Learning Communities and sectoral Advisory Boards established for 5 intensive place-based and 6 extensive sector-based case studies

Deliverable number: D3.1

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PLANET4B

BETTER DECISIONS FOR BIODIVERSITY AND PEOPLE

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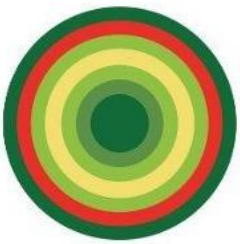

PLANET4B

BETTER DECISIONS FOR BIODIVERSITY AND PEOPLE

Key deliverable information

Project acronym	**PLANET4B**
Project title	understanding Plural values, intersectionality, Leverage points, Attitudes, Norms, behaviour and social lEarning in Transformation for Biodiversity decision making
Starting date	01st November 2022
Duration	36 months
Website	https://planet4b.eu/
Project coordination and scientific lead team	Ilkhom Soliev; Alex Franklin; Agnes Zolyomi; Torsten Wähler

Deliverable number	**D3.1**
Deliverable title	Learning Communities and sectoral Advisory Boards established for 5 intensive place-based and 6 extensive sector-based case studies
Task leader	Radboud University (RU)
Dissemination level	Public
Status	Final

Deliverable description

The deliverable includes a report on the establishment of 5 intensive place-based and 6 extensive sector-based cases including main stakeholders participating and an analysis of key systems and their leverage points for intervention to unlock transformation.

Version	**Status**	**Date**	**Authors/Reviewers**
0.1	Draft	09/11/23	Authors: Vinícius Mendes (RU); Eszter Kelemen (ESSRG); Cristina Y. A. Inoue (RU); Alexander Engen Aas-Hanssen (OOF); David Barton (NINA); Reidun Bolsø (OOF); Marta Bonetti (UNIPI); Yennie K. Bredin (NINA); Geraldine Brown (CU); Gianluca Brunori (UNIPI); Maryna Bykova (CGE); Rafal P. Chudy (NINA); Kármen Czett (ESSRG); Helene Figari (NINA); Alex Franklin (CU); Roberto Gronda (UNIPI); Vegard Gundersen (NINA); Robert Home (FiBL); Johan Hval (OOF); Sandra Karner (IFZ); Giacomo Lampredi (UNIPI); Borbála Lipka (ESSRG); Geeta Ludhra (DC); Subash Ludhra (DC); Andreas Motschiunig (FuG); Pedro Navarro Gambin (UNIPI); György Pataki (ESSRG); Ammalia Podlaszewska (CGE); Ghezal Sabir (FiBL); Zafar Saydaliev (CGE); Ilkhom Soliev (MLU); David Steinwender

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List of abbreviations and acronyms

Acronym	Definition
CG	CzechGlobe – Global Change Research Institute of the Czech Academy of Sciences
CGE	Culture Goes Europe
CLD	Causal Loop Diagram
CSDDD	Corporate Sustainability Due Diligence Directive
CU	Coventry University
DC	Dadima's CIC.
ESG	Environmental, Social, and Governance
ESSRG	Environmental Social Science Research Group
EUDR	European Union Deforestation Regulation
FiBL	Research Institute of Organic Agriculture
FuG	Forum Urban Gardening
IFZ	Interdisciplinary Research Centre for Technology, Work and Culture
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
KLP	Kommunal Landspensjonskasse Gjensidig Forsikringsselskap (KLP Pension Fund)
KPI	Key Performance Indicator
LC	Learning Community
LO	Learning Objectives
MLU	Martin Luther University Halle-Wittenberg
NINA	Norwegian Institute for Nature Research
OOF	Oslo og Omland Frilfutsråd
PLANET4B	understanding Plural values, intersectionality, Leverage points, Attitudes, Norms, behaviour and social lEarning in Transformation for Biodiversity decision making
RU	Radboud University
SB	Stakeholder Board
SD	System Dynamics
SH	Stakeholder
TNFD	Taskforce on Nature-related Financial Disclosures
UNEP-WCMC	UN Environment Programme World Conservation Monitoring Centre
UNIPI	University of Pisa
Work Package	WP

Table of Contents

Executive summary

- Intensive cases established Learning Communities (LC) and extensive cases set up Stakeholder Boards (SB) to jointly define learning objectives.
- In total, 75 members have been recruited to compose LCs and SBs.
- Participants show diversity in terms of intersectionality, especially gender, age, ethnic groups, and ablism.
- Participants represent all dimensions of the quintuple helix model, although individual LCs/SBs are sometimes skewed towards specific actors.
- Specific learning objectives are being co-defined in all cases through a tailor-made participatory process.

1 Introduction

The challenge of fostering transdisciplinarity in environmental science (Harris and Lyon, 2013), and in particular in biodiversity science, research and policy (Deutsch et al., 2023), has been documented as crucial to tackle global biodiversity loss while improving socio-environmental justice and equity, for humans and non-humans. Transdisciplinarity means building trust across professional cultures (Harris and Lyon, 2013), crossing boundaries between academia and society (business, government, civil society organisations, etc.) (Simon and Schiemer, 2015), enhancing science-policy interfaces by means of research that matters within and beyond university/research institutions' walls (Neßhöver et al., 2013). In PLANET4B, our case studies include place-based and sectoral investigations reaching social-ecological dimensions (Mehring et al., 2017), thus aiming to influence academic, social and policy decision-making towards biodiversity prioritisation and action. In other words, PLANET4B was designed in a research configuration that requires a transdisciplinary approach. However, there is no single pre-defined approach for how to conduct transdisciplinary biodiversity research.

Within PLANET4B Task 3.1 has helped our consortium to address the challenge of transdisciplinarity by supporting our 11 case studies during the process of establishing learning communities (LCs) for five place-based cases, and stakeholder boards (SBs) for six sectoral cases. Each place-based (intensive) case was responsible for building its own LC, whilst each sectoral (extensive) case has put together its own SB.[1] In all remaining stages of PLANET4B, LCs and SBs will collaborate closely with cases during their research, paying attention to the particularities of local communities, sectoral stakeholders, policy actors, business decision-makers, intersectionality dimensions, and vulnerable social groups in varied geographies and economic sectors. The composition of LCs and SBs attends to two simultaneous criteria:

- The quintuple-helix approach (including actors from business, government, environment, academia and third sector/civil society)
- Intersectionality: LCs and SBs include members with varied social identities and backgrounds with regard to: gender, religion, ethnicity, race, age, culture, disability, and others.

[1] It is important to notice that in PLANET4B and in this report we use place-based cases and intensive cases interchangeably. Likewise, extensive cases and sectoral cases are also used interchangeably.

This deliverable (D3.1) aims to document the process of establishing LCs for the five intensive place-based cases, and SBs for the six extensive sectoral cases. Chiefly it includes descriptions of the main stakeholders participating in these boards, as well as the learning objectives for each of the 11 case studies, co-defined with their respective LCs and SBs. More specifically, this report includes: 1) information on the process of setting up LCs and SBs; 2) information on the composition of the LCs and SBs, and to what extent the quintuple-helix and intersectionality principles were met; 3) the learning objectives of each of the 11 case studies; and 4) reflections from the cases on lessons learned until the present moment of the project.

The D3.1 has six parts, including this introduction. Part 2 presents our methodological approach in task 3.1, including the work process for supporting and mentoring cases, facilitating individual and cross-cases meetings, collecting, archiving and analysing information. Part 3 describes the specific processes that fostered the selection and initial approach with LCs and SBs, namely: stakeholder mapping and how the quintuple-helix and intersectionality criteria were (or were not) met. Part 4 presents the main results of the activities conducted in task 3.1, i.e. the composition of LCs, and SBs; the co-defined learning objectives for each case study. Part 5 presents some reflections on the learning outcomes during the Task 3.1 activities. Finally, Part 6 contains the conclusion and next steps, as well as an outlook of the following activities in WP3.

2 Methodological dimensions

This part contains information on the methods applied by the leader of Task 3.1 (V.M. – first author of this deliverable) and the leader of WP3 (E.K. – second author of this deliverable) to steer cases in the period M1-M12 of PLANET4B, in order to help cases conduct a stakeholder mapping exercise, select the members of their LCs and SBs, as well as co-define Learning Objectives (LOs) together with the members of the LCs/SBs.

The Task and WP leaders guided and supported the cases to carry out their own engagement process, coordinated exchange and co-learning between the cases, and carried out the analysis of the reports prepared by the cases. At the same time, the Task and WP leaders themselves were coordinating their specific cases (international trade and awareness raising in public education, respectively), so they themselves could gain insider experience of which approach works and how. This two-way engagement helped the Task and WP leaders to follow a trust-based, inclusive (mentoring-type) leadership. However, the double role of the Task and the WP leaders also raises the risk that some results of the analysis are skewed towards their own experiences. To avoid this bias, all those sections of the deliverable where progress or reflection on individual cases are presented, build exclusively on the summary reports provided by the cases and use their own wording (i.e. the Task and WP leaders let the cases speak for themselves). Furthermore, to make clear the positionality of all authors of this deliverable, the text always refers to “the Task and WP leader” when it explains activities carried out or conclusions drawn by the two first authors, and uses the pronoun “We” when activities, thoughts, and reflection of individual cases are shared.

2.1 Meetings and materials: the trajectory for producing, exchanging, and documenting information in Task 3.1

The work in Task 3.1 aimed at steering cases to reflect deeply about their research goals and processes from the start. In essence, Task 3.1 and WP3 leaders' work in this first year of PLANET4B was based on a series of meetings as well as other activities and materials, as presented below:

- Principles and roadmaps meetings
- Cross-cases meetings
- Individual conversations with cases
- Emails with guidance and mentoring information
- Tailor-made guidance upon cases' requests
- Support for cases to conduct their initial workshops with LCs and SBs

In this subsection, we detail how each of these meetings and materials were developed and applied in PLANET4B in this first year of the project.

In order to kick-off these reflections, in February 2023 we hosted an online meeting on "Principles and roadmaps". In this meeting, we shared with cases our ideas for the collaborative work under Task 3.1. We listened to cases' ideas for improving our suggested *modus operandi* and used such suggestions to improve the process. In this meeting, we presented the five principles for our collaborative work in Task 3.1, as shown in Figure 1. These principles were: engagement, flexibility, reflexivity, teamwork, and transparency. Altogether, these principles aimed to establish a safe, collaborative, and creative space for cases to organise their work internally, to work collaboratively with the other cases (cross-cases dialogues and activities), and with the PLANET4B coordinators, WP and Task leaders.

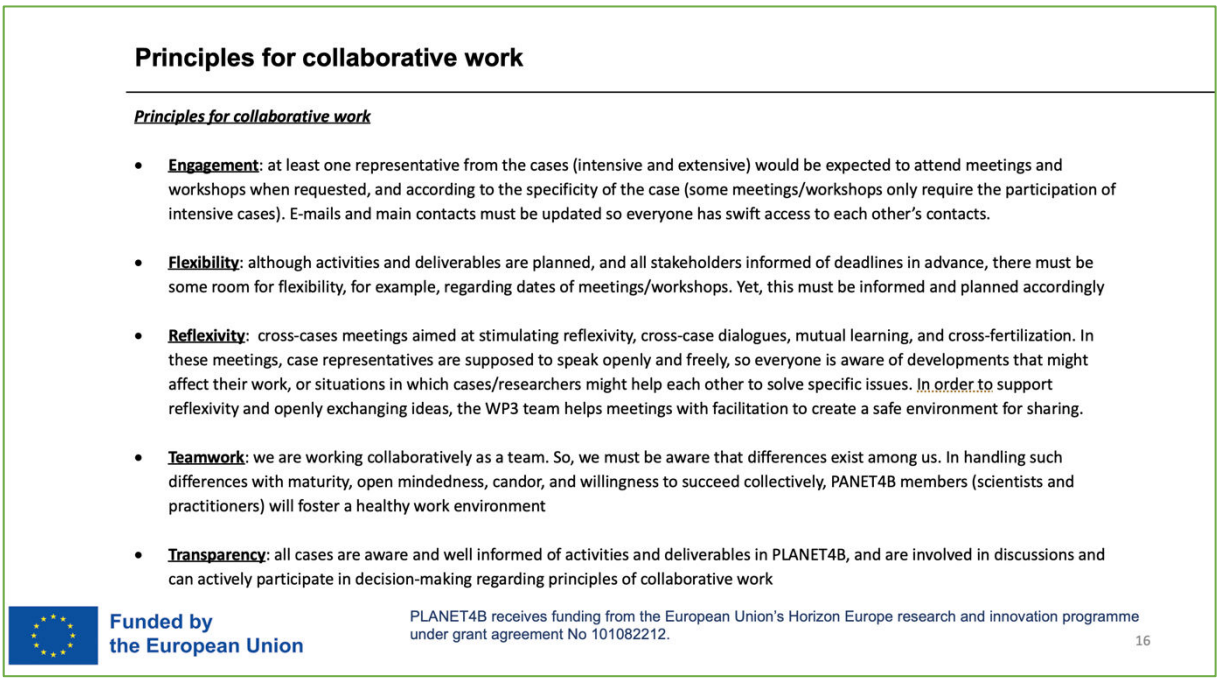

Figure 1. The PLANET4B principles for collaborative work within and among case studies.

In this meeting, we presented two roadmaps, containing all the stages intensive and extensive cases would go through in Year 1 of PLANET4B with regard to their work in WP3/Task 3.1. Figure 2 shows the final version of the roadmap developed for intensive cases, whereas Figure 3 shows the final version of the roadmap developed for extensive cases. The initial versions of the roadmap presented in the meeting went through a process of improvement, to make sure all the comments and suggestions from cases and other participants were considered.

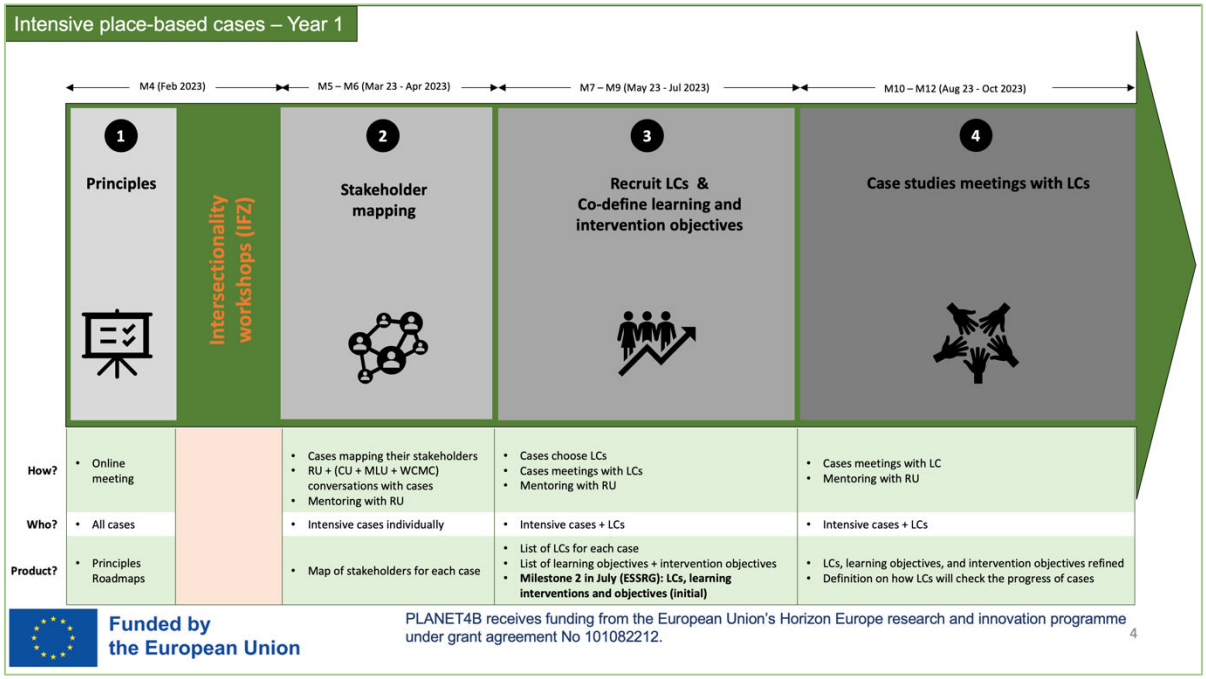

Figure 2. Roadmap with stages of activities for five intensive cases in PLANET4B from M1-M12.

The roadmap illustrated in Figure 2 for intensive cases includes four stages: the principles and roadmaps meeting for us to agree on the activities and work style for Task 3.1, the stage of stakeholder mapping, the subsequent stage of identifying members of LCs and co-defining learning and intervention objectives, and a final stage dedicated to cases meeting with their LCs to refine learning objectives.

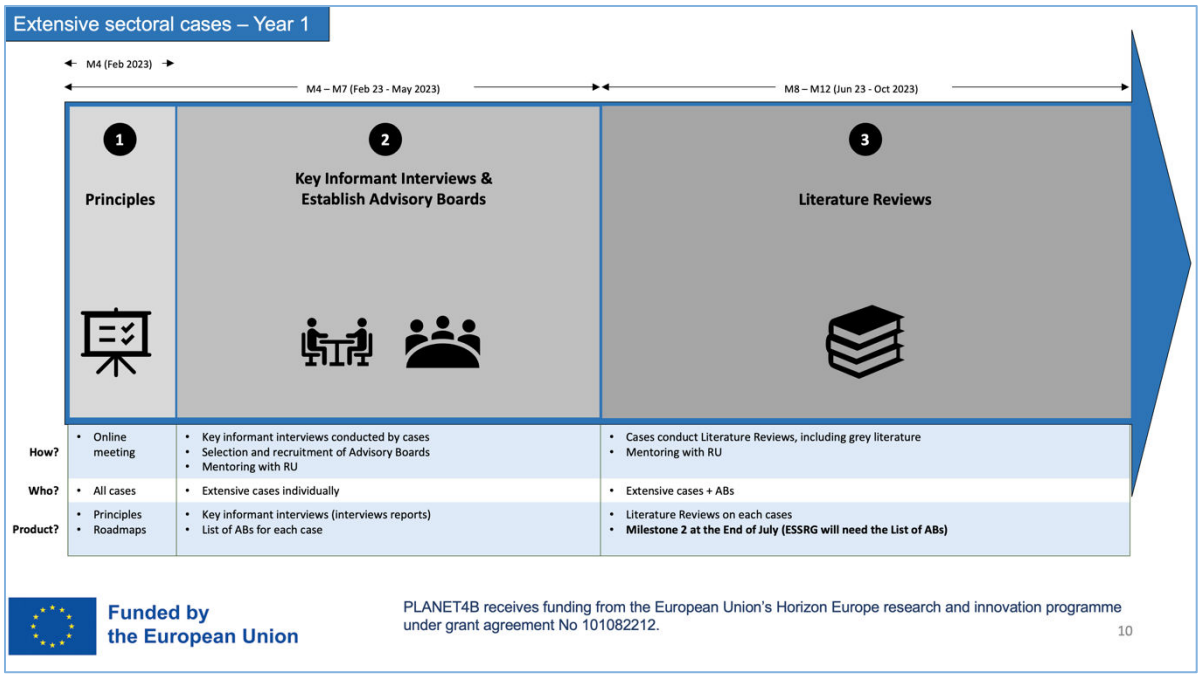

Figure 3. Roadmap with stages of activities for six Extensive cases in PLANET4B from M1-M12.

The roadmap illustrated in Figure 3 for extensive cases includes three stages: the principles and roadmaps meeting for us to agree on the activities and work style for Task 3.1, the stage for stakeholder mapping, key informant interviews, and establishing Stakeholder Boards (SBs) to co-define together with case leaders the learning objectives of the case. The subsequent stage included specialised literature reviews for each case (yet, several cases noted that literature reviews were done in parallel or sometimes even before contacting the stakeholders).

In the meeting on February 9th, 2023, we also presented our plan for conducting three cross-cases meetings in Task 3.1, in June, August and October 2023 (meetings every 2 months), as documented in Figure 4. Cases agreed with this plan.

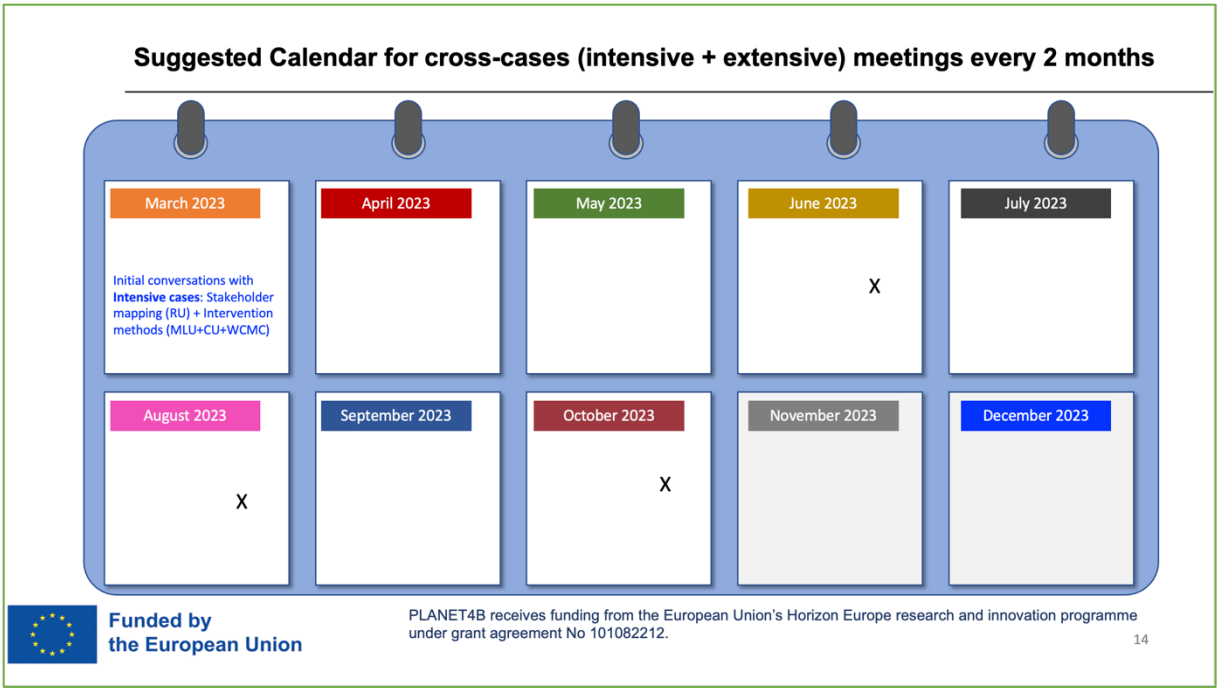

Figure 4. Planning of timeline for three cross-cases meetings in Task 3.1 of PLANET4B.

Following, from March to May 2023 we conducted a series of individual conversations with all cases. The individual conversations that happened from March to May 2023 had the participation of WP2 and WP4 leaders as well, and aimed at discussing broadly with cases their goals, approaches to methods and interventions, the theoretical background of their research, as well as potential policies with which these cases are connected (or want to connect). Table 1 documents when such individual conversations occurred with each of the 11 cases.

Table 1. Individual conversations with intensive (place-based) and extensive (sectoral) cases; data from these discussions was updated in case factsheets. Source: authors' own elaboration.

Date of meeting	Case
March 27th, 2023	City food for biodiversity and inclusion, Graz (intensive)
March 28th, 2023	Urban youth in Thüringia (intensive)
March 28th, 2023	Enabling intersectional nature recreation and biodiversity stewardship, Oslo (intensive)
April 14th, 2023	Agriculture and religion, Switzerland (intensive)
April 14th, 2023	Agricultural migration (extensive)
May 9th, 2023	Opening nature and outdoor activities to Black, Asian & ethnic minority communities, UK (intensive)
May 9th, 2023	Agrobiodiversity management, Hungary (extensive)
May 9th, 2023	Environmental awareness raising in public education, Hungary (extensive)
May 11th, 2023	Trade and global value chains, Netherlands-Brazil (extensive)
May 25th, 2023	From "ego-system" to "eco-system", Italy (extensive)

To conduct such conversations, Task 3.1 and WP3 leaders developed specific factsheets, shared with all cases (through the project's SharePoint) prior to the online meetings. The aim of the factsheet was to document the cases internally and to improve consistency and find synergies across cases and different WPs and tasks. In PLANET4B, these factsheets are considered as living documents which can be regularly updated throughout the project lifespan. Factsheets were developed not with the intention of being an "extra task" for the cases. These documents were updated by Task 3.1 and WP3 leaders, based on existing information and based on the individual conversations with cases, but, also, they were updated by case leaders during the period M1-M12, every time new developments emerged. The factsheets contain the following sections:

- Part 1: Background information
- Part 2. Methods
- Part 3. Policies
- Part 4. Tracking case specific events
- Part 5. Photos of the case

All these meetings, including online and in-person events, resulted in five meetings organised by WP3/Task 3.1 in the first year of PLANET4B, as documented in Table 2.

Table 2. Meetings to foster cross-cases dialogues and learning during M1-M12. Source: authors' own elaboration.

Date of meeting	Type of meeting	Participants	Core content
Dec. 14th, 2022	In-person (dedicated session for case studies at the kick-off meeting) Location: Halle (Saale), Germany	The whole consortium	Every case introduced itself in a seven-minutes long pitch, using photos and other visuals as illustration. Every 3-4 thematically grouped presentations was followed by a roundtable discussion where questions could be raised, and cases could react to each other.
Feb. 9th, 2023	Online	At least one representative from each intensive and extensive case + WP1, WP2 and WP4 representatives (n=25)	A detailed roadmap for both the intensive and extensive cases was presented by T3.1 leader, and a discussion was facilitated around activities and expected outcomes by the end of year 1. This was followed by an interactive exercise where case representatives worked in small break-out groups and discussed the main principles of collaborative work. Key messages from the break-out group discussions were shared in plenary and were used to finalise a list of principles (see section 2.2).
June 1st, 2023	1st Cross-cases meeting Online	At least one representative from each intensive and extensive case + WP1, WP2 and WP4	The first part of the meeting focused on progress within the cases. Every case representative briefly summarised their activities from the last few months and could share some main lessons or challenges. After a short time for discussion among cases, the second part of the meeting offered opportunities to learn from other work packages and tasks (i.e. on the process of ethical

		representatives (n=20)	approval, on preparations for Task 3.2, and on policy impacts related to WP4). One key conclusion of this event was that more time should be allocated for cross-case discussion during the forthcoming online meetings.
Aug. 30th, 2023	2nd Cross-cases meeting Online	At least one representative from each intensive and extensive case + WP1, WP2 and WP4 representatives (n=30)	The first part of the meeting gave room for each case to present what has happened in the last few months. The following four questions were addressed by each case: - progress with establishing the learning community / stakeholder board - progress with defining the learning objectives (how much do they already include the viewpoints of the LCs/SBs) - one short success story / good experience / learning point - any hindrances, challenges, or potential delays expected This tour-the-table was followed by a challenge clinic – a break-out group discussion on challenging topics that emerged during the first nine months of the project. After 25 minutes of discussion in small break-out groups, a feedback round was organised in plenary, and some main lessons were derived. The meeting ended with an overview of 'to-dos' in the coming three months, including: - preparing for the deliverable D3.1 (learning communities/stakeholder boards established, learning objectives co-designed) - preparing for the consortium meeting in October 2023 (Nijmegen) Update from other WPs (20 minutes)
Oct. 25th - 27th, 2023	In-person (dedicated session for WP3, during PLANET4B Consortium Meeting) Location: Nijmegen, Netherlands	At least one representative from each intensive and extensive case + PLANET4B consortium representatives (n=37)	**Bingo!**: Activity to stimulate cross-cases dialogues through an interactive session with questions about cases' process of establishing their LCs and SBs, and co-defining Learning Objectives. - **Fishbowl session:** Two separate fishbowl discussions organised for extensive and intensive cases, where each case had to respond to a general question on how intersectionality was covered in their case. Afterwards anyone from the audience could take a seat in the inner circle and ask a question or share a comment with the case leaders who sat in the inner circle. As an outcome, a lively facilitated discussion emerged between the cases that gave deeper insights into internal processes of the cases.

In addition to the meetings for establishing collective principles, planning the roadmaps of activities, and the series of cross-cases meetings, we gathered together in the second Consortium Meeting of PLANET4B on October 25th-27th, 2023 in Nijmegen,

the Netherlands, where WP3/Task 3.1 leaders organised two activities: a Bingo and a Fishbowl session.

In the Bingo session, everyone in the room received a sheet of paper containing six questions, each question related to the cases (questions related to curiosities or specific information about the cases) and offered four optional answers. Instead of answering the questions by themselves, participants had to ask another person for each question (so people were asked to stand up, walk around, interact with others). The person addressed then had to provide what they thought was the correct answer, or guess, or simply state that they did not know the answer. The game was on until there was one person who received responses to all the questions and shouted Bingo! There were two winners: the quickest person and the person(s) with the largest number of good answers.

In the Fishbowl session, we had one hour on Thursday, October 26th, 2023, in the morning, where WP3/Task 3.1 leaders organised two 30-min fishbowl discussions. One such session targeted extensive cases, and another one aimed at understanding better the perceptions of intensive cases. Each fishbowl session was structured around a question that steered these discussions. The question tackled the intersectionality dimensions in these cases. Figure 5 presents intensive cases during the fishbowl session.

Figure 5. Intensive cases during fishbowl session of the Consortium Meeting of PLANET4B, October 26th, 2023, Nijmegen, The Netherlands. Source: project repository of pictures.

2.2 Data curation and analysis

During all activities organised by WP3/Task 3.1 mentioned in the previous sections of this report, we made sure to document the content of the discussions via minutes, video-recording of online meetings, pictures, and notes taken by WP3/Task 3.1 leaders. For the analysis of these inputs, we – WP3 and Task 3.1 leaders – had several internal meetings and exchanges of emails to collectively analyse the progress of the cases through qualitative incursions of these various materials. A milestone document introducing the cases and explaining the processes carried out in the cases in the first nine months of the project was prepared in July 2023, concluding with some challenges and potential next steps (Kelemen et al. 2023). Main findings of the milestone document served as an additional input for this deliverable.

3 Building learning communities and stakeholder boards

This section documents the processes for supporting cases to mobilise and engage with LCs and SBs. This section of the report also describes the specific processes that fostered the selection and initial approach with LCs and SBs, namely: stakeholder mapping and how the quintuple-helix and intersectionality criteria were met.

3.1 Stakeholder mapping

Previously to inviting LC and SB members, cases were asked to conduct a stakeholder mapping. We asked cases to consider the elements of the quintuple-helix framework during the identification of their main stakeholders, i.e. stakeholders and/or community members needed to represent: (1) education and research, (2) the economic system, (3) the natural environment, (4) media-based and culture-based public (also 'civil society'), (5) and the political system. Although we shared some guidelines on stakeholder mapping, cases were free to perform this mapping in the way that best suited their knowledge, previous experiences, and capacity. No data sharing on the stakeholder maps was mandatory, except updating case study factsheets with accurate information on the main stakeholder groups identified. Based on the stakeholder mapping, cases could invite relevant people for interviews and to become members of their LCs and/or SBs. The next section documents this stage in detail.

3.2 The process of selecting and inviting LCs and SBs members

We asked cases to send us, in written format, how they have approached and contacted their stakeholders, how they have selected the invited participants to constitute their LCs and SBs, and how they have organised their first workshop (or workshops) with members of their LCs and SBs in order to introduce their cases, and to co-design Learning Objectives (LOs). Additionally, we asked cases to share with us photo documentation of their workshops. Cases were asked to fill a table in their respective factsheet (in the SharePoint) with dates of the events and the number of participants included (interviews, surveys, workshops etc.).

Intensive case – OOF/NINA

To get a feeling for the field of outdoor recreation and nature experiences available to children with disabilities, OOF and NINA started broadly by searching for activities in nature and organisations that offer outdoor activities directed to children with

disabilities. To get a feeling for how this is practiced, we specifically searched for activities organised in the summer of 2023, which we could join through participant observation.

Participant observation allow researchers to explore and test hypotheses about human behaviour in different situations. Studying different situations by participation allows us to establish a relationship between the observed behaviour and the specific condition. Participant observation thus allow us to look for both general patterns and specific situations that provide good nature experiences and relevant nature contact for children and youth with disabilities.

Participant observation during Brain Camp Yng organised October 8th, 2023, by the Sunnaas Foundation[2] for 14 children (age 6-16) with acquired brain injury led to contact with the Sunnaas Foundation Peer Mentorship Program. The Sunnaas Foundation Peer Mentorship Program is a one-year leadership development program for people with disabilities. The people that join this program have themselves lived through a spinal cord-, or brain injury and have had to learn to live with an acquired disability. Typically, these people have also participated in previous outdoor recreational camps organised by the Sunnaas Foundation. Because peer mentors are central to the Sunnaas Foundation model for active rehabilitation and play the main role in all their camps and activities, the people that join the Peer Mentoring Program also know how empowering it can be to have a peer mentor, to learn to master new skills, to challenge oneself and feel the freedom of being in nature. Contact with the Sunnaas Foundation Peer Mentoring Program thus directed our thoughts to building a LC around the experiences of peer mentors.

Our approach to building a LC was typically "bottom up". In considering the peer mentors as experts on their own lives we have drawn inspiration from institutional ethnography. More an approach than a specific method, institutional ethnography aims to produce knowledge *for* people instead of *about* them. In the first step, a social topic, issue, or challenge is examined through the lens of one or several stakeholders, using accounts of their everyday experiences to identify a "problematic". Through an iterative process these experiences are then used to define further topics to explore and actors to engage with. Placing the peer mentors' everyday realities at the centre of the LC process corresponds well to how personal experiences, in institutional ethnography, represent a "gaze on the macro structure from the micro level".

During a follow-up meeting, after the Brain Camp Yng, with the Sunnaas Foundation Manager and the coordinator of their Peer Mentorship Program OOF and NINA presented the idea of using elements of Institutional ethnography to build a LC with/around peer mentors as experts. We asked the Sunnaas Foundation Manager and the coordinator of their Peer Mentoring Program for views and feedback on our suggested approach and help to establish a network of peer mentors. Thus, establishing a collaboration with the Sunnaas Foundation helped us contact three peer mentors as experts into our LC. Therefore, this case LC is still in the processes of being built (stage of inviting additional members).

[2] Source: https://www.sunnaasstiftelsen.no/

Intensive case – DC/CU

As Dadima's CIC (DC) has been organising walks for just over three years, our stakeholders (potential LC) were familiar to us. We created a poster/ information sheet (see Fig 6) and having considered our audience, selected individuals based on key selection criteria (wheel of privilege/age/ willingness to participate etc.). We then contacted those individuals via email and text follow-ups, with the information. We decided beforehand to keep our LC size to around 10 participants to ensure that we could manage future meetings, and give our LC the best opportunity to engage, share and reflect deeply.

Our first meeting was a TEAMs introduction meeting on November 16th, 2023. The meeting was aimed at welcoming the LC to the facilitators and to one another, introducing more fully PLANET4B, outlining roles and the key aims and objectives of the study and workshops, and discussing dates for future meetings during 2024. Opening questions raised during the meeting, as a way helping all participants to feel comfortable within the group and about the task of being a LC member, included: How do you understand the word 'biodiversity' right now? Use your own words/thoughts to explain, without any pressure to use technical/scientific jargon. LC members were also encouraged to share their first impressions of working together to address key issues relating to Black, Asian and minority ethnic access to the countryside. Seven LC members attended the meeting; three members sent their apologies.

DADIMA'S

Join Dadima's Nature Learning Community

Are you passionate about nature? Do you want to learn more about biodiversity through a community-based approach? Join the PLANET4B Nature Learning Community! Dadima's is partnering with Coventry University to engage community members in biodiversity conversations and exciting activities. Your contributions could make a real difference in preserving nature for future generations to enjoy. Let's explore the beauty of nature together!

About the Dadima's Case-Study

Dadima's CIC is situated in a rich community and cultural space, one that recognises the importance of diverse stories and ancestral experiences of nature. Over the last 3 **years** of **walk and talk nature programmes**, Dadima's has strengthened its **educational approach** to connect more with the **biodiversity agenda**, without using too much scientific and technical jargon, recognising that it can exclude or put off people. As walk leaders, we are **passionate about nature and keen to educate around the biodiversity agenda**. We want to do this in a way that is filled with community spirit, hope, and joy, whilst also learning about the realities as a group of non-specialists, alongside those who are experts in this field. We have a passion and interest in nature because we care about **the legacy** we will leave one day **for our children and grandchildren**, and that has led us on a personal learning journey to educate ourselves. As a result of our concerns and hopes for the future, we have added educational talks/activities to Dadima's nature programme. We are **keen to inspire community** members to get involved in Dadima's movement to create positive change as **Biodiversity Nature Ambassadors.**

We are also keen to explore the word 'biodiversity' in its broadest sense, based on how we understand it (or not as maybe the case). What does it mean within the context of our everyday lives? How can we as individuals make a difference within the communities we operate in?

One of the goals of Dadima's is to promote **intergenerational, intercultural nature dialogues**, where people across diverse backgrounds walk and talk together, whilst enjoying the benefits and joy of being in nature. We recognise, based on research studies, that nature and conservation dialogues tend to **omit the voices and experiences of Black, Asian and minority ethnic communities**, and the ancestral nature knowledge that many of us may hold through family experiences and stories. Hence, as part of this research, we advocate and **amplify how biodiversity can be understood in more diverse ways,** beyond those presented in the media and in technical/scientific spaces.

We are keen to shine a light on different forms of nature knowledge and wisdom (and this includes ancestral nature wisdom), bring diverse nature stories and lived experiences to the forefront, within a small learning community that is keen to learn, and hopefully educate others.

What are the benefits of participating in this research?

By participating in Dadima's UK case-study, you will have the opportunity to be part of an exciting project and **engage in creative, collaborative, and change-making research**:

- Be part of a creative and supportive learning community that is interested in making a difference to nature through a biodiversity lens.
- Collaborate and work with people from diverse academic and practice fields.
- Contribute to groundbreaking research that aims to share diverse voices and opinions around biodiversity.
- If interested, possibly co-author/be part of a future publication (there is no pressure at all to do so).
- Develop a new interest that contributes to a global agenda in a local way. You will play an active role in shaping strategies for change in practice and thinking.
- Possibly consider leading a future Dadima's walk and talk after the project.
- Be the change you want to see in this world!

You will hopefully realise other benefits if you get involved in this research, and the above are just a few examples.

What do you need to do if part of this research community?

First, join us for an **inception meeting in October** (date TBC) where you'll have the chance to learn more about the project, meet fellow community members, and connect with our research team.

Then, get ready to participate in **4 interactive workshops** where we will delve into participatory ways of learning together, identify how communities can influence transformative change, and develop effective ways of monitoring their effectiveness. We will meet online and face-to-face (ideally face-to-face) and will meet over tea and cake/snacks.

Be ready to share your views and experiences of nature and have some fun with like-minded people. Don't miss out on this opportunity to be a part of a dynamic learning community. We can't wait to see you!

PLANET4B receives funding from the European Union's Horizon Europe research and innovation program under grant agreement No 101082212.

Figure 6. Information sheet distributed to DC's stakeholders.

Intensive case – CGE/MLU

At CGE, together with MLU, we created an open call for the selection of participants for our LC, which we posted on our website and social media channels (Instagram and Facebook).[3] The idea was to announce the call for a wider audience, to people who we might reach out.

The activities within the PLANET4B LC have been carefully designed to engage and empower our participants, fostering a deeper understanding of biodiversity, and enable them to influence decision-making. Figures 7 and 8 provide a more detailed visual description of these activities.

Figure 7. Expedition to Steigerwald Local Forest, Germany, including case partners and their LC, on September 1st-2nd, 2023. Source: case study members.

[3] Link to the Open Call to Join PLANET4B Learning Community: https://www.cge-erfurt.org/2023/07/31/planet4b-join-our-learning-community-of-urban-youth/

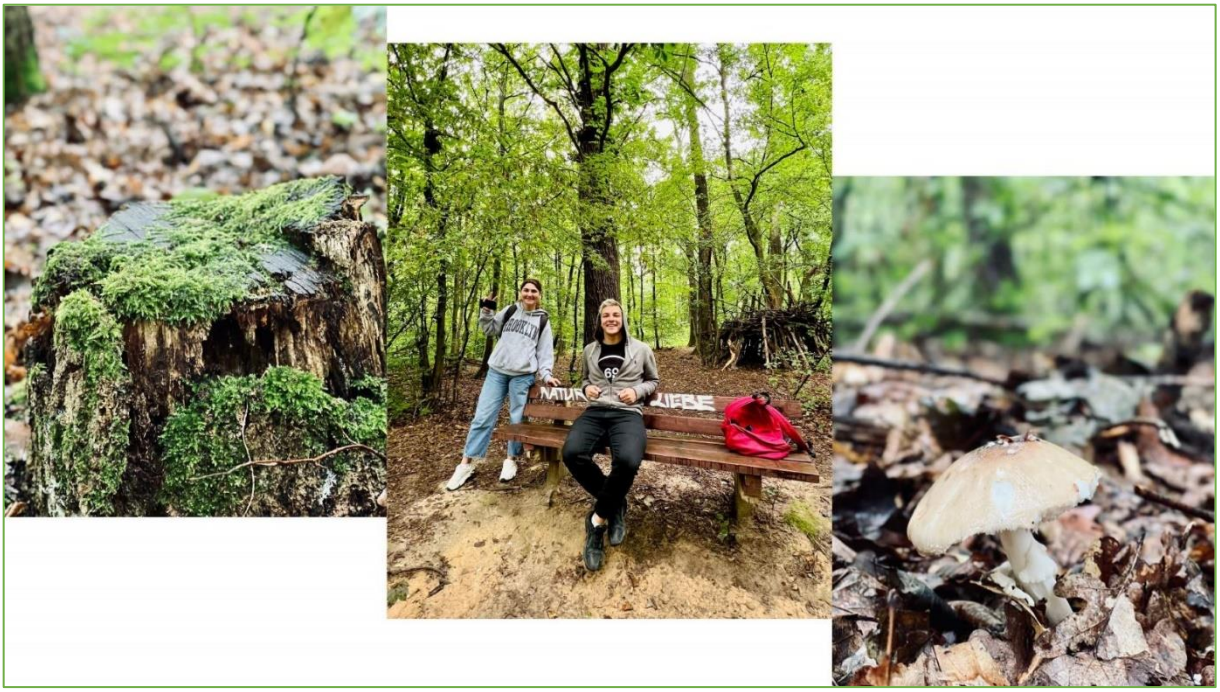

Figure 8. Expedition to Steigerwald Local Forest, Germany, including case partners and their LC, on September 1st-2nd, 2023. Source: case study members.

Next, we provide more details about the activities with our LC as illustrated in Figures 7 and 8.

Big Expedition to Hohenfelden Camping Site | September 1st-2nd, 2023

The expedition to the Hohenfelden camping site was a larger-scale adventure designed to encourage teamwork, foster a sense of community, and deepen our understanding of nature. This one-day trip allowed participants to immerse themselves in a natural environment, facilitating discussions and activities related to the preservation of biodiversity. It also promoted experiential learning, enabling participants to connect with nature and learn about its significance for sustainable living. Tasks such as collection of wood for cooking the meals, food preparations, setting up of tents for the night and sleeping under the open sky, stimulated the learning process. A message in the WhatsApp group which kickstarted our interactions as a big Learning Community (LC):

> *"We are happy to welcome you to the PLANET4B Learning Community and the first meeting in the beautiful Thuringian nature, next to the Hohenfelden lake. Our upcoming trip is an expedition to explore the forest area, human-nature interaction and role of youth in decision-making for protecting our planet's biodiversity. From the 1st until the 2nd of September, in this overnight stay, we look forward to have joyful moments with you in the nature, share food and thoughts, and reflect on our presence on Earth."*

Figure 9. Expedition to Steigerwald Local Forest, Germany, including case partners and their LC, on September 1st-2nd, 2023. Source: case study members.

Figure 10. Expedition to Steigerwald Local Forest, Germany, including case partners and their LC, on September 1st-2nd, 2023. Source: case study members.

The journey resulted in a unique experience as, on the night of the expedition, the LC tested the biodiversity-Food-Governance game for the first time (see Figure 10). This role-play table-top game developed based on experimental games from behavioural economics and insights from strategy-based scenario games enabled participants to step into the shoes of buyers, sellers, government officials, and migrant communities, simulating decision-making regarding agricultural land usage. The outcomes were

nothing short of stunning, challenging participants to think critically about their actions and the implications of their decisions on the environment. Post-game reflections provided valuable insights into the decision-making strategies of young people concerning biodiversity and underscored the potential for innovative and engaging methods to empower them in the realm of nature conservation.

Lego Workshop on Designing Inclusive Spaces for Biodiversity in Urban Settings (within Hinterhof Boogie Event, Kultur Flaniert Festival) | October 16th, 2023

The Lego workshop (see Figure 11) provided a creative and interactive platform for participants to brainstorm and design inclusive spaces that promote biodiversity in urban areas. Through hands-on building and collaborative problem-solving, participants explored innovative solutions for making cities more ecologically friendly. This activity not only encouraged creative thinking but also highlighted the importance of incorporating biodiversity-friendly designs in urban planning. Figures 11 to 13 document the workshop.

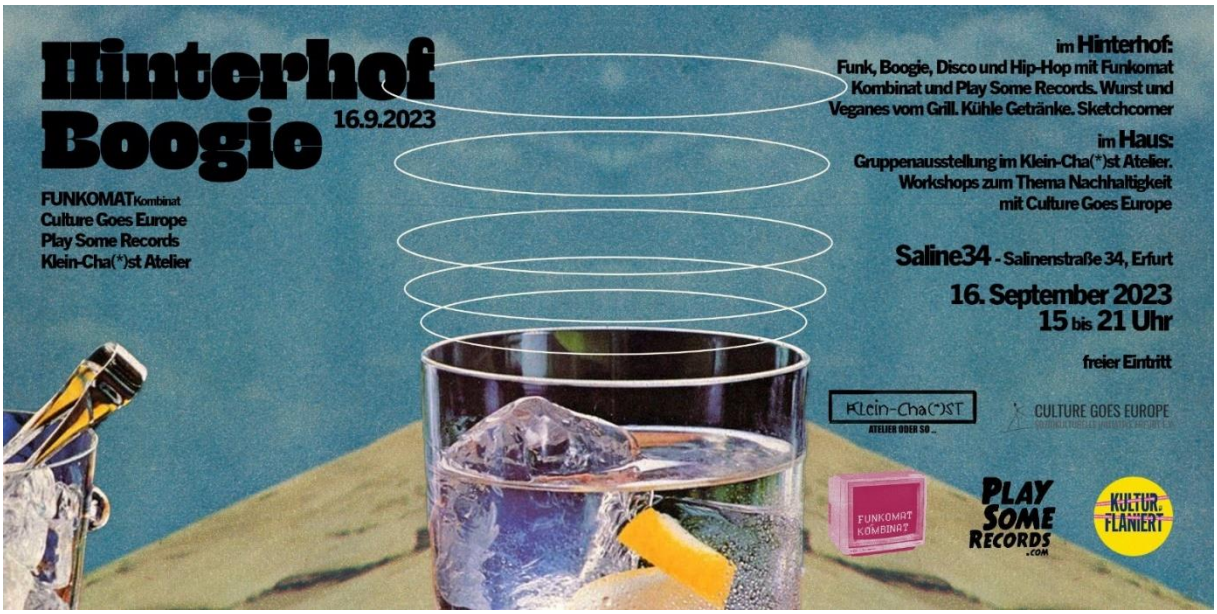

Figure 11. The Lego workshop developed to steer the interaction among case study members and the case's LC. Source: case study members.

Figure 12. The Lego workshop developed to steer the interaction among case study members and the case's LC. Source: case study members.

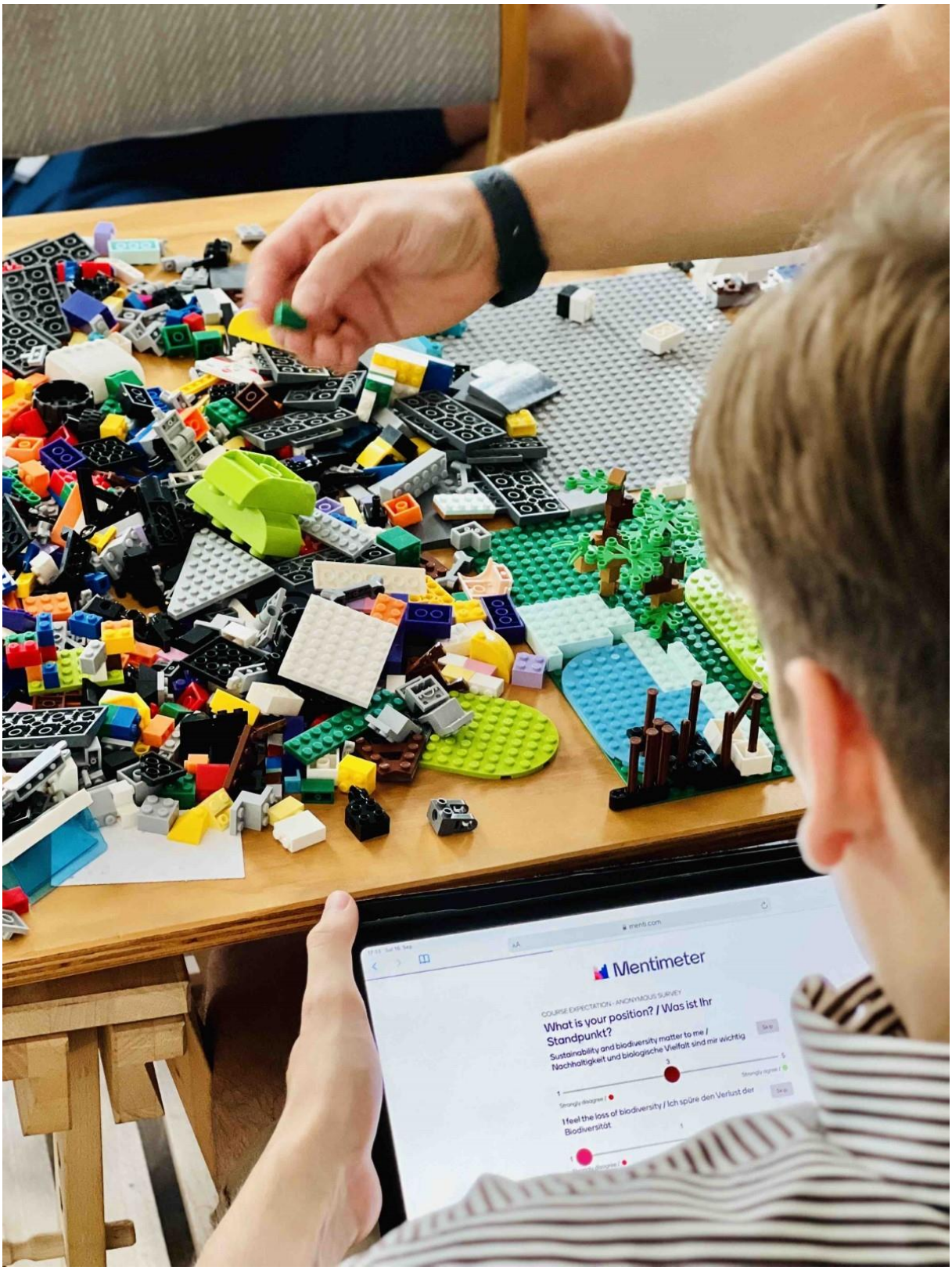

Figure 13. The Lego workshop developed to steer the interaction among case study members and the case's LC. Source: case study members.

Game Evening for Biodiversity (within Hood-not-Kiez Festival of Ilversgehofen neighbouthood) | 14.10.2023

The game evening was a fun and interactive session that introduced participants to a variety of commercial games designed to stimulate biodiversity awareness and decision-making. These games offered a playful yet educational approach to learning about the complexities of biodiversity, ecological balance, and the consequences of decisions made in relation to the environment. It encouraged critical thinking and strategic decision-making, making it an engaging way to enhance participants' understanding of biodiversity issues. Figure 14 (folder with some information) and Figure 15 (game play) document the game evening for biodiversity.

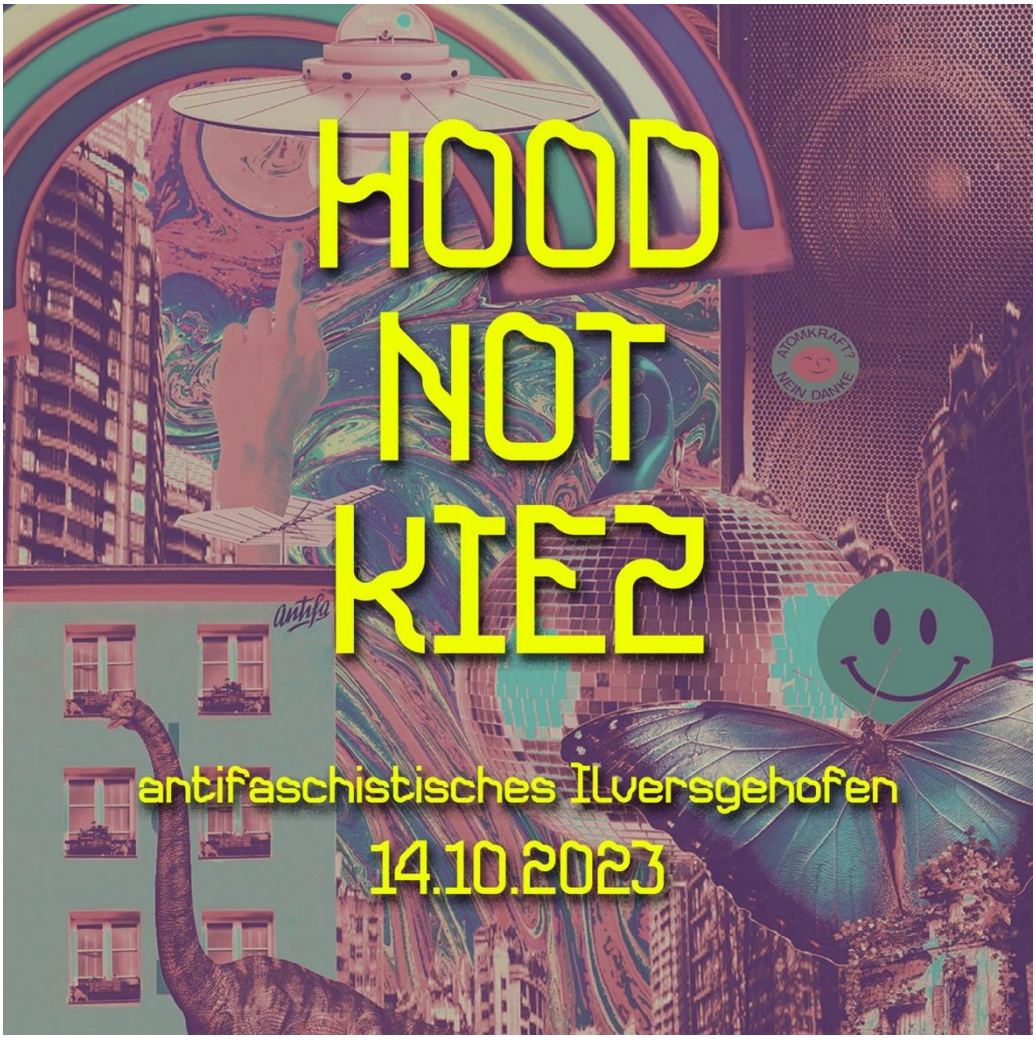

Figure 14. Game evening for biodiversity. Source: case study members.

Figure 15. Game evening for biodiversity. Source: case study members.

In all these activities, the LC actively involved the participants in assessing their knowledge and attitudes toward biodiversity. Feedback from these sessions guided the design of subsequent activities, ensuring a focused and participant-driven learning process. These activities reflect a holistic approach to learning and engagement, combining experiential learning, creative problem-solving, and interactive experiences to empower young people to make a positive impact on biodiversity decision-making processes.

Intensive case – FuG/IFZ

In order to 'prepare the ground', in December 2022, prior to the main activities of the setup process, a workshop was organised by IFZ on the topic 'Edible City Graz'. At this workshop, the potential of an edible city framework was discussed with participants from (gardening) practice, science, educators, food activists and representatives from the city administration. During this event in December, the PLANET4B project was for the first time officially introduced to the stakeholders.

The LC-setup process began with a stakeholder mapping, whereby the PLANET4B partners provided valuable feedback on whom to approach and how. Close attention has been paid to current local developments and planned projects/activities, such as a sustainable urban food strategy and biodiversity strategy, which are both currently in development. Various relevant events have been visited to establish contacts with key actors. One of the most important contacts was established with representatives from the 'Department for Green Space and Waters' of the city of Graz.

On June 2nd, 2023, IFZ co-organised the conference 'Transformation through Cooperation IV', which was dedicated to topics related to food security and justice. After some presentations and a theatre performance, the question of access to edible green spaces, and ideas and viewpoints around a 'Biodiverse Edible City Strategy' were discussed in a workshop setting. Similar to the event in December 2022, participants covered a broad variety of actor groups. Against the background of the two policy strategies mentioned above, considerable political attention could be gained. At this conference in June, a short presentation about PLANET4B was given as well. All these activities were preparing for the LC-setup.

Figure 16. Workshop and theatre performance at conference 'Transformation through Cooperation IV' in June 2023. Source: Sascha Pseiner.

During the summer, stakeholders, whom we wanted to engage in the LC have been further explored. Regular meetings with the 'Department for Green Space and Waters' were held in order to specify pilot activities. In sum, five plots shall be dedicated as spaces of biodiversity in the coming years, one of them will be used for implementing the PLANET4B pilot activities.

On October 18th, 2023, the LC was initiated in the scope of the PLANET4B event 'Diverse Green Spaces – Diversity in Green Spaces'. We invited local stakeholders (representatives from the city of Graz, CSOs and NGOs) dealing with biodiversity and

nature conservation, diversity and intersectionality, social work, green spaces, urban food, urban planning, education and citizen participation. This full day event started with an excursion and a role play at the green area, which will be planned within the P4B pilot, in the afternoon we implemented an interactive workshop setting. In sum 20 persons participated: 13 in the excursion, 18 in the workshop. This group plus some additional stakeholders, who were not available that day, represent the pool of participants for the policy LC of the case.

Figure 17. Excursion and Workshop during the LC initiation event. Source: case study members.

Intensive case – FiBL

Agriculture is one of the major drivers behind land use change and biodiversity loss. There's some consensus that individual values are one of the key determinants of environmental behaviour. But where do these values come from? For many people, religion or a value-based system of beliefs is the main tool to calibrate their moral compass. The aim of this place-based intensive case from a research perspective is to learn about farmer's practices and attitudes towards nature and biodiversity, and to determine which religious, cultural, and/or societal drivers are instrumental in forming their attitudes and guiding their practices.

Unfortunately, the action partner of this case (BioSuisse) left the consortium when the project was launched, therefore research work in this case started with some delay, after some reorganizations. The work commenced with an in-depth literature review to map earlier research focusing on the relationship between religion and agricultural practices, and to identify relevant actors in Switzerland. This was followed by a detailed stakeholder analysis through which religious famers' groups have been identified. Our primary objective with selecting organizations or individuals to be invited as members of the Learning Community was to include members from farming communities in areas with different religious beliefs. Therefore, we applied a geographic lens to identify areas where the farmers are expected to come from Catholic or Protestant backgrounds as well as the online search for specific farmer groups. Additional relevant stakeholders include policy makers at the municipal, provincial, and federal levels interested in agricultural policies of relevance to biodiversity, as well as the catholic and protestant churches. First contacts have been established with the main stakeholders, although in-depth (appreciative) interviews with farmers were scheduled to the cold months when farmers are less busy with working on their fields.

Extensive case – Fashion UNIPI

According to an action-research approach the Stakeholder Board (SB) will not only provide information on the topic but support the research team developing and defining the research question and objectives, designing activities, as well as disseminating results and identifying policy recommendations. The stakeholder board will also help the case facilitating connections with hard-to-reach actors and groups.

The members of the SB were selected through a preliminary analysis. Our research group already had prior knowledge and a network of contacts on the subject, which formed the starting point for the construction of the SB. The subsequent stakeholder map, conducted mainly at the desk, allowed us to identify the most relevant actors for the case. Twelve of these were involved in a panel of semi-structured interviews (June – July 2023) and invited to participate in the board.

Extensive case – Agro-biodiversity ESSRG

While considering who to invite to the agricultural biodiversity stakeholder board (SB), we had two different approaches in mind: 1) seed legislation and policy and 2) art-based methods for public awareness-raising.

While seed legislation is also a crucial point when dealing with the improvement of agrobiodiversity, according to the experts we have asked, it is not the main factor in the decline of agricultural diversity. The main issue seems to be the power imbalances of agrochemical companies and smaller actors, as well as the lack of awareness and knowledge on the general public's side. The current seed legislation in the EU and Hungary are quite supportive towards the maintenance and use of plant and seed diversity. For this reason, we decided to go with the second option and focus on raising awareness and art-based methods.

When considering the possible members of our SB, we wanted to include people who have unique experiences and points of views in connection to agrobiodiversity as well as gender. We wanted to create a SB that does not reflect the power imbalances of the 'normal' world; we wanted to include people who are interested in the topic but also

have a passionate and creative mind. Some of the members we chose from the experts we have already interviewed and found that they would be enthusiastic to join the project; and some of the experts we have not interviewed yet, but we are familiar with their work and decided that they would fit the spirit of the project perfectly. The LC for the case has a total of 5 members, all females.

Extensive case – Education ESSRG

The present case study is based on a participatory action research project in a Hungarian school garden, conducted between 2019 and 2022 within InSPIRES (Ingenious Science Shops for Participatory Innovation, Research and Equity in Science), during which we immersed ourselves in the context of environmental education in Hungary as well as met some renowned experts on the subject. This served as a good starting point for finding the right stakeholders and was complemented by desk research and interviewing that followed a snowball method.

Sixteen identified experts were interviewed for about one hour, either in-person or online. On the one hand, we asked them about the state of environmental education in Hungary and best practices to teach biodiversity, and on the other hand, we asked for suggestions to refine our research direction and for further experts on the subject. We complemented this by observing two school garden classes, where we also talked to teachers and students. We then assembled a board of experts we considered to be the best on the subject, while paying particular attention to ensuring that diverse voices and perspectives were represented among the members.

We ended up inviting 13 experts to the board, of which 10 responded positively and seven were able to attend the first meeting. In all cases, we contacted them by email and used Doodle to try to find a time that suited most of them. As it was more convenient for most stakeholders, the two-hour workshop was finally held online on 5 October 2023. In order to synergise the interaction as much as possible, after the introduction and presentation of our preliminary results along with our possible research directions, we led the discussion on Miro board in an interactive format (see Figure 17).

Extensive case – Agriculture & Migration FiBL

This case study works on diverse topics that come together at the "Agriculture-Migration Nexus" and on different levels, from the regional European level to the farm-level. The initial scoping phase allowed us to get a Europe-wide overview and define the problem(s) within this nexus and their relation to biodiversity conservation. Thus, we have approached several high-level experts (ILO, JRC, DG-Agri, university professors) via email and invited them to participate in an expert interview. We selected these experts based on the topics they work on (either migration, agronomy, or biodiversity).

Our first workshop with the SB was thus carried out as six individual expert interviews with these potential SB members. This means that in our case, so far, we have adopted a strategy of working individually with SB members. We opted for this approach as we expected a higher willingness to contribute to and support the case study after having established a connection to these experts during the interviews. All experts interviewed so far were willing to remain in the loop and discuss results and further developments

of the case in future. This approach was also chosen to ensure sufficient time for very thorough input from all experts and to discuss in detail the individual experts' recommendations to the case study. This would have been much more difficult in a group setting.

Based on the inputs from these meetings and interviews with SB members, we plan to develop a first generic causal loop diagram for the European context, which will then be verified in different study sites across the continent. After this, we plan to organise an online workshop in which we discuss and confirm our findings with the initial experts again (we call this confirmation phase).

Extensive case – Trade RU

In our research process to map and invite members to compose our SB, we initially selected members of our own academic network both in Brazil and in the Netherlands. We approached them initially by formal invitations after having conducted research interviews with most of these SB members. For those who agreed to compose our SB, official invitation emails were sent. Other members of our SB are external and were approached via LinkedIn.

Participants were selected based on the five-helix framework, which covers: (1) education and research system, (2) economic system, (3) natural environment, (4) media-based and culture-based public (also 'civil society'), (5) and the political system. Currently, only the economic system/business sector is not represented in our SB. We also followed the intersectionality criteria. In total, from our seven SB members, the majority (four members) are women, two of them from the Global South (Brazil), and two from the global North (Netherlands and Portugal).

As for the co-definition of our LOs, we have organised one online workshop with duration of one hour, on October 3rd, 2023, with some of the members of our SB. The structure of the workshop consisted of welcoming and introduction (10 min), brief presentation of the project and case (10 min), discussion on suggestions, directions from the SB members (35 min), wrap up (5 min). Five questions animated the discussion: 1) What aspects of this research do you believe would be most worth focusing on, and why? 2) What are the main learning objectives and results that we can achieve with this case study? (Science-Policy-Social impact in EU funded projects); 3) What policies, regulations and actors in the Netherlands and Brazil should we study in more detail? 4) How to work with the dimension of intersectionality in this case study? 5) Interesting methodologies or approaches for this case study? Figures 18 and 19 document the first workshop with part of our SB members.

In essence, this meeting was an important opportunity for case leaders to exchange ideas and research information with the SB. Moreover, the meeting provided the space for SBs members to meet each other, and better understand our co-creative process in the case study.

Extensive case – Sustainable Finance NINA

Our task in the PLANET4B project intends to assess the evidence on to what extent investor cognitive biases play a role in the context of Environmental, Social, and Governance (ESG) uncertainty. To our knowledge, no comprehensive review of the

grey and scientific literature has been done regarding cognitive biases that influence financial actors' use of ESG metrics in investment decisions and how these biases may harm or benefit biodiversity at the local level and portfolio allocation. To address the above questions, NINA has carefully selected a group of professionals from multi-stakeholder initiatives and the financial sector to participate in the Stakeholder Board.

In the first step of setting up the Stakeholder Board (SB), we assessed the specific objectives of the meetings and the skills and knowledge needed to achieve those goals. Then, we identified the key stakeholders relevant to our task who have interest in the outcomes of our study. In this step, we needed to ensure diverse and inclusive representation in the SB to capture a wide range of perspectives (we considered industry background and stakeholder type).

After we prepared a clear list of stakeholders, we determined how best to reach out to them. To inform SB members about the objectives of our study and upcoming workshops, we prepared a two-pager information leaflet where we clearly stated the study background, aims and the role of SB. We stressed that participating in the Stakeholder Board of this research initiative will offer SB members a unique opportunity to shape the project's direction and access valuable research insights. We also indicated that when the results of our research study are published, recognition for each SB member will be given.

Then, we crafted personalised and concise messages that articulated the purpose of the engagement, the benefits of their involvement, and a clear call to action. We utilised various communication channels such as email, calls, or in-person meetings, depending on what suits each stakeholder's preferences (email contact and online calls were the dominant form of contact). The first SB meeting took place on November 1st, 2023, between 10 a.m. and 12 p.m. (CET) and was organised via virtual attendance (TEAMS software). In total, the SB for this case has 6 members, 3 females and 3 males.

4 The composition of LCs and SBs, preliminary systems, leverage points, and co-defined learning objectives

In this section, we document how cases reflected upon the composition of their LCs and SBs. This analysis can be used by other tasks and WPs in PLANET4B in order to assess the preliminary systems and leverage points with which cases will interact. In this part we also present all the co-defined LOs for each case.

We asked cases to fill a template documenting in detail the information about their LC/SB, and explaining the co-defined Learning Objectives (LOs), which in most cases were discussed during a first workshop with their LC/SB. Below, we document the answers from all the cases, starting with the intensive case Nature recreation in Oslo. Throughout the section, we opted to "give voice" to the cases, meaning that often the text is a narrative in the first person of the plural ("we"), written by case researchers and only slightly edited by the two first authors of this report. This indicates that what is written in the remaining of this section 4 (subsections 4.1 until 4.11) represents *strictu sensu* the bottom-up views from case study members, collaboratively built with their respective LCs and SBs, and written by case researchers themselves.

4.1 Place-based case – Nature recreation in Oslo, Norway (OOF/NINA)

The composition of the LC

The core of our LC is composed by three peer mentors who are experts on making nature experiences inclusive of children and young people with disabilities. We decided to invite disabled people who are trained, practicing peer mentors with experience of making nature experiences inclusive of children and young adults with acquired disabilities. Both peer mentors and the children and young people that they work with have acquired their disabilities through spinal cord or brain injuries after birth. These disabilities may manifest themselves in many ways. The reason we chose to invite peer mentors as experts to our LC is because they constitute a functional role-model system for children with disabilities. The peer mentors have everyday knowledge and first-hand experiences of what nature experiences mean to, and can be, for people with disabilities. They also know what it takes to make such nature experiences inclusive of and accessible to children and young adults with disabilities. The peer mentors thus bring key knowledge into our LC where they are the experts that we may learn from and with.

Our LC is inclusive of age and disabilities. So far, we have not succeeded in recruiting women or non-white Norwegians, but this is work in progress. We have however, made an active choice *not* to follow the quintuple helix approach to invite actors from different sectors such as education, industry, etc. Instead, we let ourselves be inspired by Institutional Ethnography to invite different actors, potentially from other sectors, through the process of our work and based on the needs and wishes of the experts in our LC. We thus start "narrow" or "focused" but think broad. As a result of this approach, we are currently expanding our LC to include parents of children with disabilities.

The Learning Objectives (LOs) of the case

In our first meeting with the LC, we spoke about the challenges, barriers, and enablers of good nature experiences for children and young people with disabilities. Based on concrete examples and lived experiences we identified *two alternative objectives.*

- The first alternative objective could be to outscale the Sunnaas Foundation mentoring program to settings outside of the Sunnaas Foundation. This could for example be a service offered to a wider range of parents of, and youth and children with disabilities. It could thus be an opportunity for them to meet others that have been through or are in similar situations to exchange experiences or receive support and help.
- The second alternative objective builds on an identified need for aggregating and making information about recreational activities and opportunities for good nature experiences accessible to parents of, and youth and children with disabilities. This could be set up as a portal on the municipality webpages. The portal could feature recreational activities, information about opportunities for going into nature (both nearby and further away), and available support (e.g. available resources, who to ask for help, or equipment that you may borrow).

The Sunnaas Foundation has some experience of working with a municipality to outscale their mentoring program and help people that are arriving home after a disabling injury to adapt to their new situation.

As a next step in co-developing these objectives further we will therefore ask key people within the Sunnaas Foundation to share their experiences from working with a municipality and any tips that they may have. We will also ask two parents to join our LC to get their perspectives on what it is like to go into nature when you have a child with disabilities and what we can do to make good nature experiences more inclusive of (families with) children with disabilities.

4.2 Place-based case – Opening nature to Black, Asian and ethnic minority communities in the UK (DC/CU)

The composition of the LC

This case study has the following LC composition. The group is composed of participants with diverse backgrounds. The age of participants ranges from the thirties to the seventies. Considering ethnicity, the LC includes members from the black Afro-Carribbean, British-Indian, British-Iranian and Indian born communities. Six out of the 10 LC members are female. Members have diverse marital status and educational background.

The Learning Objectives (LOs) of the case

The Dadima's CIC case study aims to explore and better understand the diverse lenses through which people of colour engage with, understand, and talk about the biodiversity agenda in its broadest sense. One of the goals is to promote intercultural nature dialogues where White middle-class people and Black, Asian and minority ethnic (BAME) groups exchange and learn together about biodiversity, where different forms of knowledge (respecting all knowledge forms) are respected, discussed and built on as a LC.

As part of the research, we would like to explore and address a number of pivotal questions:

- How do you understand the word 'biodiversity'?
- Do you see its importance/relevance to your everyday life?
- What do you see as potential challenges of learning about biodiversity for yourself, or the people you interact with?
- How do you think you could make changes to this global agenda, if at all?
- If you could learn more, what form would that learning take?
- How do you feel that you could influence biodiversity agendas and make a difference, however small that maybe?
- To what extent can various intervention methods (e.g. experiential learning and behavioural games, as well as creative and deliberative interventions), make a difference to understanding biodiversity knowledge?

4.3 Place-based case – Urban Youth in Germany (CGE/MLU)

The composition of the LC or SB

The PLANET4B LC is a dynamic and inclusive initiative comprised of nine participants who collectively bring a rich tapestry of perspectives and experiences. In line with our commitment to fostering diversity and inclusion, our LC embraces a wide range of intersectionality dimensions. Participants hail from various corners of the world, including India, Central Russia, and West Asia, offering a multicontinental perspective. We represent different ethnicities, religions, and genders, with a balanced ratio of three females and six males. The economic diversity among our members is equally remarkable, featuring individuals from migrant backgrounds, students, and self-employed young people. Our age range spans from 22 to 27, reflecting the vibrant dynamism of the youth, all young people are currently residing in Erfurt. See Figure 18.

Figure 18. Expedition to Steigerwald Local Forest, Germany, including case partners and their LC, on September 1st-2nd, 2023. Source: case study members.

While our community is exceptionally diverse, we acknowledge the importance of continuous growth. There may be specific types of actors who are not present in our community due to external constraints or limitations. We remain open to expanding our network and are actively seeking opportunities to further diversify our representation. Our commitment to inclusivity and a holistic approach to addressing environmental and social issues remains steadfast, and we are continuously exploring avenues to engage a broader spectrum of voices in our mission to shape a sustainable future for our planet. Thus, we expect that there will be periods where we will welcome new members to the LC while some of the original members might become less active.

The Learning Objectives (LOs) of the case

The co-designed learning objectives of the PLANET4B LC are centred on empowering young people, particularly those with less privilege, to influence biodiversity and nature prioritisation in decision-making. These objectives are derived from a series of engaging and collaborative sessions that we conducted with our participants. These sessions included local forest expeditions, camping trips, creative workshops, and interactive game evenings, all aimed at assessing and enhancing their knowledge and behaviour related to biodiversity.

These objectives are highly relevant because they address critical issues in contemporary society.

- Firstly, the question of how empowered young people feel to influence biodiversity and nature prioritisation is of paramount importance, as it touches upon inclusivity and the democratic process of decision-making. Recognizing the underrepresentation of youth, especially those with fewer privileges, in decision-making processes is a key step toward rectifying this imbalance.
- Secondly, investigating the impact of various intervention methods on empowering younger age groups is vital for shaping more environmentally conscious and active citizens. By understanding how experiential learning, behavioural games, and creative interventions affect youth, we can design more effective strategies for increasing biodiversity awareness and promoting sustainable decision-making.

These objectives were chosen because they reflect the values and priorities of the diverse actors within our LC. Through co-design and a participatory approach, we ensured that these objectives resonated with the participants' interests and concerns. They encapsulate the core challenges and opportunities for youth engagement in biodiversity issues, aligning with our shared goal of fostering a sustainable future while considering the diverse backgrounds, needs, and aspirations of our participants.

4.4 Place-based case – Edible City and Inclusion in Graz, Austria (FuG/IFZ)

The composition of the LC

The LC of PLANET4B will be set up for the planning and the accompaniment of pilot activities, in the best case to be institutionalised beyond the PLANET4B-project as a working group or stakeholder board attached to a possible/planned municipal food council, the nature-conservation advisory board or as own body connected to the Department for Green Spaces and Water, which is part of the 'City Planning Directorate' ('Stadtbaudirektion'). The main purpose of this board is to ensure that biodiversity and social inclusion (addressing intersectionality) are both addressed/considered in policy-related issues and the practical implementation of projects.

In general, we are planning to have two LC: a policy LC, and at a later point in time, when the pilot activities will be planned in detail and implemented in practice, a citizen LC as well. At the current point in time, the policy LC is installed, and the following 12 people agreed to participate:

Table 3. The composition of the Learning Community of the case Edible City and Inclusion in Graz (FuG/IFZ). Source: case study members.

Stakeholder (SH)	Type of organisation	Area of responsibility / discipline	Gender, Age
SH1	City of Graz administration	Green spaces & water (in charge of the Biodiversity Strategy)	Female, 40-50 Y
SH2	City of Graz administration	Nature conservation	Male, 30-40 Y
SH3	City of Graz administration	Citizen engagement	Male, 50-60 Y
SH4	CSO	Diversity & intersectionality; participation	Female, 50-40 Y, handicapped
SH5	NGO	Nature Conservation	Female, 40-50 Y
SH6	CSO	Science education, environmental education	Male, 20-30 Y
SH7	CSO	Arts lab	Female, 50-60 Y
SH8	CSO	Urban gardening	Female, 20-30Y
SH9	CSO	Social work	Male, 30-40 Y
SH10	CSO	Urban gardening	Female, 20-30 Y
SH11	University	Urban gardening, education	Female, 20-30 Y
SH12	CSO	Youth work	Male, 40-50 Y
SH13	CSO	Science education, environmental education	Female, 50-60 Y
SH14	CSO	Science education, Knowledge co-creation	Female, 50-60 Y
SH15	CSO	Neighbourhood centre, social work	Female, 30-40 Y
SH16	CSO	Neighbourhood centre, social work	Female, 60-70 Y
SH17	CSO	Urban gardening practitioner	Female, 20-30 Y
SH18	University/CSO	Sustainability/ Urban Gardening	Male, 20-30 Y
SH19	University	Citizen participation, sustainability projects	Female, 20-30 Y
SH20	CSO	Urban gardening practitioner	Female, 20-30 Y

Some other key actors indicated their interest, but they were not able to participate in the event on October 18th, 2023. Our goal is to recruit a pool of 15-20 people for the policy LC, including representatives from the Migrant Advisory Board, Dept. For Women and Equality, Dept. for Economics and Tourism (in charge of developing the Food Strategy), Dept. for Social Affairs, Dept. for Health, and an association for elderly people as well.

For the practical implementation of our pilot activities, we will engage representatives of local citizen groups in a citizen LC. With this, we will start as soon as we will have settled all the formalities necessary to start with the detailed design of the pilot area.

The Learning Objectives (LOs) of the case

During the project, the development of a site with a focus on a 'biodiverse edible landscape' will be initiated. This area will be developed according to the criteria of enhancing biodiversity and social inclusion, which will be defined, monitored and

evaluated by the policy LC with guidance from the PLANET4B team. Special attention shall be paid to the diversity of people – who are eligible as (potential) users – whereby the voice of disadvantaged people shall be strengthened in such a way that they can contribute as equals – or if necessary privileged – compared to others. The concrete learning objectives will be 1) to successfully set up and conduct such a process of 'caring about bio-/diversity' within a project of green urban space development, and 2) the integration of lessons learnt (based on a reflection of the process) in policy-relevant agendas for similar future projects in the city of Graz. Details regarding the qualities of the learnings within the pilot area to be developed will be defined with the policy LC from October 18th, 2023, onwards.

LO 1: at the level of planning of (edible) green spaces (policy).

- LO Experiencing/creating inclusive/integrated policy-making (based on a joint definition by the LC of how inclusive participatory planning should be implemented).
- Aligning and thereby fostering existing strategies of planning, biodiversity, food and social politics (by assessing recent indicators/measures and adding further from P4B learnings as well as by interconnecting these strategies based on joint activities within the LC and expert interviews):
    - biodiversity strategy (currently in elaboration);
    - sustainable food strategy (process for elaboration currently in discussion);
    - city development concept/strategy (STEK – revised this summer);
    - social policies: e.g. strategy for inclusion (first published in October 2023).

LO 2: at the level of concrete projects (new design or renewal).

- Enhancing biodiversity in urban spaces.
- Experiencing participatory, socially inclusive and empowering process (by creating and implementing a green space design concept – including edibles and biodiversity – based on a joint effort with residents and users and other stakeholders with special attention of empowering marginalised groups).

- Abstracting learning experiences and principles for policy level (by reflecting in P4B, with LC and additional expert interviews and elaborating a 'guide for intersectional and biodiverse green space planning').

4.5 Place-based case – Swiss attitudes towards agro-biodiversity and religion (FiBL)

The composition of the LC

The following groups have been so far contacted to invite them and their members to participate as farmers in in-depth interviews and other persons with interest in biodiversity, religion and/or farming in learning communities' discussion groups:

1. Green Chicken certificate program for churches for implementing a number of environmentally friendly measures such as energy saving measures in church building and providing habitat for various birds, insects and plants. Website: https://oeku.ch/umweltpraxis/gruener-gueggel/.

2. Christlicher Bauernbund Kanton St. Gallen is a Catholic farmers' association. Website: https://katholische-bauernvereinigung.ch/.
3. Bauernkonferenz Schweiz is a non-denominational Christian farmers association, but based on their geographic location, it is expected that most of the farmers have mainly reformed or protestant background. Website: https://www.bauernkonferenz.ch/startseite/.
4. Votre Cercle de Vie, Château-d'Œx is a network initiated by Esther Mottier, a woman who got into nature-friendly farming and is showcased in a documentary the traces her journey in her establishment of her farm business. One of the mottos by this group is practice a culture of needs rather than a culture of consumption. This network is not explicitly part of an organised religion, but they do have a guiding moral code or philosophy, also known as anthroposophy, that has been made explicit and which has a lot in common with religious moral codes. Website: https://www.votre-cercledevie.ch/de/ueber-uns.
5. The group of nature interested farmers in Fricktal area. This group is not overtly religious and is composed of both organic and conventional farmers. They are concerned about biodiversity decline and are motivated to promote biodiversity on their farms. Website: http://www.ig-nundl-ag.ch.

So far one board member from one of the groups above has expressed interest in participating in the LC for the case study. However, the interviews and group discussions with the learning communities are scheduled for the Winter months due to farmers' activities being less intensive during the cold weather season. All the organizations contacted will be followed up to ensure their questions are answered and to ask for their support in introducing interested members for the learning community group or groups depending on the number of interested responses from various geographical areas.

The Learning Objectives (LOs) of the case

Language, culture, and religion have a strong impact on farmers' attitudes, leading to different agricultural practices even under the same policy conditions. Switzerland is a pluralistic society with readily identifiable farmer segments, based on language, culture, and religion, but all within a federal system that centrally administers incentives and regulations concerning biodiversity. Therefore, Switzerland is a perfect location to assess whether religion can be a helpful leverage point in propelling more biodiversity-positive agriculture.

Accordingly, the learning objective of the case is to find out about how religious beliefs do or could affect farming behaviour that is relevant to biodiversity-promoting or preserving farming behaviour. How interventions could influence this process or relationship between religious beliefs and pro-biodiversity farming will also be explored. Through specific interventions we aim to influence the attitudes and behaviour of farmers to enable them to include biodiversity in their "mindset" when they are making practical decisions. To do this, the case will establish a network and get a group of farmers together to find out what they think and how they think and why. How they see themselves with regard to sustainable farming/biodiversity related issues.

4.6 Sectoral case – "From ego-system to eco-system" in fashion in Italy (UNIPI)

The composition of the SB

The members of the Stakeholder Board (SB) are key actors equipped with relevant knowledge and information and belong to organizations engaged in the promotion of sustainable fashion practises and/or biodiversity focused policies. The Board includes actors from the company/business sector (three), environmental NGOs (two), communication (one) and civil society (one), as well as a National Ministerial Officer (one).

Table 4. The composition of the Stakeholder Board of the extensive case "From ego-system to eco-system" (UNIPI). Source: case study members.

Sector	Stakeholder (SH)	Gender, Age, Area of responsibility / discipline
Communication	SH1	Female age 50-60 Journalist and head of an advanced training course on sustainable fashion.
Government	SH2	Female age 40-50 Expert of the National Sustainable Development Strategy
Business Sector	SH3	Male age 30-40 Strategic consultancy for sustainability in the textile sector
	SH4	Female age 20-30 Sustainable and communication manager Italian Luxury Tannery
	SH5	Male age 50-60 Founder and coordinator of a network of companies for ethical, fair and measured textiles
Civil Society	SH6	Female age 50-60 Spokesperson at the global Clean Cloths Campaign Network which support the empowerment of manufacturing workers in global garment and sportswear supply chains
Enviromental NGO	SH7	Female 50-60 WWF Italy
	SH8	Male 30-40 Greenpeace Italy

The first workshop with the SB took place online 09/28/2023. It included a general introduction to the project, a creative introduction of the SB members, a presentation of the preliminary findings and an in-depth interactive discussion and the emerging issues and objectives about which the advisory board could play an important role.

The involvement and openness of the representatives of the universities has been rather limited for the moment and other categories and views have been privileged so far. Nevertheless, most members of the SB have established relationships with the university. One of the members is the director of an advanced course at the University of Florence and three of them have obtained a PhD.

The age of the participants ranges from about 30 to 55 years, and the SB is gender balanced (four women and four men). Different experiences, skills, roles, and types and levels (local, national, and international) of action and activation implemented are represented. Other criteria of intersectionality will be considered in the next phase.

The Learning Objectives (LOs) of the case

The co-designed learning objectives concern:

1. Understanding the interdependencies between loss/gain of biodiversity and the fashion industry including indirect and less visible interdependencies.
2. Highlighting the knowledge gaps to be filled and the possible leverage points for systemic change.
3. Identifying and supporting the formation of possible coalitions to envision/design policy recommendations and contribute to implementing some steps.

These objectives are relevant to answer the research questions of our case study and directly experiment through (and with) the SB members possible ways of addressing and delimiting the link between biodiversity and the fashion industry. These objectives reflect the different priorities and values of actors and create new ones, by putting them together and making them interact.

4.7 Sectoral case – Agro-biodiversity management in Hungary (ESSRG)

The composition of the SB

We invited stakeholders from different sectors of the quintuple-helix model:

- 'A' is a representative of the private sector. She is a creative consultant who specialises in small green and artisan enterprises, non-governmental organizations and gamification. She created a successful online course and learning community about balcony gardening and is familiar with different methods of social engineering.
- 'B' is a writer, an editor and a translator of speculative fiction. Though she works in the arts and culture sector (more specifically in literature publishing), she has a degree in agricultural engineering. In her work, she has a strong focus on gender and, in the last couple of years, she also started to focus on human-nature relationships as well as the representation of agriculture in literary fiction.
- 'C' is a biologist, an agricultural researcher as well as a market gardener. She has a market garden of around 2,500 square meters where she's blending experimental vegetable beds with market gardening, seed saving and agrobiodiversity maintenance. She also has a degree in growing herbs and spices and phytotherapy.
- 'D' is a market gardener, a researcher, a founder of a small ecofeminist community near Budapest, and also the president of Magház Association, the biggest Hungarian community seed network. She has a strong focus on empowering women, regenerative agriculture and finding new ways of blending market gardening with seed saving.
- 'E' is a photographer who works with eco-communities and ecovillages around Hungary. She has a strong interest in sustainability, equality and solution-

focused approach in arts. She was given a prestigious photography award in 2022.

As it can be seen from the list above, we included representatives of the private sector, research sector, NGO sector and individual gardeners, but not representatives of the governmental sector. There are several reasons we decided to assemble the stakeholder board this way:

1. According to the expert interviews, the policy environment is not the main obstacle to the improvement of agrobiodiversity.
2. When considering any art-related subjects, we can not overlook how politicised this area is in Hungary and we did not want to recreate the everyday power imbalances in our stakeholder board.
3. We wanted to give voice and space to those – small-scale gardeners and artists who usually have less chance to share their opinions.
4. We believe that all the members of our SB have a unique point of view about agrobiodiversity as well as gender-related questions that could be useful for our case study.

The Learning Objectives (LOs) of the case

Our main focus will be on art-based methods and agrobiodiversity. There is very little literature and very few examples of projects targeting the connection between arts and agriculture, let alone arts and agrobiodiversity in a European context. This was quite surprising for us. Art is a powerful tool which can help to raise awareness about a particular topic or to connect science and everyday life. Art addresses emotions, the senses and the subconscious mind of people, which is usually a more powerful way to engage and create behavioural change than relying solely on facts, statistics and scientific data.

At this stage, based in our research and also based on the interaction with SB, we outlined the following preliminary topics for our LOs:

- We are interested in the nature-human / biodiversity-human / agriculture-human relationships as expressed and communicated by different art forms.
- We are also interested in how the narratives of agrobiodiversity are gendered.
- We also want to learn about how and what kinds of arts-based methods can be applied creatively and effectively if the general public is the target audience.

4.8 Sectoral case – Environmental awareness in Education in Hungary (ESSRG)

The composition of the SB

We invited 13 stakeholders to the Stakeholder Board, 10 of them accepted our invitation to become board members, and seven participated in the first board meeting. We selected board members from among the experts and stakeholders we interviewed earlier, considering several aspects, especially: 1) the strength of their connection to the topic (i.e. their stake), 2) the diversity of knowledge and perspective they can provide to our case based on their professional background, and 3) balanced representation across gender. Furthermore, we consciously decided not to invite to the

board people who have strong decision-making power (e.g. civil servants from the ministerial level) to avoid that any board members feel insecure or lack trust in the process due to the political debates around public education in Hungary (i.e. ongoing protests of teachers, students and parents, and hostile decisions and new laws launched by the ministry). As a result, we have a moderately diverse Stakeholder Board, as explained below.

Considering the main occupation of the board members, there are four researchers (having university positions), three civil servants (one teacher and two former experts of the national education office), and three NGO employees (one NGO focusing on school gardens and the two other NGOs focusing on nature conservation but offering diverse environmental education initiatives). However, several of the board members have diverse professional backgrounds themselves, working at the boundary of research and public administration (i.e. developing educational programmes and textbooks for primary and secondary schools while also doing research), or research and civil society / volunteering. Considering the quintuple helix model, we are missing representatives of the arts and the business sector. Having no business representatives in the board is mainly due to the fact that our case is focusing on public education, so most of the actors are working in the public or the non-governmental sectors. Nevertheless, we identified some business initiatives which either donate environmental education programmes or provide some services to education programmes, and we aim to contact them at later stages of the project. Considering arts, we were in contact with artists who are active in arts-based environmental education programmes, but they were not willing to join the SB as benefits were not clear for them. We thus decided to work with them in a more occasional and action-oriented way.

Among the 10 members there are seven women and three men (while the three people refusing to participate were all men). The higher proportion of women in the board is because in Hungary education (as other care sectors) is a “feminine” profession with low wages and relatively low social recognition (compared to other white-collar jobs) leading to contraselection and a much higher number of women working as teachers, education experts and caretakers than men. We can consider participation in the SB as another “caring” or “supportive” kind of activity without financial compensation, which might further strengthen the gender-biased self-selection of participants. This system characteristic (as well as scientific literature pointing to differences in the environmental attitudes of girls and boys) led us to consider gender as one of our most important intersectionality dimensions to be included in our study.

In the coming year we aim to add a few more members to the board. The most important gap to fill is the representation of the young generation, therefore we aim to invite a young adult, preferably someone who participated in a school garden project before high school graduation. Additionally, we would like to invite at least another teacher to put more emphasis on on-the-ground experiences based on which we can make our research more beneficial to schools and teachers.

The Learning Objectives (LOs) of the case

Our case centres around the problem of whether and how public education can contribute to a shift in mental models towards more respect and care for nature and biodiversity. This is a critical question because we need changes in attitudes and

behaviours across the widest possible social circles, and public education is available at all levels of society, so it could provide a good entry point. We started our research with an international literature review and a search for Hungarian best practice examples. What we have found was mostly extra-curricular activities with very exciting and engaging content, while only a few examples tried to integrate biodiversity into the curricula at a more fundamental level. The review also highlighted that even though some best practices exist, there are hardly any reliable impact assessment tools that could provide robust results on what exactly is changed through these educational programmes. Even in studies which aim to measure attitudinal or behavioural impacts, mainly surveys are used, and control groups are often missing or very loosely defined. These findings further suggest that the growing number of experiential and immersive learning projects which offer a completely different approach to learning (from frontal education to interaction and co-learning) might need tailor-made impact assessment tools.

Expert interviews further reinforced the need for understanding and assessing the (potential) impacts of these educational projects. In every interview we had one specific question on relevant research directions / questions, and the lack of understanding the impact came up frequently. Based on the analysis of the interviews we identified five main research directions: 1) assessing the impacts of school gardens, 2) assessing the impacts of the newly launched Sustainability subject which is an optional subject in secondary schools, 3) assessing the impacts of artistic interventions, 4) understanding the role of “lighthouse” teachers in creating experiential learning projects through life-long interviews, and 5) comparison of core curricula across European countries. During the first workshop of the Stakeholder Board, we deliberated upon these options and the first three were selected as the most relevant and novel ones. Then, considering resource and time constraints, as well as our previous experiences and established networks, we decided to focus the rest of our case on the combination of two topics: 1) school gardens, and 3) artistic interventions (a participatory theatre play on biodiversity decline). Since both of these initiatives were created in a bottom-up manner and built mainly on voluntary contributions of civil society organisations, our choice also reflects our intention to empower actors whose access to financial and/or human resources is limited.

The agreed learning objective of our case is: to develop and test reliable tool(s) to measure the impacts on attitudes and behaviour induced by biodiversity focused educational approaches.

To achieve this learning objective, we will test different impact assessment approaches including easy to conduct quantitative tools (e.g. survey-like tools such as the nature connectedness scale or the children’s environmental attitudes scale) but also more creative, arts-based tools (e.g. photovoice or collage) and will corroborate the results through observations. We will work together with partner schools where a school gardening project is up and running. Selection of the schools will consider key intersectionality dimensions, such as social status and the rural-urban gradient, the type of the school (primary to secondary, vocational and grammar schools), and the gender balance of participating students. Beside studying the school gardens, we will bring a participatory theatre to the selected schools through our collaboration with the Káva Theater and WWF Hungary and will also study the impacts of the participatory theatre play on students who are engaged in the garden and who are not.

Table 6. Different intervention activities that will be tested during the case study. Source: case study members.

Matching the types of schools with observation points	School garden and theatre play	Only school garden	Only theatre play	No intervention (control group)
Rural / low-income primary school		x		x
Rural / low-income secondary school	x	x	x	x
Urban / high-income primary school		x		x
Urban / high-income secondary school	x	x	x	x

4.9 Sectoral case – Agriculture and migration in the EU (FiBL)

The composition of the SB

Our stakeholder board / experts consist of high-level experts with a good overview of the individual topics covered in our case study at European level. Until the end of October 2023 six expert interviews were carried out (three read as women, three read as men; from Central and Southern Europe; advanced working age).

We purposefully approached high-level experts for this phase to get a good overview and develop a generic European model. We plan to verify this model at individual study sites across Europe, where other actors will be involved (including male/female farmers, male/female labourers with diverse ethnicities, local politicians, environmental organisations, etc.). This way, we hope to include a greater diversity of actors in the case study.

The Learning Objectives (LOs) of the case

We aim to identify potential links between European labour migration, agriculture, and biodiversity conservation in agricultural landscapes. Specifically, we aim to find out how (migrant) labour availability influences farmers' decision-making; how labour migration influences farms and agricultural landscapes regarding biodiversity; how vulnerable biodiversity on farms and in agricultural landscapes is to changes in labour and migration policy. Finally, we aim to provide answers to those questions in immigration and emigration countries.

We decided to focus on inter-European migration to set some boundaries and hopefully provide some policy recommendations at European level. One main (and expected) outcome from the expert interviews is that the role of labour availability and migration in the context of sustainable agriculture (organic agriculture, agroecology, conservation agriculture, etc.) and land use (land sharing vs. sparing) has received little attention by researchers in the past.

Within this case study, we plan to involve stakeholders at different steps of the system dynamics (SD) process and to various degrees, as highlighted in Table 7. The process described in Table 7 highly depends on the scoping phase for problem definition, as this defines the direction of the entire study, important stakeholders, and interesting study sites within Europe. Thus, Steps 2-4 might change throughout the course of the SD approach, as is common for inter- or transdisciplinary approaches.

Table 7. System dynamic step planned for the case study development. Source: case study factsheet.

System Dynamic Step	Methods used	Stakeholder involvement	Additional information
Stage 1. Problem definition (Scoping)	Literature review Expert interviews for scoping / hearing	Iterative approach: Involvement of experts in the field during problem definition / hearing phase. A second interview with these experts will take place during the confirmation phase.	We aim to include 2-3 key experts in the scoping / hearing phase, who have a good overview of migration, agricultural practices, and biodiversity protection. Together with these experts, we will define the problem à This stage defines the direction of the case study. We aim to develop one generic European model (yet to be verified through open questions in hearing phase).
Stage 2. Problem characterisation and explanation and Stage 3. Model building	Qualitative causal loop diagram (static mapping, showing direction and roughly the strength of impacts)	The causal loop diagram will be fed with information from stakeholder interviews from different study sites.	We will identify individual study sites (e.g. fruit picking in UK, asparagus harvesting in DE, family agriculture in RO) and relevant stakeholders / interview partners. These will mainly include farmers (to answer which biodiversity-friendly production practices depend on migrant workers and what would happen if labour availability decreased) and farm workers (to answer what motivated them to leave and stay in addition to monetary compensation). At this point, we will test/illustrate the generic European model in case study sites. Develop a network of causal mechanisms in a causal loop diagram (CLD) explaining the dynamic phenomenon of interest, discuss this CLD from actor-specific perspectives, compare own mental models with the suggested CLD, discuss perceived differences in terms of causality or

			conceptual representation, elaborate the CLD
Stage 4. Finding policy options to generate change (Confirmation)	Systems analysis to identify policy levers Expert interviews for confirmation	Extractive through interviews. Closing the iterative approach with stakeholders involved in Step 1 to confirm findings and discuss potential policy options.	Potential policy options as well as the target audience for action will be identified once it is known what encourages and discourages biodiversity conservation in farming landscapes in both emigration and immigration countries.
Stage 5. Testing policy options	Use model to qualitatively test policy changes	Include policy makers for feedback.	This step will show whether policy levers have the intended impact and highlight potential unintended impacts.

4.10 Sectoral case – Trade & GVCs of soy/beef from Brazil to the EU/Netherlands (RU)

The composition of the SB

Our SB includes seven participants (but this is subject to change in the course of the case study). Table 8 presents further details on the proportion of different actors (based on the quintuple-helix approach). We did not cover actors from the private/business sector, although we tried to contact these actors several times and through distinct methods (email, calls, LinkedIn, etc.). But in fact, we believe that, in the context of our case study, private actors are already strong power holders; thus, we believe that it is possible to skip their contribution to our SB, at least at this stage of the research. With regard to the inclusion of diverse actors representing different intersectionality dimensions, three of our SB members are women. Nonetheless, in the next steps of the research, we are trying to include more women, and other colleagues with varied intersectionality backgrounds (Indigenous peoples, members from black or *quilombola* communities in Brazil; farmers in the Netherlands, and others).

Specific actors that we would like to include in the future composition of our SB are: representatives of communities and local people affected by the soy and beef supply chains in Brazil (small farmers, Indigenous peoples, peasants, women impacted by soy/beef monocultures, etc.) and vulnerable actors, linked to these value chains in the Netherlands (farmers, workers, etc.). We hope to include at least some of these members in the future configurations of the SB.

Table 8. Detailed composition of the Stakeholder Board of the case Trade (RU) as of October 3rd, 2023. Source: case study members.

Sector	Initial letters of SB member	Area of responsibility / discipline
Academia	D.A. (female, global south)	Assistant professor in International Relations in the Federal University of Bahia, Brazil
	N. S. (male, global south)	Assistant professor in International Relations in the University of Brasília, Brazil
Environmental NGOs	R. R. (female, global north)	Researcher in the NGO AidEnvironment, where she specialises in EU supply chain regulations such as the EUDR – The Netherlands
	D. O. (female, global north)	Forest program manager at the Friends of the Earth, where she focuses on deforestation control and environmental justice – The Netherlands
Business Sector	–	–
Civil Society	M. E. (male, global south)	Ex-public policies analyst at the WWF-Brazil
	L. B. (male, global north)	Coordinator and researcher at the Stichting Boerengroep (La Via Campesina) – The Netherlands
Government	L.D. (male, global south)	Adjunct deputy on the Ministry of Agrarian Development and Family Farming of Brazil

The Learning Objectives (LOs) of the case

Together with our Stakeholder Board, we agreed on the following Learning Objectives (LO):

LO1: To understand the potential and limitations of recent European Union supply chain policies, for example the EUDR (European Union Deforestation Regulation) and the CSDDD (Corporate Sustainability Due Diligence Directive), to curb deforestation and biodiversity loss in Brazil and the Netherlands, as well as the interplay between EU policies and relevant national policies in Brazil and the Netherlands.

- Monitoring deforestation and the empirical trajectory of due diligence, and understand how this is associated with large multinational traders and markets of soy and beef in Brazil and the European Union/Netherlands.
    - Investigate how operators and large traders, connected to the Brazil-EU/Dutch supply chains of beef and soy, are promoting due diligence in light of the requisites of the EUDR.
- Characterise and understand the complementarities between the EUDR (regulation) and the CSDDD (directive).
- Map how the EUDR will be interconnected with national policies at the Dutch and Brazil level.
    - Interactions between the EUDR (EU-level), the EU Common Agricultural Policy (EU-level), and the Dutch Agricultural Agreement (Netherlands level), among others.

    - In Brazil, potential policies are the Forest Code, PPCDAm and PPCerrado, Programa de Aquisição de Alimentos, among others.
- Study how the EUDR will be implemented at the National Level, considering the Netherlands (currently at the implementation stage of the EDUR).
- Highlight the impacts of the currently limited EUDR coverage, which does not apply to other Brazilian biomes, such as the Pantanal, Atlantic Forest.
- Observe how civil Society can influence the EUDR implementation.
- Pay attention to the Article 30 of the EURD, about complementary measures or agreements with producer countries to curb deforestation.
- Analyse how the revisions of the EUDR will take place, since there will be a revision towards other ecosystems (other wooded lands), a crucial process for biodiversity protection in Brazil.
- Understand better the limits of the EUDR with regard to:
    - How to improve the review process, since the law does not cover human rights aspects.
    - Investigate the level in which the EUDR is being used as a market creation vector for technology companies that produce, for example, solutions for supply chain traceability.
    - Investigate if or how the EUDR could include territorial rights in sourcing countries such as Brazil.
    - Understand better the limits of the 2020 timeframe in the EUDR.
- Track the process of implementation of the EUDR in the Netherlands, and identify the main conflicts, actors involved and vested interests.
- Understand the potential impact of the EUDR on smallholders, considering intersectionality (especially after the revision of the regulation, which currently focuses mainly on large firms).
- Understand how relevant Trade Agreements (between the EU and sourcing countries) can be affected by the EUDR.
- Policy gap analysis considering the EUDR and, if possible, the CSDDD.
- Observe how the Benchmarks will be set up after the EUDR implementation (definition of high risk countries, low risk countries), considering that this is a highly political process.

LO2: Identify and analyse distinct socio-biodiversity challenges, risks and opportunities (for biodiversity and people, considering intersectionality) connected to the soy and the beef supply chains in Brazil's Cerrado and Amazon biomes (supply side) and in the Netherlands (demand side).

- Better understand how the phenomenon of *virtual waters* in Brazil is associated with soy expansion and its socio-environmental impacts, particularly in the Cerrado biome.
- Understand the different *rural conflicts* associated with soy and beef supply chains in Brazil.
- Understand how women, Indigenous peoples, and forest peoples are considerably more impacted by the same social processes that cause biodiversity loss. For example, women's contamination by pesticides used in soy plantations, that eventually poison water sources, given that women are the ones who usually have the most contact with water through daily handling (cooking, cleaning, etc.).

- Understand the impacts of the soy and beef supply chains for Indigenous peoples.
- Revisit and investigate the PPCDAm and PPCerrado (national policies in Brazil for the Amazon and the Cerrado biomes) and connections with the issue of land grabbing.
- Study the processes of green land grabbing and land regulation, see land grabbing areas which, despite not being geophysical suitable for agribusiness, are grabbed for other purposes.
- Better understand the concept of "deforestation" that is adopted in EU regulations, especially regarding *other wooded lands* in the Cerrado.
- Understand how intersectionality and socio-environmental violence are associated with the soy and beef valuer chains in the Dutch (demand) side, for example:
    - pollution from industrial farming system, industrial livestock and food processing (soy and beef) – e.g. use of pesticides, herbicides in the Netherlands;
    - drinking water contamination in the Netherlands;
    - working conditions: migrants working in slaughterhouses in the Netherlands.
- The impacts of the infrastructures (roads, ports, airports, dams, energy infrastructure etc.) for soy and beef production and trade in Brazil considering biodiversity and people.
- Understand how alternative value chains linked to the bioeconomy can work towards better biodiversity and better conditions for people (e.g. Sempre Viva flower picker women; Babaçuais in the MATOPIBA region, others).
- Analyse better alternative production systems in soy and beef producing regions, rooted in the forests (e.g. Cerrado and Amazon) standing, including local value chains (e.g. non-timber products incl. guarana, nuts and fruits, handicrafts) beneficial to biodiversity conservation and to improve local livelihoods and wellbeing.

These two broad LOs reflect the diverse values of members of our SB. Civil society members highlighted the potential of the case study to understand the impacts of regulations such as the EUDR on human rights and minority peoples in Brazil and the Netherlands, particularly in the implementation and revision phases of the regulation. Members from academia highlighted the importance of understanding the structural dimensions of biodiversity loss and environmental violence, in Brazil and the Netherlands, but also more broadly, in connection with the supply chains and trade of the beef and soy commodities. Special attention was given to the connections of the soy and beef supply chains with topics such as water, health, pollution, rural violence, land grabbing and the nitrogen crisis, reflecting the broader perspective and deep knowledge of our SB members. Additionally, Indigenous peoples, smallholders, family farmers, peasants and women were cited as vulnerable groups that should be further researched in the context of the case study.

4.11 Sectoral case – Sustainable investment behaviour Global-EU-Norway (NINA)

The composition of the SB

The Stakeholder Board for our case study in the financial sector consists of a diverse group of participants who play pivotal roles in the industry's ecosystem. The Board was carefully constructed to encompass a broad spectrum of perspectives on investor cognitive biases in the context of ESG uncertainty.

The Board is composed of the following members:

1. SH1 (male) – Partnership for Biodiversity Accounting Financials (PBAF)/CREM;
2. SH2 (male) – UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC);
3. SH3 (female) – UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC);
4. SH4 (male) – Taskforce on Nature-related Financial Disclosures (TNFD);
5. SH5 (male) – Senior Specialist on Nature;
6. SH6 (female) – Kommunal Landspensjonskasse (KLP);
7. SH7 (female) – Capitals Coalition.

Rafal Chudy and David Barton, case leaders from NINA, moderated the SB meetings. The Board members represent six different organisations that are closely involved in the subject of biodiversity and finances. These actors represent global collaborative platforms and multi-stakeholder initiatives (e.g. TNFD, Capitals Coalition), and financial sector representatives (e.g. KLP pension fund), as those are the most crucial stakeholders to help us achieve our study objectives. The stakeholders represent different intersectionality dimensions, such as gender, age, and background.

The stakeholder board implemented multi-actor approach, representing a diverse range of stakeholder institutions to foster a collaborative and impactful dialogue. However, we did not have the freedom to choose other intersectionality characteristics of our stakeholder board.

Recruiting financial corporation actors to our SB has proven to be challenging. While we acknowledge the importance of their perspective in our case study, we have proactively engaged with other stakeholders who are more readily accessible and willing to participate. Nevertheless, we remain open to future engagement with these actors and will continue our efforts to foster meaningful dialogue and cooperation to enhance the comprehensiveness of our research.

The Learning Objectives (LOs) of the case

In the complex environment of investments, characterised often by uncertainty, limited information and bounded rationality, cognitive biases may play a crucial role in influencing investors decisions. Cognitive biases are predictable, systematic errors that arise when people rely on simplified information processing strategies (heuristics) when making decisions or judgements. To our knowledge, no comprehensive review of the grey and scientific literature has been done regarding cognitive biases that

influence financial actors' use of ESG metrics in investment decisions and how these biases may harm biodiversity at the local level and portfolio allocation.

Out of our SB meetings, we expect to yield valuable insights with respect to:

1. Understanding how different actors perceive and prioritise ESG factors. Do they overemphasise short-term financial gains over long-term sustainability, leading to biases in decision-making?
2. Are they aware of cognitive biases, such as confirmation bias (favoring information that confirms preexisting beliefs), or overconfidence bias (overestimating the accuracy of one's judgments), and how these biases may influence their ESG utilization. Are financial actors aware that various biases may lead to suboptimal investment decisions that harm biodiversity at the local level, or entire portfolios? Conversations can include whether stakeholders exhibit biases such as familiarity bias (preferring familiar investments) or recency bias (giving undue importance to recent events), which could impact the allocation of resources to biodiversity-related investments. It will be interesting to learn about risk perception of financial actors and for instance how temporal discounting of environmental risk may result in underinvestment in biodiversity preservation efforts.
3. Also, we would like to understand better from stakeholders how cognitive biases may impact local-level investment decisions. We will explore, e.g. distance bias (underestimating the importance of distant events) that may lead to underestimating the harm to local biodiversity resulting from distant investments.

5 Discussing the lessons learnt, the intersectionality dimensions and outreach of LCs and SBs

The lead authors of this report, which are the leaders of Task 3.1 and WP1, asked cases to write 1-2 paragraphs about the main lessons learnt so far. This could include challenges cases have faced, achievements, surprises (conceptually, or methodologically), or adjustments to their earlier plans. We also asked cases to include a more critical reflection on how the original approach of contacting stakeholders and setting up LCs/SBs worked (or did not work). Again, in the following discussions, we have “given voice” to the cases to express their reflections.

Intensive case – OOF/NINA

Given our special responsibility to be inclusive of age and (dis)abilities, OOF and NINA spent much time discussing who our focal group should be, concretely, and how to work with this group. We decided to work with children with disabilities to give a voice to those for whom nature experiences may be especially beneficial yet not necessarily easily accessible. Because working with children is ethically challenging and caretakers and children with disabilities may easily become exhausted, we spent much time thinking about how to best approach and work with this group. This has been an iterative process. We adjusted our plans many times before landing on our current approach which is guided by Institutional Ethnography and much inspired by the work and mentor program of the Sunnaass Foundation, who has been pivotal and very supportive of our work.

To set up our LC, we chose a bottoms-up-driven approach whereby we started with a smaller group of people who are experts on practicing outdoor recreation with disabilities and making nature experiences inclusive of children and young adults with disabilities. The initial contact with the mentors who were recruited to our LC, was made possible by the Sunnaass Foundation. Based on the expertise, needs, and wishes of our Learning Community, the community will grow over time to include additional, relevant people. Consequently, we are currently recruiting two parents of children with disabilities.

Although our recruitment process deviates from the quintuple helix approach, we feel that our approach is very much aligned with the core principles of PLANET4B as it is guided by the needs and wishes of our focal group. OOF and NINA thus feel confident that our activities will be directly relevant for providing good nature experiences for children and youth with disabilities.

Intensive case – DC/CU

The challenges so far for us have been our time in relation to our full-time jobs, planning our daughter's wedding which takes place over October/November, and keeping up with various email chains. We were pleasantly surprised that all the stakeholders we approached were keen to participate and accepted our invitation to participate.

Intensive case – CGE/MLU

The early experiences of the PLANET4B LC have yielded valuable lessons that have informed our approach and will guide our future activities. Firstly, we were pleasantly surprised by the enthusiasm and engagement of the LC members. Their eagerness to continue active participation and even lead workshops themselves is a testament to the project's success in fostering a sense of ownership and empowerment among the participants. For instance, one of our members' initiative to incorporate the methods we've used into his Training Course on sustainability showcases the ripple effect of our efforts to promote experiential learning and biodiversity awareness.

One significant adjustment we've made is the realization that for a deep dive into experiential learning, multiple-day activities are more effective. While day trips and overnight stays can bring young people closer to biodiversity, they may not suffice to bring about significant changes in attitude. Longer engagements allow for a more profound connection to nature and increased opportunities for reflection. Moreover, we've recognised that for a more substantial impact, activities should incorporate several methods. This approach allows for a more holistic learning experience and aligns with our mission to empower youth and inspire sustainable decision-making. In retrospect, our approach of engaging stakeholders and setting up LCs has proven successful in generating enthusiasm and commitment among participants, positioning them as active agents of change. It has demonstrated the potential for a collective effort to address critical environmental challenges effectively. As we move forward, we are excited to build on these early insights, encouraging the exchange of methods and knowledge within the LC and designing multi-faceted activities to create a lasting impact on biodiversity awareness and decision-making.

Intensive case – FuG/IFZ

As we are still in the very beginning of the process of interacting with our LC, we cannot build that much on challenges we already faced, but more on those we anticipate.

Starting with the positive aspects, already established good contacts with city representatives will be crucial for the successful implementation of our pilot activities. We are very lucky that we found allies in the Dept. for Green Spaces and Water, who support our plans. Another important ally is a representative from the Dept. for Citizen Participation, who already participated in our first event in December 2022. On the other hand, the Dept. in charge of elaborating the Sustainable Food Strategy is at the current point in time still sceptical about our intervention. Representatives participated as well in the Event in December 2022 as in the Event in June 2023, but they are reluctant to participate in our P4B pilot.

In general, the political system at the city level does not build a favourable environment for integrated policy-making as it relies on a proportz system and departments are not much in favour of working together (particularly if different parties run different departments). Moreover, city strategies are not or hardly coordinated, and it is not clear how the strategies are monitored and evaluated – e.g. the STEK document is central to the city development, but it does not contain any detailed measures and actions for its implementation.

A particular challenge is certainly the recruitment of participants, as we are not only looking for their appreciation of our project but also need their active participation and support. In this context, it is not only important to convince them of the importance of our project but also to establish concrete links to their areas of responsibility and expertise. As the process takes place over a longer period of time and continuity in engagement will be important, participants need to show a high degree of commitment. In order to achieve sustainability, long-term commitment particularly from key actors will be crucial.

For the citizen LC it will be very important that we will be able to practically implement something which will last beyond the project duration. The recruitment of engaged citizens might become challenging as well as this refers first to the general interest of a group of people to engage, but also to our decisions on whom to approach (we will definitely not be able to organise a very broad citizen engagement process), and whom not.

We needed to withdraw the plan involving young people in needs through the organisation ‘Youth at Work’ in a LC in the context of the practical implementation of pilot activities. First, it is formally very complicated, secondly because they can only participate for a few months in this programme, which would be too short for the LC implementation.

Finally, it is very important to align LC participants’ expectations towards the project with what we actually can do. Therefore, very transparent communication in regard to that is of high importance.

Intensive case – Agriculture & religion FiBL

The uncertainty of knowing who will respond to the study's call, makes it challenging to think about planning the research questions that would make most sense from the group to ask and the logistics of where to plan to host the group discussions makes planning difficult.

Also, thinking about the research questions that are related to how religious beliefs influence farming decisions, the aim of the case study, and the question of creating a nested system of factors influencing pro-biodiversity farming, the aim of the learning community required by the project PLANET4B, is difficult to reconcile given the broad nature of the latter and the more specific nature of the former both to be achieved within two hours of bringing the LC members for the first discussion. The second planned workshop also has specific goals (e.g. policy recommendations, that do not allow further examination of religious beliefs' influence, which would be a missed opportunity given that we expect members of the religious communities who may not be farmers will participate). To do a third workshop would be demanding on the participants, so we are wary of asking for that unless there is high interest in the group to commit more time to the study. This can be contemplated later.

Extensive case – Fashion UNIPI

The main lessons learnt during the first meeting with our SB were how the connection between the fashion industry and biodiversity is differently observed and understood according to the different experiences, positions/roles in the system and viewpoints.

According to the SB members, biodiversity is not prioritised as a lens to explain ecological transformations: not as climate change, pollution, waste, and other more widespread, though not clearly understood, concepts and ideas. To date, it still has less room in the public debate, is less understood by actors, and, even when considered and when it becomes the subject to analysis and negotiation in institutional and multi-stakeholder contexts, the fashion industry is not considered a priority sector for biodiversity interventions compared to other sectors (e.g. steel, energy, automotive, food industry). However, raw material extraction, land, and water use, microplastics and chemicals usage in production process, transportation, waste, as well as the overproduction of these materials and end products have huge impacts on various points of the supply chain. The latter and the working conditions within the global supply chain are indeed considered the "two elephants in the room" in any discussion about fashion and biodiversity.

Still, to date, it has been difficult to highlight such invisible links between phenomena so little considered together. People who are part of the SB consider it very important to continue highlighting and deepening these connections, including both the production, communication, and consumption sides of the chain.

Finally, the SB consider relevant the expansion of the number of the participants, including new stakeholders with greater responsibility for production and control (for example, big brands), and other actors who are most affected by some socio-ecological impacts (workers, associations of workers, and citizens).

Extensive case – Agro-biodiversity ESSRG

We have had several surprises even in the early stage of the project. As soon as we started with the expert interviews, it became clear that interviewing governmental officials or experts of governmental institutions might be more difficult than we had anticipated. A couple of actors from the governmental field (including the national gene bank and the national health agency) turned down our interview requests due to heavy workload or 'not being involved in the topic'. Another great surprise was that so far the experts whom we interviewed do not see agrobiodiversity-related policy-making as the main obstacle or area for improvement. As already mentioned above, this is the main reason why we decided to focus on another area that has very little publicity and coverage in the EU: art-based methods and agrobiodiversity.

Concerning our theoretical research, the main conclusion so far is that concerning the topic of agrobiodiversity and gender, there is an understanding in the reviewed scientific literature that agriculture in general but especially agrobiodiversity and agrobiodiversity management are highly gendered areas. It was quite surprising that almost all of the case studies referring to gender and agrobiodiversity were conducted in the countries of the Global South and there was not much to read about the topic in a European context. We found that to be able to ask questions about the connection between agrobiodiversity management and gender, we have to understand the basic principles of ecofeminism. For this reason, we also read some publications about the basics of ecofeminism and also touched this topic in several interviews. An interesting (and maybe a little surprising) fact is that even from the very few interviews we have already made, we can distinguish different mindsets, different words of men and women when talking about seeds and agrobiodiversity management.

Concerning our SB, it might be worth mentioning that all five invited members were very enthusiastic about joining the SB and working on something art-related and creative yet still scientifically based. The women who are active farmers and are involved in different kinds of research projects were especially clear about how important it is to them to be able to work on a project that promotes and empowers creativity and linking people.

Extensive case – Education ESSRG

The most striking lesson learnt is the dual situation of Hungarian environmental education: on the one hand, there are incredibly innovative, forward-thinking teaching materials and experiential best practices, usually led by so-called "lighthouse" teachers, whilst on the other hand, it all operates in an overburdened and centralised system, with constant strikes and resignations, as well as burnout among students and teachers alike. The described education system places constant obstacles in the way of enthusiastic teachers, whose original ideas are stifled by overwork and an uncertain future. Moreover, traditional pedagogical approach and the general culture along with socialisation in schools is against creativity and critical thinking. This led us to the conclusion that even though we now focus on solutions that are the most promising, we want to keep a critical stance on the system level barriers. Unfortunately, it is also more than likely that there will be little chance of policy-level transformation – due to the same systemic issues.

Another lesson came from one of our board members, a high school teacher, who mentioned during the meeting that her main interest lies in supporting schools. This sentence particularly stuck with us, as our aim with this research would be to find a little light in the oppressive system, to make life easier and better for teachers and students alike, while keeping biodiversity-related aspects in mind. In conclusion, how we can help schools should be a more important consideration than enriching our own scientific output. Furthermore, it has also become clear that this research is highly rewarding not only for the individual researchers, among whom it creates strong bonds and commitment, but also for the board members, who enthusiastically support the project, whilst exchanging ideas and creating a community around environmental education in Hungary.

Extensive case – Agriculture & migration FiBL

One challenge was the low response rate of approached experts. Thus, we approached establishing a Stakeholder Board (SB) differently, by first having an expert interview and establishing a connection, and then asking experts if we can contact them again in the future. Getting experts to respond to an email inquiring their willingness to participate in a one-hour expert interview was challenging. Approaching them with an inquiry to invest even more time might have reduced the response rate even further.

The process of changing the stakeholder board workshop to individual interviews suited the initial hearing phase of this case study. It gave each expert one hour to share their in-depth knowledge and thus contribute greatly to this phase. Whether or not this is a suitable approach for the confirmation phase will be decided at a later point in time.

Extensive case – Trade and GVCs RU

Setting up the SB for our case study was a challenge because this is a new field of investigation for us, the case lead researchers (from RU). So, we did not know a network of academics, NGOs or policymakers working in these issues when we started the research. Currently, however, we have developed an initial network, including our SB members, that will collaborate with us along the research. Challenges ahead include: keeping SB members engaged; include more SB members, particularly from vulnerable social groups, with different intersectionality social markers, both in Brazil and in the Netherlands. In our view, the SB helped us considerably in setting up our research goals for the case, since all the SB members have many years, sometimes decades, of knowledge working with the topic.

Extensive case – Sustainable finance NINA

The recent stakeholder board meeting proved highly successful as all parties involved demonstrated support for the project. Not only did they express their enthusiasm for the ongoing endeavors, but they also endorsed the organization of two additional meetings, one of which had been agreed upon earlier. This eagerness to convene further sessions reflects their genuine commitment to contributing actively and evaluating the progress of our work at NINA.

Furthermore, some of the board members offered their assistance in connecting us with other potential collaborators who could provide invaluable for extending our

research on case studies related to the project's intersection of finance and biodiversity. The proactive stance of stakeholder board members extended to facilitating a deeper exploration of investors' cognitive biases and their profound impact on the decision-making process, underscoring their dedication to ensuring the project's comprehensive success. Regarding intersectionality concepts, they are challenging to apply as a structuring element for analysis at the sector policy level. We do not address intersectionality with the SB. We do not have the freedom to choose the intersectionality characteristics of our SB.

5.1 Comments and final reflections on intersectionality and the outreach of the LCs and SBs

PLANET4B LCs and SBs so far include 75 members with varied gender, ethnicity, ablism status, religions, and geographic backgrounds. Participants were invited from much wider communities and contacted through priori workshops, interviews or surveys. The diversity of LC/SB members reflects the approach shared amongst PLANET4B members of considering intersectionality centre-stage in all our activities in this project.

Table 9. Summary of intersectionality dimensions and outreach of LCs and SBs. Source: authors' own elaboration.

Case	**Number of members in LC or SB (female; male)**	**Intersectionality dimensions in the LC or SB**
Place-based case – Nature recreation in Oslo, Norway (OOF/NINA)	3 members (all males)	Inclusive of age and disabilities. So far, not succeeded in recruiting women or non-white Norwegians, but this is work in progress.
Place-based case – Opening nature to Black, Asian and ethnic minority communities in the United Kingdom (DC/CU)	10 members (6 female; 4 male)	Composed mostly by female representatives in their 30s-40s, all with at least the undergraduate educational level, and mostly with Indian ethnicity.
Place-based case – Urban Youth in Germany (CGE/MLU)	9 members (3 female, 6 male)	Participants hail from various corners of the world, including India, Central Russia, and West Asia, offering a multicontinental perspective and representing different ethnicities, religions, and genders. Age range spans from 22 to 27, reflecting the vibrant dynamism of the youth
Place-based case – Edible City and Inclusion in Graz, Austria (FuG/IFZ)	12 members (7 female, 5 male)	Members include policy actors connected to the Department for Green Spaces and Water, which is part of the 'City Planning Directorate' ('Stadtbaudirektion'). The main purpose of this board is to ensure that biodiversity and social inclusion (addressing intersectionality). The goal is to recruit a pool of 15-20 people for the policy LC, including representatives from the Migrant Advisory Board, Dept. For Women and Equality, Dept. for Economics and Tourism (in charge of developing the Food Strategy), Dept. for Social Affairs, Dept.

		for Health, and an association for elderly people
Place-based case – Swiss attitudes towards agro-biodiversityand religion (FiBL)	5 members from religious farming organizations have been invited to compose the LC, and 1 member accepted.	Will include members from various geographical areas and distinct religions.
Sectoral case – "From ego-system to eco-system" in fashion in Italy (UNIPI)	8 members (4 female, 4 male)	The age of the participants falls between approximately 30 and 55 years. The SB consider gender parity (4 females and 4 males). Different experiences, skills, roles, and types and levels (local, national, and international) of action and activation implemented are represented. Other criteria of intersectionality will be considered in the next phase.
Sectoral case – Agro-biodiversity management in Hungary (ESSRG)	5 members (all 5 female)	Included representatives of the private sector, research sector, NGO sector and individual gardeners, all somehow connected to the artistic movement.
Sectoral case – Environmental awareness in Education in Hungary (ESSRG)	10 members (7 female, 3 male)	The higher proportion of women in the board is due to the fact that in Hungary education (as other care sectors) is a "feminine" profession with low wages and relatively low social recognition. The most important gap to fill is the representation of the young generation, therefore we aim to invite a young adult, preferably someone who participated in a school garden project before high school graduation
Sectoral case – Agriculture and migration in the EU (FiBL)	No members yet, but interviews with potential SB members are currently being conducted	Five (5) expert interviews carried out (3 female, 2 male), with participants from Central and Southern Europe. Most of them with advanced working age.
Sectoral case – Trade and GVCs soy/beef from Brazil to the EU/Netherlands (RU)	7 members (3 female, 4 male)	With regard to the inclusion of diverse actors representing different intersectionality dimensions, three of our SB members are women. Nonetheless, in the next steps of the research, the goal is to include more women, and other colleagues with varied intersectionality backgrounds (Indigenous peoples, members from black or *quilombola* communities in Brazil; farmers in the Netherlands, and others).
Sectoral case – Sustainable investment behaviour Global-EU-Norway (NINA)	6 members (3 female, 3 male)	The stakeholders will represent different intersectionality dimensions, such as gender, age, and background.
TOTAL	**75 members in our LCs & SBs (100%):**	• **Gender (majority of the members are female)**

	• **41 female (54,7%)** • **34 male (45,3%)**	• **Age (eldery representatives in some cases; focus on Youth in others)** • **Ablism/Disabilities** • **Varied ethnicities and geographies within and beyond Europe (British-Indian, Latinxs, India, Central Russia, and West Asia, all European subregions, etc.)** • **Religions**

Table 9 demonstrates the main intersectionality dimensions covered in our LCs and SBs. A series of intersectionality dimensions were addressed, in particular, age, ablism and disabilities, and varied ethnicities and geographies within and beyond Europe.

With regard to the quintuple-helix approach, some of the cases deliberatively decided to focus only on one helix, while others covered several or all helices. The main reason for cases to divert from the quintuple-helix approach was that it is easier to create a safe space through more homogenous membership than in diverse groups, which is especially relevant in situations where community members struggle with various vulnerabilities. Therefore, cases where the LC/SB is more diverse from the point of view of intersectionality are usually less diverse in terms of the quintuple-helix approach. Even in cases which intended to cover all the five helices, it was difficult to achieve a full representation, either because there were unresponsive or irrelevant stakeholder groups, or because the case leaders decided not to invite the most powerful actors to ensure a higher level of trust in the process. On the other hand, we also realised that the five helices sometimes required us to draw artificial lines between professions. Especially in cases where LC/SB members have diverse backgrounds (e.g. working as a market gardener but also as a researcher, or volunteering at an NGO but at the same time working as a civil servant), it was difficult to classify some of the participants under only one category.

Considering all the cases, civil society is the most highly represented group in the LCs and SBs (35 out of the 75 members), mainly because learning communities of the intensive cases invited mostly the members of their close communities. This is followed by representatives of the academic and education sector (n=15), the business sector (n=12), the governmental sector (n=10), and finally the representatives of nature (predominantly environmental NGOs, n=8) (see also Table 10).

Table 10. Representing the members of learning communities and stakeholder boards according to the quintuple-helix approach. Source: authors' own elaboration.

Cases	**The five helices**				
	Civil society	**Academia**	**Business sector**	**Govern-mental sector**	**Nature**
Nature recreation in Oslo	3	–	–	–	–
Opening nature to Black, Asian and ethnic minority communities in the UK	10	–	–	–	–
Urban Youth in Germany	9	–	–	–	–

Edible City and Inclusion in Graz	7	1	–	3	1
Swiss attitudes towards agro-biodiversity and religion	–	–	5	–	–
"From ego-system to eco-system" in fashion in Italy	1	1	3	1	2
Agro-biodiversity management in Hungary	1	1	2	–	1
Environmental awareness in Education in Hungary	1	4	–	3	2
Agriculture and migration in the EU	–	5	–	–	–
Trade and GVCs soy/beef from Brazil to the EU/Netherlands	2	2	–	1	2
Sustainable investment behaviour Global-EU-Norway	1	1	2	2	–
TOTAL	**35**	**15**	**12**	**10**	**8**

With regard to the Learning Objectives, table 11 summarises all LOs per case study, and categorises such objectives according to their focus area. While all cases are research-driven, some LOs (particularly from extensive cases) are research-intensive based in more traditional social science research methods, for example, interviews and literature reviews to explore different trajectories of biodiversity action (or inaction) in the respective research topics of the cases. Several LOs are driven by understanding the power of interventions to trigger biodiversity prioritisation and action. Finally, other LOs aim at exploring policy change at the local, national, international, or sectoral level.

Table 11. Learning Objectives per Case and Respective Focus Areas. Source: authors' own elaboration.

Cases	**Learning Objectives**	**Focus Areas of Learning Objectives**		
		Research	**Interventions**	**Exploring policy change**
Place-based case – Nature recreation in Oslo	The first alternative objective could be to outscale the Sunnaas Foundation mentoring program to settings outside of the Sunnaas Foundation. The second alternative objective builds on an identified need for aggregating and making information about recreational activities and opportunities for good nature experiences accessible to parents of, and youth and children with disabilities.	x	x	
Place-based case – Opening nature to	The case study aims to explore and better understand the diverse		x	

Black, Asian and ethnic minority communities in the UK	lenses through which people of colour engage with, understand, and talk about the biodiversity agenda in its broadest sense. One of the goals is to promote intercultural nature dialogues where White middle-class people and Black, Asian and minority ethnic (BAME) groups exchange and learn together about biodiversity, where different forms of knowledge (respecting all knowledge forms) are respected, discussed and built on as a learning community.			
Place-based case – Urban Youth in Germany	Firstly, the question of how empowered young people feel to influence biodiversity and nature prioritisation is of paramount importance, as it touches upon inclusivity and the democratic process of decision-making. Recognizing the underrepresentation of youth, especially those with fewer privileges, in decision-making processes is a key step toward rectifying this imbalance. Secondly, investigating the impact of various intervention methods on empowering younger age groups is vital for shaping more environmentally conscious and active citizens. By understanding how experiential learning, behavioural games, and creative interventions affect youth, we can design more effective strategies for increasing biodiversity awareness and promoting sustainable decision-making.	x	x	
Place-based case – Edible City and Inclusion in Graz	Firstly, to successfully set up and conduct such a process of 'caring about bio-/diversity' within a project of green urban space development. This objective is at the level of planning of (edible) green spaces (policy), including: a) experiencing/creating inclusive/integrated policy-making (based on a joint definition by the LC of how inclusive participatory planning should be implemented; and b) aligning and thereby fostering existing strategies of planning, biodiversity, food and social	x	x	x

	politics (by assessing recent indicators/measures and adding further from P4B learnings as well as by interconnecting these strategies based on joint activities within the LC and expert interviews). Secondly, the integration of lessons learnt (based on a reflection of the process) in policy-relevant agendas for similar future projects in the city of Graz. This goal is at the level of concrete projects (new design or renewal), including: a) enhancing biodiversity in urban spaces; b) experiencing participatory, socially inclusive and empowering process (by creating and implementing a green space design concept – incl. edibles and biodiversity – based on a joint effort with residents and users and other stakeholders with special attention of empowering marginalised groups); c) abstracting learning experiences and principles for policy level (by reflecting in P4B, with LC and additional expert interviews and elaborating a 'guide for intersectional and biodiverse green space planning').			
Place-based case – Swiss attitudes towards agro-biodiversity and religion	The Learning Objective of the case study is to find out about how religious beliefs do or could affect farming behaviour that is of relevance to biodiversity-promoting or preserving farming behaviour. How policies could influence this process or relationship between religious beliefs and pro-biodiversity farming will also be explored.	x		x
Sectoral case – "From ego-system to eco-system" in fashion in Italy	Firstly, understanding interdependencies between loss/gain of biodiversity and the fashion industry included indirect and less visible ones. Secondly, highlighting which are the knowledge gaps to be filled and the possible leverage points for systemic change. Thirdly, identifying and supporting the formation of the possible coalitions to envision/design	x		x

	policy recommendations and contribute to implementing some steps.			
Sectoral case – Agro-biodiversity management in Hungary	Firstly, the case study is interested in the nature-human / biodiversity-human / agriculture-human relationships as expressed and communicated by different art forms. Secondly, there is an interest in understanding better how the narratives of agrobiodiversity are gendered. Thirdly, the case study aims to learn about how and what kinds of arts-based methods can be applied creatively and effectively if the general public is the target audience.	x	x	
Sectoral case – Environmental awareness in Education in Hungary	The agreed learning objective of the case is: to develop and test reliable tool(s) to measure the impacts on attitudes and behaviour induced by biodiversity focused educational approaches. To achieve this learning objective, the case leaders will test different impact assessment approaches including easy to conduct quantitative tools (e.g. survey-like tools such at the nature connectedness scale or the children's environmental attitudes scale) but also more creative, arts-based tools (e.g. photovoice or collage) and will corroborate the results through observations. We will work together with partner schools where a school gardening project is up and running.	x	x	
Sectoral case – Agriculture and migration in the EU	The case study aims to identify potential links between European labour migration, agriculture, and biodiversity conservation in agricultural landscapes. Specifically, the case study aims to find out how (migrant) labour availability influences farmers' decision-making; how labour migration influences farms and agricultural landscapes regarding biodiversity. The case also aims to find out how vulnerable biodiversity on farms and in agricultural	x		

	landscapes is to changes in labour and migration policy. Finally, the case aims to provide answers to those questions in immigration and emigration countries. The focus is on inter-European migration to set some boundaries and hopefully provide some policy recommendations at European level.			
Sectoral case – Trade and GVCs soy/beef from Brazil to the EU/Netherlands	Firstly, to understand the potential and limitations of recent European Union supply chain policies, for example the EUDR (European Union Deforestation Regulation) and the CSDDD (Corporate Sustainability Due Diligence Directive), to curb deforestation and biodiversity loss in Brazil and the Netherlands, as well as the interplay between EU policies and relevant national policies in Brazil and the Netherlands. Secondly, to identify and analyse distinct socio-biodiversity challenges and risks (for biodiversity and people, considering intersectionality) connected to the soy and the beef supply chains in Brazil's Cerrado and Amazon biomes (supply side) and in the Netherlands (demand side).	x		x
Sustainable investment behaviour Global-EU-Norway	Firstly, understanding how different actors perceive and prioritise ESG factors. Do they overemphasise short-term financial gains over long-term sustainability, leading to biases in decision-making? Secondly, the case study aims to understand if different financial actors are aware of cognitive biases, such as confirmation bias (favouring information that confirms preexisting beliefs), or overconfidence bias (overestimating the accuracy of one's judgments), and how these biases may influence their ESG utilization. Are financial actors aware that various biases may lead to suboptimal investment decisions that harm biodiversity at the local level, or entire portfolios? Conversations can include whether stakeholders exhibit	x		

	biases such as familiarity bias (preferring familiar investments) or recency bias (giving undue importance to recent events), which could impact the allocation of resources to biodiversity-related investments. It will be interesting to learn about risk perception of financial actors and for instance how temporal discounting of environmental risk may result in underinvestment in biodiversity preservation efforts. Thirdly, the case study would like to understand better from stakeholders how cognitive biases may impact local-level investment decisions. We will explore, e.g. distance bias (underestimating the importance of distant events) that may lead to underestimating the harm to local biodiversity resulting from distant investments.			

6 Conclusion and outlook

WP3 aims to co-produce transformative change stories together with local actors and change agents and share these stories to generate understanding, increase motivation, overcome barriers and foster behavioural and institutional change in localities and at broader scales. In this context, the core goal of Task 3.1 in the first project year was to help cases to establish diverse Learning Communities and Stakeholder Boards in different localities and sectors, as well as co-define with these LCs and SBs the Learning Objectives of these cases. As the previous sections evidence, all 11 cases have made good progress in the first year of the project by reaching out to key actors and engaging them in the process of co-designing the learning objectives, although the paths they took were highly diverse. Our initial intention was that sectoral (extensive) cases would be more literature based, while locally rooted (intensive) cases develop more active interaction with stakeholders. However, some of the sectoral (extensive) cases realised a huge willingness to participate on behalf of their stakeholders, and therefore took a more active direction (e.g. the fashion, the agrobiodiversity, and the public education case). Additionally, while the general question is the same across all cases (i.e. how to foster behavioural and institutional change to safeguard and prioritise biodiversity in decision-making), the specific foci of the cases reflect the needs of local communities and main stakeholders as well as the contextual specificities. Due to this topical and contextual diversity, the stakeholder analysis and the literature review carried out by the case leaders pointed to different actors as having key importance in each and every case.

Ensuring the diversity of people invited to LCs and SBs is a crucial strategy to cross boundaries between academia and society, and to build bridges between economic, policy and civil society actors. However, engaging diverse community actors and stakeholders in a meaningful way is possible only if tailor-made approaches are used

to contacting and interacting with them. Engagement approaches applied in the first year of the project ranged from surveys and one-to-one interviews to conferences, workshops, as well as art-based or gamified meetings. In some cases which target especially vulnerable actors (e.g. children living with disabilities, people practicing different religions or coming from varied ethnic backgrounds), creating a safe space is a crucial requirement to start the broader engagement. Therefore, in some occasions separate meetings for different actors or preparatory meetings in smaller groups were needed, or intermediary actors were invited to the LC/SB who can build bridges to specific (vulnerable) groups. While such tailor-made approaches required more care on behalf of the researchers (and resulted in some discrepancy in timing), it helped build trust with the key actors. The success of the approach is well indicated by the fact that several cases highlighted in their reflection the enthusiasm of their learning community or stakeholder board members.

Drawing on the personal reflections of case researchers, we are glad to report that in most cases invited stakeholders were very enthusiastic about the project, and offered further support (e.g. contacts, active participation, in some cases even human resources) to achieve the learning objectives. Nevertheless, some challenges were also identified. One key challenge is the deep level of engagement required by stakeholders (especially members of the Learning Communities). As no financial incentives are provided to participants, their motivation to get engaged depends mostly on how well the learning objectives align with their aspirations (either at the individual or at the community level). Another key challenge identified is the inertia in the political and economic sectors. As some of the cases highlighted, biodiversity is often a side issue in specific sectors or locations (e.g. fashion industry or public education), and centralised and siloed decision-making does not support policy integration and biodiversity mainstreaming. To combat these challenges, the PLANET4B team will pay special attention to method selection (i.e. pair the most suitable intervention to every case) which can ensure a high level of motivation of stakeholders and community members (See Figure 19).

Figure 19. Intensive and extensive cases, Advisory Board members, and coordination team during the Consortium Meeting of PLANET4B on October 26th, 2023, Nijmegen, The Netherlands. Source: project's repository of images.

The progress of the cases in the first year – and this deliverable reporting about the achieved results – gives valuable input to a detailed systems mapping and the identification of leverage points, which are the necessary next steps to trigger systemwide transformations (Task 3.2). This deliverable will also be useful for WP4 in terms of highlighting relevant policy areas and identifying Learning Objectives which offer direct or indirect policy impacts. Finally, the process reported in this deliverable is inherently interlinked with the theoretical conceptualization (WP1) and the methodological development (WP2) activities. WP1 and WP2 already provided guidance and input to the case study related work, and this collaboration will be continued in the future as well, for instance through further dialogues around intersectionality and methodological trainings on different types of interventions.

The work carried out in the first year by the cases already provided multiple benefits which go beyond the PLANET4B project. Several cases reported that members of their LC or SB were happy to get engaged, enjoyed the interaction with other actors (in some cases with actors whom they rarely talk), and become enthusiastic about the co-defined learning objectives. This indicates that the process already contributed to build new relationships among stakeholders and in some cases helped form bottom-up communities of practice. Moreover, thanks to the prevailing of intersectionality dimensions, new voices could be channelled into professional and public dialogues around biodiversity. This can be a first step of empowering vulnerable groups and can

also be an enriching experience for those who represent the more powerful actors or those who are in majority. In sum, PLANET4B cases could make important steps towards the appreciation and operationalization of the diverse values social actors attach to nature, which is an important leverage point for sustainability transitions (Pascual et al., 2023). Nevertheless, whether and how PLANET4B cases will be able to make a true impact on social and policy decision-making towards biodiversity prioritisation can be realised only in the next years.

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Statement on data availability

Data used to produce this report include documents sent by cases and shared with all project members via SharePoint. None of these data sources is publicly available since they include personal data from participants.

Statement on ethics

This report does include pictures from the workshop's participants of many of the case studies. According to the General Data Protection Regulation (GDPR) of the European Union (EU), names of individuals are personal data. The necessary consent forms have been sent to all participants upon them agreeing to participate in the PLANET4B project, requesting them to sign an authorization for their pictures to be included in this report. The authors have no conflicts of interest to declare.