positioned itself as a credible platform linking SMEs with research and policy, but long-term impact will depend on expanding services, strengthening public-private dialogue, and maintaining institutional continuity.

5.8 Serbia

The Serbian National Bioeconomy Hub (NBH) was launched in October 2023 and is coordinated by the Institute of Forestry (IoF). While interest in circular economy was gaining traction in Serbia at the time, the concept of bioeconomy remained largely unfamiliar and absent from national policy discussions. Nonetheless, many stakeholders were already engaged in activities closely aligned with bioeconomy principles. Once the Serbian hub introduced and contextualised the concept of circular bioeconomy, stakeholders quickly related to it, recognising their role within this emerging field and generating growing interest to join the hub.

The Serbian hub has developed into a trusted platform for cross-sector collaboration, attracting diverse stakeholders from academia, research institutions, public authorities, NGOs, and the private sector. Over time, the relationship has grown stronger, with the hub coordinator describing the hub as a "big family", united by a shared vision for developing Serbia's bioeconomy. The diversity of the stakeholder groups participating in the three national workshops is presented in Figure 13.



Figure 13 Stakeholder groups across the three national workshops in Serbia

Bottom-up stakeholder engagement

The Serbian hub's engagement model is characterised by a gradual and relation-driven approach, building from existing connections and expanding outward to include a broader range of stakeholders. This approach proved to be successful in achieving diverse stakeholder participation in the hub and its activities. Maintaining regular contact through weekly email updates – sharing invitations to events and conferences, information on funding calls and relevant news – was central to fostering collaboration and keeping the stakeholder informed and interested.

The three national workshops held in 2023, 2024 and 2025 served as anchor events for stakeholder engagement, providing an open space for discussion and co-creation. These events were hosted at the Chamber of Commerce and Industry of Serbia, one of the hub's members, which provided space and equipment in a centrally located venue, ensuring easy access for the participants. The workshops enabled stakeholders to express expectations, ask questions, and discuss shared challenges.

While formal working groups have not yet been established, the hub foresees the potential to form such structures in the future as stakeholder familiarity with the bioeconomy concept continues to deepen.

The post-workshop survey conducted in early 2025 revealed a high level of satisfaction among participants regarding the CEE2ACT workshops. Most respondents were very satisfied with aspects such as duration (88%), participant composition (73%), gender balance (65%), content relevance (88%), and workshop format (80%). Additionally, 46% reported that CEE2ACT hub meetings and activities had a high impact on their network-building efforts within Serbia's bioeconomy field. An overwhelming 96% felt they had sufficient opportunities to express their expectations and goals. Communication among bioeconomy stakeholders improved for many, with 38% noting a major increase and 31% reporting some improvement. Confidence in communicating about bioeconomy also rose, with 46% experiencing increased trust and 38% reporting some growth. Furthermore, 62% stated their knowledge of bioeconomy challenges and solutions had significantly increased. In terms of organisational impact, 43% reported some level of increased resource allocation toward bioeconomy initiatives. Finally, 88% of participants expressed an intention to continue collaborating with stakeholders met through CEE2ACT.

Key successes

A key achievement of the Serbian hub has been the inclusion of circular bioeconomy concepts in the newly developed national Program for the Development of the Circular Economy, led by the Ministry of Environmental Protection⁴. This is the first national-

⁴ <https://www.ekologija.gov.rs/lat/saopstenja/vesti/obavestjenje-o-pocetku-izrade-programa-razvoja-cirkularne-ekonomije>

level policy document to explicitly reference bioeconomy. It incorporates key CEE2ACT outputs, including the NBH, national roadmap, and MoU. This was made possible through the coordinated efforts and active contributions of all hub members, demonstrating the value of collaborative bottom-up stakeholder engagement in shaping new policy agendas. While the document's formal adoption is delayed due to political transition, its development marks a breakthrough in bioeconomy policy recognition.

The hub also succeeded in bringing together a diverse group of stakeholders across sectors and institutions, demonstrating the hub's growing ability to mobilise actors from across society. The workshops fostered inclusive spaces for dialogue and achieved a strong gender balance, reflecting the hub's commitment to broad participation. The steady rise in bioeconomy-related events and initiatives across Serbia in recent years further underscores the increasing national interest in the topic and the hub's role in supporting this momentum.

Key challenges

One of the early challenges the Serbian NBH faced was identifying a non-governmental organisation (NGO) actively involved in bioeconomy. Following the first workshop and new networking opportunities, the hub successfully engaged with relevant NGOs. This move was considered important since the CEE2ACT project sought to facilitate a bottom-up stakeholder engagement for the circular bioeconomy.

Recent political unrest⁵, including an ongoing protest led by students, academia, and civil society, has posed additional challenges to the hub. This wider context has likely contributed to a decreased participation from ministries in the third workshop, as highlighted by the hub coordinator.

Another challenge has been stakeholder attendance. Some members actively engage between events by reviewing documents or providing feedback but do not attend in-person meetings. While their input is valued, their absence from workshops limits peer exchange and transparency. The hub recognises this as an area for improvement.

MoU for bioeconomy alliances

A draft of Memorandum of Understanding (MoU) was developed by IoF and presented at the third workshop in early 2025. Designed to remain broad and flexible, the MoU outlines shared values and principles for bioeconomy collaboration, avoiding prescriptive commitments while encouraging coordinated action in key areas. The document aligns closely with the national bioeconomy roadmap being developed under CEE2ACT. Both documents emphasise capacity building and knowledge transfer as essential pillars for advancing Serbia's bioeconomy agenda.

⁵ It began in late 2024 and continues in 2025 (as of the writing of this report).

Following positive initial feedback, the full draft MoU will be circulated to around 30–40 stakeholders. It is expected that many will endorse it as is, while others may provide input before signing. Due to the governmental restructuring that Serbia was undergoing at the time of the MoU drafting, the official MoU signing ceremony will be in September 2025 to allow enough time for the new ministries to review the document in summer. Despite CEE2ACT employing a bottom-up approach, obtaining ministry-level signatories is considered important to the legitimacy and impact of the MoU as it will highlight a level of buy-in by the government.

Hub's sustainability

The Serbian hub is committed to continuing its engagement with the circular bioeconomy beyond the CEE2ACT project's lifetime. IoF will retain the coordinator role for at least two years after project completion and aims to support the development of a more formal hub structure during this period. The goal is to establish clear governance mechanisms, allowing members to define long-term leadership and coordination models.

Lessons learned and a way forward

Key lessons from the Serbian hub include the importance of capacity building and knowledge transfer in introducing bioeconomy as a new and unfamiliar concept. These efforts were essential in bringing together diverse stakeholders around a shared understanding. Leveraging existing relationships while actively expanding the network proved effective in increasing engagement across sectors. Maintaining regular contact helped build trust and continuity, while hosting events in central, accessible locations supported inclusive participation. Finally, keeping the MoU broad and flexible is seen as essential for securing stakeholder buy-in and leaving space for others to join over time.

5.9 Slovakia

The Slovak National Bioeconomy Hub (NBH) was launched in October 2023 and is co-coordinated by the Bioeconomy Cluster (BEC) together with the Ministry of Agriculture and Rural Development of the Slovak Republic (MoA), in its role as a BOOST4BIOEAST partner. Its establishment aligned well with Slovakia's growing interest in bioeconomy and the parallel development of a national Roadmap for Circular Bioeconomy, initiated in 2021 by the Ministry.

Thanks to BEC's strong existing network as a cluster, the hub did not need to build engagement from scratch. Instead, it leveraged relationships with stakeholders and coordinated with the BOOST4BIOEAST initiative to create a joint hub, avoiding competition for attention in a relatively small stakeholder landscape.

The hub has supported the MoA's national Roadmap for Circular Bioeconomy process through strategic input and co-organisation of events with the Ministry of Agriculture. A major contribution came during the third national workshop in 2025, where the hub hosted detailed discussions on the roadmap draft and provided structured recommendations. While technical content remains the responsibility of experts, BEC contributed by advising on coordination, stakeholder inclusion, and overall framework. The analytical phase of the national Roadmap for Circular Bioeconomy is expected to conclude by the end of 2025, followed by an implementation plan in 2026. In parallel, the hub is leading the CEE2ACT national roadmap effort, which will integrate elements of the national Roadmap for Circular Bioeconomy and adopt a more action-oriented focus.

Bottom-up Stakeholder Engagement

The Slovak hub's stakeholder engagement approach was rooted in personal outreach and direct communication. The hub relied on traditional methods, like emails, phone calls, and in-person meetings as communication formats. The three national workshops served as milestones for structured dialogue. The first tested interest and introduced the hub, while the second was centred around key thematic pillars of the national Roadmap for Circular Bioeconomy and a visit to the Slovak biochar company, increasing industry interest. The third event was intentionally kept small, fostering an open and constructive atmosphere for deeper discussions on roadmap implementation. The diversity of the stakeholder groups participating in the three national workshops is presented in Figure 14.



Figure 14 Stakeholder groups across the three national workshops in Slovakia

The hub also followed closely the work of thematic working groups coordinated by MoA, which mirrored the structure of the chapters of the national Roadmap for Circular Bioeconomy. Thematic working groups are identified as effective platforms for thematic consultation and the Slovak hub is consistently encouraging the ministry to maintain them.

Some of the key sectors of the Slovak bioeconomy, such as forestry have not been incorporated in the hub from the beginning, but the positive message is that cooperation has begun with key stakeholders from this sector increasingly participating in the Slovak hub's activities.

A survey conducted with workshops participants in early 2025 revealed generally positive feedback on the CEE2ACT activities. Participants expressed high satisfaction with the workshop format (62% very satisfied) and content relevance (69% very satisfied), while also appreciating the workshop duration (62% somewhat, 31% very satisfied) and participant mix (46% very satisfied). Views on gender balance were more evenly split, with 38% neutral and 38% very satisfied. Regarding the impact of hub meetings and other CEE2ACT activities on network building in Slovakia's bioeconomy sector, 69% of respondents reported at least some positive impact. Most participants (77%) felt they had sufficient opportunities to express their expectations and goals. Since joining, 67% reported increased communication with stakeholders, and 91% noted improved confidence and knowledge regarding bioeconomy topics. While 73% reported no change in their organisation's resource allocation, 18% indicated some increase. Encouragingly, 90% of respondents plan to continue collaborating with stakeholders met through CEE2ACT.

Key Successes

A key achievement of the Slovak hub has been the successful organisation of the three national workshops; each tailored in format and location to suit the audience and purpose. These events brought together diverse stakeholders, including policy actors, researchers, and business stakeholders, including several previously unengaged actors. Gender participation was balanced throughout the meetings.

The second workshop illustrates the hub's strategic approach to engaging industry stakeholders—a group identified early on as difficult to mobilise. To attract this group of stakeholders, the Slovak hub tailored the event around examples and practical cases of bioeconomy implementation and presentation of funding opportunities for scaling-up bioeconomy solutions. This included organising the Circular Bio-based Europe Joint Undertaking (CBE JU) national info day focused on presenting the topics of 2024 call for proposals, and facilitating a visit from representatives of the CBE JU and other stakeholders in the Slovak biochar company, as well as creating multiple opportunities for visibility and dialogue. As a follow-up, the biochar company was also invited to join the international site visit to Wageningen, organised within the CEE2ACT project. These targeted efforts proved effective, leading to the company's as well as other industry stakeholders' active and ongoing participation in the hub's activities.

Another important achievement was the hub's ability to create a platform for dialogue between practitioners and academia, helping ensure that strategy development is grounded in current realities and consideration of real-world and practical needs.

Key Challenges

A key challenge of the Slovak hub has been the frequent turnover of ministry personnel responsible for the national circular bioeconomy roadmap, with responsibility shifting among changing administrators, which required the hub to repeatedly rebuild institutional relationships. Another challenge was bridging the gap between academic experts and practitioners. While progress has been made, the hub notes that more work is needed to fully align perspectives between research and real-world practice. Industry engagement also required sustained effort, as companies typically need clear incentives—such as policy support or funding—to invest time in strategic development processes. The hub stressed the need for a more actionable national bioeconomy strategy, tied to financial frameworks, to sustain long-term stakeholder interest. Additionally, the scope of outputs from ministry-led thematic working groups was uneven, posing a challenge in how to address these differences constructively while preserving collaboration.

MoU for Bioeconomy Alliances

The Slovak hub developed its Memorandum of Understanding (MoU) through a consultative process involving a small group of 3-4 core stakeholders, who actively contributed suggestions that were fully integrated into the final text. Presented at the third workshop to all hub members, the MoU was designed to be simple and open, with the aim of enabling new stakeholders to join over time. This approach also aims to encourage involvement from public institutions, though engaging ministries has proven difficult due to administrative complexity and slow internal approvals. The hub is exploring ways to secure high-level endorsements identified as crucial, such as through Director General signatures. A governance structure was not included in the current MoU, but the hub recognises this could be added in future if the ecosystem evolves further.

Hub's Sustainability

The hub's continuity beyond CEE2ACT is currently being discussed and considered. The current plan, which is widely regarded as an optimal approach, is a collaborative coordination between BEC and the Ministry of Agriculture. BEC can act flexibly and provide practical support, while the Ministry holds the mandate to drive legislative and strategic change. While the national Roadmap for Circular Bioeconomy drafting process has helped maintain engagement, keeping stakeholders active once the roadmap is finalised will be more difficult. However, interest in bioeconomy continues to grow, and the hub reports that new stakeholders are increasingly joining without direct outreach. This emerging momentum, together with ongoing national and international initiatives, offers a strong foundation for long-term hub sustainability.

Lessons Learned and a Way Forward

Key lesson from the Slovak experience includes the value of leveraging existing networks, aligning national and project timelines, and maintaining an open, adaptable engagement model. Personal relationships and direct communication have been essential. Looking ahead, the hub will focus on supporting the roadmap implementation, strengthening collaboration with ministries and industry, and ensuring that bioeconomy becomes an embedded national priority backed by both strategy and resources.

5.10 Slovenia

The Slovenian National Bioeconomy Hub (NBH) was launched in October 2023 and is coordinated by Anteja in collaboration with three institutions: Circular Change, the Ministry of Agriculture, Forestry and Food, and the Chamber of Commerce – Association of Chemical Industries of Slovenia. Rather than creating new, parallel structures, the Slovenian hub brought together different European projects under one entity. This integration helped to avoid stakeholder fatigue and created what the coordinators described as a “movement” rather than just a project initiative. Additionally, this collaboration ensured a broad and balanced representation across policy, business, academia, and civil society.

Bottom-up Stakeholder Engagement

The Slovenian hub stakeholder engagement approach is characterised by in-person dialogue and personalised outreach. Beyond workshops, the hub coordinators conducted numerous one-on-one meetings with industry actors to better understand their expectations and foster long-term commitment. This hands-on strategy was seen as essential to securing buy-in, particularly from the private sector.

Five workshops were organised instead of the originally planned three, attracting around 130 unique participants and achieving strong repeat attendance. Event design was tailored to audience needs, with high-profile venues for high-level stakeholders and more intimate settings at the Chamber of Commerce for working-level exchanges. Round table discussions, especially those on financing and infrastructure, proved highly effective in encouraging open dialogue and bridging gaps between sectors. The diversity of the stakeholder groups participating in the four national workshops is presented in Figure 15.

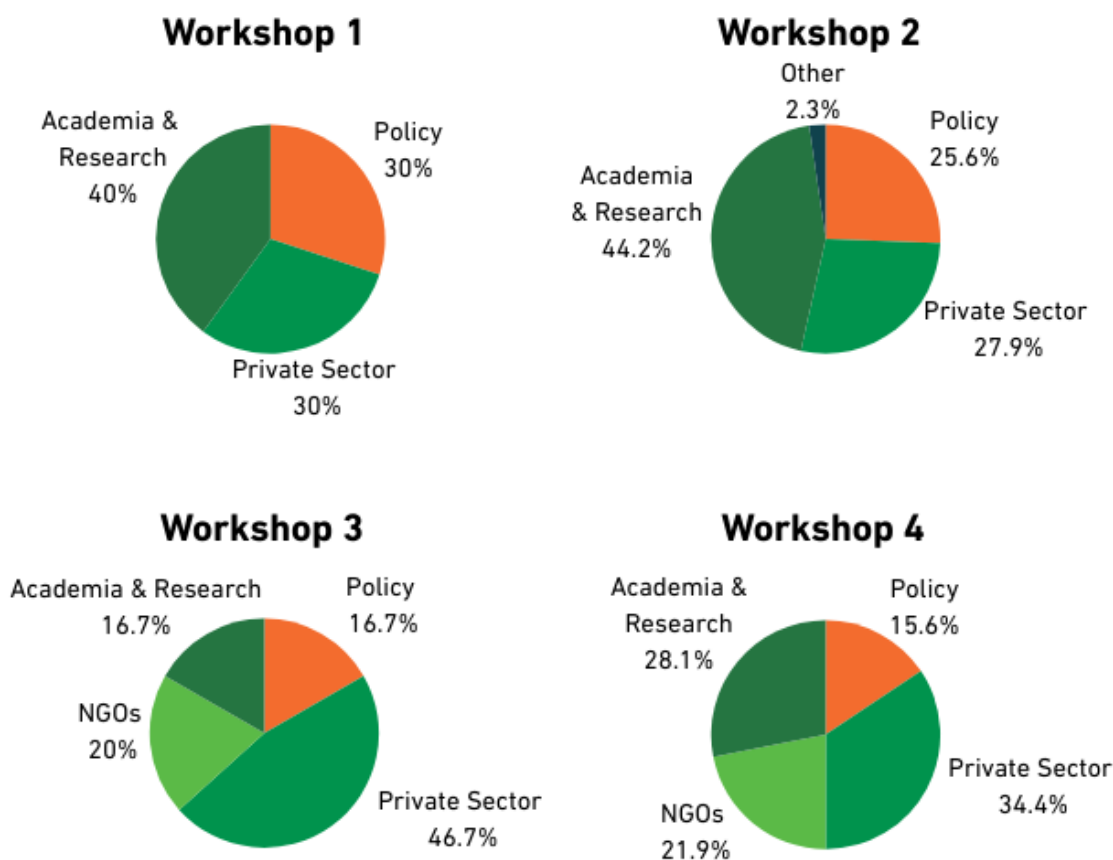


Figure 15 Stakeholder Groups across the four national workshops in Slovenia

A post-workshop survey conducted with workshops participants in early 2025 reported high satisfaction overall. Most were satisfied or very satisfied with the workshop's duration, participant mix, gender balance, content relevance, and format, with ratings of "very satisfied" reaching 60–70% across most categories. In terms of broader impact, 70% of participants felt that the hub meetings and other project activities had at least some positive effect on building their bioeconomy network in Slovenia. Furthermore, 60% reported having sufficient opportunities to voice their expectations and goals, while 30% said they had partially. Communication with other bioeconomy stakeholders increased for 80% of participants, and 60% reported improved confidence in discussing bioeconomy-related topics. Knowledge of bioeconomy challenges and solutions also improved, with 80% indicating some or significant knowledge gains. Despite these positive developments, only 10% of respondents noticed a slight shift in their organisation's resource allocation toward the bioeconomy. Encouragingly, 90% plan to continue collaborating with stakeholders they met through CEE2ACT, suggesting strong potential for sustained impact and engagement.

Key Successes

A major success of the Slovenian hub has been the ability to consolidate multiple project agendas and stakeholders into one coherent platform. This helped the hub avoid duplication and confusion while maintaining strong relationships with initiatives such as BOOST4BIOEAST. The four-part governance model also helped balance stakeholder representation, with strong participation from business, NGOs, academia, and government. The hub's events achieved balanced gender representation and meaningful engagement across stakeholder groups, particularly industry.

Key Challenges

One of the main challenges was engaging government actors beyond passive participation. While the Ministry of Agriculture is a coordinating member, its role in actively promoting bioeconomy policy has been limited. As a result, achieving higher-level policy alignment and formal commitments, such as ministerial support for the MoU, has proven difficult.

Another challenge was managing the differing requirements and timelines of the European projects involved. Reconciling priorities across initiatives—some targeting marginal groups, others industry or policy—required considerable coordination. While this slowed progress on deliverables like the roadmap and MoU, it ultimately resulted in a more integrated and robust approach.

Efforts to launch concrete projects, such as pilot bioeconomy infrastructure, proved more time-consuming than expected. The coordinator noted that the original goal of initiating three projects by November 2025 was likely too ambitious due to complex feasibility studies, consortium formation, and funding challenges. Still, the hub managed to advance two large projects towards feasibility studies that got a cumulative funding from EU sources of more than 1,2 million EUR. developing such projects is considered essential for advancing the bioeconomy in the country.

MoU for Bioeconomy Alliances

The Memorandum of Understanding (MoU) was developed collaboratively by a core group of six to seven stakeholders, including representatives from the hub's board members and one professor from the Biotechnical Faculty. The draft was presented to gather broader feedback from all hub members during the workshop held in March 2025. Unlike the broad formulations used in some countries, the Slovenian MoU is highly specific—signatories are asked to commit concrete contributions such as expertise, funding, or other resources toward developing bioeconomy infrastructure. This approach was intentional: while a general MoU might be easier to sign, a more concrete commitment was seen as more likely to generate real action.

To promote the MoU, the hub used a dual strategy of email outreach and targeted bilateral meetings. A public signing event is planned for September 2025 to showcase

stakeholder commitment and align the MoU with the national bioeconomy roadmap developed under CEE2ACT.

Hub's Sustainability

Sustainability has been a core consideration from the outset. The hub is well-positioned to continue operations through 2027 under existing project funding. Integration into the National Circular Economy Centre is under discussion, which would secure support until at least 2029 and provide the stability needed to pursue more ambitious initiatives, including pilot biorefineries and infrastructure projects. At the same time, the coordinators underline that success would depend on maintaining the current momentum and demonstrating the value of bioeconomy in practical terms.

Role of CEE2ACT in Slovenia's Hub

The support provided by CEE2ACT was described as highly beneficial in several respects. The coordinators highlighted the value of the knowledge transfer materials and tools from Work Package 5, rating their overall usefulness as 4 out of 5. In particular, webinars and case studies helped shift the hub's focus from a general approach to a more specific agenda centred on infrastructure development.

Moreover, the coordinators appreciated the project's flexible methodology, which allowed the Slovenian hub to adapt activities to national circumstances. This stood in contrast to other projects that imposed more rigid frameworks. The ability to set event topics – such as financing – based on stakeholder needs was seen as a key factor in achieving strong engagement.

Finally, bilateral meetings with the project team and horizontal exchanges with other hub coordinators were singled out as particularly helpful in building confidence and improving stakeholder engagement strategies.

Lessons Learned and a Way Forward

Slovenia's experience shows that successful stakeholder engagement requires not only structured governance and inclusive partnerships but also the ability to adapt to national context. The decision to consolidate multiple initiatives under one hub avoided fragmentation and enhanced clarity for stakeholders. Face-to-face outreach, thematic roundtables, and concrete commitments in the MoU helped generate momentum and trust.

6. Cross-country analysis

6.1 CEE2ACT National Bioeconomy Hubs (NBHs)

The National Bioeconomy Hubs (NBHs) established under CEE2ACT share a common mission: to bring together diverse stakeholders—spanning research, academia, ministries, regional authorities, NGOs, and industry—to foster collaboration and advance the circular bioeconomy agendas. Each hub serves as a unifying platform for dialogue and cooperation, often in contexts where bioeconomy remains a relatively new or evolving concept.

Across all ten countries, NBHs face common challenges, including fragmented political landscapes, delays in the adoption of national bioeconomy strategies and the need to balance overlapping initiatives and funding priorities. Nevertheless, the hubs have proven effective in creating shared understanding, mobilising networks, and positioning bioeconomy on national and regional policy agendas. The hubs' distinctive approaches reflect the national contexts (Table 5).

Hub	Approach
Bulgaria	focuses on inter-ministerial engagement and cross-sector dialogues, even in the face of institutional instability
Croatia	builds alliances with similar initiatives to create momentum
Czech Republic	prioritises stakeholder education and capacity building to integrate bioeconomy into broader policy discussions
Greece	leverages regional strategy successes to amplify national efforts
Hungary	through signing bilateral cooperation agreements with similar initiatives, functions as a neutral convening forum
Poland	has achieved significant visibility through a multi-organisation leadership model as well as broad and strong institutional partnerships
Romania	positions its hub as a bridge between government institutions and regional actors, using established networks to foster trust and coherence
Serbia	despite initial unfamiliarity with the concept, effectively frames the bioeconomy in relatable terms and rapidly expands its stakeholder base
Slovakia	leverages its established Bioeconomy Cluster and its network to actively contribute to the development of national bioeconomy roadmap
Slovenia	avoids duplication by integrating multiple EU initiatives into a single platform, turning the hub into a coordinated, inclusive movement

Table 5 NBH's distinctive approaches in the national context

Collectively, the hubs underscore the value of collaborative stakeholder engagement as a driver for bioeconomy development, while highlighting the importance of political alignment, resource coordination, and regional-to-national synergies for long-term impact.

6.2 Bottom-up stakeholder engagement

The CEE2ACT NBHs share a unified mission: to foster stakeholder collaboration, build knowledge and support the development of national bioeconomy strategies for circular bioeconomy through bottom-up engagement.

Across all ten countries, stakeholder engagement within hubs relies on sound stakeholder mapping, face-to-face meetings and workshops as the primary mechanisms for engagement, awareness creation, and capacity building. These platforms have successfully brought together diverse actors, creating spaces for dialogue, peer-to-peer learning, and the co-creation of national bioeconomy roadmaps. Stakeholders across hubs consistently report that their participation in the hubs improves communication, confidence (trust) and knowledge about bioeconomy. Most stakeholders express interest in continuing their involvement. All hubs achieved near-balanced gender representation, with minor variations across countries. While sharing a common approach, each hub tailors its model to national contexts (Table 6).

Hub	Approach
Bulgaria	emphasises mutual learning and cross-sector dialogue, organising workshops that incorporate international best practices and encourage adaptation to the national context
Croatia	leverages stakeholders with existing expertise, using mirror working groups to align national efforts with BIOEAST thematic groups (education, biomass, forestry/agriculture)
Czech Republic	focuses on raising awareness among stakeholders unfamiliar with bioeconomy, evolving workshops from introductory discussions to technical topics like biomass utilisation and roadmap development
Greece	employs a relationship-driven “Mediterranean model,” blending formal and informal interactions and leveraging external events to maintain engagement while anticipating its forthcoming national strategy
Hungary	emphasises short, focused sessions and localised materials to ensure engagement and relatability, using the hub as a platform for stakeholder input into a national roadmap
Poland	applies a structured, solutions-oriented model, combining stakeholder mapping, Delphi methods, and co-creation via living labs to pilot practical bioeconomy solutions alongside strategic development
Romania	relies on pragmatic, trust-based engagement through direct communication and in-person meetings, supporting sector-specific working groups led by clusters across the bioeconomy landscape
Serbia	builds stakeholder engagement gradually through trusted relationships, weekly updates, and inclusive workshops that encourage co-creation and open discussion, despite the absence of formal working groups to date
Slovakia	focuses on personal outreach and structured dialogue, anchoring engagement in the national roadmap development and thematic working groups led by ministries

Slovenia	combines personalised outreach with strategically designed events, organising one-on-one industry meetings and well-attended workshops tailored to the audience, including high-level roundtables to foster cross-sectoral collaboration
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Table 6 NBH’s bottom-up approaches in the national context

Together, these hubs illustrate how tailored, bottom-up engagement grounded in **peer learning, practical examples, and inclusive dialogue** can drive momentum for bioeconomy development, even in contexts where national strategies are still evolving and funding remains limited.

6.3 Key successes

All ten hubs have effectively created or strengthened platforms for dialogue and networking, enabling diverse stakeholders to connect and collaborate on bioeconomy-related issues. These forums provide a foundation for **building shared understanding and trust**, often bridging gaps between bottom-up initiatives and top-down policymaking. In countries like the Czech Republic and Slovakia, previously disconnected actors—including industry and academia—began collaborating through structured workshops. In Romania, regular in-person meetings fostered open exchanges among a wide range of stakeholders, while Croatia and Bulgaria successfully created a space for cross-sectoral discussion where it had been previously limited.

Each hub has also achieved increased recognition and visibility. National ministries, international organisations (e.g., FAO in Hungary), and regional initiatives such as BIOEAST now acknowledge their work. This recognition has allowed hubs to attract more participants and resources, grow their events, and expand partnerships. Hungary’s participation in global bioeconomy consultations through FAO and Poland’s expansion into multi-ministerial cooperation and large-scale events illustrate this growing profile. Slovenia has emerged as a central coordination platform by consolidating EU initiatives, and Greece and Croatia have used trusted organisations and networks to strengthen outreach and legitimacy.

A common outcome is the hubs’ contribution to national bioeconomy development, with outputs including draft roadmaps, policy advocacy, and integration of knowledge sharing into strategic bioeconomy agendas. In Serbia, hub members helped embed bioeconomy into national circular economy policy. Greece and Romania linked hub processes to ongoing national strategies, while Poland and Hungary have advanced roadmap development through structured, multi-actor engagement. Bulgaria laid foundations for strategy building through cross-ministerial workshops.

Furthermore, all hubs have expanded collaborations beyond their initial networks by engaging new ministries, clusters, and international actors, ensuring greater reach and

impact. Countries have increasingly involved sectors beyond agriculture and environment, including energy, technology, and education. In Slovenia, Serbia, and Slovakia, industry actors are now active participants, while Greece and Croatia strengthened ties with EU-level thematic groups.

6.4 Key challenges

Despite notable progress in building stakeholder networks and advancing national bioeconomy agendas, the ten CEE2ACT National Bioeconomy Hubs face several shared challenges that impact their effectiveness and long-term sustainability.

Private sector engagement remains a universal hurdle. Across nearly all hubs, attracting consistent participation from companies and SMEs is challenging. Successful businesses, particularly in Croatia and Hungary, often perceive limited value in national strategies or action plans, while SMEs in Greece, Hungary, Bulgaria, and Slovakia cite limited resources, lack of time, or unclear benefits. Several hubs, including the Czech Republic and Slovenia, emphasise the need to define **a clear business case to demonstrate the benefits** of bioeconomy for private actors.

Engaging ministries and policymakers is equally challenging. While ministries are present in most hubs, their involvement is often constrained by limited availability, shifting responsibilities (as noted in Slovakia and the Czech Republic), a cautious role, or broader political instability (seen in Romania and Serbia). In Slovenia, achieving formal political buy-in beyond technical-level participation has been particularly difficult. Aligning public sector schedules with business participation is particularly problematic. The delayed adoption of national bioeconomy strategies adds further uncertainty to policy direction and stakeholder commitment.

Resource and capacity limitations are a persistent barrier. Many hubs face constraints in staffing and financing, limiting their ability to hold frequent events or manage multiple thematic initiatives. Poland, with its particularly large and diverse stakeholder network, struggles to sustain engagement without additional resources.

Coordinating diverse stakeholder priorities presents another challenge. Balancing the interests of sectors such as bioenergy, agriculture, and forestry (especially in Hungary, the Czech Republic, and Slovakia) is complex. Several hubs, including Poland and Hungary, recognise the need to streamline or strengthen thematic working groups to maintain focus and engagement. Romania and Bulgaria also face challenges in bridging gaps between policymakers, researchers and SMEs, especially in the absence of robust funding instruments or established coordination mechanisms.

Institutional overlap and fragmented initiatives further complicate progress. Croatia, in particular, has had to navigate confusion caused by multiple overlapping bioeconomy platforms and projects, requiring deliberate coordination to unify messaging and stakeholder expectations. Similarly, Slovenia's effort to harmonise multiple EU project requirements has demanded significant time and coordination.

6.5 MoU for bioeconomy alliances

Across all the ten hubs, the Memorandum of Understanding (MoU) serves as a key instrument to formalise collaboration, strengthen stakeholder networks and establish long-term commitment. Rather than acting as a binding legal agreement, these MoUs are intentionally kept broad and non-restrictive, balancing flexibility with shared purpose to avoid deterring participation.

The drafting of MoUs is led by hub coordinators with stakeholder input integrated through consultations and feedback loops. While the level of stakeholder involvement varies, the process is generally inclusive, aiming to ensure broad acceptance across sectors. The collaborative process helps accommodate the diverse interests of actors.

Despite their importance, adoption of MoUs remains slow across most hubs. Barriers include stakeholder hesitation and limited proactivity, which often delay MoU finalisation. The private sector remains reluctant to actively engage in drafting or signing. To encourage participation, the hubs may need targeted approaches and clearer demonstrations of the value that such agreements bring to their involvement in bioeconomy development.

In several hubs, the MoU also plays a role in advancing **institutionalisation and future funding**. Croatia's hub, for example, sees the MoU as a way to contribute to the updating of national strategy, while Slovenia and Romania align their MoUs with their national roadmaps to ensure continuity. In the Czech Republic and Hungary, the MoU supports the long-term sustainability of the hub model beyond the CEE2ACT project.

6.6 Hub sustainability

All ten hubs are actively planning for their continuity beyond the lifetime of the project. While their strategies reflect national contexts and own institutional mandates, several common priorities and approaches emerge. Across all hubs, long-term sustainability hinges on securing **stable financing, formalisation of hubs, and strong partnerships**. Most hubs are exploring a mix of external project funding, ministry engagement, and collaboration with existing networks to maintain their activities. Joint applications for

EU and national projects, as well as partnerships with industry and research associations, are widely seen as central to sustaining momentum.

Some hubs aim to institutionalise their role through **formal integration**. In Bulgaria, the hub may register as a legal non-profit entity to enable joint funding applications. Slovenia is considering integration into the National Circular Economy Centre, offering long-term operational stability. Croatia hopes the hub will evolve into an expert body foreseen by the draft national bioeconomy strategy. Slovakia is pursuing shared coordination between the Bioeconomy Cluster and relevant ministries to combine flexibility with policy mandate.

Others emphasise **collaborative continuity** and infrastructure support. In Hungary, the hub aims to function as an open umbrella platform, with ongoing cooperation with strategic partners like ÖMKi, the coordinator of Boost4Bioeast project. Romania plans to sustain its hub through ongoing projects, business incubator support, and partnerships with a technology transfer centre. Serbia will maintain coordination for at least two years post-project, with the aim of establishing a formal governance structure.

Collectively, these approaches reflect a shared recognition of the need for diversified funding sources, institutional integration, and strategic partnerships as the foundation for sustaining the hubs. While each hub's trajectory differs, all are working to transform the momentum generated under CEE2ACT into permanent, resilient platforms for advancing the bioeconomy at national and regional levels.

6.7 The CEE2ACT's role in the NBHs

The CEE2ACT project has been pivotal in shaping and advancing the hubs across all ten participating countries. It provided the foundational tools, structured methodologies, and knowledge transfer frameworks that enabled hubs to formalise their operations, enhance stakeholder engagement, and strengthen national bioeconomy networks.

Hubs uniformly valued the MoU framework, bilateral consultations, and peer-to-peer exchanges facilitated through CEE2ACT. These elements helped coordinators navigate national challenges, connect local efforts to broader European bioeconomy goals, and develop the skills needed for effective facilitation and stakeholder coordination. Peer learning opportunities—including lessons and **experiences from other hubs or countries**—proved particularly motivating, offering practical inspiration even when practices required local adaptation. Despite their successes, hubs expressed **a need for more regular, informal and in-person exchanges** among hub coordinators and countries.

6.8 Lessons learned and a way forward

The hubs have generated valuable lessons on how bottom-up engagement can advance bioeconomy development across diverse national contexts. Jointly these hubs illustrate the importance of trust-building, pragmatic collaboration, and leveraging existing structures to create durable networks that connect local, regional, and national bioeconomy initiatives.

Across all hubs, face-to-face engagement, peer learning, and tailored outreach emerged as the most effective methods to mobilise local stakeholders and generate buy-in. Practical tools such as MoUs, (bilateral) cooperation agreements, thematic clusters, and knowledge-sharing mechanisms have enabled hubs to consolidate existing networks, foster trust, and begin shaping pathways toward more coordinated bioeconomy implementation.

Several hubs underscored the importance of personal relationships and face-to-face communication, especially where bioeconomy is still unfamiliar. In countries like Serbia, Bulgaria, and Slovakia, building trust through regular communication and inclusive formats proved essential to increase engagement. The Czech Republic and Hungary emphasised flexibility and persistence as key to adapting to limited resources or political uncertainty, while Greece and Poland stressed the need to align regional and national levels through decentralised coordination.

The value of building on existing initiatives was echoed across countries. Across the board, hubs have shown that practical showcases or demonstrations, thematic roundtables, and continuous relationship-building are more impactful than formal top-down directives alone.

Looking forward, all hubs face common imperatives:

- Securing sustainable funding and institutional anchoring to ensure momentum beyond CEE2ACT's lifespan.
- Formalising cooperation frameworks to deepen stakeholder alignment.
- Scaling joint initiatives across the CEE region, including cross-country projects, shared policy positions, and joint advocacy for stronger EU support.

6.9 WP3 achieving its objectives

The results of the hub surveys conducted during the third workshop indicate that all of the 10 hubs are effectively meeting the specific objectives of Work Package 3 (WP3). These findings align with insights gathered through the bilateral interviews with each of the hub coordinators, thereby confirming the achievement of WP3 objectives (see 4.2).

7. Conclusion and recommendations

This report shows that the 10 CEE2ACT National Bioeconomy Hubs have effectively met their objectives as described in the specific objectives of Work Package 3 of CEE2ACT project. This indicates the usefulness of hubs as a means for bottom-up engagement for bioeconomy development. By nature, hubs can offer space for and facilitate inclusive dialogues, streamline collaboration, improve information access, and manage relationships among a variety of stakeholder groups—some vital functions needing to be further endorsed when promoting a circular bioeconomy in Europe.

In the CEE2ACT's contexts, the hubs showcase the importance of trust building among local stakeholders, pragmatic collaboration that leads to concrete thematic projects, and leveraging existing initiatives or platforms to establish multi-level connections that link bioeconomy to local, regional, and national priorities. The hubs have achieved all these, as described in this report. However, the work is far from done and a continuity beyond the lifetime of CEE2ACT project is indispensable in the support of national governments updating and adopting their national bioeconomy strategies that will guide the bioeconomy implementation in their countries.

Securing stable financing for the running of the hubs, promotion of regular peer-to-peer exchanges on bioeconomy best practices among CEE countries—through facilitated cross-pollination of ideas among EU-funded initiatives or matchmaking events with financiers, as well as establishing joint initiatives within and between CEE countries are something that the CEE2ACT hub coordinators viewed as vital for Europe's transition toward the circular bioeconomy.

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9. Annexes

List of annexes:

1. Hub survey at third workshop series 2025 – questionnaire
2. Hub coordinator interview questionnaire
3. Participant lists of CEE2ACT three workshop series
4. Results of hub survey at third workshop series 2025 — data
5. Hub survey at second workshop series 2024 – data

Annex 1

CEE2ACT WP3 Evaluation Survey Questionnaire

Target group: participants of the hubs' third workshop in Q1 2025 in all 10 CEE countries.

#	Question	Reply option
1.	How satisfied are you with the CEE2ACT workshop(s) that you attended in terms of: <ul style="list-style-type: none"> • Duration • Participants • Gender balance • Content relevance • Formats Please rate each category independently	1-5: Not satisfied at all (1) – Neutral (3) - Very satisfied (5)
2.	How impactful have hub meetings and other CEE2ACT project activities/offers been for you in terms of <u>building your network</u> in the field of bioeconomy in (<i>insert country</i>)?	1-5: No impact (1)– neutral (3) – high impact (5)
3.	Did you have sufficient opportunities to voice your <u>expectations and goals</u> within the CEE2ACT activities you participated in?	Yes/Partially/No/Don't know
4.	How has your <u>communication</u> with other relevant bioeconomy stakeholders in (<i>insert country</i>) changed since joining the CEE2ACT activities?	1-5: High decrease (1) – No change (3) - High increase (5)
5.	How has your <u>confidence</u> in communicating about the bioeconomy changed since joining the CEE2ACT activities?	1-5: Confidence decreased (1) – No change (3) – Confidence increased (5)

6.	How has your <u>knowledge</u> on relevant bioeconomy challenges and solutions changed since joining the CEE2ACT activities?	1-5: Knowledge decreased (1) – No change (3) – Knowledge increased (5)
7.	Do you see any change in your <u>organisation's resource allocation</u> (in terms of financing, direct investments and human resource such as staff assignments) towards bioeconomy since you became a CEE2ACT hub member?	1-5: Decreased resource allocation (1) - No change (3) - Increased resource allocation (5)
8.	Do you plan to continue collaborating with stakeholders you met through CEE2ACT?	Yes/No/Don't know

General comment: Due to the rolling out of the questionnaire in ten foreign languages, the nature of the questions is set-up in a way which allows the results to be used without needing to translate them back into English, thus reducing the need for overall coordination and workload. For this reason, there are no open questions in the questionnaire.

Annex 2

CEE2ACT WP3 Evaluation Interview - Questionnaire

Semi-structured interviews were undertaken bilaterally between the CSCP as WP3 lead with each of 10 hub coordinators during April - May 2025.

#	Question	Reply option
Intro/Warm-Up Questions		
1.	How <u>satisfied</u> are you with the <u>overall development of your hub</u> when you think back to the starting point of the project?**	Open
2.	What were your key-successes in the hub? (that should be capitalised on or replicated)**	Open
3.	What were your main pain points in the hub?(What aspects can be improved in the future?）**	Open
4.	Can you identify any aspects in your hub which you would consider a <u>good/best practice</u> for the <u>bottom-up</u> stakeholder engagement of the project? Practices that should be replicated in the future. Please mention 1 or 2 examples** (PO question)	Open

5.	Do you see your <u>skills in stakeholder engagement</u> have changed while running the CEE2ACT activities? In which way?*	Open
Hub-related questions		
6.	In your hub, did you identify any formats with which your stakeholders could <u>communicate their expectations</u>? If yes, which ones? What are the main expectations so that you chose a particular means or format? If no, why not?*	Yes/No + Clarification
7.	Did the hub provide an <u>adequate setting</u> (stakeholder constellation, physical space, etc.) for the hub meetings or were there any significant shortcomings to the CEE2ACT approach?*	Open
8.	According to the participation list, x-number/percentage of women have been part of your hub workshops. Why do you think that is? How can it be improved?*	Open
9.	How satisfied are you with the <u>hub members</u> you managed to acquire? Was there any specific group missing? How do you think this group can be engaged with in the future?*	Open
10.	Were <u>thematic working groups</u> considered in your hub? If yes, are the groups functioning as expected? (Functioning here means the thematic groups can organise themselves and hold meetings regularly)* If you have thematic working groups or clusters, how many women and men are <u>leading</u> the groups or clusters? (How can this be improved)*	Yes/No + Clarification
11.	How satisfied are you with including Knowledge Transfer elements such as knowledge and tools to promote collaboration, favorable legal context, funding access and knowhow, technical circular bioeconomy knowledge within the MoU / roadmap development? (WUR question)	1-5: Not satisfied at all (1) – Neutral (3) – Fully satisfied (5)

12.	(Optional) In your survey, we found ... (e.g. conflicting replies, etc.) Do you have any explanation for that?	Open
MoU related questions		
13.	In percentage, how many hub members have participated on the <u>co-creation of the MoU</u>? Are you satisfied with the participation? What could be improved, should you be given more time and resource?*	____% + clarification
14.	On our Miro Board during the MoU-Workshop last year, you indicated that you require support with co-creating the MoUs in the following areas: _____ Have you <u>received that support</u> adequately and if yes, by whom?*	Open (individual per CEE partner)
15.	MoU - Do you see any alignment between what has been agreed in your MoU with priority sectors identified by the project (under WP2) and the national roadmap (under WP6)? To what extent do you see the alignment with the MoU? (Low, medium, high)	Open + low medium high
Closing/Feedback to us		
16.	Do you see more interest created toward circular bioeconomy among your key stakeholders or in general in your country? Will you continue engaging with or promoting the bioeconomy topic in your future work?	
17.	After the project ends, do you know who will take the <u>role of coordinator</u>? /Is there a clear coordinator for the hub to move forward? Who? (please include the type of organisation) Why do you think this organisation is a good fit to run the bioeconomy hub in the future?*	Yes/No + Clarification
18.	How would you describe the <u>support you received from the project</u> in terms of setting up and running the hub? How about WP3 specifically? Are you satisfied with the WP3 workshops, bilateral as well as group meetings? What can be improved in the future?*	Open

* These questions are directly related to the evaluation framework and based on the WP3 objectives

** These questions are additional evaluation questions that are not directly linked to the framework but still make sense to add based on the project developments in WP3 as a direct feedback mechanism for us and the commission.

Bold questions are key questions and should be prioritised while regular formatting includes the questions that don't need to be included in case there is no time

Annex 3

CEE2ACT Anonymised and aggregated participant information from three workshop series (2023 - 2025)

This data is derived by the participant lists of the workshops organised by the ten NBHs. Country data can be found in the succeeding sections. The stakeholder groups participating in the workshops were categorised as follows:

1. Policy stakeholders:

This category includes public sector entities involved in policymaking, regulation, or the delivery of government services. It encompasses:

- National, regional, and local government bodies
- Ministries and public agencies
- Regulatory authorities
- State-owned enterprises and public utilities (unless fully privatised)
- Government-led development or advisory programs

2. Private Sector

This category covers profit-oriented businesses and business-facing organisations. It includes:

- Small and medium-sized enterprises (SMEs)
- Large companies and multinational corporations
- Startups and entrepreneurs
- Industry and trade associations
- Chambers of commerce
- Private consultancies and business incubators

3. Academia & Research

This category includes institutions and individuals involved in knowledge production, education, and research. It comprises:

- Universities and higher education institutions
- Public and private research institutes
- Think tanks
- Academic researchers and technical experts

4. NGOs

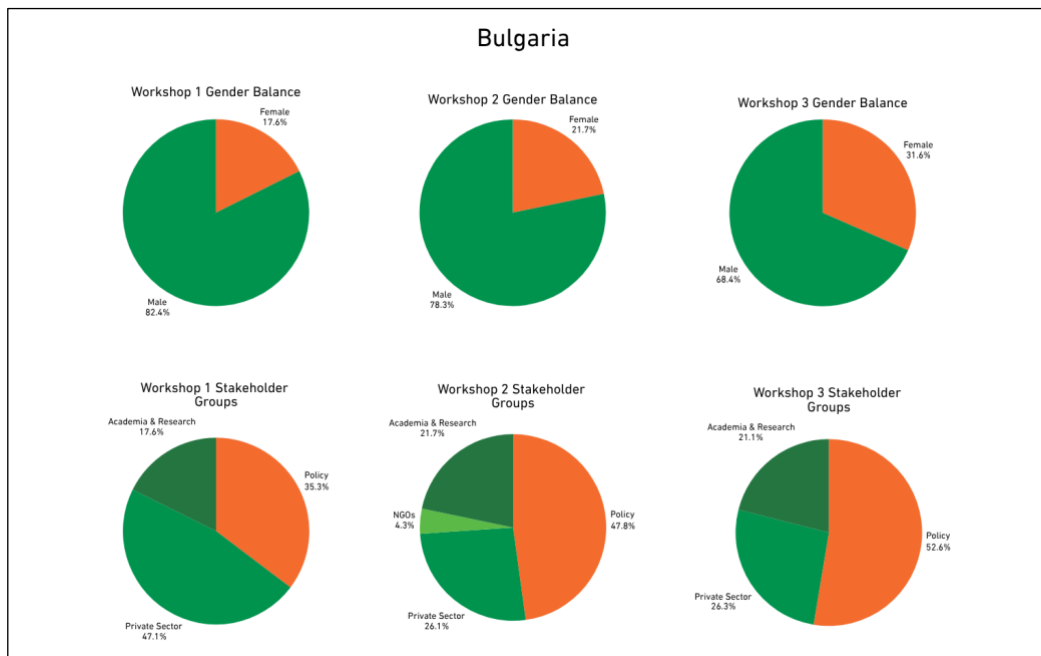
This category includes non-profit, non-governmental organisations working in areas such as advocacy, service delivery, capacity building, and community development. It includes:

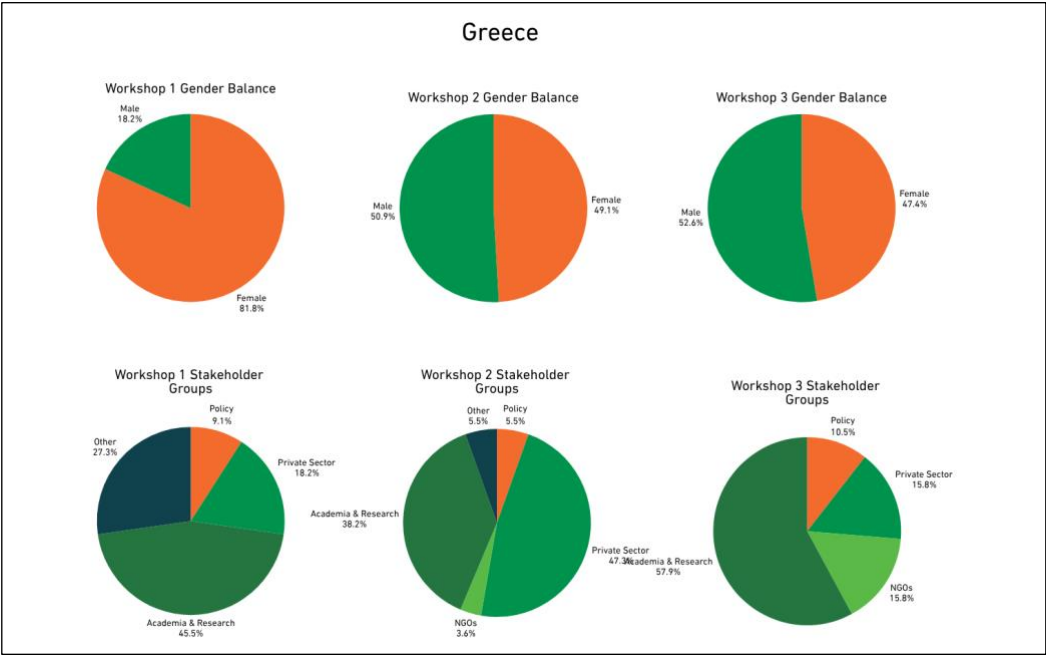
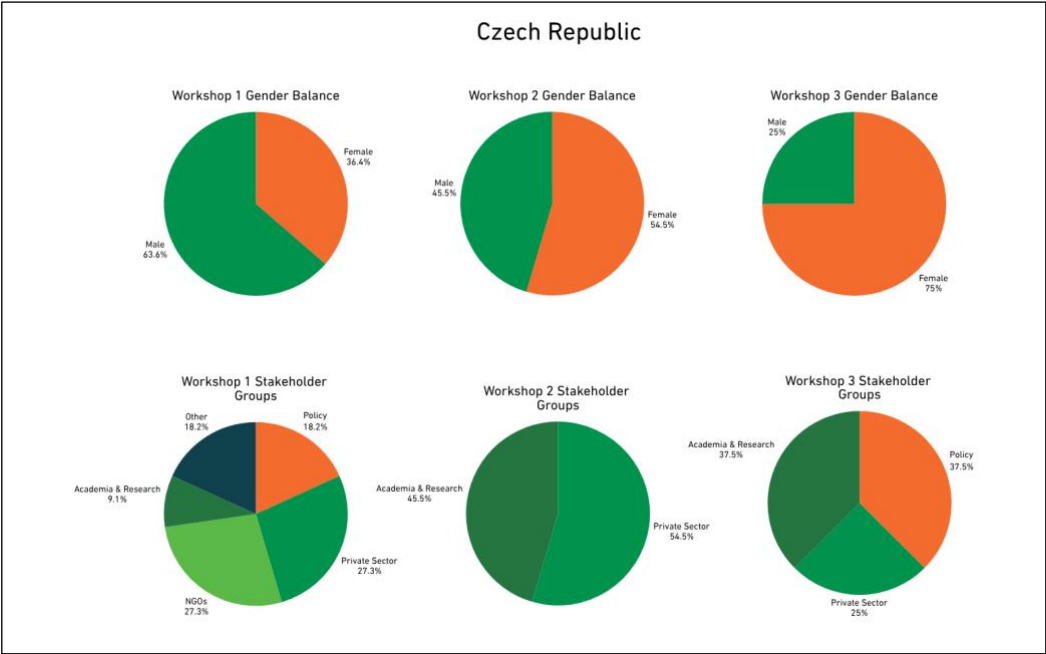
- Civil society organisations
- Foundations and charitable organisations
- Community-based organisations
- International and national NGOs

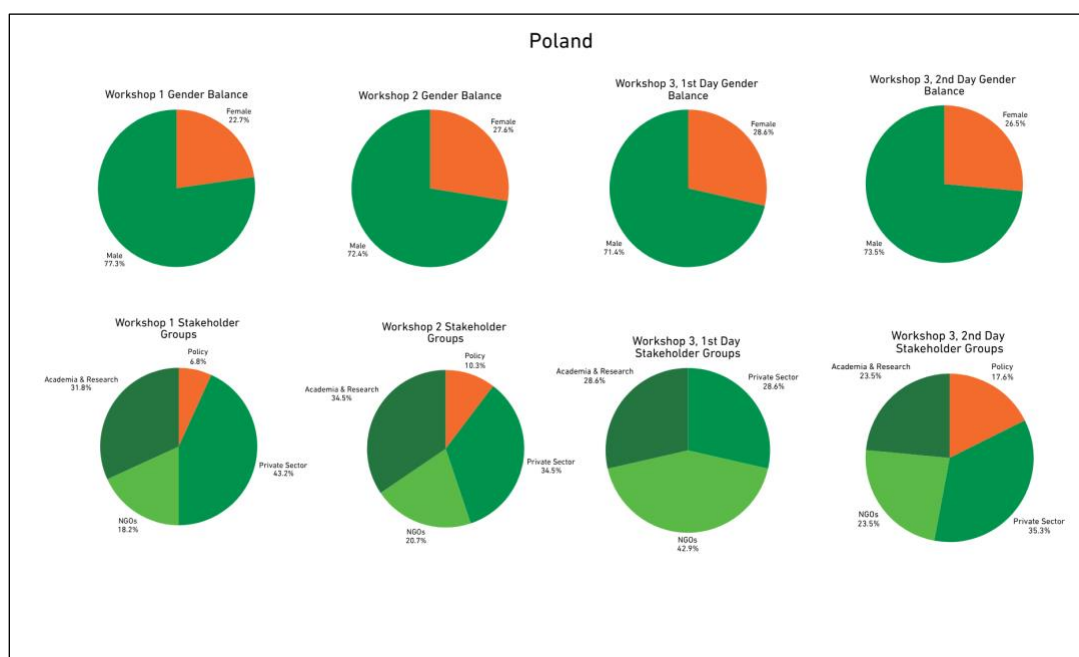
Other

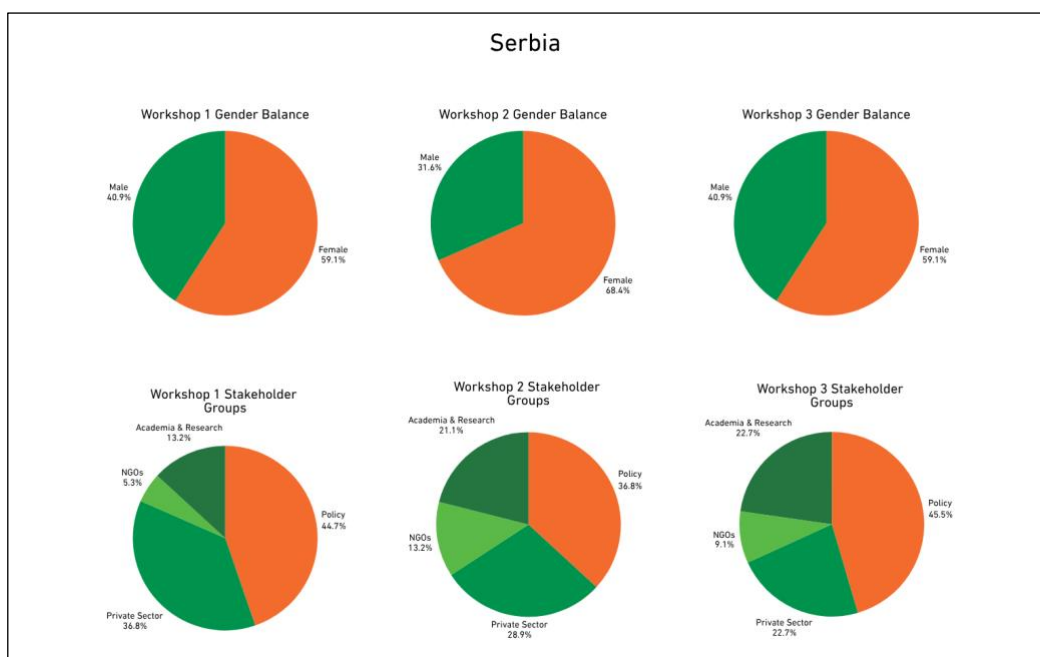
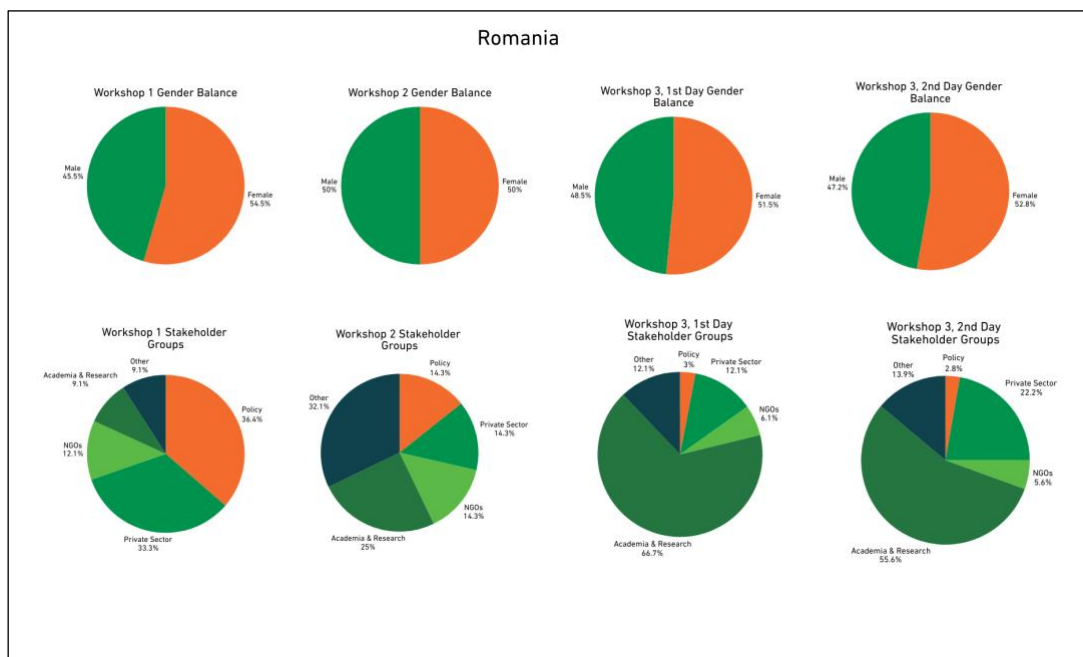
This category includes stakeholders who did not clearly fall into one of the four categories — for example, multi-actor platforms, international organisations, or hybrid entities.

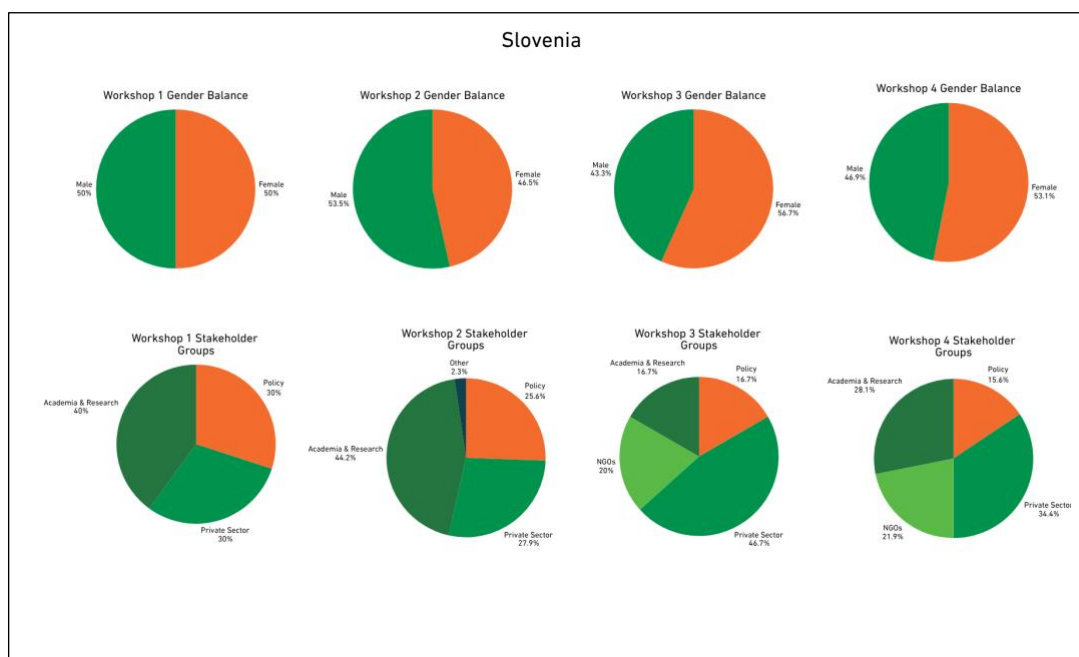
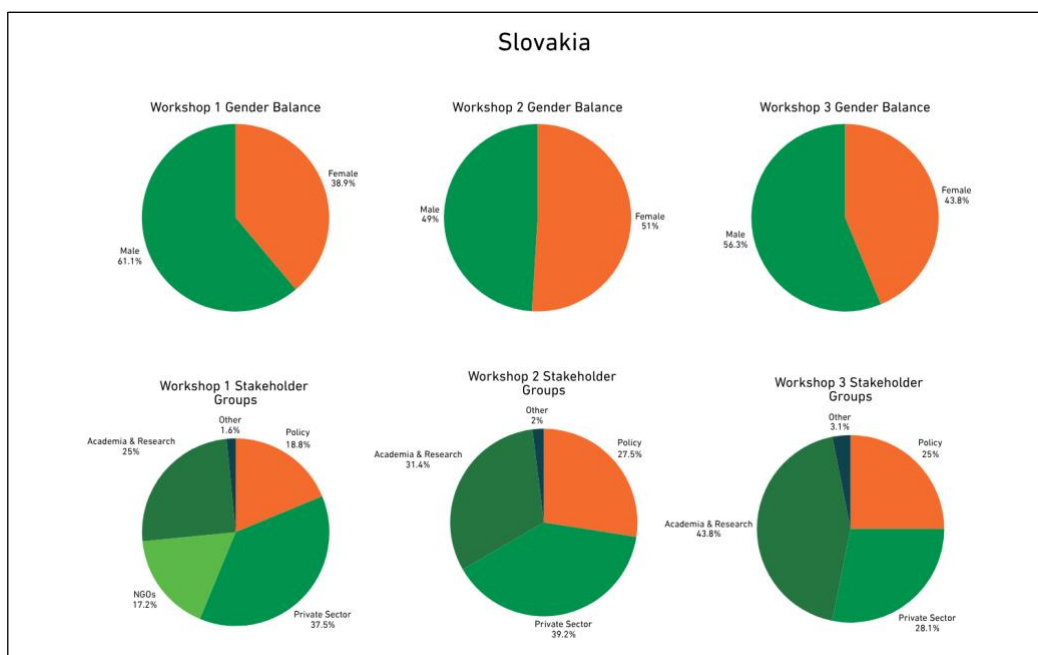
Note: stakeholders as clusters or forums were categorised according to their primary focus where possible, or placed in the “other” category. No responses were received from Croatian stakeholders.







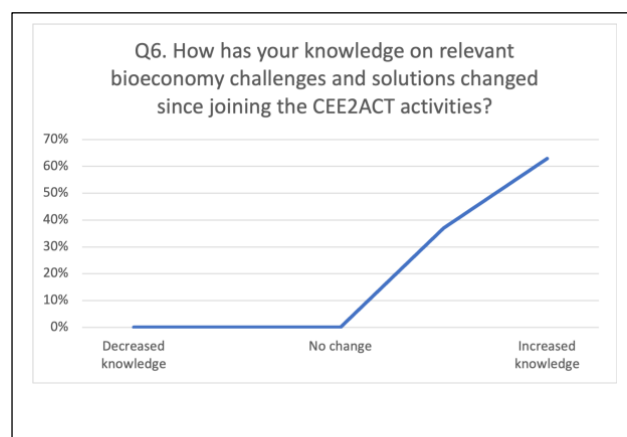
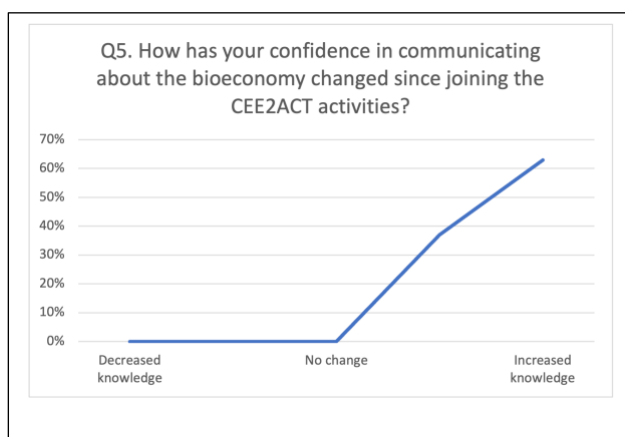
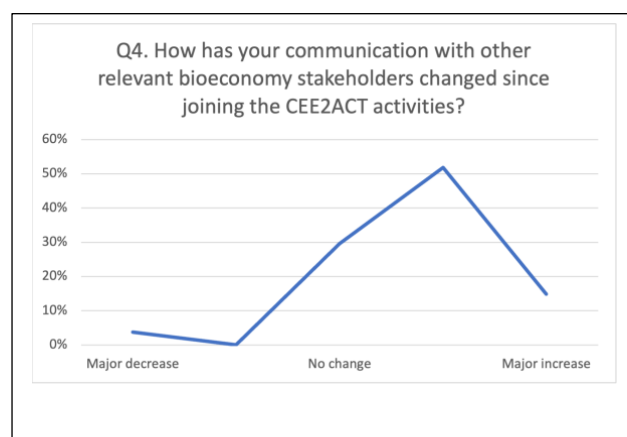
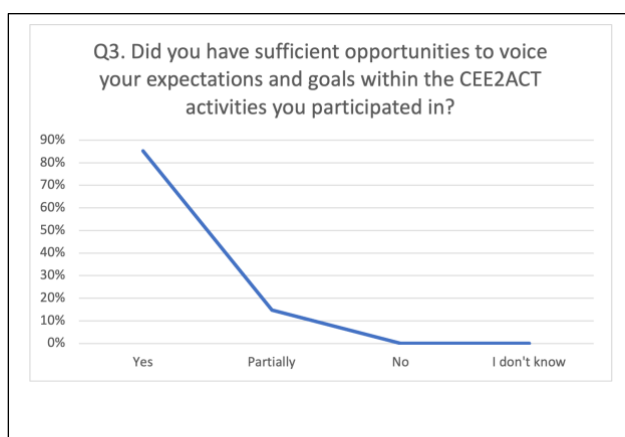
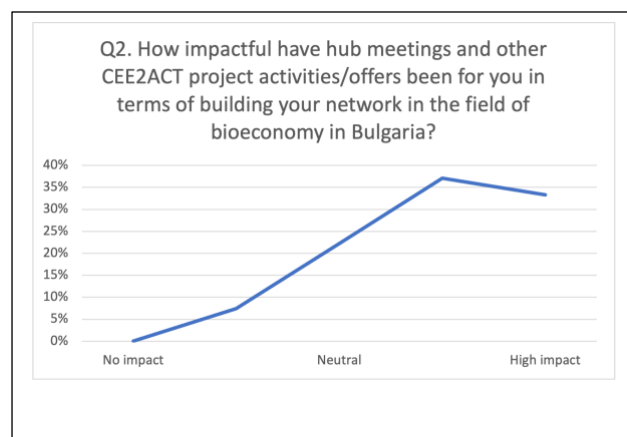
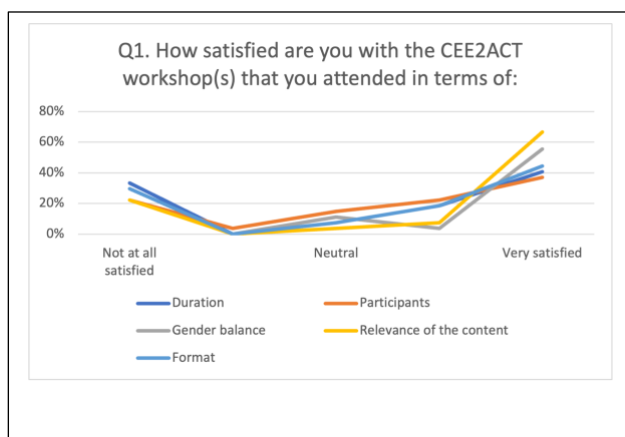


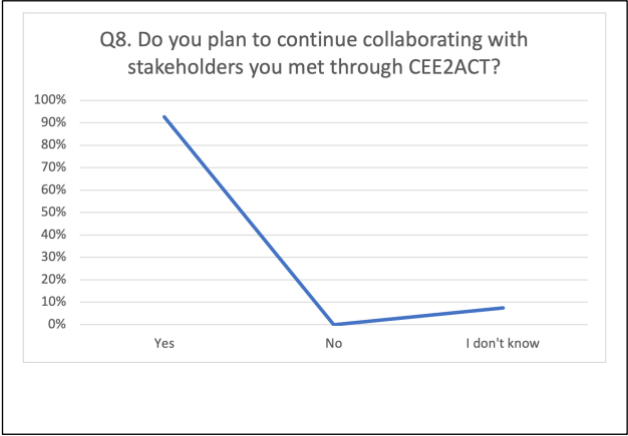
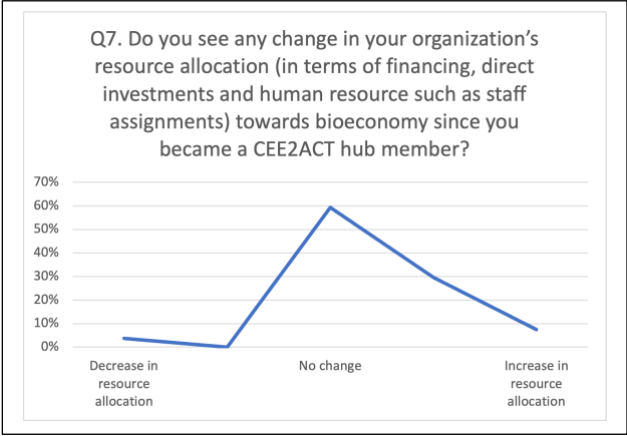


Annex 4

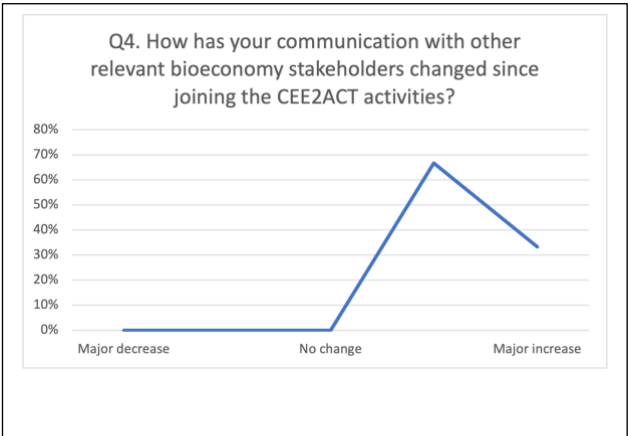
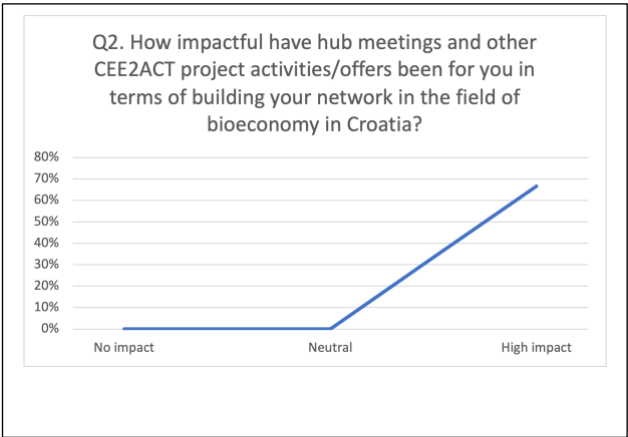
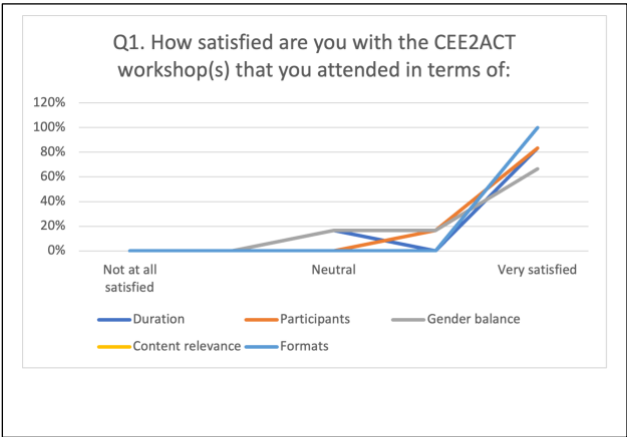
Results of hub surveys at CEE2ACT third workshop in Spring 2025

Bulgaria

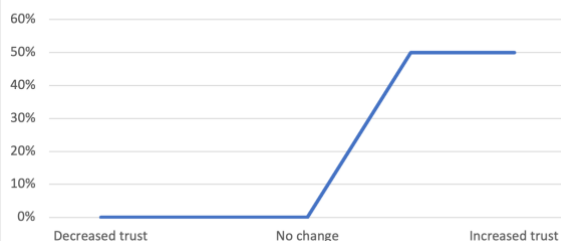




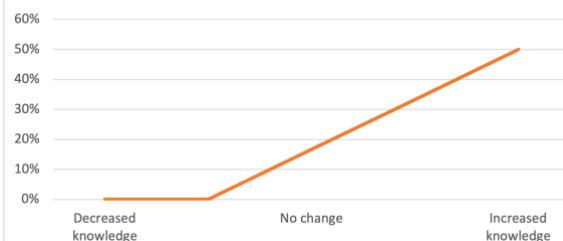
Croatia



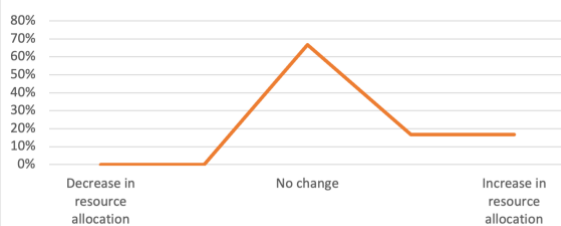
Q5. How has your confidence in communicating about the bioeconomy changed since joining the CEE2ACT activities?



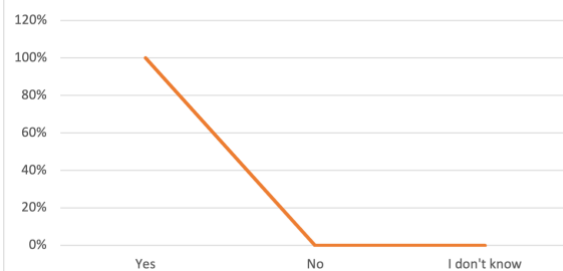
Q6. How has your knowledge on relevant bioeconomy challenges and solutions changed since joining the CEE2ACT activities?



Q7. Do you see any change in your organization's resource allocation (in terms of financing, direct investments and human resource such as staff assignments) towards bioeconomy since you became a CEE2ACT hub member?

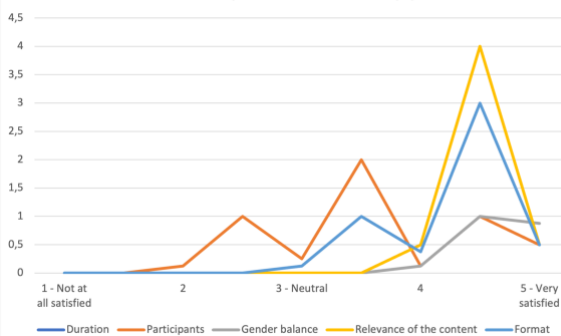


Q8. Do you plan to continue collaborating with stakeholders you met through CEE2ACT?

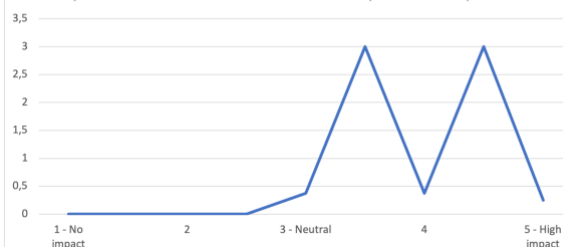


Czech Republic

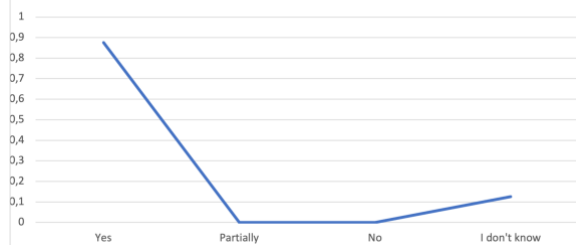
Q1. How satisfied are you with the workshop you attended?



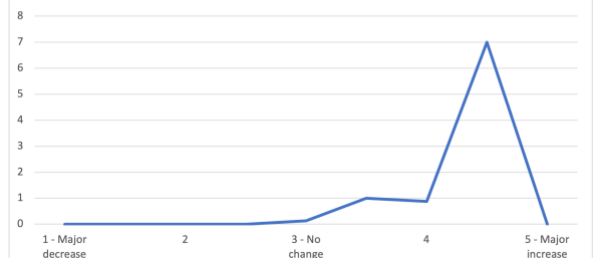
Q2. How impactful have hub meetings and other CEE2ACT project activities/offers been for you in terms of building your network in the field of bioeconomy in Czech Republic?



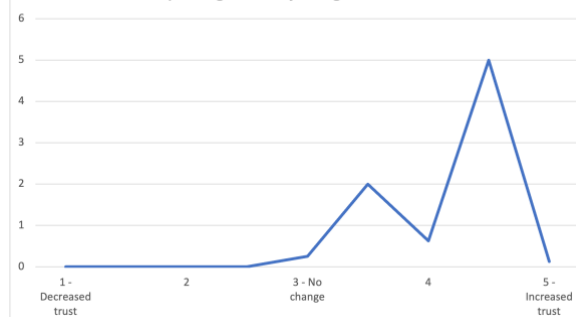
Q3. Did you have sufficient opportunities to voice your expectations and goals within the CEE2ACT activities you participated in?



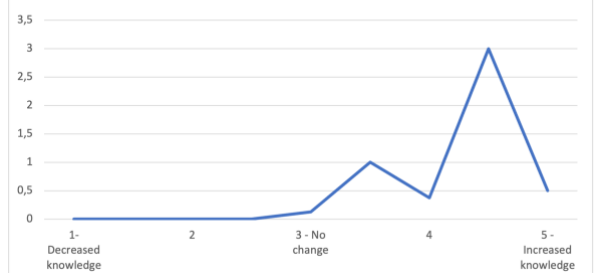
Q4. How has your communication with other relevant bioeconomy stakeholders changed since joining the CEE2ACT activities?



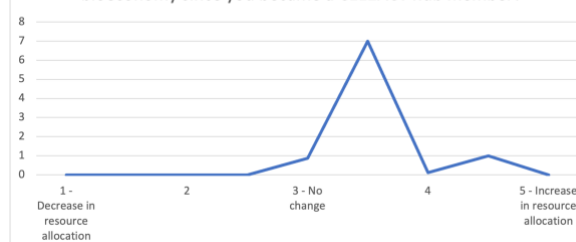
Q5. How has your confidence in communicating about the bioeconomy changed since joining the CEE2ACT activities?



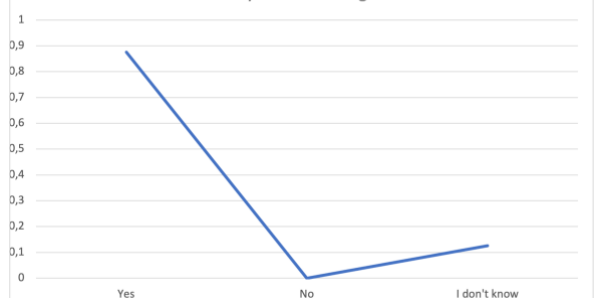
Q6. How has your knowledge on relevant bioeconomy challenges and solutions changed since joining the CEE2ACT activities?



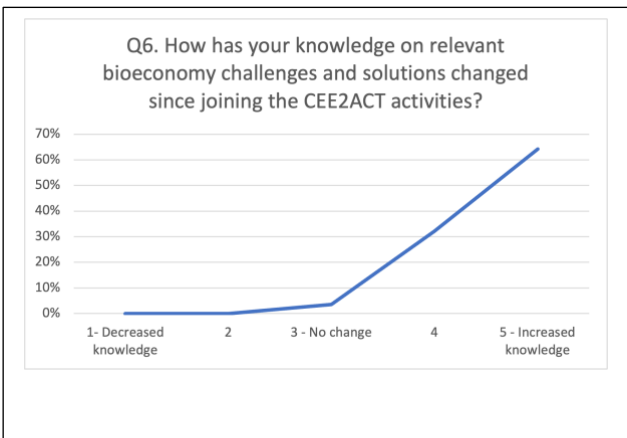
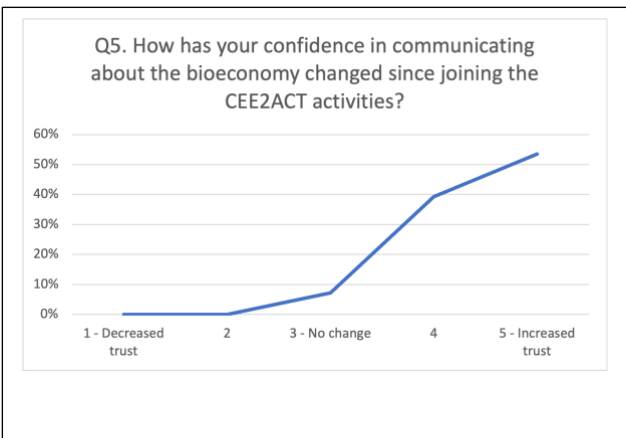
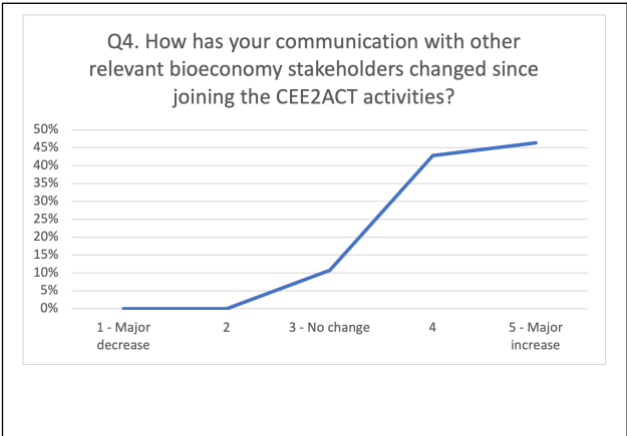
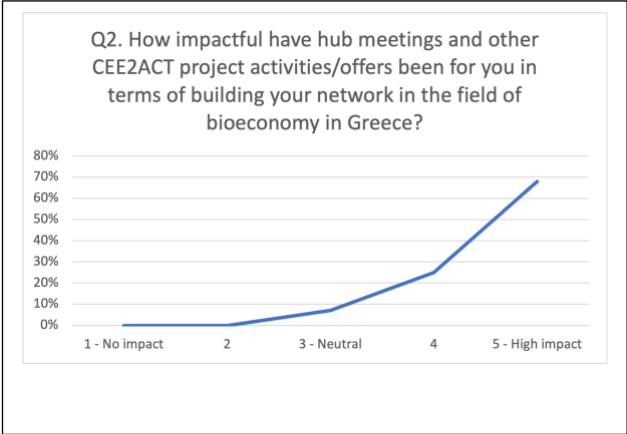
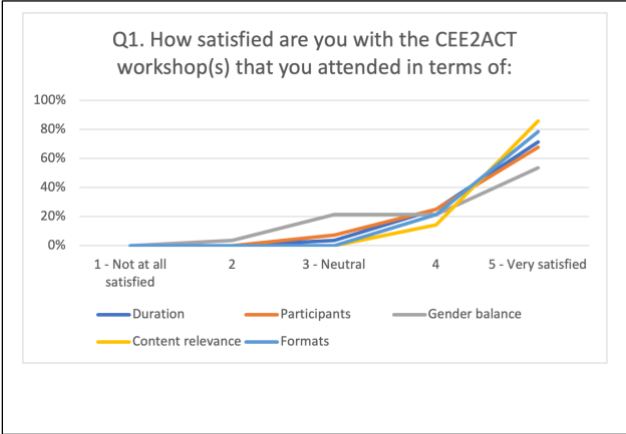
Q7. Do you see any change in your organization's resource allocation (in terms of financing, direct investments and human resource such as staff assignments) towards bioeconomy since you became a CEE2ACT hub member?

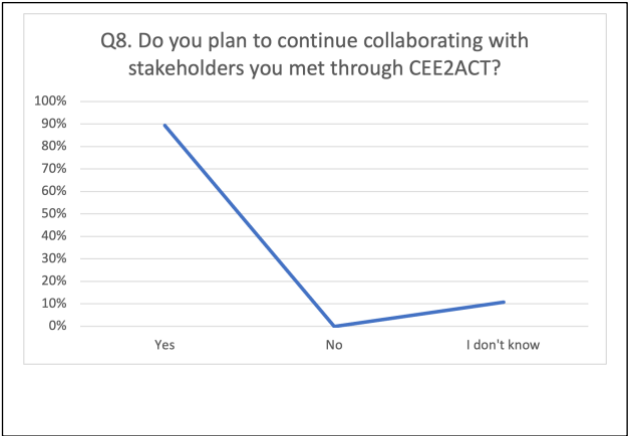
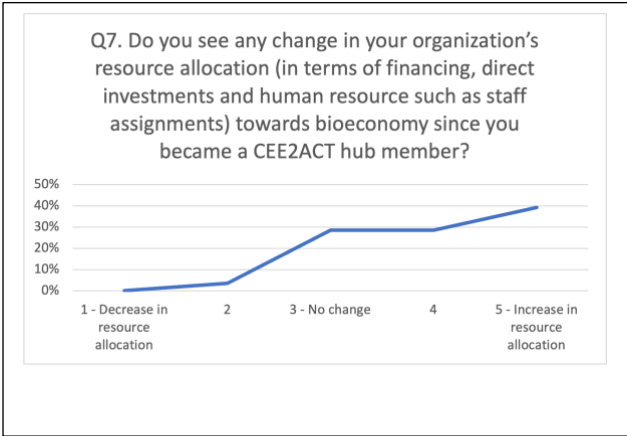


Q8. Do you plan to continue collaborating with stakeholders you met through CEE2ACT?

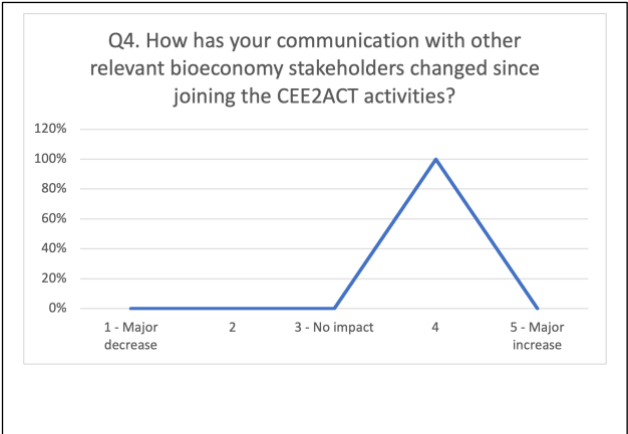
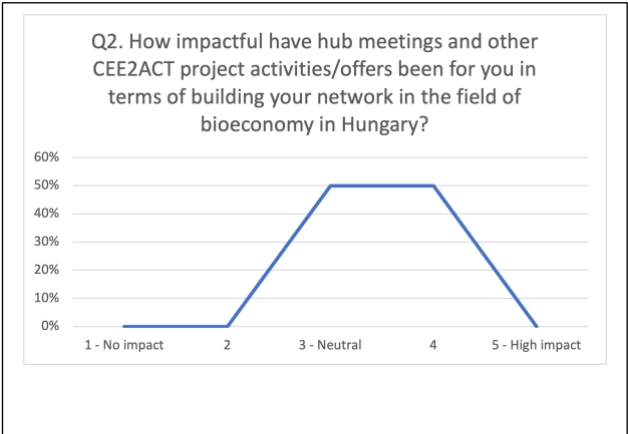
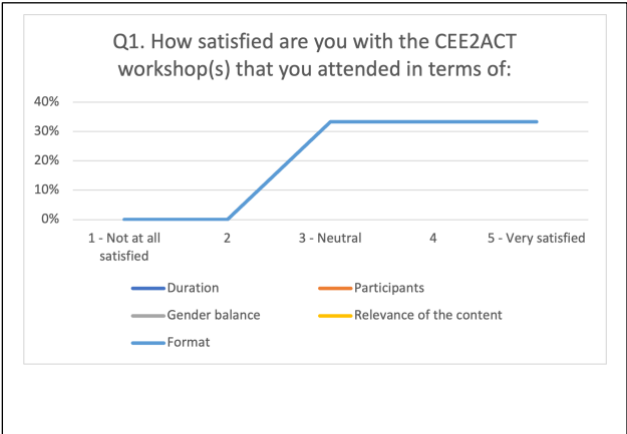


Greece

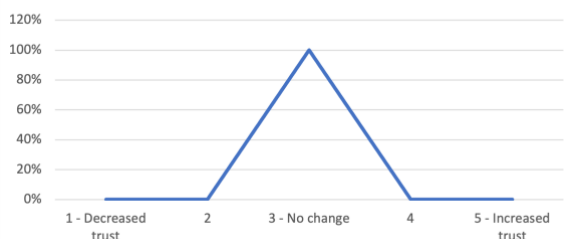




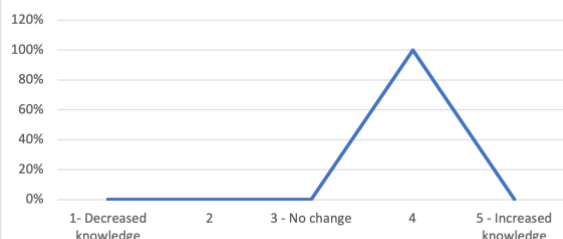
Hungary



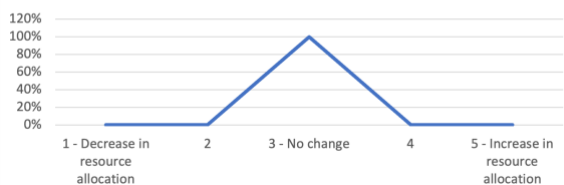
Q5. How has your confidence in communicating about the bioeconomy changed since joining the CEE2ACT activities?



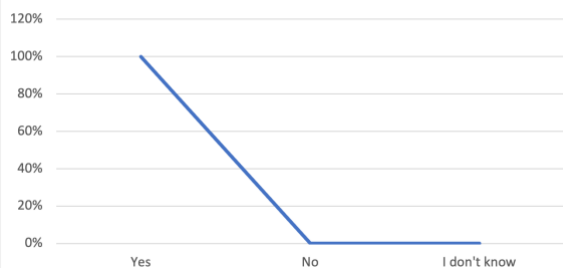
Q6. How has your knowledge on relevant bioeconomy challenges and solutions changed since joining the CEE2ACT activities?



Q7. Do you see any change in your organization's resource allocation (in terms of financing, direct investments and human resource such as staff assignments) towards bioeconomy since you became a CEE2ACT hub member?

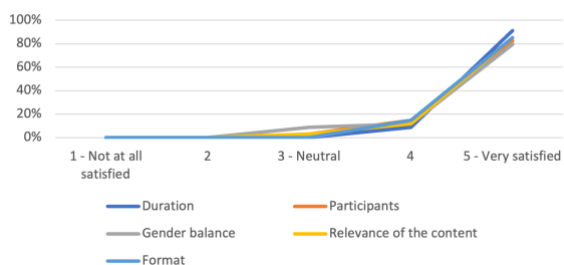


Q8. Do you plan to continue collaborating with stakeholders you met through CEE2ACT?

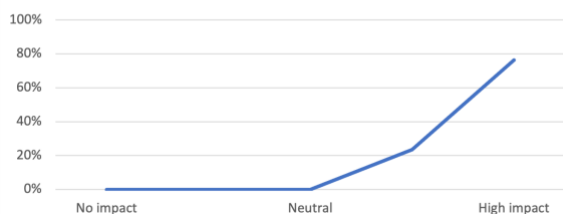


Romania

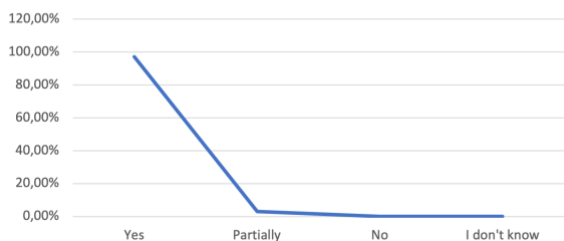
Q1. How satisfied are you with the workshop you attended in terms of:



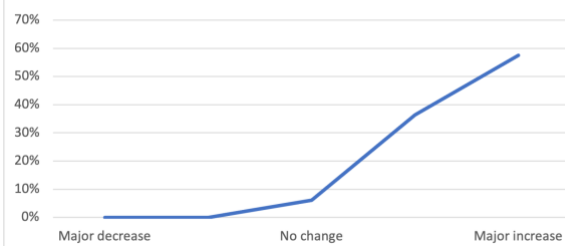
Q2. How impactful have hub meetings and other CEE2ACT project activities/offers been for you in terms of building your network in the field of bioeconomy in Romania?



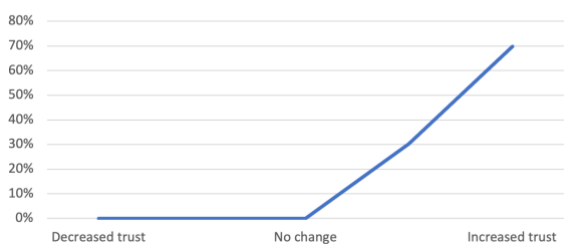
Q3. Did you have sufficient opportunities to voice your expectations and goals within the CEE2ACT activities you participated in?



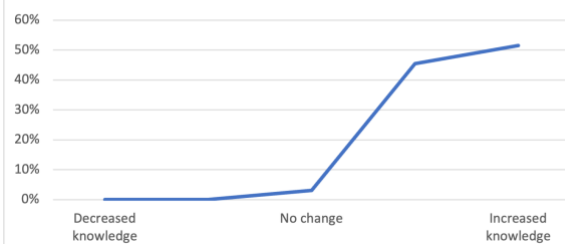
Q4. How has your communication with other relevant bioeconomy stakeholders changed since joining the CEE2ACT activities?



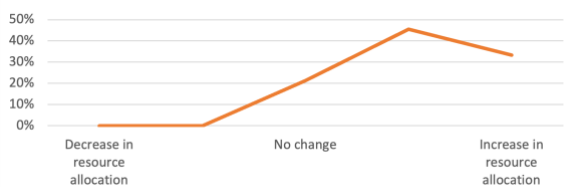
Q5. How has your confidence in communicating about the bioeconomy changed since joining the CEE2ACT activities?



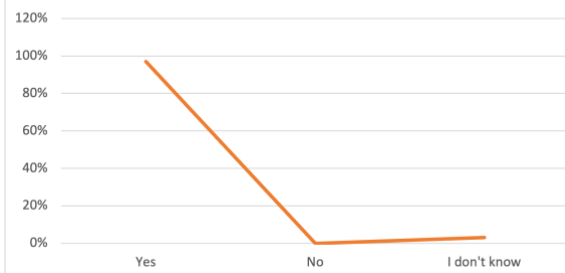
Q6. How has your knowledge on relevant bioeconomy challenges and solutions changed since joining the CEE2ACT activities?



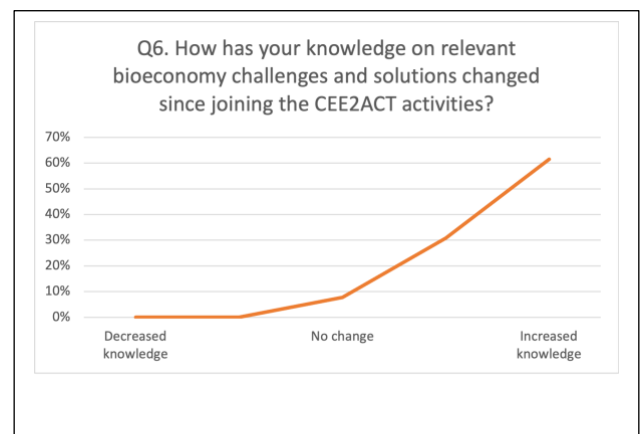
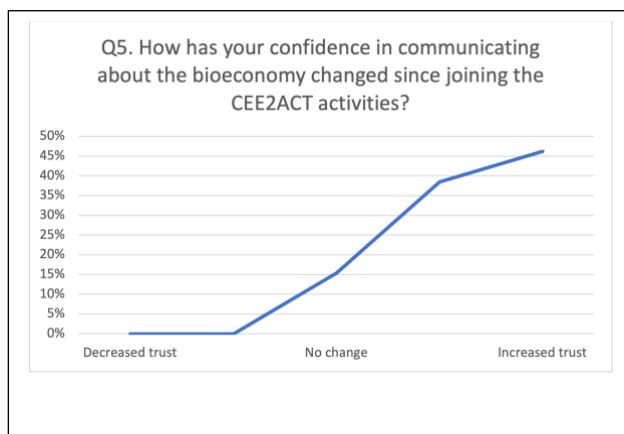
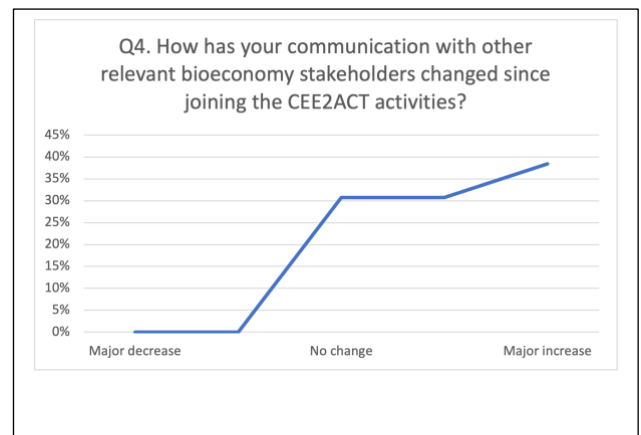
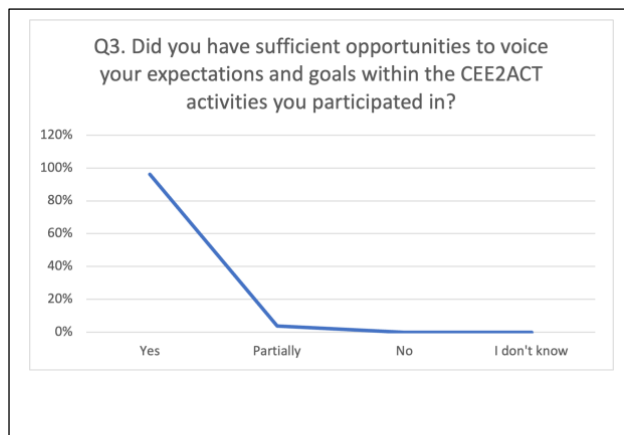
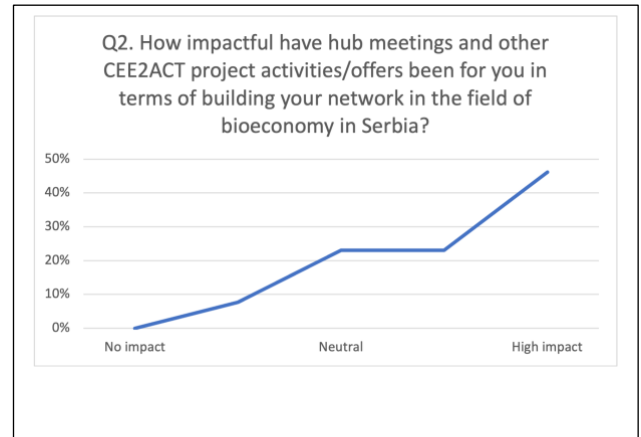
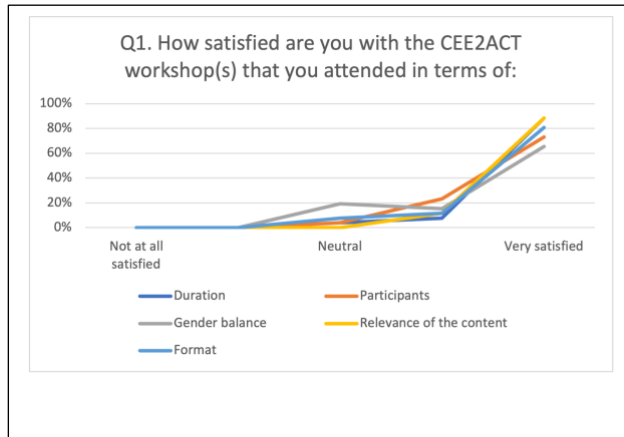
Q7. Do you see any change in your organization's resource allocation (in terms of financing, direct investments and human resource such as staff assignments) towards bioeconomy since you became a CEE2ACT hub member?



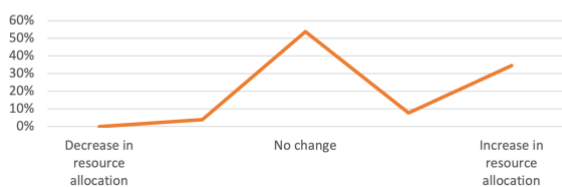
Q8. Do you plan to continue collaborating with stakeholders you met through CEE2ACT?



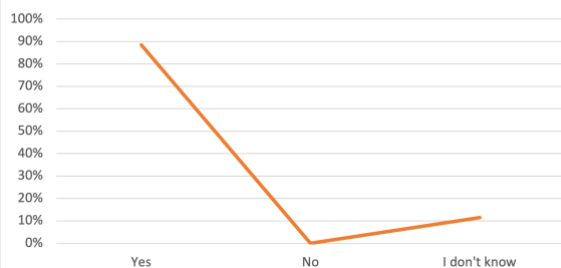
Serbia



Q7. Do you see any change in your organization's resource allocation (in terms of financing, direct investments and human resource such as staff assignments) towards bioeconomy since you became a CEE2ACT hub member?

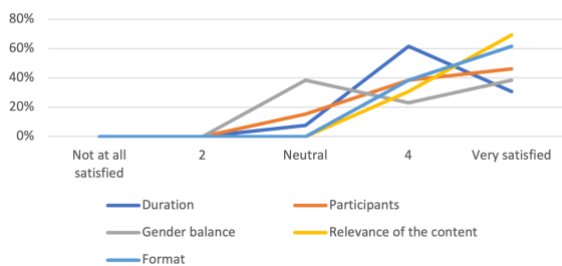


Q8. Do you plan to continue collaborating with stakeholders you met through CEE2ACT?

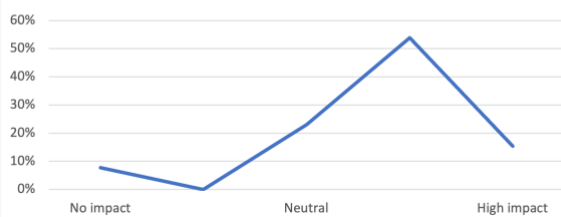


Slovakia

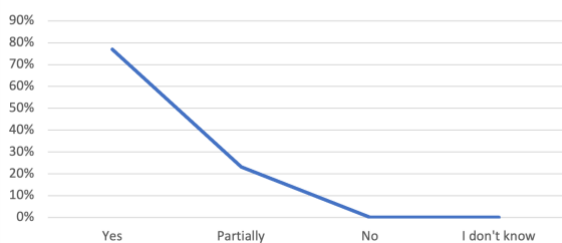
Q1. How satisfied are you with the CEE2ACT workshop(s) that you attended in terms of:



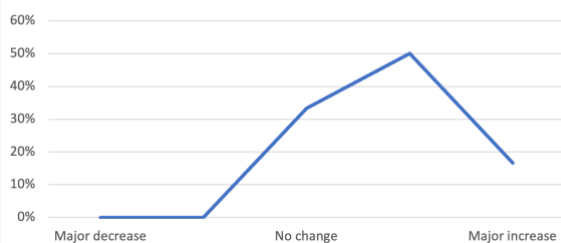
Q2. How impactful have hub meetings and other CEE2ACT project activities/offers been for you in terms of building your network in the field of bioeconomy in Slovakia?

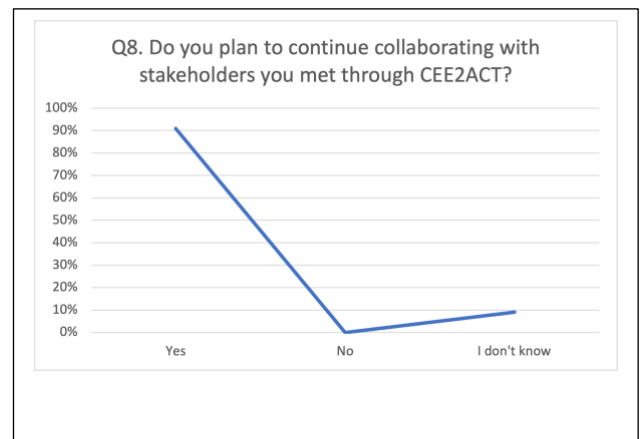
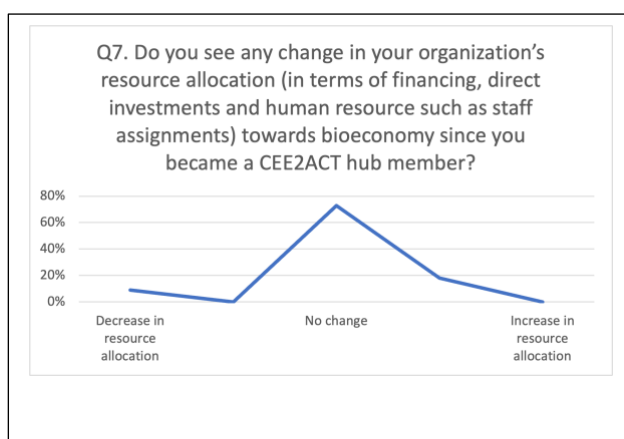
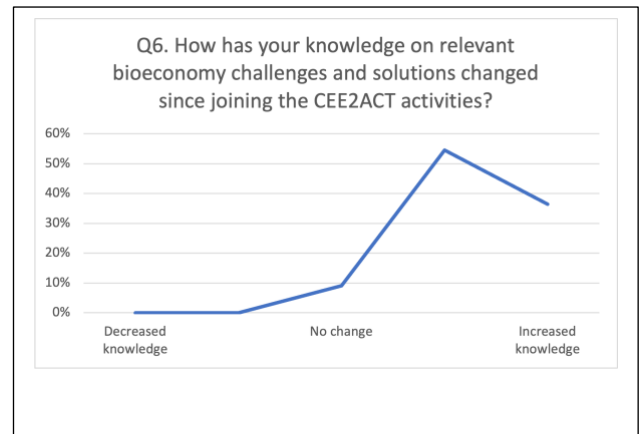
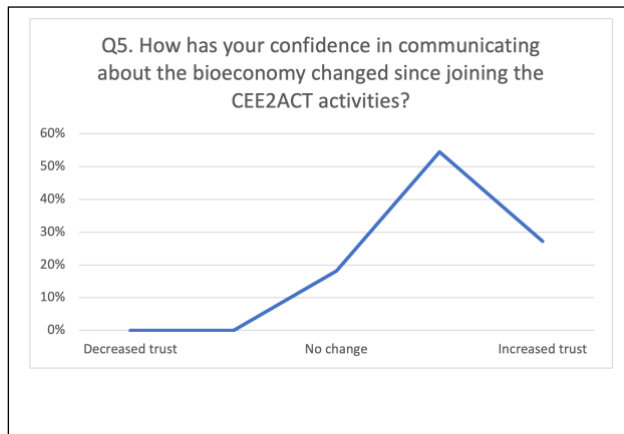


Q3. Did you have sufficient opportunities to voice your expectations and goals within the CEE2ACT activities you participated in?

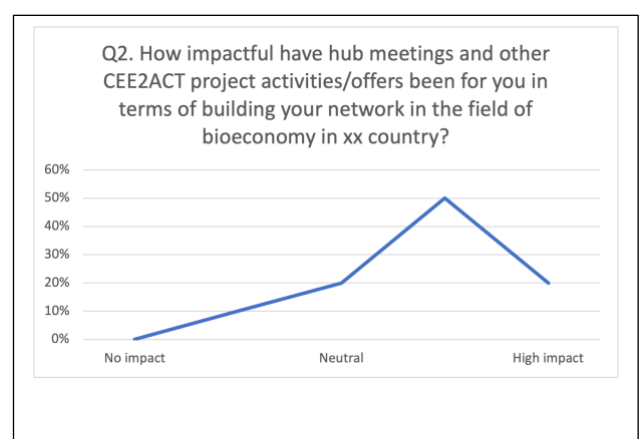
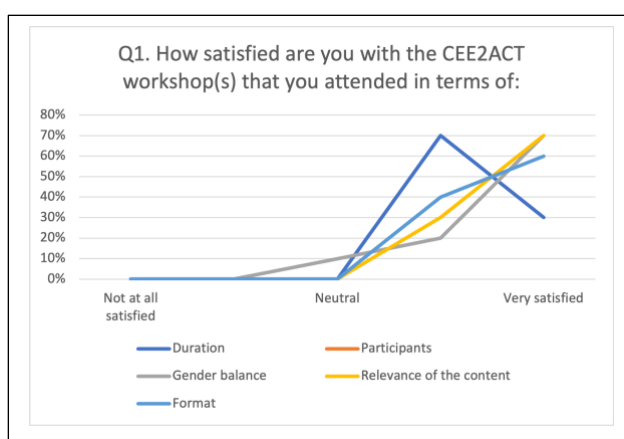


Q4. How has your communication with other relevant bioeconomy stakeholders changed since joining the CEE2ACT activities?

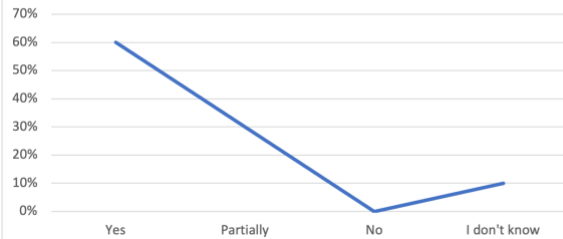




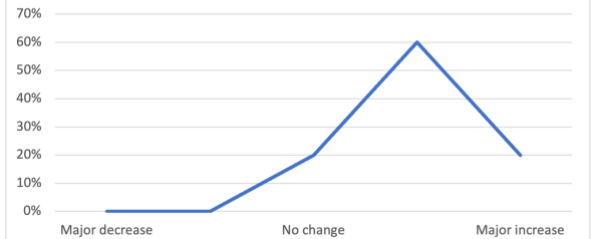
Slovenia



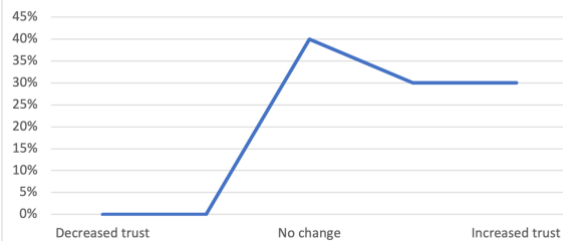
Q3. Did you have sufficient opportunities to voice your expectations and goals within the CEE2ACT activities you participated in?



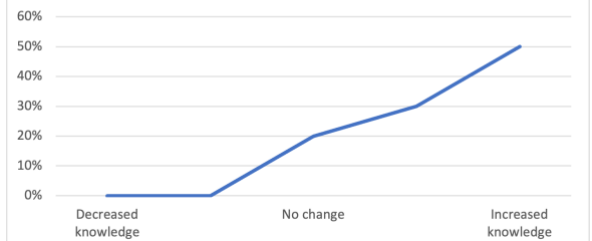
Q4. How has your communication with other relevant bioeconomy stakeholders changed since joining the CEE2ACT activities?



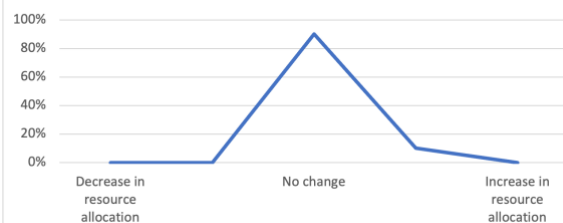
Q5. How has your confidence in communicating about the bioeconomy changed since joining the CEE2ACT activities?



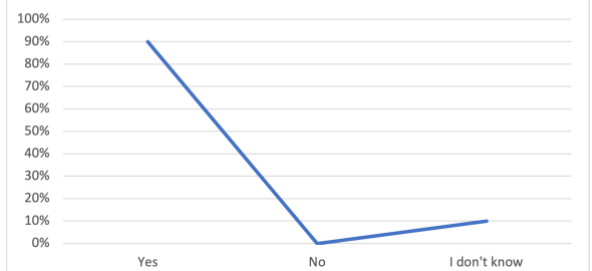
Q6. How has your knowledge on relevant bioeconomy challenges and solutions changed since joining the CEE2ACT activities?



Q7. Do you see any change in your organization's resource allocation (in terms of financing, direct investments and human resource such as staff assignments) towards bioeconomy since you became a CEE2ACT hub member?



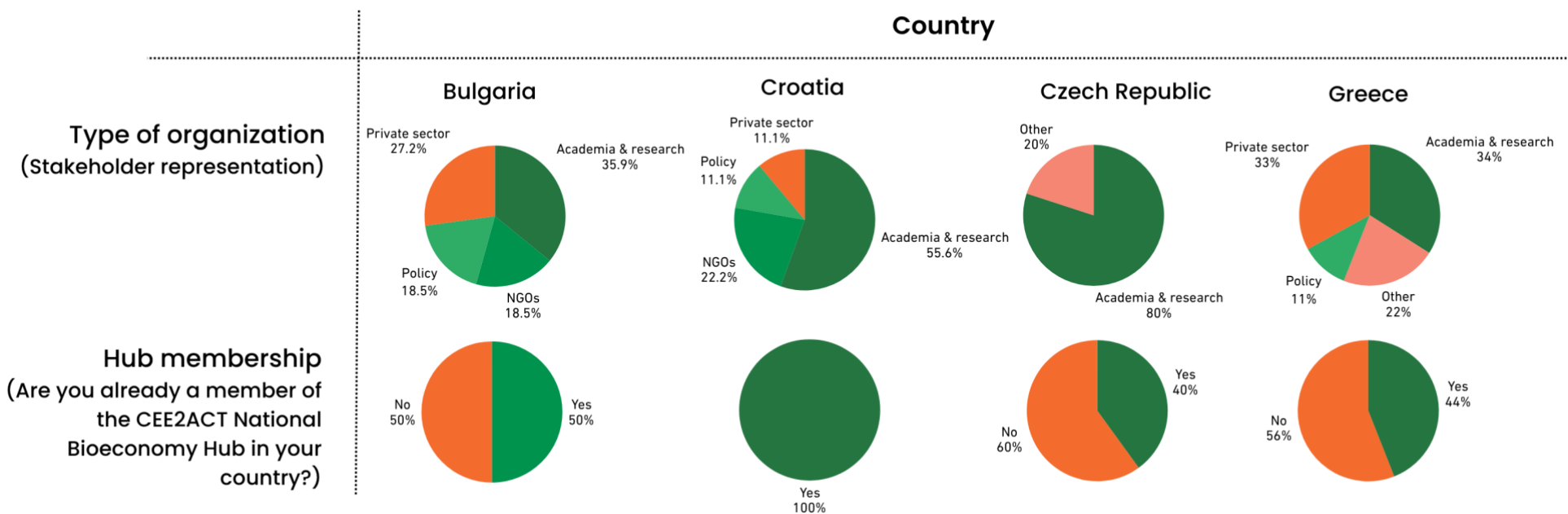
Q8. Do you plan to continue collaborating with stakeholders you met through CEE2ACT?



Annex 5

Results of hub surveys at CEE2ACT second workshop series in 2024 on type of organisations and self-reported hub membership

CEE2ACT Hub Second Workshop Survey 2024



Data source: WP5 | Wageningen University and Research
Illustration by WP3 | CSCP

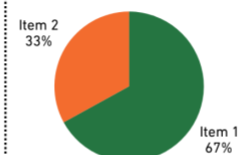
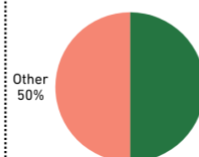
CEE2ACT Hub Second Workshop Survey 2024 (contd.)

Country

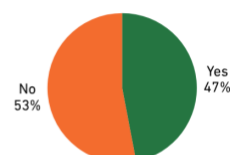
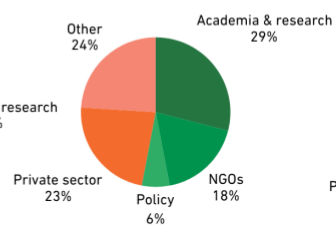
Type of organization
(Stakeholder representation)

Hub membership
(Are you already a member of
the CEE2ACT National
Bioeconomy Hub in your
country?)

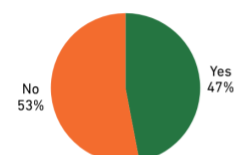
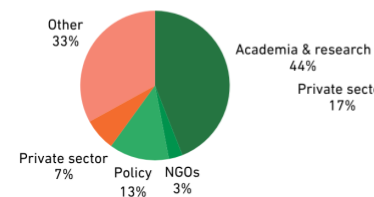
Hungary



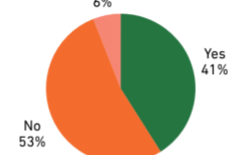
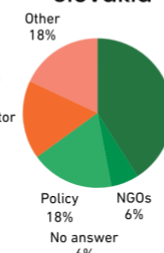
Romania



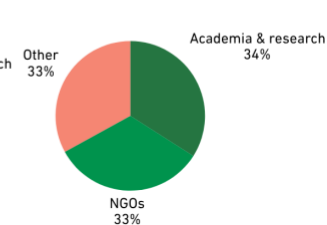
Serbia



Slovakia



Slovenia



Data source: WP5 | Wageningen University and Research
Illustration by WP3 | CSCP



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the European Union

CEE2ACT began in September 2022 and will run for 3 years.
The project is coordinated by Geonardo Environmental Technologies,
which is based in Budapest, Hungary.

Partners



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CEE2ACT Project



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