

Report on pre-test and pre-validation of contextualised intervention methods

Deliverable number: D2.2

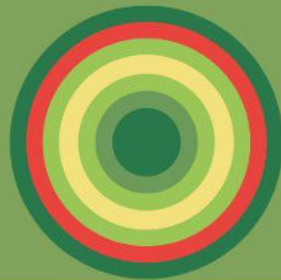
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PLANET4B

BETTER DECISIONS FOR BIODIVERSITY AND PEOPLE



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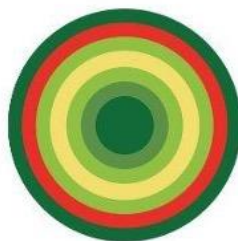
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Key deliverable information

Project acronym **PLANET4B**

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Starting date	01 st November 2022
Duration	36 months
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Project coordination and scientific lead team	Ilkhom Soliev; Alex Franklin; Agnes Zolyomi; Torsten Wähler

Deliverable number **D2.2**

Deliverable title	Report on pre-test and pre-validation of contextualised intervention methods
Task leader	Coventry University (CU)
Dissemination level	Public
Status	Final

Deliverable description

This deliverable reports on 1) developing three experiential learning games (e.g. adapting fisheries, forests, development of agriculture and biodiversity), 2) contextualising framing, nudging and other heuristics treatments, and 3) integrating key biodiversity foci into deliberative, creative and arts-based methods. The report also collects feedback on the deliberative, creative and arts-based intervention methods from the case-study partners and preparation of final protocols for further deployment on the ground concerning differences in social factors, local languages, priority biodiversity issues.

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List of abbreviations and acronyms

Acronym	Definition
BFG	Biodiversity Food Governance Game
CG	CzechGlobe – Global Change Research Institute of the Czech Academy of Sciences
CGE	Culture Goes Europe
CU	Coventry University
DC	Dadima's CIC.
DMP	Data Management Plan
ESSRG	Environmental Social Science Research Group
FiBL	Research Institute of Organic Agriculture
FUG	Forum Urban Gardening
GD	GoodIssue nonprofit Ltd.
IFZ	Interdisciplinary Research Centre for Technology, Work and Culture
LC	Learning Community
MLU	Martin Luther University Halle-Wittenberg
NINA	Norwegian Institute for Nature Research
PLANET4B	understanding Plural values, intersectionality, Leverage points, Attitudes, Norms, behaviour and social Learning in Transformation for Biodiversity decision making
RCM	Reflexivity-Contextualisation-Matrix
RU	Radboud University
SB	Stakeholder Board
UNEP-WCMC	UN Environment Programme World Conservation Monitoring Centre
UNIPI	University of Pisa

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Executive summary

- This report documents the internal PLANET4B process of selecting, pre-testing, adapting and aligning individual research-based intervention methods to the eleven individual case studies.
- The report provides an overview of how the task of aligning intervention methods to intersectional and biodiversity challenges of individual case studies was managed by the Task leads and engaged with by the wider consortium, including through a range of collective – online, offline, in-person, plenary, small-group – and independent case study level working.
- The overview is complimented by a more detailed account of the approach taken to 1) developing three experiential games, 2) contextualising the framing, nudging and other heuristics, and 3) integrating key biodiversity foci in the deliberative, creative and arts-based methods, in accordance with the specificities of the individual cases.

1 Introduction

The methodological design of PLANET4B aims to simultaneously advance understanding and contribute to achieving transformative change via research intervention. To achieve this, Work Package 2 of the project is centred around the development and application of three complimentary sets of engaged research methods: experiential learning games; attention, framing, nudging and social norms relevant techniques; and deliberative, creative and arts-based methods (for further detail see [Deliverable 2.1](#)). In testing and analysing their ability to improve understanding, attitudes and behaviours with respect to the prioritisation of biodiversity within decision making, varying combinations of these methods are being applied within eleven widely varying case studies (see [here](#)).

Advancing understanding of the potential for research-based intervention methods to change the ways in which people think and behave requires considerable sensitivity to the process of selecting and applying such methods. This includes, for example, the aims and objectives of the project (both overarching and case study level), the specificities of each individual study case and associated research participants, and the positionality, time, skills and expertise of the research team. The diversity of sectoral, geographical, socio-cultural and political issues addressed across the eleven PLANET4B case studies, as well as the scalar differences between them (from local to global), makes the PLANET4B project an opportune research lab in which to further investigate the relative significance of such factors. At the same time, so too does the size and diversity of the research consortium (including e.g. 16 partners of both academic and practitioner profile, from 10 countries). Furthermore, regarding the overall scientific framing of PLANET4B, the prioritisation given to investigating the role of intersectionality in creating a plurality of knowledges, beliefs, attitudes and values towards biodiversity, in turn brings further nuance to understanding how and why different research-based intervention methods are engaged with and responded to by research participants with varying degrees of affect and outcome.

In recognition of the importance of the “backstage” research process, the work programme of PLANET4B includes a full Task dedicated to iteratively selecting, pre-testing, adapting and aligning individual research-based intervention methods to the eleven individual study cases (Task 2.2 – Aligning intervention methods to intersectional and biodiversity challenges of individual case studies). Guided by the question: what processes and parameters need to be attended to when selecting and aligning research-intervention methods to individual case studies and research participants, the purpose of this report is to document what this process has involved and with what outcomes to date. Specifically, this includes reporting on 1) developing three experiential learning games (e.g. adapting fisheries, forests, development of agriculture and biodiversity) 2) contextualising framing, nudging and other heuristics treatments, and 3) integrating key biodiversity foci into deliberative, creative and arts-based methods. The report also provides a basis for the subsequent collection of feedback on the use of these three sets of intervention methods by the case study partners and the preparation of final protocols for further deployment of methods on the ground concerning differences in social factors, local languages and priority biodiversity issues.

The remainder of the report is structured as follows: in section 2 we document the overall methodological process for supporting consortium partners in their selection and alignment of individual methods to the needs and specificities of their associated individual cases. In section 3, we explain the respective approaches for developing the experiential games (3.1), contextualising the framing, nudging and other heuristics (3.2) and integrating key biodiversity foci in the deliberative, creative and arts-based methods (3.3). In section 4, we conclude on key findings arising from this process, reflect on the limitations and also outline the next steps in relation to the application and further iterative refinement of the intervention methods within the individual cases.

2 Methodological approach

Task 2.2 is part of PLANET4B’s Work Package 2, which aims to map and advance transformative and creative methodologies to trigger behavioural and institutional change. Task 2.2 was preceded by Task 2.1 (“Map transformative, deliberative and creative intervention methods for practice”) which mapped a range of existing methods for their potential application in biodiversity research settings and in the contexts of the PLANET4B case studies (see [Deliverable 2.1](#)). The purpose of Task 2.2 is to provide a testimony of the methods selection and development considering case study needs and contexts. In parallel, Task 2.3 has trained consortium partners on the deployment of methods featured within the three methods sets (see [Deliverable 2.3](#)) within the individual PLANET4B case studies. Task 2.2 will, in turn, inform the final Task (2.4) of this Work Package: a catalogue of methods to be applied beyond PLANET4B (Deliverable 2.4, month 36).

Work Package 2 is especially informed by the activity of Work Package 3, which coordinates the empirical case study research. Of particular, note in the context of this current report, is the establishment (via Task 3.1) of a Learning Community (LC) in

each of the five place-based intensive case studies, and a Supervisory Board (SB) in each of the six sector-based extensive case studies. The membership, size and process informing the selection of individual LC/SB members vary in accordance with the specificities of each individual case (for a detailed account see [Deliverable 3.1](#)). However, in all cases, the LCs and SBs constitute expert stakeholders who are informing the research process, inclusive of (e.g.) participating in research interventions (intensive place-based cases), debating emerging findings (all cases), and contributing to the wider impact and output dissemination of the project (all cases).

At the time of writing, shortlists of methods have been selected and adapted for each of the eleven case studies. Working collaboratively with the respective case study LCs and SBs, the PLANET4B consortium is now in the process of applying and/or further refining their shortlist of methods, in accordance with the interests, viewpoints and engagement capacities of targeted research participations. This report provides a detailed account of the methodology guiding the process up until this current point.

The first phase of the current Task began with representatives from all consortium partners attending an online Task 2.2 Methods Alignment Workshop in June 2023. In terms of broader work programme sequencing, the workshop took place shortly after the completion of Task 2.1 (see above). Accordingly, a major resource and point of reference for consortium partners from the outset of the current task has been the 100 methods featured in Deliverable 2.1 “Directory of Key methods most suitable for biodiversity decision-making contexts” (Methods Directory). In preparation for the workshop, partners were asked to revisit the Methods Directory, with the intention that the time spent together during the workshop could be concentrated towards drafting and peer-reviewing an initial long list of methods to be used in each of the eleven case studies.

The workshop began with a plenary presentation from the Task lead (CU) and PLANET4B co-coordinators (MLU, WCMC). During the presentation, partners were reminded of the main sub-groupings of methods contained within the Methods Directory. They were encouraged to approach the task of selecting individual methods in accordance with the case specific aims, objectives and needs, including particularly their primary points of biodiversity and intersectional focus. Guiding prompts to stimulate their thinking included:

- Who do you want to influence?
- Where do you want to make an impact and bring about changes in attitudes?
- What resources are available per case (e.g. time, travel, personnel) and at work package level?

Partners were also reminded that the Methods Directory remains a “living resource” and accordingly to continue looking for and sharing any additional methods of potential utility within the project.

As a further source of guidance for the selection of individual methods, the “Reflexivity-Contextualisation-Matrix” (RCM) (developed within PLANET4B and featured within

Deliverable 2.1) was also re-presented to the consortium partners, together with some illustrative examples of the potential matrix positioning of individual methods from each of the methods set (see Figure 1). The matrix was developed to help selection of methods based on the desired level (interpersonal, intrapersonal and institutional) cases want to target, and the situatedness of the method (abstract or context-based). Partners were then asked to access and navigate a pre-populated Miro board for the purpose of drafting an initial longlist of methods (per case study). The logic here was that partners could work individually on their associated case study, but with the simultaneous possibility for peer input and comparison across the shared virtual space.

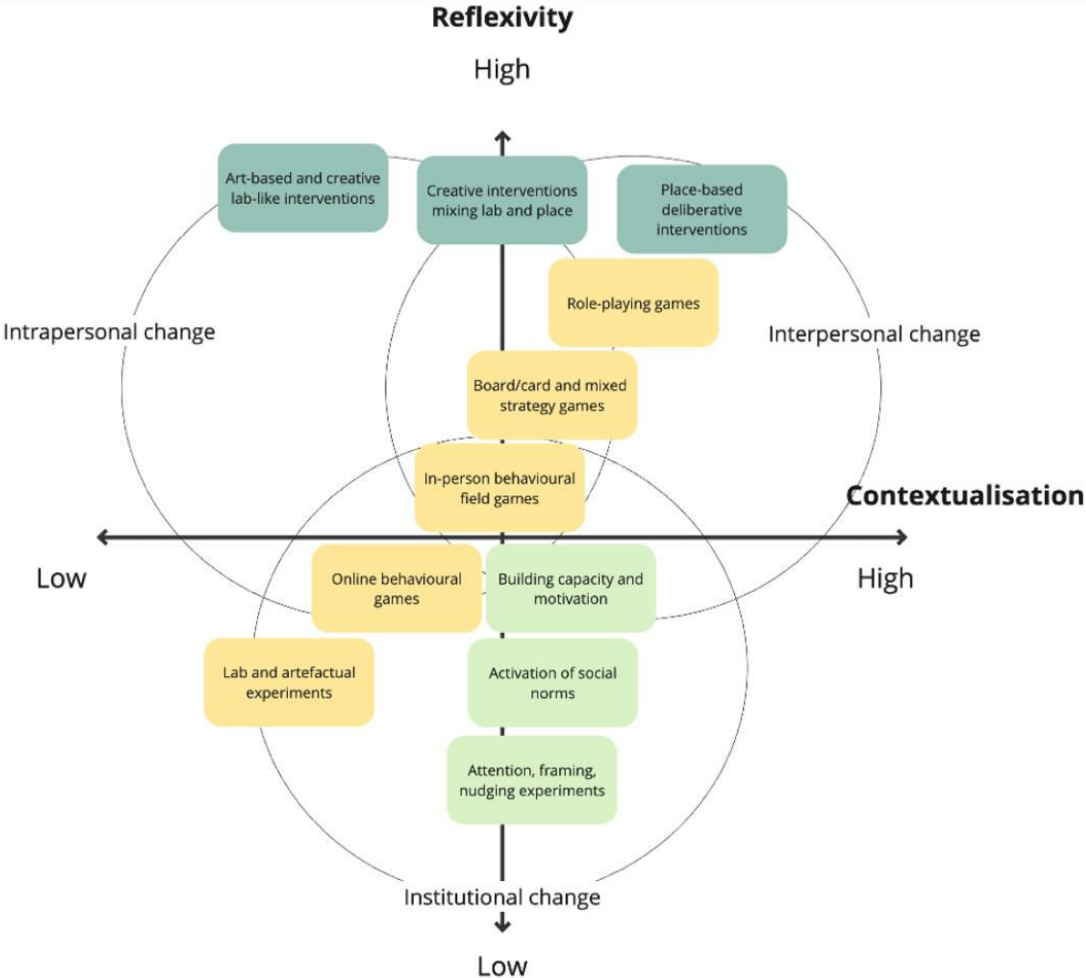


Figure 1. Reflexivity-Contextualisation-Matrix (RCM). Source: Soliev et al. (2023).

Within the Miro board a dedicated space had already been pre-allocated to each case study. The space contained a list of the 100 methods featured in the original Methods Directory (organised by method set), plus also an open space for additional method suggestions. To facilitate the partners working in the Miro board, the next hour of the workshop was organised using a world-cafe style arrangement, such that they could each compile their long lists within a series of smaller break-out group environments. The partners were invited to attend break-out rooms for one or more of the three methods sets at their own discretion, in accord with the specificities of their associated case studies and their initial impressions as to which methods/method set(s) would be

most applicable: breakout Room 1, focusing on experiential learning games, was facilitated by MLU; Room 2, focusing on attention, framing, nudging and social norms relevant techniques, was facilitated by WCMC; and Room 3, focusing on deliberative, creative and arts-based methods, was facilitated by CU.

During the workshop all partners were able to make substantial progress with drafting case study level long lists. At the end of the session the partners were asked to continue working on them across the coming weeks and notify the Task lead (CU) once it was completed. As part of this process, they were also encouraged to explore what combinations of methods had been long listed for other cases.

The next step in the process was for consortium partners to consolidate their original long list of intervention methods identified during the workshop into a draft shortlist of those deemed to be of best potential fit. This stage was initiated by the Task lead (CU) from August 2023. For each case study the respective lead partners were asked to address the following points (within a shared excel file):

- Individual method
- Reason for selection of individual method (in accordance with case study specificities)
- Confidence/existing familiarity with using this intervention method
- Target participant group
- How the method will be adapted to align with specificities of case study, including:
 - Biodiversity issue/challenge
 - Intersectional characteristics
 - Other relevant case specific characteristics
- Any additional support needed from Task leads/other consortium partners to:
 - adapt method design to specifics of case study
 - Implement method in case study
- Desired intervention outcome(s) to be achieved and/or knowledge to be generated
- How the impact arising from the intervention method will be measured/recorded
- Any relevant additional information (e.g. resource constraints, concerns, additional resource needs, etc.)

In October 2023, a further Task 2.2 workshop was held during the annual (in-person) consortium meeting. The focus of this workshop was primarily towards discussion of methods and instruments for assessing impact and reach in connection with the interventions shortlisted for use in the individual case studies. This included a plenary presentation (by MLU) together with pre-testing (by all attendees) of a pilot survey for capturing a baseline and assessing change. It also included a recap (via plenary presentation) on attention, framing, nudging and social norms methods which partners may wish to further consider for application within individual case studies. Two small group break-out exercises were then undertaken, with partners asked, firstly, to physically map (via use of post-it notes and a large wall axis) their targeted intra-, inter-personal and institutional impact levels; and secondly, to discuss how their selected

methods will help them achieve the desired level of impact, as well as how the impact will be measured. In addition, partners were encouraged to raise any questions or concerns in connection with their draft shortlists of interventions and/or any particular biodiversity challenges and intersectional social dimensions featuring within their case study. More broadly, the annual consortium training was also used as an opportunity to expose all partners to a broad range of interventions from across the three main PLANET4B interventions sets. This was achieved by way of encouraging all those leading sessions during the event to incorporate one or more associated intervention into its design. Table 1 below provides a list of the resulting range of 24 interventions utilised and/or illustratively referenced during the annual meeting.

Table 1. Methods featuring during the October 25th-27th, 2023 Consortium meeting, Nijmegen, Netherlands.

#	Methods
1	Pub quiz
2	Transdisciplinary knowledge co-creation
3	Knowledge exchange
4	Imagery
5	Nudging & framing*
6	Experiential games*
7	Participatory video*
8	Bingo
9	Fishbowl
10	Surveys
11	Small group discussion
12	Plenary debate
13	Visualisation matrices
14	Visual representation
15	Training/providing information & support
16	Participatory systems mapping
17	Scenario workshops
18	Story telling
19	Comics*
20	Creative voice
21	Music and song
22	Role play
23	Tweeting
24	Experiential and informal learning over dinner
[*indirectly via illustrative example]	

To encourage partners to consider a wider range of intervention methods than they may have had prior first-hand experience of using, the information requested from them extended to any training and support needs in connection with the application of individual methods. Depending on the nature of any declared training needs, pre-planning for this included a consortium-wide training event (Berlin, January 2024, see [Deliverable 2.3](#)), one-to-one consultations with other consortium members who already possessed expertise in a respective method, and the possibility for contracting in an external expert (e.g. participatory filmmaking, visual minuting, gamification session facilitator, etc.). As it turned out, however, requests for additional support have thus far only been made by two partners – CU and FiBL in connection with the involvement of a professional filmmaker, to support participatory filmmaking and a multi-media exhibition.

In parallel to the Task 2.2 work programme, consortium partners have also been further prompted to continue critically reflecting on their selection and alignment of methods via their engagement with the associated activities of three other Tasks. 1): the Work Package 3/Task 3.1 bi-monthly cross-case meetings – whilst these online meetings have primarily served as a broader forum for internal sharing of updates and problem solving of any challenges with respect to the running of individual case studies, they have also enabled all partners to raise questions and/or remain up-to-date about empirical activity and specific biodiversity and social characteristics of individual cases; 2) the Work Package 6/Task 6.2 mid-term iteration of the Data Management Plan (DMP) – for this partners were asked to compliment the overarching project level DMP with associated individual case study level DMPs, inclusive of providing summative information on all methods to be used within each case; and 3) the case study dialogues component of Work Package 1/Task 1.5 – for this, partners leading on individual case studies were paired with another consortium partner who then guided them through a pre-configured set of semi-structured (“dialogue”) questions as a basis for exploring relationships between theory/ies of change, the Leverage Points framework, the RCM (see Figure 1 above), focal biodiversity challenges, intersectional dimensions and associated case study level research intervention approaches being pursued.

Table 2, below, provides a breakdown of the individual methods shortlisted for each of the eleven case studies at the time of writing (April 2024). In accordance with the iterative and action-learning nature of the case study component of PLANET4B, an updated version of this report will be submitted in month 26 (December 2024). That report will include documentation of the process of further refining the selection and use on the methods within the individual case studies, along with potential impacts of the relevant methods. It will also contain a more detailed protocol for the application of research intervention methods in alignment with a range of biodiversity challenges, intersectional characteristics and broader social contexts of individual case studies.

Table 2. Shortlist of contextualised intervention methods to be applied in individual case studies (April 2024).

Intensive, place-based, action-learning cases:		
Name	Location	Shortlisted Methods
Enabling intersectional nature recreation and biodiversity stewardship for urban resilience	Greater Oslo, Norway	<ul style="list-style-type: none"> • Photo-voice • Behavioural observations • Survey • Key stakeholder mapping • Participatory (leverage points) system mapping • Deliberative (Learning Community) workshops • In-depth interviews • Focus groups • Participant observation
Opening Nature and the outdoors to Black, Asian and ethnic minority communities	Central England, UK	<ul style="list-style-type: none"> • Photovoice • Citizen Science activities (Biodiversity in my cupboard, iNaturalist, Mouth Count) • Participatory filmmaking • Storytelling • Deliberative (Learning Community) workshops • Workshop in nature • Debriefings • Participatory (leverage points) system mapping • Semi-structured interviews • Photography • Online WhatsApp community
Urban Youth	Erfurt, Germany	<ul style="list-style-type: none"> • Movie Screenings/Outdoor Cinema • Earth walking (outdoor education) • Hike/Night Hike • Mindfulness and meditation • Biodiversity-Food-Governance Game • A choice architecture experiment with supermarket carts (followed by surveys) • Debriefings • Participatory (leverage points) system mapping • Deliberative (Learning Community) workshops • Semi-structured interviews
City food for biodiversity and inclusion, Graz	Graz, Austria	<ul style="list-style-type: none"> • Biodiversity-Food-Governance Game • Training, providing information • Living Lab • Stigmergic gardening • Horticulture workshops • Workshops in nature • Excursions/field trips • Storytelling • Photo exhibition • Participatory (leverage points) system mapping • Deliberative (Learning Community) workshops (1. Policy 2. Community) • Semi-structured interviews • Focus groups
Agro-biodiversity and religion,	Switzerland	<ul style="list-style-type: none"> • Scenario vignette • Photo-voice • Photo-exhibition

Switzerland (Swiss attitudes towards agriculture and biodiversity)		<ul style="list-style-type: none"> • Participatory video • Participatory (leverage points) system mapping • Deliberative (Learning Community) workshops • Semi-structured interviews
Extensive, sectoral, knowledge-exchange cases:		
Name	Location	Research Intervention Methods
From "ego-system to eco-system" in fashion	Italy	<ul style="list-style-type: none"> • Scenario workshops (XCurve) • Excursions/fieldtrips • Policy/document analysis • Semi-structured interviews • Participant observation
Agro-biodiversity management	Hungary	<ul style="list-style-type: none"> • Actor mapping • Photo-exhibition • Participant chosen art • Focus groups • Expert interviews
Environmental awareness raising in education	Hungary	<ul style="list-style-type: none"> • Photo-voice • Photo-exhibition • Drama/community theatre • Debriefings – inc. visual cards (mood cards) • Literature review • Key informant interviews (semi-structured) • Participant observation • Survey
Agriculture and migration	EU	<ul style="list-style-type: none"> • Participatory system mapping • Semi-structured interviews • Qualitative data analysis • System analysis workshops
Trade and global value chains	Brazil – EU	<ul style="list-style-type: none"> • Literature review • Policy/document analysis • Semi-structured interviews • Participant observation • Focus groups/workshops
Sustainable investment behaviour	Global – EU – Norway	<ul style="list-style-type: none"> • Literature review • Document analysis • Semi-structured interviews • Reference group discussions

3 Results: pre-testing, pre-validation and alignment of contextualised intervention methods to individual cases

3.1 Experiential learning games

Based on the review of interventions (Deliverable 2.1) and the needs and dialogues with the case study partners, it was decided to develop two experiential learning games from scratch and to adapt one already existing game (instead of adapting two existing ones and developing one from scratch). As the fishery and forestry games, as originally planned for adaptation, focus more on revealing causality in decision-making than on

learning, experiential games with stronger focus on social learning by the participants were selected for further development and use in the project. Thematically, the new/adapted games still cover different forestry and species links to biodiversity.

Further, guided by the Reflexivity-Contextualisation-Matrix developed within D2.1 for analysis and selection of interventions (see Figure 1), the aim in developing, adapting, contextualising, and pre-testing experiential learning games was two-fold. Namely, to achieve a set of experiential learning games that would cover both the reflexivity dimension – ranging from open-ended creative experiential learning games where no set of predefined or precalculated scenarios exist (e.g. as with many negotiation games particularly applied in legal studies and political sciences) to the ones that have many predefined scenarios based on specific model estimations (e.g. as with many games from behavioural economics); and, the situatedness dimension – ranging from those covering the issues that are place-specific and more directly related to biodiversity (where cognitive learning is particularly important) to those that raise rather abstract and universal questions that are (still) indirectly relevant for biodiversity (where normative and relational learning is particularly important).

Developing, pre-testing, contextualising experiential game 1: Biodiversity-Food-Governance (BFG) Game

This is a cooperative game to stop and reverse biodiversity loss that integrates insights from economics, sociology and political sciences on the one hand, and natural sciences on the other. The game combines such concepts as production and consumption, citizenship and governance, wealth and poverty, biodiversity and resilience, with players making decisions on a simulated board either explicitly or implicitly in relation to each of these concepts both as an individual and as a group. It is based on economic model estimations but with room for political improvisation. The game is followed by a debriefing where players have the chance to reflect on and debate the experiences they have gone through, thus potentially turning their experiences into actionable knowledge. The draft version of the game was developed in Year 1 of the project and since then it has gone through multiple rounds of pre-testing and improvement, with students, the Learning Community in the case study Urban Youth (Germany), and the project partners. Feedback was also received at the Global Conference of the International Association for the Study of the Commons in July of 2023, a community known to be specialised in behavioural experiential games. Pre-testing of the game has led to its contextualisation in multiple ways. In particular, while the earlier version of the game was developed with generic characters, it has been decided to give participants of the game a chance to self-define their characters to some extent (giving them backstories and developing their characters' descriptions either from a player's own experiences or observations of the given characters) and to predetermine key intersectionality dimensions of them (explicitly migration background, implicitly age, gender, socio-political orientation). Debriefing as a part of the intervention package has also been pre-tested every time the game was played. As a result, a list of topics has emerged that are recommended for guiding the debriefing, a process of reflecting on the game experience and linking it with the real-life situations. These include getting into debriefing and disconnecting from the roles; understanding of what happened; general perception of usefulness of what happened;

specific perception of the potential of the intervention to trigger intra-, inter-, institutional change; perceptions on intersectionality; learning about biodiversity specifically.

Generally, the BFG game was continuously developed with the Urban Youth case study in mind, where young people constitute the Learning Community. Yet, the pre-testing demonstrated that the game can also be relevant for audiences with mixed age groups, including younger and older age categories. From the project partners, CGE in Germany intends to deploy this game in the field – with the Learning Community (where there are periodically new members) and by the Learning Community members for the audiences beyond the Learning Community (e.g. at the events external to the project).

ESSRG's case study on environmental education has also expressed interest to apply the game in schools. IFZ and UNIPi are planning to use the game for facilitating discussions on biodiversity with students. By the end of April 2024, the beta version of the game and debriefing guidelines have been completed and made available for (translation and) use by the partners.

Developing, pre-testing, contextualising experiential game 2: Biodiversity Negotiation Game – Water, Forest, Resistance (originally developed in German with the name Wasser, Wald, Widerstand)

This is a negotiation game around a controversial dam construction in a large forested area and energy production that involves interests from a wide range of actors. The issues that are at the heart of the negotiation game are climate change and biodiversity (also in competition with one another), resource allocation (justice and coordination), livelihood and prosperity (needs, rights). After testing the GLOCON game (simulation game on land grabbing) (Galonska-Wäldele, 2020) with the students of political sciences and sociology at MLU in Year 1, which served as an inspiration, the draft version of the Biodiversity Negotiation Game was developed in Year 2. The current version of the game has been pre-tested with two students in a table-reading format – going through the initial statement, scenarios of the negotiation and interests of the involved actors. The goal of this table-reading was to ensure both the theoretical and practical conflicts of addressing biodiversity loss in the context of local and national development and international relations are embedded in the game. For the contextualisation of the game, a specific real-life case of Belo Monte Dam in Brazil (Fearnside, 2017; Calvi et al., 2020; Mayer et al., 2021) has been selected. Yet, the context-specific details were only inspired by the case and the final descriptions are fully fictionalised (and we should note that any overlaps are purely coincidental). The underlying theoretical structure of the conflicts were levelled (to suppress some of the details that seemed potentially too distant for a regular learner), sharpened (to make some conflicts between issues and actors more prominent), and assimilated with the easily recognisable contextual cues for potential learners in case study locations involved in the project. Thus far, CGE has expressed interest in using the game, while MLU plans to integrate the game into a regular curriculum in environmental sociology. Other partners with regular activities at educational organisations (universities, schools, educational NGOs), including the CAC who works with a network of schools

across Europe and beyond will also be approached for the application of this game. By the end of April 2024, the beta version of the game has been completed and made available for (translation and) use by the partners.

Adapting, contextualising, and pre-testing experiential game 3: Biodiversity Jenga®

This is an icebreaker game that facilitates learning about biodiversity with a simple and familiar game, but with much less preparation than the two above. The key learning components in the game include the metaphoric comparisons of the dynamic Jenga® structure that constantly changes with additions or removal of the Jenga® pieces, with the complex processes of how ecosystems and biodiversity function and collapse (de Ruiter et al., 2005). The game is in the process of being adapted from the earlier variations of the biodiversity Jenga® game (e.g. Evans, 2020) that were used to introduce how biodiversity and ecosystems function and their importance to general public from a natural science perspective (for example in shopping centres or exhibitions) or students studying ecosystems (Umphlett et al., 2009), which often required the presence of an accompanying expert that could draw parallels. Thus, the game can serve as a valuable starting point for discussing the complex dynamic processes around biodiversity.

The project team sees a particular value in exploring the potential of such a game in learning environments where there is no easily accessible natural science expert. The examples could be family and friends' circles, in accordance with what Jenga® was intended in the first place, but also schools and other places of learning where there is often expertise in facilitation but not everyone is necessarily specialised in biodiversity. The pilot elements of the new Jenga® were developed in Year 2 and are still being tested. The project partner (CU) who is leading the work on the adaptation and pretesting of this game has also been in contact with the developers of the previously stylised Jenga® games so that the lessons from development and use of the existing game are well taken into account (Evans, 2020). One novel element that is being considered is to create an option for the game participants, particularly at schools, to co-create their own and locally contextualised versions of the game. This feature will make the game directly relevant for any setting, including the PLANET4B case studies and beyond. Besides, the game is expected to be particularly useful in project dissemination spaces – including to engage policymakers. The plan is to make the first version of the newly adapted game available to the project partners by the end of M19 and the version for wider dissemination by M24.

3.2 Attention, framing, nudging and social norms relevant methods

The attention, framing, nudging and social norms relevant methods have been continuously highlighted and discussed throughout the project (as shown above). Nevertheless, to date, relatively few cases have selected these as primary interventions, which could be attributed to the fact partners have preferred interventions that target more reflexive and intentional forms of social change compared to those that aim to achieve change via altering default choices, for example. On the other hand, limited prior experience with these sets of methods have also likely

contributed to these types of interventions being seen as less preferable, particularly since most of the emphasis in PLANET4B is on more profound forms of change at the level of values, beliefs, attitudes.

Currently, in the Greater Oslo, Norway case, NINA plans to apply systematic behaviour observations to assess how people perceive nature in different settings, which may be considered to belong under this method category. Nonetheless, further specificities need to be defined to understand better the nature of the intervention and whether framing or other relevant techniques will be included. In the Urban Youth, Germany, case led by CGE, a specific choice-architecture method is to be tested based on Huitink et al. (2020). It is planned to co-design with the Learning Community members a social norm nudge experiment, placing different paper inlays in shopping trolleys in a selected supermarket. The main aim here is to assess whether the nudges have an impact on triggering more sustainable shopping choices. In this process, we would like to pay special attention to young people in two important ways: 1) from the perspective of what and how members of the Learning Community learn from co-designing and co-implementing this research (our assumption being that they learn how subtle changes sometimes could potentially bring about change at larger scales); and 2) from the perspective of actual research findings, where we should be able to see whether and to what extent nudges have heterogeneous effects on different age categories (our assumption is there will be heterogeneous effects in accordance with some shopping patterns expected from different age categories). The nudging experiment is being co-developed with MLU and CGE ensuring integration of local specifics and context. In the City food for biodiversity and inclusion, Graz, case led by IFZ and FuG, social norms relevant methods are being applied considering training and providing information. Whereas other cases may implicitly work with, for instance, framings or various nudges e.g. within scenarios workshops, these particular methods have not yet been explicitly pinpointed and adjusted to other cases. Nevertheless, we plan to develop more specific framings or choice architectures exercises in other cases, once more exact target settings are developed to be reached in connection with individual case studies.

Besides case specific interventions, pre-testing of online framing and nudging surveys has been undertaken with the involvement of partners, with the primary aim to understand attitude towards biodiversity and changes implied due to research interventions (e.g. the biodiversity-food-governance game). These surveys include, for instance, questions on consideration of biodiversity, relevant priorities and general demographics to allow mapping changes thanks to the interventions. The survey to measure attitude and consideration of biodiversity will be added to the catalogue of methods to be produced for D2.4.

3.3 Deliberative, creative and arts-based methods

All except two of the case studies (Trade and Global Value Chains (RU); Sustainable Investment Behaviour (NINA)) have thus far indicated the inclusion of deliberative, creative and arts-based methods in their approach. The following series of Table 3 provides an overview of the rationale for selection of each individual method, as well

as how they are being adapted and aligned to the specific biodiversity and intersectionality characteristics and points of foci of each individual case (as reported by the associated case leads). In all cases the deliberative, creative and arts-based methods are being used in combination with more traditional scientific methods (i.e. interviews, focus groups, participant observation), and in many cases also in combination with methods drawn from the experiential games and the attention, framing, nudging and social norms methods sets (see Table 2 for a full (current) list).

Table 3. Deliberative, creative and arts-based methods in case studies.

<p>Enabling nature recreation and biodiversity stewardship for urban resilience, Norway <i>Alexander Engen Aas-Hanssen (OOF), Reidun Bolsø (OOF), Yennie K. Bredin (NINA), Helene Figari (NINA), Vegard Gundersen (NINA) & Johan Hval (OOF)</i></p> <ul style="list-style-type: none"> • <i>Participant observations</i> in nature using <i>mapping by drawing</i> will be conducted during visits to organised nature recreation activities for children and youth with disabilities with varying physical and/or mental disabilities. We will use the gathered material to establish preliminary categories for types of places/physical elements, activities, social interactions may constitute important parts of the nature experiences of the children/youth. The aim is to understand the environmental settings that promote positive nature experiences, and to identify the main barriers. Researchers will attempt to actively engage with the children/youth and/or their companions in their own environments. To gain deeper insights into their own perceptions of these experiences. Participant observation is well-suited for both the subject matter and the target research participants of this study (children with disabilities and their guardians). Mapping by drawing may prove a valuable tool not only for gathering data, but also to enhance and enrich communication and feed-back processes between researchers and the study participants (co-creation). • If feasible, NINA will also employ <i>photo-voice</i> as a method to gain insight into specific elements in nature that are of particular importance to the children/youth, or that hinder engagement with nature. These approaches will enable better understanding of the relationship between the children/youth, the social environment, and nature (i.e. the outdoor spaces/places). In participating and conversing with the children/youth and their companions during the nature recreational activities NINA will seek to engage in discussions about the value and importance of nature on an equal basis.
<p>Opening Nature and the outdoors to Black, Asian and ethnic minority communities, England <i>Lindy Binder (CU), Geraldine Brown (CU), Alex Franklin (CU), Geeta Ludhra (DC), Subash Ludhra (DC) & Barbara Smith (CU)</i></p> <ul style="list-style-type: none"> • The research intervention activity for this case is centred around the membership of the Learning Community (LC) and the programme of <i>LC deliberative workshops</i>. In addition to year long series of scheduled in-person and online meetings, the LC membership is also very active in contributing to a dedicated private WhatsApp group. Contributions to the WhatsApp space range from photos and videos, to sharing of media articles, to written reflections on their recent (and/or current in-the-moment) nature-based activity. Regular comments and appreciation are also shown for the activity of posts contributed by other group members. As such the group incorporates photo voice method to share and reflect on their personal relationships with biodiversity and the British countryside as members of Black, Asian and minority ethnic communities. The WhatsApp group facilitates peer learning, peer support and a safe space to share. • <i>"Biodiversity in my cupboard"</i> can be categorised as a "Citizen Science" style of method. The method was proposed for use in this case by the Learning Community (LC) as a direct result of the discussions arising from the first two LC workshops. It was also partly inspired by the PLANET4B cooking challenge exercise which took place during the Task 2.3 consortium training meeting (see Deliverable 2.3). LC members have been invited to look in their kitchen cupboards or fridge, choose five items that they frequently use, and take a photo of the

ingredient list and note the country of origin for the product as a whole. The returns will be collated and discussed with the group at the third LC meeting (scheduled for June 2024), as a basis for increasing understanding and awareness of the indirect impacts of food consumption behaviour on biodiversity. The group are also currently in the process of planning a further two Citizen Science activities, including setting up a Dadima's group project on iNaturalist app to record their interaction with biodiversity over the summer period and an activity to record a species (moths) over a 24-hour period.

- *Participatory filmmaking* has been selected for the contribution it offers both with respect to process and output. It will be used with the LC to draw together and share their experience, knowledge, viewpoints (and potentially social histories) of engagement with biodiversity and the outdoors. In so doing the aim is to both empower and promote further critical reflection by the LC members, whilst at the same time serving also to showcase and promote greater public recognition of the diversity of values attached to biodiversity. It is anticipated that the film will incorporate multiple biodiversity stories, highlight key messages, and document the engagement of the LC in the Citizen science activities. The significance of initiatives such as DC's nature walks in opening-up nature to Black, Asian and ethnic minority communities will also be featured in the film with the aim of promoting other such initiatives to become established elsewhere in the UK.
- *Storytelling* is actively encouraged as a way for LC members to share with others about how particular experiences across either their lifetime and/or other family members, have contributed to shaping their individual relationship with biodiversity and the countryside. Storytelling is a flexible method that opens a space for exploring individual perspectives on specific biodiversity issues. The method is a powerful tool for learning and sharing and can be a fun inclusive activity. Thus far storytelling has been incorporated into both the LC workshops and the individual LC member research interviews.
- The final LC workshop (scheduled for September 2024) will take place in a botanical garden. The setting will be used to run a "workshop in nature" with a specific focus on a key biodiversity issue. A core aspect of the programme of LC workshops is that it creates opportunities for learning. This learning is both top down and bottom up, learning delivered by subject experts and generated by LC participants. The approach used across all LC activities is pedagogical, situational and reduces the nexus between academics and members of civil society. Data collected will include observation, one-to one interviews, participant feedback and reflections on the activity and a range of digital data.

Urban Youth, Germany

Maryna Bykova (CGE), Ammalia Podlaszewska (CGE), Zafar Saydaliev (CGE), Ilkhom Soliev (MLU), Torsten Wähler (MLU) & Agnes Zolyomi (MLU)

- A series of monthly *movie screenings/outdoor cinema events* are being scheduled by CGE on topics related to PLANET4B. The screenings will be followed by group discussion about the issues raised. The screenings will be open to the general public together with specific targeted invitations to the members of the LC and young people of Erfurt.
- *Earth walking (outdoor education)*: CGE are running two trainings on outdoor education in youth work and integrating Earth Walking as a method of intervention in outdoor settings. Earth walking is thematically engaging but also logistically easy to implement. In incorporating this method as part of the PLANET4B LC activity several adaptations are foreseen, such as route selection, choosing routes with various biodiversity elements, as well as topics for discussion, and topics for reflection. Tasks will be assigned to research participants for reflecting on and then for group discussion sessions and a debriefing after the walk has been completed.
- A *night hike* is an outdoor education method that CGE already uses in some of their other outdoor learning projects, but which will also be tested with their LC members as a form on research intervention. The method will be scheduled for use during the spring or summer months. As with the Earth walking method (see above) the route will be planned to incorporate various biodiversity elements, as well as topics for individual reflection and subsequent group discussion as part of a final debriefing.
- *Mindfulness- and meditation-based* intervention will also be incorporated in the mix of methods used with the LC members of this case study. The main adaptation will be the

facilitated direction of the self-reflection (and associated subsequent debriefing) towards biodiversity.

- *Excursions/field trips* will be organised for the LC members to various German cities to explore different urban biodiversity initiatives. Through such study visits research participants will be supported in exploring and developing new ideas of their own for potential changes which could be made to the prioritisation of positive biodiversity practices within urban settings.

City food for biodiversity and inclusion, Graz

Andreas Flach (FUG), Sandra Karner (IFZ), Mirjam Krauser (FUG), Andreas Motschiunig (FUG), Katharina Santer (FUG), David Steinwender (IFZ) & Anita Thaler (IFZ)

- *Stigmergic gardening* (for example communicating via signs such as “water me“, “harvest me” potentially used in combination with provision of a watering can to nudge) is being considered for use as an intervention method with the citizen LC members (and potentially members of the wider public) during the planning and implementation phase of the pilot green space: a biodiverse community garden. It is also used to address language barriers (e.g. by pictograms) and will be adapted to ensure that engagement with the method results in co-created knowledge on cultivated and wildlife biodiversity.
- *Horticulture workshops* will be applied with the citizen LC members as a means of enabling capacity and knowledge building on sustainable gardening and supporting greater awareness of biodiversity. Through horticulture workshops information on environment, biodiversity, food and climate change can be co-created and provided practically. The method also directly supports skill sharing and exchange of experience, leading to better results than just providing information theoretically. The participative design of the workshops will aim at actively engaging the LC members, providing an approach and space in which to establish trust, mutuality and empowerment of the participants.
- *Workshops in nature* will be used with the citizen LC members in order to connect them to the natural environment.
- *Excursions/field trips* will be incorporated into the programme of activities for both the citizen and policy LCs. Thus far the method has been implemented in the form of an organised walk through the Graz pilot green space with representatives from local government and from third sector community organisations. During the walk specific attention was directed to intersectional aspects in alignment with the focus of the case.
- *Storytelling* is currently being considered for use as either i) an interactive tool for prompting exchange between people from policy/administration and the citizens engaged in the biodiverse community garden; or ii) as a method for promoting dialogue and exchange on different perspectives amongst the citizen LC members. In adapting the method to the project, environmental aspects will be included as part of the task, with LC participants encouraged to tell stories which are connected/related to biodiversity, food, gardening practices, etc. Storytelling will be used as an engagement method with the citizens LC to allow people to connect/relate to different topics (e.g. on their experiences with biodiversity, food preparation) and thus also to support the community building process. The connection between personal life (e.g. difficulties) and the resulting (non-) opportunities to experience nature and biodiversity helps us understand what these groups of people need in order to be able to increase their engagement with nature and prioritisation of biodiversity.
- Use of *photo exhibition* is currently under consideration, depending on the willingness and interest of the LC members. A collaboration has been established with the Topothek of the Graz Museum, who are willing to conduct the photo making. An exhibition (e.g. in the Graz Museum, at planned festivities and/or at a local community centre) is also still an option.
- *Living Lab*: the Graz pilot green space essentially represents a living lab, whereby LC members and the wider public are brought together over an extended time period for solution-orientated generation of ideas, planning and action in a “real life” setting. The pilot green space/biodiverse community garden provides a combined physical and behavioural experimental “space” for intervention in connection with urban food growing, intersectionality (gender) and biodiversity prioritisation. It acts as a starting point for a wider Living Lab process, namely the step-by-step planning and realisation of a “biodiverse edible park”, beyond the project duration, where the pilot garden is located.

Agro-biodiversity and religion, Switzerland

Robert Home (FiBL) & Ghezal Sabir (FiBL)

- *A scenario vignette* is being used to elicit responses about how a person would farm in a way that is in harmony with her/his religious and spiritual beliefs given an abandoned (uncultivated) farmland that he/she inherits. The rationale for using this method is that the farmer describes their decision making and provides insight into his motivations and perspectives on factors that influence his farming decision making. It also prompts the interviewees, who are farmers, to think about religious/spiritual-based farming by placing them in an observant, hence contemplating, position as they are removed from their current farm structure and can imagine a farm they would create in harmony with their religious and spiritual beliefs. Thus, using a scenario is more appropriate in this context to explore the opinion of the participating farmers and to steer the attention of the farmers towards value-based farming. Within the case study this method is being used as part of the interviews with farmers. The vignette is centred around the intersection between religion and farming practice. This vignette is preceded by questions related to biodiversity and its connection to religious and spiritual beliefs.
- *Photo-voice* is being included within the interviews such that participating farmers can visually display the issues they face working on their farms and biodiversity related practices. Incorporation of pictures supports gaining access to aspects which farmers may otherwise struggle to verbalise. By working with the pictures, the farmers are better able to describe the challenges they face and/or their biodiversity positive activities within the context of their farm. This also provides the opportunity to get farmers to actively evaluate a farming practice considering its connection to their religious and spiritual values. This has the potential of priming the farmers to view their farming practices in light of their religious and spiritual beliefs.
- *Photo-exhibition* is currently being considered as an option for public display of visual material together with an accompanying narrative. This will potentially include photo-voice material generated by the research participants, together also with photo and video material collected by the lead researcher. Discussions are currently ongoing with “House of Religion” to act as a potential host venue for the exhibition.

From "ego-system to eco-system" in fashion, Italy

Maura Benegiamo (UNIFI), Marta Bonetti (UNIFI), Gianluca Brunori (UNIFI), Roberto Gronda (UNIFI), Pedro Navarro Gambín (UNIFI), Daniele Vergamini (UNIFI) & Matteo Villa (UNIFI)

- *Scenario workshops (X-curve)* are being used (as elaborated by Drift Rotterdam, see Hebinck et al. (2022)) with the experts of the Stakeholders Board, and in a workshop with PhD students. Drawing on the multi-level perspective (MLP) of sustainable transitions, the X-curve provides a simplified depiction of transitions that explicitly captures the patterns of “build-up” (the creation of new alternative practices and structures), and “breakdown” (the destruction of existing practices and structures), and their interactions. It functions as a sense-making tool to explore potential interventions for system change as part of collectively created narratives. Within the context of PLANET4B the X-curve supports the co-creation of a narrative about a future biodiversity-friendly fashion sector and the identification of the dynamics of transitions to promote this desired vision.
- *Excursions/field trips* are being used in the form of a textile tour. The tour was attended by members of the case study academic (UNIFI) research team. A visit to companies in the Prato district that recycle natural fibres, and associated discussions with personnel during the tours has provided the team with a better understanding of the opportunities and obstacles of moving towards fashion with less negative impact on biodiversity.

Agro-biodiversity management, Hungary

Borbála Lipka (ESSRG) & György Pataki (ESSRG)

- *Actor mapping* has provided a useful base for the systems mapping and leverage point task (which constitutes a core element of Work Package 3, Task 3.2: Systems mapping and transformative interventions) and so has been incorporated as part of the process. The

approach taken has involved identifying an initial list of actors from the data generated from expert interviews, then drawing a map of actors and discussing it further with the SB.

- Creating a *photo exhibition* provides an opportunity to invite participants to look around at their own pace and choosing, in an environment capable of stimulating them to think about the topic of agro-biodiversity and engage in getting to know it better. This method has the added value of flexibility to incorporate different complimentary activities (e.g. discussions, storytelling) alongside photo exhibition. Findings from the case study research undertaken to date indicate that the aesthetic aspect of agro-biodiversity (crops, seeds, etc.) is very undervalued even though it holds a lot of potential to engage people who are not connected to the topic “by nature”. Target participants/audience groups will include urban gardeners, farmers, Community Supported Agriculture members and students.
- *Participant chosen art*: the SB is enthusiastic about the idea that the importance of agro-biodiversity can be best captured by different art forms in order to raise awareness about the topic and reach people who are not directly connected to agriculture. Accordingly, discussions are currently ongoing with the SB members to further select which art forms would be most applicable in the context of this case. Target participants and/or audience groups will include students, gardeners, farmers, artists, gastro bloggers, families. Every event organised in connection with this method will be tailored to the topic of agro-biodiversity (e.g. drawing vegetables, cookbook about easily growable but uncommon crops, storytelling with the main topic of seeds). The aim is to touch the emotions of people, to raise awareness through engaging them with the beauty and diversity of plants and seeds and through the rational mind. In tailoring the method to the specific focus of this PLANET4B case study ESSRG will define specific categories for showing the diversity of agriculture (e.g. urban gardens, diversity on the plate). Also currently being explored is the possibility to take the photo exhibition to a place (or places) that are active in the field of climate change or sustainability, and to link the exhibition to other activities linked to seeds. In curating the exhibition, a connecting theme of “stories in seeds” will be used as a basis for raising awareness about the importance of caring about biodiversity.

Environmental awareness raising in education, Hungary

Kármén Czett (ESSRG) & Eszter Kelemen (ESSRG)

- *Photo-voice*: Talking about one’s relationship to nature is often difficult, especially in young generations (due e.g. to peer pressure, difficulty in expressing emotions verbally). In such situations visual methods can be conducive to better enabling research participants to express opinions and feelings (and alongside, they can also be used for the documentation of observations). Mobile phones are becoming part of children’s lives, with their use for taking photographs being a well-known activity for kids over ten. The selection of photo-voice is also informed by previous research undertaken by the consortium partner (ESSRG) which resulted in good experiences – not just by allowing quieter children to share their opinion, but also by initiating dialogue in the wider community (in the whole class or in the school). Within the context of this case study photovoice will be used to explore how children perceive their relationship to biodiversity (or to nature more broadly) and if this perception be altered by different (experiential) learning activities (e.g. school gardening).
- *Photo-exhibition* has been selected for use in the closing stages of the Photo-voice method (see above). With this closing element, ESSRG aims to elevate the topic (children-nature interactions in school gardens/schools) and initiate a public discourse in the local community. Depending on the support of the SB, the photo exhibition may also be translated to larger scales (i.e. openly accessible in online format or integrating it with the thematic week on sustainability (a one-week voluntary programme for Hungarian schools in every spring semester). Participating schools can decide whether or not they would like to have the exhibition. It is anticipated that there will be at least one exhibition in June or September 2024 (in a secondary school).
- *Drama/community theatre* has been selected in follow on from findings arising from expert interviews. Several expert interviewees highlighted that the regular school environment and the content taught in the classes are very much focused on the cognitive aspects of biodiversity related issues and lack affective involvement. Káva Theatre, an independent artistic group has been invited to the secondary schools where ESSRG is assessing the impact of the school garden. They perform a participatory theatre play focusing on

biodiversity, where students are able to interact and take on specific roles. ESSRG researchers observe the play and organise a reflexive dialogue (debriefing) a few days later to assess its impacts. The intervention are used to target the affective (and partly also, the cognitive) aspect of environmental attitudes. This intervention is only applied in secondary school as the play is designed for the age group 14-18.

- *Debriefings*, including visual cards (i.e. mood cards to initiate the discussion), are undertaken in immediate follow on from the community theatre performances (see above).

Agriculture and migration, EU

Mahsa Bazrafshan (FiBL), Robert Home (FiBL) & Lina Tennhardt (FiBL)

- This case study does not work with an existing community of actors, but rather a Europe-wide network of individuals. Bringing diverse actors from multiple countries together in one place for a traditional participatory system mapping would be very difficult. However, this method is easily adaptable to individual use cases. In the context of this study, FiBL has adapted it such that they will first undertake a participatory system mapping exercise with a small group of experts from diverse disciplines. The system developed in this setting will then be verified at individual study sites across Europe (Switzerland, Germany, UK, Romania) and with individual actors (i.e. farm owners/managers and migrant farm workers) at those sites using semi-structured interviews and system analysis workshops. This allows considerations for language barriers and also to the potential vulnerable status of some migrant workers. The experts involved in the initial hearing phase will be included in a second iteration to discuss national-level results and provide EU-wide policy recommendations.

4 Conclusion and outlook

PLANET4B seeks to change mindsets, inspire new ways of working and living and contribute to enhanced policy agendas through the very process of undertaking research, as well as through the resulting research outputs. Guided by the question: what processes and parameters need to be attended to when selecting and aligning research-intervention methods to individual case studies and research participants, the purpose of this report has been to document what this process has involved and with what outcomes to date. Specifically, this has been addressed in the context of: 1) developing three experiential learning games (e.g. adapting fisheries, forests, development of agriculture and biodiversity); 2) contextualising framing, nudging and other heuristics treatments; and 3) integrating key biodiversity foci into deliberative, creative and arts-based methods.

As has been illustrated in the preceding sections, the overall approach adopted has manifested in the selection and adaptation of a relatively wide range of methods across the eleven individual PLANET4B case studies. Moreover, whilst some methods feature across a number of cases (e.g. photovoice, photo exhibition), and all cases are informed by the inclusion of either a LC (biodiversity-food-governance game, place-based “intensive” case studies) or SB (sector-based “extensive” case studies), the combination of methods/methods sets being applied and the ways in which they have been adapted, is bespoke to the specificities of each case.

Notably, in accordance with the co-creative and action-learning design of the overall PLANET4B empirical programme, the selection of individual methods continues to proceed in an iterative manner. In doing so the consortium partners remain respectful and open to being shaped by the views and needs of their respective LC/SB participant collaborators. They also remain agile to capitalising on preliminary findings by way of

further aligning individual methods to the specificities of individual cases (as demonstrated, for example, in ESSRG's incorporation of community theatre).

One limitation, however, of the iterative nature of the overall approach is that, at the time of writing, the precise full list of methods being/to be used in each individual case study remains open to revision. Consequently, whilst this report provides a basis for the subsequent collection of feedback on the individual methods from the case-study partners and the preparation of final protocols for further deployment of methods on the ground (e.g. concerning differences in social factors, local languages, priority biodiversity issues), final reporting on this is not possible at this stage. In mitigation of this, an updated version of this report will be submitted in month 26 (December 2024). That report will include documentation of the process of further refining the selection and use on the methods within the individual case studies along with potential impacts of the relevant methods. The findings will inform the production of protocols for deployment of research intervention methods also beyond PLANET4B.

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Statement on data availability

This report collates together data from a range of both written and oral sources, including workshops, associated preceding PLANET4B deliverables and shared work files. The latter of these – a dedicated excel file, detailing choice and rationale for selection of individual methods per case study (see section 2 above) – will be made openly available on the PLANET4B repository before the close of the project. All public PLANET4B deliverable reports will also be made openly available within the repository (and, alongside, via the project website).

Statement on ethics

This work used published material available on the Internet. No personal data were collected, so no ethical issues are apparent. The authors have no conflicts of interest to declare.