



**Biodiversity – at the heart of sustainable societies**

## **MS 6. Design of the BIONEXT co-creative arena**

**Workshop 2. Just transition pathways  
Schoorl, the Netherlands**

## Table of contents

- 1. Introduction ..... 2
  - Goal of this milestone ..... 2
- 2. Setting the scene ..... 3
- 3. Guiding principles of the co-creative workshops..... 4
  - 1. Engage with existing knowledge, frameworks, and concepts ..... 4
  - 2. Create a space for capacity building and reflexivity – for participant and facilitator ..... 4
  - 3. Foster radicality through foresight ..... 5
  - 4. Involve a diverse group of participants..... 5
  - 5. Create a safe and inclusive environment ..... 5
  - Participant selection..... 6
- 4. Four workshops to co-create knowledge on transformative action ..... 7
  - Concepts and approaches underpinning the workshop design ..... 7
  - Linking the four workshops..... 10
- 5. A detailed view of Workshop 2 ..... 12
  - A typical Dutch social ecological system: Sand dunes in Schoorl ..... 12
  - The venue: ‘Laguna beach’ ..... 12
  - Workshop program ..... 13
  - Outputs: Analysing just transition pathways ..... 14

Milestone Information	
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## 1. Introduction

BIONEXT is a research and innovation project that will produce new evidence and insights on transformative change in the biodiversity nexus. Interdisciplinary research, transdisciplinary engagement and co-creation of knowledge are essential parts of the project. BIONEXT aims to co-create transformative knowledge together with stakeholders from different backgrounds. This knowledge will be shared with policymakers, businesses, civil society, industries, scientists, and constitutes input to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).

At the heart of the project is a four-step participatory process to co-create visions and scenarios, long-term pathways and short-term actions and mobilization to enhance transformative change in the biodiversity nexus. These workshops allow the BIONEXT project to be a participatory effort with a diverse set of stakeholders. The workshop outcomes will be embedded into the project process and form part of the research findings. In doing so, the project aims to produce broadly supported and actionable insights for governing the biodiversity nexus.

### Goal of this milestone

In this milestone we will turn our focus to the design of the four workshops that together explore transformative change in biodiversity. While this milestone places emphasis on workshop number two – part of Work Package 2 – it expands on the broader principles that have been key to the design of all four and describes how the four workshops connect to each other methodologically. Placing emphasis on workshop 2, in which the theme of transition pathways is central, this milestone expands in more detail on its program and the conceptual underpinning of the workshop.

This milestone is structured as follows. First it will describe the broader context of the workshops, followed by the guiding principles for the workshop. This is followed by a description of the selection of participants and the conceptual link between the four workshops. This section also described the various frameworks and concepts that are used throughout the workshop. The final section will provide more detail to the design of the second workshop in terms of its goals and program

## 2. Setting the scene

The call for transformative change to address persistent problems such as biodiversity loss, climate change, and socio-ecological challenges is becoming stronger in both science, policy, and society (IPBES 2018). While the urgency for change is increasing, these calls have not (yet) been met by decisive (policy) action. Co-creative design of trajectories to transformation is considered vital to addressing the complex nature of sustainability challenges (Norström et al. 2020). However, what that transformation looks like and how it can be realised in a just manner is still unclear (Bulkeley 2020). In fact, what is considered desirable change and what are appropriate strategies to achieve change differs among actors (Hebinck et al. 2018).

In support of (policy) action, the BIONEXT project sets out to create a better understanding and develop new knowledge on transformative solutions for biodiversity that consider the key nexus interlinkages through co-creation with diverse participants. The co-creative workshops are a key component in reaching this objective, as in these a group of diverse participants will create several nature-positive visions for Europe and actionable pathways towards them. Through co-creation these workshops aim to incorporate plural perspectives, knowledges, ideas, and concerns of diverse stakeholders in Europe. Here, co-creation with external participants is also used to critically reflect on and adapt the knowledges created within the project. To encourage thinking about human-nature interactions, the workshops take place in inspiring social-ecological systems across Europe that each can demonstrate the connections humans have to nature, as well as the strains that our society puts on nature.



Figure 1. Participants at the opening day of the first workshop in Santorini, May 2023.

The first workshop already took place in May 2023 on the island Santorini in Greece. Here, a group of 25 participants met with the project team to discuss the role of biodiversity in transformative change. The participants were selected based on their diverse expertise and perspectives to biodiversity, food, water, health, transport, energy, and climate change and represented governments, businesses, research, NGOs, civil society and minority groups.

### 3. Guiding principles of the co-creative workshops

The four workshops differ in terms of their methods, but all find continuity in their grounding in several principles that describe our approach to co-creation. While the organising partners can influence and design the workshops, structure the input, and way participants are informed, the outputs should reflect the process and inputs by the participants.

Co-creation is broadly described as a collaborative process between diverse individuals and entities in the process of knowledge creation (Norström et al. 2020). It is considered vital in addressing complex sustainability problems, as it enables the generation of ‘usable’ knowledge that incorporates viewpoints, logics, ideas, and knowledges from both science, policy, and society. In successful cases of co-creation, ownership, and commitment to implementation of the co-created ideas is also stimulated (Hebinck et al. 2023).

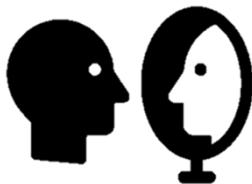
It is no surprise that co-creation is seen as a vital element in addressing sustainability challenges, as when successful they ensure equal participation of diverse voices, leverage diverse perspectives and expertise, and provide transformative and actionable insights as outcomes (Norström et al. 2020). To achieve these transformative and theoretical promises of co-creation, the BIONEXT workshops are designed based on the following principles. These principles are used as ideal type guides for the design of the workshops.

#### 1. Engage with existing knowledge, frameworks, and concepts

Making use of existing knowledge, frameworks and concepts as input helps to structure the sessions and deepen the discussions. Insights gained throughout the workshops should be used to enhance the existing knowledge and critically reflect on and improve the frameworks and concepts used. Besides the generation of visions, scenarios, pathways, and transformative action, such workshop outcomes will also feed back into the project. This allows for the knowledge of participants to influence the project's understanding of (eco)system models, transformative change, and implementation consequences.



#### 2. Create a space for capacity building and reflexivity – for participant and facilitator

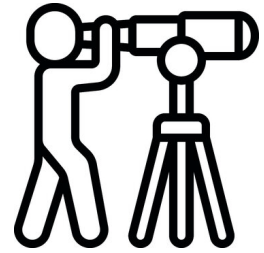


To increase the impact of the workshops a key aim is for them to build transformative capacities among and social learning between the participants. It is not just a process to *receive input* from stakeholders but also one that hopes to empower the participants to take action and obtain new skills and perspectives (Hebinck et al. 2023). Such complexity and uncertainty of transformation can be navigated through a reflexive approach to the workshop process (i.e. new insights should lead to adaptations throughout the process). To foster such a reflexive learning environment, the workshops should be understood as a collective learning process where the participants and organizers engage critically and constructively to share knowledge and generate new insights (Caniglia et al. 2020).

### 3. Foster radicality through foresight

To ensure outcomes that can trigger transformative changes participants need to be able to design and imagine fundamentally different futures. The workshop should provide the opportunity to design pathways to those futures based on radical rather than incremental changes.

This means that besides exploring how to foster (social) innovations, ways to challenge the status quo need to be explored. Participants are supported to do so through creative foresight methods, such as visioning, scenarios planning, and development of transition pathways. These are all different foresight approaches that help thinking about complex and uncertain futures (Muiderman et al. 2020).



### 4. Involve a diverse group of participants

Diversity among the participants is crucial for the generation of knowledge that is rooted in practice and can be sensitive to different local or social contexts. Within the workshop diversity is sought in terms of expertise and institutional background and in terms of geography, competences, gender, age, race, ethnicity, and religion. This is key in creating a workshop environment in which different types of knowledge (lived experience, spiritual, ancestral, practitioner, or academic) are equally valued. Ideally, this group also includes a few forward-thinkers with an outsider perspective who can challenge norms, offer alternative visions and participants with experience of existing practices in the nexus elements (Pereira et al. 2020).

### 5. Create a safe and inclusive environment

A safe and inclusive environment is one where all participants feel they can participate equally in terms of their role and voice. For the workshop this may mean supporting marginalized positions by amplifying them. Safety also includes awareness of the power dynamics within the group and to address or counter possible patterns of discrimination or power abuse. This can be done ‘at the door’ by making a balanced selection of participants that can build a relationship of trust, but it can also be addressed through workshop design – for example by choosing methods that are more collaborative, creative, or sensory in nature (Pereira et al. 2020).



The principles sketch an ideal setting for the workshops, implying that, while we aspire to uphold these guidelines, it is likely we cannot succeed in all aspects. Enabling a transformative space that is both diverse, inclusive, and safe is a major challenge for co-creative processes. Aware of the challenges of upholding these principles, we reflect on how the design of the workshop can address some of the likely shortcomings. Minding the dynamics of the selected participants is crucial. For example, literature on co-creation emphasises that while the need for diversity among participants is clear, *lack of safety* in typical co-creative environments (which are often still dominated by participants coming from a Western background and with expert knowledge) results in the difficulty of recruiting people from minority backgrounds – further perpetuating the lack of diversity in co-creative settings (Pereira et al. 2020).

For the BIONEXT participant group and workshops we are mindful that we are unable to create a safe environment for all and instead aim for a ‘safe-enough space’ (Pereira et al. 2020) by building a space that values plurality, but also one in which the participants can build trust. To enable a more enduring relationship, we aim for as much continuity as possible by inviting the same group of participants to all

workshops. Not only does this help align the outcomes of each workshop with the next, it also enables co-ownership of the outcomes and process. New participants are only added if certain perspectives are underrepresented due to new developments in the field or participants being unavailable. Inviting diverse stakeholders might mean making an extra effort to reach underrepresented voices.

**Participant selection**

The selection of participants for all workshops was guided by the goal to build capacity and understanding at the science-policy interface by engaging diverse worldviews, values, norms, and policy objectives related to biodiversity-people relationships. Several criteria were considered to achieve this goal:

- Diversity of knowledge with expertise in a nexus element
- Diversity of institutional backgrounds (policy, business, NGO, academia, activist/minority)
- Spanning age groups from early career to retired
- Maintain a gender balance
- Based in or originating from countries spread across Europe, aiming for an even spread of North, South, East, and Western Europe.
- A maximum of 25 participants (for both process and practical reasons)

Using a simple spreadsheet, an initial selection of participants was made based on their expertise and institutional background (see table 1.) For each of the categories, BIONEXT project members suggested names from their wider network for each of the slots. During a project meeting during which all work package leads attended a selection was made based on this initial overview. In making this selection, attention was paid to the age (in rough categories), gender, and origin. About 30 invites were sent based on this initial selection, assuming some might decline.

**Table 1. Example of the table used to make a first selection of participants ensuring a spread of expertise and institutional background.**

	Government	Business	CSO/NGO	Activist/ minority group	Research / academia
Biodiversity					
Food					
Water					
Health					
Energy					
Transport					

After a first round of invites, another round of deliberation between the project members was needed to review the confirmed participants and how that combination of people reflected on our criteria. Based on this review, ‘empty’ slots were filled with new names and invites were sent. Ultimately, 25 participants confirmed their participation. Notable was that the ‘activist/minority group’ and ‘research’ positions were all filled, while the ‘business’ and ‘government’ positions were more difficult to fill.

All participants have been invited to join all four consecutive workshops to enable continuity in the process. At the time of writing, most of the workshop 1 participants had confirmed to join the second workshop. A few additional invitations have been made to persons representing more of a business and policy perspective.

## 4. Four workshops to co-create knowledge on transformative action

The workshops lie at the heart of the co-creative approach of the BIONEXT transdisciplinary methodology. The four workshops are designed in sequential way and while building on the results of the previous workshop, each is also characterized by the inputs of one work package in particular. As such, every workshop has a different leading organization who bring their expertise.

### Concepts and approaches underpinning the workshop design

The BIONEXT workshops take a forward-looking perspective to biodiversity in Europe. Several concepts and approaches are key to the overall methodological design of this participatory process spread over four workshops. This section describes the core approaches used in the workshops and how particular concepts are understood within the project.

#### Biodiversity in social-ecological systems

Biodiversity encompasses the diversity within species (genes), between species and of ecosystems. It affects how an ecosystem functions and therefore influences the supply of ecosystem services (such as food, clean water, and medicine) on which we, as society, depend. The interaction between social and ecological systems, that can be viewed as one social-ecological system, is thus mediated by biodiversity, profoundly impacting its resilience. Loss of biodiversity leads to a degradation of the capacity of ecosystems to withstand and adapt to various disturbances and changes.

#### *Indirect drivers of biodiversity loss*

Indirect drivers of biodiversity loss are external to direct drivers that operate in a given space but influence the significance of their impact. Indirect drivers stem from institutional structures and social, economic, and cultural contexts, and act across various scales, ranging from the global to the local level (IPBES, 2018). Examples include climate change, consumption patterns, national policies, population growth, poverty, etc. The interconnected impact of indirect drivers across sectors is often overlooked, although its crucial potential for stimulating transformative change (Harrison et al., 2018 – Ch 5; Holman et al., 2016). Within the BIONEXT project, indirect drivers will be examined through the co-creation of nature-positive future visions and the just transition pathways for achieving the visions.

#### *Biodiversity nexus*

The concept of the biodiversity nexus describes the complexity of the interdependencies between biodiversity and climate change, food, water, energy, transport, and health. The interlinkages within the biodiversity nexus can have a positive, negative or both positive and negative impacts at the same time (Kim et al., 2024). The magnitude of negative influences of the other nexus elements on biodiversity highlight the significant harm caused to the environments due to human actions within these nexus elements (e.g. habitat fragmentation caused by infrastructure). Visa versa, there has been found only limited negatively influence of biodiversity on the nexus elements. These relate to competition for land, disease transmission and the negative effects of invasive alien species. Positive interlinkages to or from biodiversity and the other nexus elements underscore the critical role that biodiversity plays in providing ecosystem services and enhancing human well-being. This suggest that the biodiversity nexus approach supports mainstreaming biodiversity across sectors to enhance co-benefits in policymaking.

#### Foresight

Forward-looking approaches are useful to make strategic plans in the face of uncertainty (Boyd et al. 2015; Vervoort & Gupta 2018) and are a key part of the BIONEXT methodological approach. Foresight is a includes a variety of methods and approaches to explore the future and is most often used to make more robust plans, policies, or strategies (Dufva & Ahlqvist 2015). By “broadening the boundaries of imagination”, foresights support the exploration of future pathways in diverse contexts of change (Muiderman et al. 2020, p2). Broadly speaking, foresight includes four approaches to understanding



the future: 1) probably futures, 2) plausible futures, 3) pluralistic futures, and 4) performative futures (Muiderman et al. 2020).

Within the BIONEXT project, we use a diverse set of methods and approaches spanning these different approaches to the future. For example, the use of the Shared Socio-Economic Pathways sets out to identify and envision multiple plausible futures, whereas the Nature Futures Framework is a method to explore pluralistic futures. Analysis of the transition pathways formulated in Workshop 2 will build on a performative futures approach, critically interrogating how present-day choices shape the future. Combining these different approaches to the future helps strengthen strategic insights and robustness of the workshop findings.

### *Shared Socio-Economic Pathways*

The Shared Socio-Economic Pathways (SSPs) describe possible major global developments that could result in various challenges for addressing and adapting to climate change in the future. They are designed to help us understand how the future might unfold based on a set of consistent assumptions. The SSPs consist of five narratives that each outline broad characteristics of the global future, including population trends, GDP growth, and urbanization, in the projections of (Riahi et al., 2017):

- SSP1: the sustainable narrative of low challenges for mitigation (resource efficiency) and adaptation (rapid development)
- SSP2: the “middle road” narrative which refers to a path that aligns with the typical patterns of historical experiences observed over the past century
- SSP3: the regional rivalry narrative of high challenges for mitigation (regionalized energy / land policies) and adaptation (slow development)
- SSP4: the inequality narrative referring to low challenges for mitigation (global high-tech economy), high for adaptation (regional low-tech economies)
- SSP5: the fossil-fuel narrative which refers to high challenges for mitigation (resource / fossil fuel intensive) and low for adaptation (rapid development)

During the second BIONEXT workshop, the SSPs will be used to evaluate the effectiveness of the pathways towards the three NFF visions. Assessing the pathways within the context of various plausible levels of socio-economic challenges under different climate change projections (SSPs 1, 3, 4 and 5) will ultimately enhance their robustness and reveal the opportunities and challenges for transformative change.

### *Nature Futures Framework*

The Nature Futures Framework (see figure 3) is a tool developed through an IPBES led participatory process (Pereira et al. 2020; Kim et al. 2023). The tool is designed to engage with foresight methods – both visions and scenarios – that centre nature and bridge plural ways of valuing nature. The framework represents three archetypes of the relations between humans and nature and the values these are based on. Emphasizing these differences can help to assess and improve models and scenarios and to create visions and scenarios that take values attached to nature as a starting point, rather than an end point. With the corners each representing the most distinct value perspectives, while acknowledging that the values attached to nature can be a combination (Duran et al. 2023).

In Workshop 1, the Nature Futures Framework was used to make participants aware of the different value frames by engaging with them and reflecting on their own values. Eventually, the participants were divided into three groups, each creating a vision with one perspective as a starting point. The visions created in Workshop 1 were later analysed and enriched by researchers and participants. These will be used as input to create the pathways in Workshop 2, approaching them as three distinct but desired endpoints to build towards with the pathways.

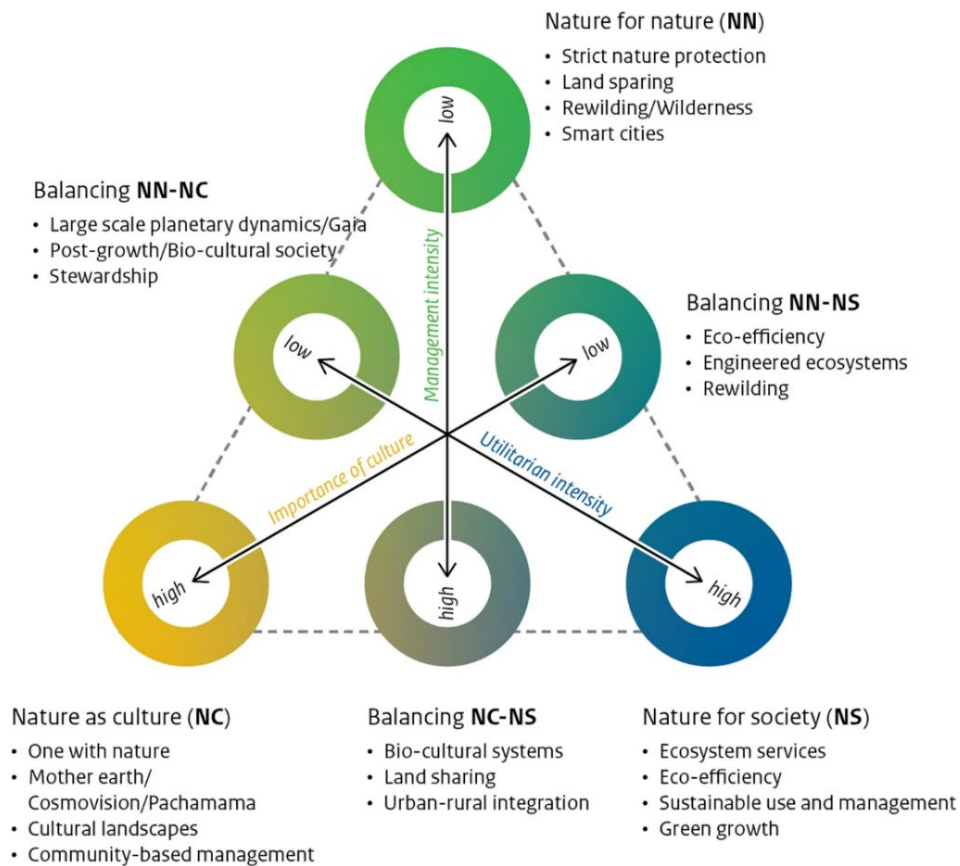


Figure 2. The Nature Future Framework from Duran et al. (2023)

### Transition theory

Transition theory builds upon an interdisciplinary approach to social change, rooted in systems thinking. Change is understood as a process that takes place through the complex interplay of different governance levels that reinforce each other to establish a new 'normal'. In his multi-level framework, Geels (2002) describes three different governance levels that influence change: (1) the niche level, where local experimentation and innovations take place; (2) the *regime* level that describes the dominant ways of organising society through the market, industry, policy, science, technology, and culture; and (3) the *landscape* level which is the exogenous context that puts pressure on the regime level. This can be climate change, migration, pandemics, etc. A transition to a new 'normal' can therefore be understood as fundamental change of the dominant structures, cultures, and practices within a societal (sub)system in the long-term (Grin et al., 2010). Workshop 2 will build on transition theory by developing transition pathways that describe how structures, cultures and practices change.

### Backcasting

Backcasting is a strategic approach that involves reasoning backward from a desired future to the present, identifying the key events, actions, projects, policies, and programs that contribute to realizing that future. This approach combines normative elements with the consideration of deep uncertainties, sparking the development of ideas and raising sensitivity to the possible pathways that provide directions for action to achieve the desired future (Robinson, 2003). Departing from the in Workshop 1 created visions, back casting is the method used to create transition pathways.

### Transition Pathways

Through backcasting, important milestones are identified that need to have happened between the future and the present. Transition pathways represent potential routes from the present to the envisioned future. These pathways are not rigid plans or detailed scenarios, but rather compelling

narratives created from the backcasting exercise, encompassing short, medium, and long-term goals along with actionable ideas. Utilizing a multi-level perspective offers insights into potential drivers and barriers, thereby raising awareness of the requirements and specifying pathways for realizing the desired future (e.g. Foxon et al., 2010).

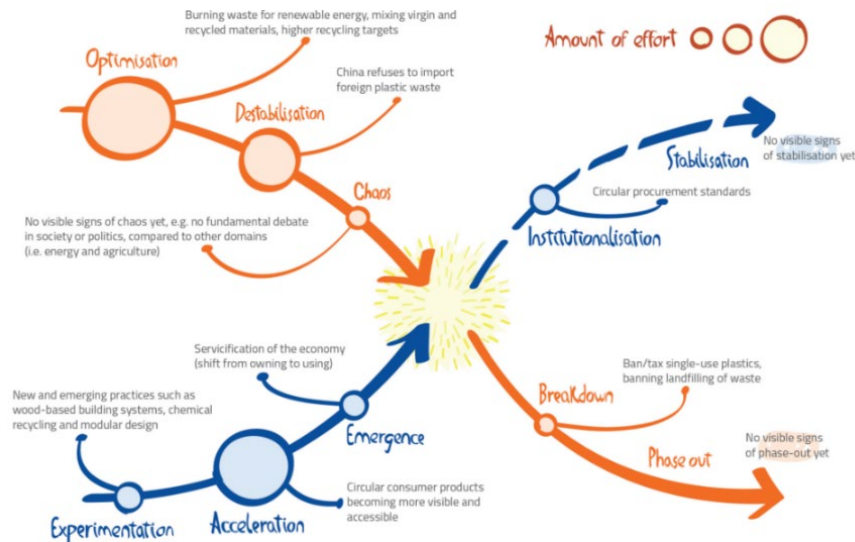


Figure 3. X-curve example: "The transition to a circular economy in The Netherlands" in the X-curve booklet (Silvestri et al., 2022)

### X-Curve

The X-curve describes the dynamics of societal transitions in terms of iterative processes of building up and breaking down. The X-curve features two main lines: a line moving up which represents a process of emergence and building up; and a line moving down which represents a process of breaking down and phasing out. The X-curve offers a common language and perspective to explore the dynamics at play, as well as possible actions and reactions by individuals, organizations, and sectors. While the transition dynamics described by using the X-curve are subjective, their general characteristics and phases are based on scientific insights into the way in which complex systems fundamentally change their nature, see Hebinck et al. (2022). In Workshop 2, the x-curve thinking is used to specifically focus on dynamics of breakdown that are required for transformative change.

### Linking the four workshops

The initial workshop, organised by UKCEH, was dedicated to the creation of scenarios and visions building on the Nature Future Framework. The second workshop co-creates transition pathways towards the earlier created visions and is organised by DRIFT. These pathways will then be strengthened based on empirical input in the third workshop led by Czech Globe. Lastly these efforts will be translated to policy and strategy briefs in a dissemination-oriented workshop led by the University of Antwerp.

### Workshop 1. Exploratory scenarios and visions

- Have participants provide input on exploratory scenarios to better represent biodiversity drivers
- Develop a new set of European nature-positive shared vision for 2050

Participants engaged with the interlinkages between biodiversity, climate change, food, water, health, energy, and transport. They enriched 4 socio-economic scenarios (SSPs) that were created to explore potential futures of Europe. In three groups, the participants developed nature-positive visions for 2050 that describe a desired future based on the different value perspectives as conceptualized in the Nature Futures Framework (NFF).

### Workshop 2. Just transition pathways

- Formulate just transition pathways towards the nature-positive visions created in Workshop 1
- Test and further develop the transition pathways with the SSPs.

Participants will depart from the visions created in Workshop 1 and use back-casting to create transition pathways for each of the visions. For each of these pathways, participants will reflect on the wider socio-economic dynamics that are influenced in the process. Using the SSPs, the created transition pathways will be ‘stress tested’ and made more robust by exploring both barriers and windows of opportunity. To emphasise processes of breakdown in the transition pathways, the X-curve will be used to explore what elements of the system must be phased-out.

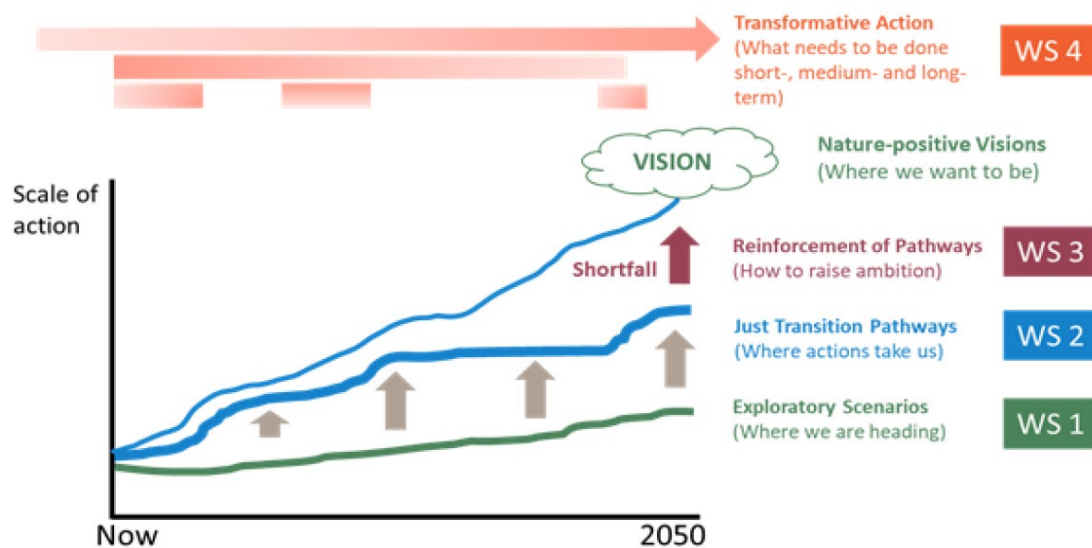


Figure 4. Graphic abstract of the connection between the four BIONEXT workshops

### Workshop 3. Reinforcing pathways and increasing transformative ambitions

- Identify where the vision elements are distant from achieving desired outcomes
- Enrich the pathways created in Workshop 2 by identify transformation actions and combinations of actions to accelerate the transition towards the visions

The transition pathways developed in the second workshop will be assessed for their effectiveness prior to workshop three. This assessment will be used in the third workshop to identify additional actions that could raise the transformative ambitions of the pathways. Using existing transformative case studies from the BIONEXT database, workshop three aims to stimulate thinking on short-term actions that foster fundamental changes and that can ‘open-up’ space for longer-term transformative change towards the envisioned futures. During this workshop, specific attention will be given to avoiding/minimising any likely trade-offs and the enhancing of synergies and opportunities.

### Workshop 4. Exploring transformative action and policy

- Demonstrate the BIONEXT Pathways App to potential users
- Present a synthesis of the project outputs

Based on the outputs of workshop three and further project work, the BIONEXT pathways App will be developed prior to Workshop 4. During this final workshop, the use of the Pathways App will be illustrated and how it can support the creation of just transition pathways specific to their geographic, social, and cultural context. Furthermore, during this final workshop, a synthesis of project outputs will be presented and then discussed with workshop participants and other stakeholders’ part of this final workshop.

## 5. A detailed view of Workshop 2

The starting point of the second workshop in the Netherlands are the three nature-positive visions that were created during the first workshop and expanded on during a participatory online session. Building on these visions, the second workshop aims for the co-creation of transition pathways to realizing these visions. A *pathway* represents a set of strategic actions, events and developments that societal actors decide to strive for during processes of change to arrive at a desired endpoint over time. During this workshop, pathways for each of the three visions will be co-created by logically reasoning our way from the future vision towards the present (i.e. ‘back casting’). A three-day program was designed to achieve this aim.

### A typical Dutch social ecological system: Sand dunes in Schoorl

The workshop will take place in a typical Dutch dune landscape in the North of the Netherlands. This Natura2000 area is characterised by ‘drifting’ dunes that continuously change the landscape, heathlands, and pine forest. Dunes are not only a vital part of the Dutch sea defence protection against the rising sea, but they are also a place for recreation and biodiversity.



Figure 5. A schematic picture of the dunes and how different valleys provide space for diverse flora and fauna. Source: Staatsbosbeheer

Interesting about the dune area in Schoorl is that management by State Forestry Department is aimed at broadening the dunes and bringing back a more variation in the dune valleys in terms of biodiversity. By removing trees (mostly pines) planted about a century ago, the dunes can finally ‘shift’ again, as the sand is no longer ‘locked in’ by the trees. This natural process allows for diverse flora and fauna to return to the area (see figure 5).

### The venue: ‘Laguna beach’

The workshop itself will take place in a ‘laguna’ amongst the dunes. The venue called ‘laguna beach’ provides views over the laguna, dunes and the sea (see figure 6). During the workshop we will make as much use of the surrounding as possible, by including exercises that take the participants into the dunes. For example: with a reflexive walk in the dunes or listening to a podcast that summarises the visions of workshop 1 while going for a walk on the beach. In addition, a short ‘tour’ by a ranger from the State Forestry Department will provide the participants with some more insight into the management, history, and biodiversity of the social ecological system they are in. Including such ‘sensory’ experiences is useful as it helps ground people in a place and inspire more creative thinking. Being in a location that is very different from ‘normal’ helps to create a different mindset. In addition, being able to combine more physical exercises helps create a sort of playfulness that we aim to inspire with our workshop.



Figure 6. the workshop venue 'Laguna Beach' located in Schoorl, the Netherlands.

### Workshop program

On **day one** we kick off by reconnecting with the three visions and deepening our understanding of the current state of drivers of biodiversity loss to understand both the starting point (current state) and the desired end point (vision) of the pathways. This includes listening to the BIONEXT-created podcast that tells the story of the three visions while enjoying a walk through the dunes in Schoorl. This helps to identify pivotal change events leading to a desired vision.

Central to **day two** is the creation of pathways in three groups. Each group works with one of the visions and uses back-casting to co-create a series of needed actions, developments, and events needed to achieve the vision. In other words, the participants will reason backward from the visions to the present and identify key events and actions for each of the nexus elements and the indirect drivers of biodiversity loss and the interlinkages of these elements and drivers.

Finally, on **day three** we work towards more robust pathways by using the SSP (Shared Socio-economic Pathway) scenarios to 'stress test' the pathways. Building on the insights gained from these tests, pathways can be adapted to cope better with circumstances or better use of windows of opportunities presented in the scenarios. By the end of day three, the pathways will be consolidated into storylines and presented to the whole group using playful presentation methods.

Throughout the workshop we stimulate reflexivity by allowing time and giving prompts for personal reflection on positionality, expertise, and agency, but also through development of individual learning goals.

**Table 2. Broad overview of the program in workshop 2**

Time	Activity	Theoretical foundation
<b>Monday afternoon</b>	Reconnect with the visions from Workshop 1	
	NFF exercise to form groups	Nature Futures Framework Visions Workshop 1
	<i>From this point onwards the main activities will take place in 3 groups based on the 3 visions from WORKSHOP 1. In between steps, there is an exchange between the groups.</i>	
	Discuss urgency for transformation by reflecting on problems causing biodiversity loss	Current state analysis of direct and indirect drivers of biodiversity loss Nexus systems diagram
	Creative brainstorm on ideas for build-up and breakdown	Transition theory, X-Curve
<b>Tuesday morning</b>	Place build-up and breakdown on timeline	Backcasting, transition pathways
	Back cast activities and events for each nexus element	Backcasting, Nexus thinking, indirect drivers
	Select 3 break throughs per group	
<b>Tuesday afternoon</b>	Ecology excursion in the dunes	
	Enrich the 3 breakthroughs considering societal conditions and consequences	Transition theory
<b>Wednesday morning</b>	Stress-test the pathways with the SSPs	SSPs (enriched EU SSPs)
	Make pathways more resilient to the different SSPs	SSPs, Transition pathways
<b>Wednesday afternoon</b>	Present the pathways to the other groups	

### **Outputs: Analysing just transition pathways**

The Second Workshop will result in a various co-created transition pathways which will be the starting point for further analysis. The three pathways will be analysed for common and distinct features when comparing them to the Nature Futures Framework, the extent to which they integrate the biodiversity nexus elements, and their ability to integrate justice dimensions.

Furthermore, the analysis will aim to identify transformative potential across the pathways and uncovering the more precise mechanisms of change. Moreover, the pathways will be used for further analysis in Work Package 1, where they will be quantified. To enable quantification of these pathways there is the possibility to arrange an online session to enrich the pathways – or fill some of the ‘gaps’.

Workshop 2 will also contribute to methodological considerations and reflections focused on the use of three different forecasting methods, but also the design of the co-creative space and to what extent it enabled for transformative outputs. These insights will be collected in Deliverable 2.3 that will describe the co-created transition pathways towards the nature-positive visions for Europe.

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