



REPORT FROM THE WORKSHOP 'NEW NARRATIVES FOR NATURE: OPERATIONALIZING THE IPBES NATURE FUTURES SCENARIOS'

Led by the task force on scenarios and models of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)

Hosted by the Institute for Global Environmental Strategies (IGES), with support from University of Tokyo, Research Institute for Humanity and Nature (RIHN), United Nations University and Ministry of the Environment of Japan

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Report on the Workshop 'Next Steps in Developing Nature Futures'

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Executive summary

The workshop 'New Narratives for Nature: operationalizing the IPBES Nature Futures Scenarios' was organised by the IPBES task force on scenarios and models and hosted by the Institute for Global Environmental Strategies (IGES), with support from the research team on "Predicting and Assessing Natural Capital and Ecosystem Services through an Integrated Social-Ecological Systems Approach (PANCES)" based at the University of Tokyo, the Research Institute for Humanity and Nature (RIHN), and the United Nations University, with generous financial support from the Ministry of the Environment of Japan.

Due to the COVID-19 virus outbreak, most task force members participated through virtual means, with a subset of task force members meeting in person in Japan.

The aim of the workshop was to build on the Nature Futures Framework (NFF) and on the 'nature futures' participatory scenario-development work initiated by the IPBES expert group on scenarios and models in the first IPBES work programme. This workshop aims to further elaborate the pre-workshop scenario narratives and to enrich discussions on the NFF. The workshop also served to start working on a more detailed task force work plan.

These aims were achieved through:

- Task force sessions on the further formulation of the Nature Futures narratives.
- Task force sessions on the cross-comparison of draft narratives and the further elaboration of the historical-present narrative.
- Organisational sessions to begin the drafting of sub-deliverable-specific work plans.
- In parallel to the task force workshop, collaborative sessions between the task force and Japanese researchers took place to discuss the application of the Nature Futures Framework at the national scale, using existing national level scenarios from Japan.
- A public seminar, in Japan, for a wider audience introducing the work of the task force on scenarios and models, the concept of the Nature Futures Framework, and fostered discussions on the concept of transformative change.

Summary of outputs of the workshop in Japan

- 6 new scenario narratives drafts - an evolution of the pre-workshop work using the narrative templates, into a more coherent set of narratives fitting their locations in the Nature Futures Framework, including some illustrative visualisations.
- A cross-comparison table - to identify the core similarities and differences across the 6 new narratives (including single narrative-between-narrative comparisons).
- A discussion on how to continue further development, requiring identifying pathways to complete the 6 new narratives.
- 1 historical-to-present narrative draft - also an evolution of work done prior to the workshop. The task force has yet to synthesize and shorten this draft, ensuring linkages with topics detailed in the 6 new narratives into a more digestible level.
- Elaboration of a follow-up plan for further development of the narratives, post-workshop, through a "buddy" system of in-depth online discussions per and between narratives.
- 1 Japan case study - on fitting national level scenarios into the Nature Futures Framework. A summary will be shared by the team who worked closely on this with the PANCES partners, which we expect will give interesting insights to the cross-scale application of the Nature Futures Framework.
- Detailed work plan implementation drafts (ongoing post workshop in sub-groups).

1. Introduction

Since the launch of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) methodological assessment of scenarios and models of biodiversity and ecosystem services by the IPBES Plenary in 2016, the former IPBES expert group on scenarios and models has undertaken activities to build on the assessment, and to catalyse the further development and use of tools and methodologies on scenarios and modelling. One of the key findings of the assessment was the lack of existing scenarios that fully meet the needs of IPBES. An important part of the former scenarios and models expert group and the current task force's mandate is thus to catalyse the development of a next generation of scenarios and models of biodiversity and ecosystem services by the broader scientific community¹. These new scenarios, or 'nature futures', are intended to incorporate alternative visions to reach complex intertwined targets, to balance synergies and trade-offs between nature conservation and other development goals, and to address feedbacks between nature, nature's contributions to people, and human well-being.

Through various participatory approaches with stakeholders from relevant sectors, the expert group has identified positive visions on the future of nature, and started developing the so-called Nature Futures Framework (NFF) to support the further development of new scenario narratives. Specifically, participants at the "*Visioning Nature Futures*" workshop held in Auckland, New Zealand in 2017, identified 7 positive nature-focused future visions. Participants at a 2018 workshop in The Hague, Netherlands, then began work developing future scenarios, with descriptive "narratives" around those positive future visions, during which the development of the Nature Futures Framework (NFF) began. The NFF currently consists of three different perspectives on how people value nature: *nature for nature*, in which nature is regarded as having value in and of itself, and the preservation of nature's functions is of primary importance; *nature for society*, in which nature is primarily valued for the interest of people, and focus is on the multiple uses of nature; and *nature as culture*, in which humans are perceived as an integral part of nature and its functions. These three perspectives form a continuum, or gradient, that is represented in a triangular NFF, and which can be discussed across different scales and sectors.

The purpose of this workshop "*New Narratives for Nature: operationalizing the IPBES Nature Futures scenarios*" held in Shonan Village, Hayama, Japan in February of 2020, was to continue to build on previous NFF work and on the 'nature futures' participatory scenario-development work initiated under the first IPBES work programme, and now continued by the task force scenarios and models under the new IPBES rolling work programme. The workshop was organised by the IPBES task force on scenarios and models and hosted by the Institute for Global Environmental Strategies (IGES), with support from the research team on "Predicting and Assessing Natural Capital and Ecosystem Services through an Integrated Social-Ecological Systems Approach (PANCES)" based at the University of Tokyo, the Research Institute for Humanity and Nature (RIHN), and the United Nations University, with generous financial support from the Ministry of the Environment of Japan.

Due to the coronavirus outbreak in early 2020, most task force members participated in the Japan workshop through virtual means, with a subset of task force members meeting in person on site. As a result, the workshop was structured into face-to-face components for task force members in Japan, and online components with regular conference calls, email coordination, and assignment of tasks to remote participants of the task force.

¹ See Annex V to decision IPBES-4/1 (in document IPBES/4/19) for further details on the background of the task force: https://ipbes.net/sites/default/files/downloads/pdf/ipbes_4_19_en.pdf

2. Workshop aim and structure

The core aim of the workshop was to build on the Nature Futures Framework (NFF) by further elaborating and refining the scenario narratives first drafted at previous workshops and further refined using collaboratively developed templates in an online shared drive. The workshop was also intended as the first occasion for the task force members to consider a more detailed annual work plan, in line with the overall work plan and tasks identified in the previous task force meeting (IPBES joint task force meeting in Bonn, Germany, November 2019; see Annex A for the overall work plan).

This was achieved through:

- Task force sessions on the further formulation of the Nature Futures narratives using the pre-workshop narratives. The task force members compared and refined the draft narratives to better differentiate and characterise the visions covered in the NFF, and to describe different narrative themes consistently across the various narratives. Material from stakeholder and academic consultations after the 2017 Auckland workshop have and will also be used to elaborate the narratives (PBL, 2018; PBL, 2019; Pereira et al., in review).
- Task force sessions on the cross-comparison of draft narratives and the further elaboration of the historical-present narrative.
- A brief organisational session of the task force to begin the drafting of task-specific work plans for this year.

In parallel to the task force sessions, collaborative sessions of the task force and the PANCES research team were held to enrich discussions on the NFF through a national level experience on scenario development in Japan. These sessions allowed exchange between Japanese experts and the task force on the interpretation of the Nature Futures Framework from regional and local perspectives.

A public seminar was also held in Japan in the course of the workshop week for a wider audience at the Institute for Global Environmental Strategies. The program introduced the scenarios and models task force's work, the concept of the Nature Futures Framework, and fostered discussions on the concept of transformative change.

3. Preparatory work on scenario narratives

Before the workshop, the task force prepared a first set of draft scenario narratives following a template prepared by a sub-team of the task force. With the aim of ensuring some level of consistency across the drafting work, the task force members followed a provisional structure to draft the narratives, using guidance materials on “tips” and “instructions on the template” produced by a subset of experts and the technical support unit (TSU). These draft narratives (hereon referred to as “pre-workshop narratives”) were based on locations within the Nature Futures Framework and positive future visions formulated with participants of the Auckland workshop (Lundquist et al., 2017) (see figure 1a and 1b below). These positive future visions are referred to as the “Auckland visions”.

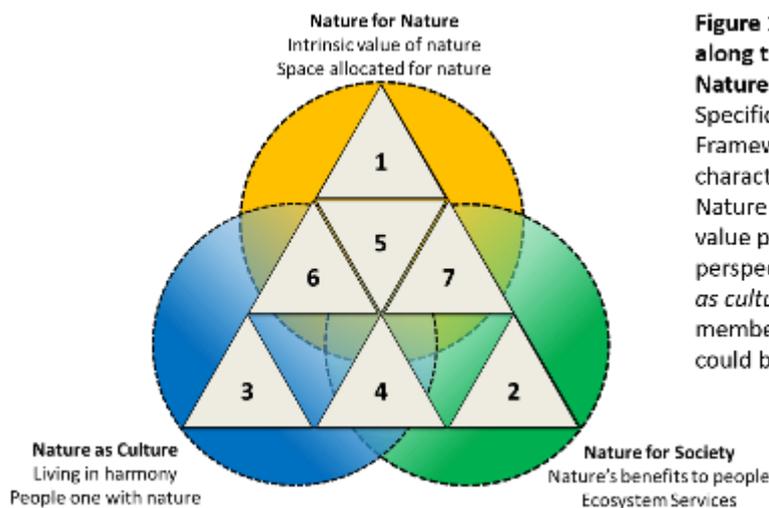


Figure 1a: The initial 7 draft narratives mapped along the gradient of value perspectives of the Nature Futures Framework
Specific locations within the Nature Futures Framework were chosen to anchor the characterisation of the 7 draft narratives. The Nature Futures Framework being a gradient of value perspectives between the 3 extreme perspectives, namely *nature for nature*, *nature as culture*, and *nature for society*, the task force members explored how positive future visions could be described from these 7 locations.

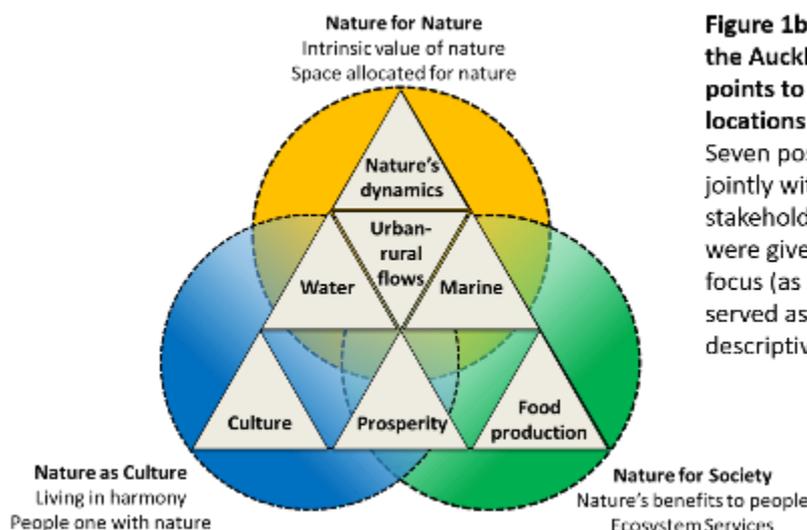


Figure 1b: The 7 positive future visions from the Auckland workshop used as starting points to enrich the descriptions of the 7 locations of the Nature Futures Framework
Seven positive future visions were formulated jointly with participants at the Auckland stakeholder workshop held in 2017. These were given brief titles highlighting their key focus (as shown above). These positive visions served as a starting point for drafting descriptive text for the initial 7 draft narratives.

Background reading material

- IPBES (2016) The methodological assessment report on scenarios and models of biodiversity and ecosystem services. S. Ferrier, K. N. Ninan, P. Leadley, R. Alkemade, L. A. Acosta, H. R. Akçakaya, L. Brotons, W. W. L. Cheung, V. Christensen, K. A. Harhash, J. Kabubo-Mariara, C. Lundquist, M. Obersteiner, H. M. Pereira, G. Peterson, R. Pichs-Madruga, N. Ravindranath, C. Rondinini and B. A. Wintle (eds.). Secretariat of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, Bonn, Germany. 348 pages.²
- Rosa et al. (2017) Multiscale scenarios for nature futures. *Nat Ecol Evol* 1, 1416–1419 ³
- Lundquist et al. (2017) Visions for nature and nature’s contributions to people for the 21st century, NIWA Science and Technology Series Report No. 83, NIWA, New Zealand. 123 pp. (report of the stakeholder workshop held in Auckland)⁴
- PBL (2018) Report on the Workshop ‘Next Steps in Developing Nature Futures’. PBL Netherlands Environmental Assessment Agency, The Hague. 27 pp. (report of the expert group meeting held in The Hague)⁵
- PBL (2019) Report on the workshop ‘From visions to scenarios for nature and nature’s contributions to people for the 21st century’. PBL Netherlands Environmental Assessment Agency, The Hague. 47 pp. (report of the expert workshop held in Vancouver, Canada)⁶
- Special Feature: Future scenarios for Socio-Ecological Production Landscape and Seascape. *Sustainability Science*. Vol 14. (2019) (Predicting and Assessing Natural Capital and Ecosystem Services (PANCES) project papers)⁷

Keywords used in the workshop

- “Seeds” are innovative initiatives, practices and ideas that are present in the world today, but are not currently widespread or dominant (Bennett et al., 2016⁸; Lundquist et al., 2017⁴).
- “Visions” are built on the different seed initiatives from which inspirational stories of sustainable, equitable futures can inspire us to move toward the values and ideals of a “good Anthropocene” (Bennett et al., 2016, Preiser et al., 2017⁹).
- “Narratives”, or storylines, are qualitative descriptions which provide the framework from which quantitative exploratory scenarios can be formulated (IPBES glossary¹⁰).
- “Scenarios” are representations of possible futures for drivers of change in nature and nature’s contributions to people (IPBES, 2016¹¹), combining storylines with model projections and expert analysis.

² <https://www.ipbes.net/assessment-reports/scenarios>

³ <https://doi.org/10.1038/s41559-017-0273-9>

⁴ <https://www.niwa.co.nz/coasts-and-oceans/research-projects/ipbes-nature-futures-workshop>

⁵ www.pbl.nl/en/publications/report-on-the-workshop-next-steps-in-developing-nature-futures

⁶ www.pbl.nl/en/publications/from-visions-to-scenarios-for-nature-and-nature%E2%80%99s-contributions-to-people-for-the-21st-century-workshop-report

⁷ https://link.springer.com/journal/11625/topicalCollection/AC_98a8155ce0f05177e9059051f061a544

⁸ <https://doi.org/10.1002/fee.1309>

⁹ <http://dx.doi.org/10.1016/j.ancene.2017.10.003>

¹⁰ <https://www.ipbes.net/glossary>

¹¹ <https://www.ipbes.net/assessment-reports/scenarios>

4. Work by the task force members on global scenario narratives

The task force members in Japan followed the workshop programme (Annex A) and took the lead on further developing the global narratives. There were two objectives for further development of the narratives:

1. Further refine the draft-narratives, incorporating material from earlier workshops and consultations;
2. Add domain-specific knowledge to each of the draft-narratives using individual expertise.

The task force members agreed that the work done in this workshop needed to build on a shared understanding of the narratives and how to continue working on them. Over the course of the workshop, the task force went through the following steps, with daily online interactions between the remote participants of the task force and those on-site in Japan:

- Step 1: Bringing all participants up to speed about ongoing efforts of the task force
- Step 2: Clarifications on the draft narratives and consensus-building
- Step 3: Identification of common themes across narratives
- Step 4: Characterising the narratives under the common themes
- Step 5: Formulation of new narratives based on cross-comparisons and internal consistency
- Step 6: Brainstorming on the next steps

4.1 Step 1: Bringing all participants up to speed with ongoing efforts of the task force

To kick off the elaboration of the narratives, an essential step was to clarify the concepts underlying the Nature Futures Framework, the purpose and definition of the visions and pathways, and their timeframes. This was achieved through both calls prior to, and at the start of the workshop week.

4.2 Step 2: Clarifications on the draft narratives and consensus-building

The following step was to discuss and identify key points in need of further discussion, which required substantive time input at the beginning of the workshop week to build a common vision across all task force members. Discussions addressed the following key questions:

- *What is the difference between visions, values and scenarios?*
The difference between visions, values, narratives and scenarios was discussed. Visions are exploratory, not necessarily plausible futures, developed during the 2017 Auckland workshop to represent the range of possible, positive outcomes for nature and humans in the future (2050-2100) (Lundquist, 2017). The values in the NFF represent different perspectives that can be used for discussing what is a good or desired 'nature's future', such as the intrinsic value of nature (*nature for nature*), the importance of nature's

benefits to people (*nature for society*), or the cultural values of nature (*nature as culture*). Based on these visions and value perspectives, the task force members are now at the stage of developing scenarios which consist of narrative storylines and descriptions of the pathways required to get from the present world to achieving the visions. The visioning process has been further clarified in a submitted manuscript (Pereira et al, under review).

- *What is the relation between these 'Auckland visions' and the pre-workshop draft-narratives that are developed in the templates? and related to that How to bring the sectoral (e.g., marine, freshwater, food) and the generic (e.g. nature's dynamics) visions from the Auckland workshop forward towards global narratives?*

The original intention of the templates was to use the 'Auckland visions' to think about how these aligned with a selected narrative, and utilise information from these visions, and the pathways selected to attain these visions, to populate the new narratives. Many of the Auckland visions focussed on individual sectors, so they needed to be expanded to cover the diversity of themes required for global biodiversity narratives.

To resolve some discussion that resulted from directly (re)using the Auckland vision titles to identify the narratives allocated to various locations within the NFF, it was decided to discontinue using the names of the Auckland visions. Instead, the task force members decided to use its respective number (1-7). Also, a preamble text was drafted for all of the narratives to explicitly state their placement in the NFF.

- *If each pre-workshop draft narrative has a designated place in the Nature Futures Framework (NFF), why is it useful to discuss all three value perspectives of the corners within each narrative?*

Here, it is useful to understand the NFF not as a triangle, but as a spider diagram with 3 axes (corresponding to the value perspectives of nature for nature, nature as culture, and nature for society). Wherever the narrative is positioned within the NFF triangle, it is then characterised with a balance across the three axes, and it is thus important to describe the narrative in relation to all three axes.

Also, regarding indicators, as discussed in earlier workshops, there can be common and unique ones for the narratives. All three value perspectives are discussed in each narrative, to help find a common set of variables.

- *How to consolidate regional differences across the world into a global narrative?*

The latter section of the template (on Heterogeneity & Differences) allows for discussing regional differences and scale issues.

In this challenging process of writing the narratives, it is important to identify disagreement and conflicting opinions, as we have different perspectives, ideologies, and interpretations of what the positions in the NFF could mean. These regional differences and tensions were recorded, and will be further used to identify regional differences in pathways to achieve the visions in each narrative, in collaboration with the rest of the task force.

Finally, the on-site workshop participants discussed the practical approach to using the NFF triangle as a basis for further developing the narratives. They discussed language issues and the conceptual development of narratives rooted in each location within the NFF, reaching some consensus on the 3 different values (in triangle's corners): intrinsic, instrumental and cultural, and their intermediate levels (middle-points) between them, respectively denominated "social natures" (narrative 4), "living with nature/co-evolution of nature and culture" (narrative 6), and "sharing nature" (narrative 7). Common denominators for each vision and a simultaneous characterization across visions were discussed in-depth in order to get a group's alignment. As a result of these discussions, the task force agreed to proceed with further developing 6 out of the 7 pre-workshop narratives (narratives 1, 2, 3, 4, 6, and 7; see Figure 1). The elaboration of narrative no. 5 (middle of the road, centre of the NFF)

was put on hold, as it was perceived to be a consensus narrative, and did not sufficiently differ from the others. However, all the descriptions and text that were written for the pre-workshop narratives were retained and included wherever relevant in the 6 updated narratives. Based on the structure agreed, the task force contributed online to extracting relevant text from the pre-workshop narratives and reallocating them to the new narratives.

4.3 Step 3: Identification of common themes across narratives

Following the agreement on developing narratives in the 6 locations of the NFF triangle, the task force discussed how to gain a structured, shared understanding of those 6 narratives. A preliminary list of common themes across narratives was developed, and then clustered for use in guiding the drafting of narrative paragraphs. The clustering served as a practical solution to having a common structure in describing the diverse aspects of the narratives, and will be further refined, and where needed, reframed after the workshop. The following 5 themes were agreed on:

- [Economy, Governance, Cities, Communities]
- [Infrastructure, Energy, Transport, Water]
- [Food, Diet, Agriculture, Fisheries, Aquaculture, Land management, Well-being]
- [Megafauna, Oceans, Biodiversity use]
- [Trade, Law-rights, Education, Policy]

It was decided to start by scrutinizing and cleaning the existing narrative templates, keeping in mind these common themes. The task force chose to start with narrative 6 (between nature for nature and nature as culture in the NFF), to get a shared understanding of where we are, and how to proceed. The result was a new clean "New Narrative 6" developed collaboratively in a shared online document. Going through this narrative revealed that the text was still ambiguous and did not clearly communicate the fundamental features that differentiated this narrative from others. This was where the preliminary list of common themes helped to identify differences and commonalities between other visions as well.

4.4 Step 4: Characterizing the narratives under the common themes

The group continued to work on characterising the new narrative 6, under the common themes that were present across all narratives, as a way to capture the specificity of this narrative. Discussions became heated while attempting to clarify the differences across the 6 narratives and to sort the descriptions and themes into the most fitting narratives. Reaching consensus on certain terms (i.e. tenure-rights, ecological intensification) also involved significant debate, especially in the context of the transformative character of the narratives and the potential consequences for people. Not having a broader range of expertise available in person at the workshop made describing some aspects (e.g. governance) challenging.

A systematic approach was agreed upon to carry out a simultaneous characterization of the relevant themes across the narratives thereby providing an overview of the similarities and differences in the themes across the narratives. This exercise helped to populate the other "new vision narratives", following the example of the new narrative 6. A cross-comparison table was made, where each column corresponds to a narrative and the rows contain the common themes across narratives. This cross-comparison table allowed for systematic identification of the differences across narratives.

In part A of the table, relevant themes (e.g. governance, agriculture, cities) across narratives (New 1, Pre-workshop 1, New 2...) are described and each theme across the narratives was assessed to ensure consistency. Similarly, the consistency of the different themes within each narrative was assessed (i.e. for the theme 'cities', each narrative discussed both how populations were distributed within cities and across urban/rural divides, as well as how nature coexisted within cities).

In part B of the table, text extracts from the corresponding "old narrative templates" were added next to the analysis of part A to enrich and complement the descriptions of the corresponding themes.

	A New 1	B Pre-workshop 1	A New 2	B Pre-workshop 2	(....)
Governance					
Food					
Water					
Trade and Economy					
Biodiversity use					
Land management					
Policy and regulations					
(.....)					

4.5 Step 5: Formulation of new narratives based on cross-comparisons and internal consistency

Using the cross-comparison table, the 6 narratives could be rewritten without using the pre-workshop template structure. The next step in developing the narratives was to outline their structure and discuss how to get to these futures for which there was a need for a baseline (see chapter 5 on historical baseline, herein). The aim was to have narratives that are internally consistent and clearly contrasting. Therefore, text from the pre-workshop narrative drafts that fulfilled these aims was integrated into the new narrative documents. One task force member was allocated to each new narrative to work individually on fleshing out the text using the materials in the cross comparison table.

Narrative 1 - Ghassen Halouani

Narrative 2 - William Cheung

Narrative 3 - Paz Durán

Narrative 4 - Chimere Diaw

Narrative 6 - Mary Gasalla

Narrative 7 - Jan Kuiper

The narratives resulted in concise clean texts aiming to cover potential economy, governance, cities, communities, infra-structure, energy, transport, water, food, diet, agriculture, fisheries, aquaculture, land management, megafauna, oceans, biodiversity use, trade, law/rights, education and policies that could characterize each of them.

Pairwise comparisons between the new narratives

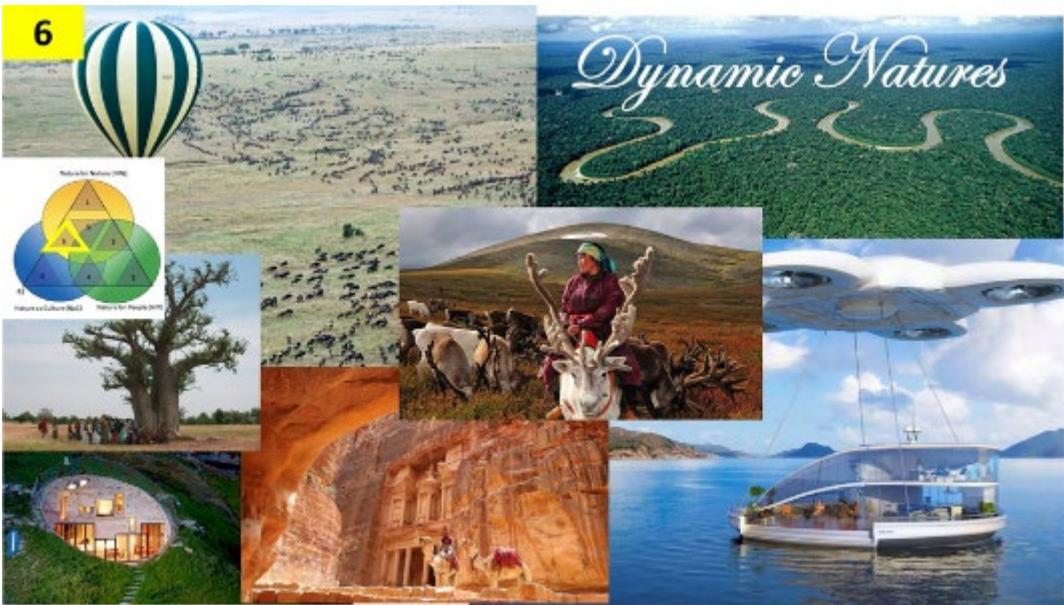
Once the new narratives were drafted, reading them aloud revealed that they appear less distinct than described in the cross-comparison table. This was partly because of jargon and reuse of terms across the 6 draft narratives, and partly because of integration of text from the pre-workshop narratives without editing to align the text. In terms of jargon, the IPBES

terminology and the IPBES conceptual framework will need to be explicitly integrated at a certain stage. It will also be important to make connections to the key concepts from the Convention on Biological Diversity (CBD) in the narratives, to make these relevant for nature, i.e. CBD's general concepts about nature and indigenous rights, marine protected areas, etc.

To create more distinct narratives, there was a need to analyze where there were key demarcation points across the six narratives and where there was allowable overlap. The on-site task force members in Japan therefore did a pairwise comparison to further explore and reach a common understanding on where the different aspects of the NFF triangle really are. This one-on-one comparison also served to improve on the consistent use of language.

As another way of characterising the 6 new narratives, and translating the differences between them, visual depictions of the different narratives were developed (excluding narrative 5; see next pages).







Preliminary discussions on the development of pathways

During this step of formulating the new narratives, a first attempt was also made at discussing the pathways towards the 6 futures, to showcase challenges, possible trade-offs, and where there may be regional differences, etc. For each vision, pathways from the present to the desirable futures were discussed: what needs to change from the present, how can these changes be enabled, which drivers need to be addressed? Further development of the pathways will be undertaken after the workshop, and can be supported by the cross-comparison table. A challenge for working on the pathways is to connect them to the present given that there is currently no clear consensus on how the present should be interpreted and how to deal with contradictions in interpretation of the present. A solution could be to deliberately give space to tensions and contestations in our descriptions of the present and the pathways.

There are three suggestions for pathways development:

1. Drivers with directionalities (arrows, colors).
2. Feedback diagrams (what is driving or preventing change).
3. Look at scenario archetypes and other scenarios developed (e.g. the Shared Socioeconomic Pathways), and relate these to our narratives.

For the further development of the narratives, an inductive process was used: e.g. defining the most relevant feedback loops and drivers per narrative. These were written down for each narrative, with the idea that after the workshop, these can be standardised and elaborated in more detail.

Post-workshop more work needs to be done on defining common and unique themes, and incorporating more biodiversity aspects. Also, since there were gaps in expertise within the task force members participating in the workshop, other experts need to be involved. Once there is a clearer understanding of the key defining features of each narrative, these can be matched with indicators that allow a measure of success at achieving the NFF values, to make sure we can quantify at least the core idea of each narrative.

4.6 Step 6: Brainstorming on the way forward

In a brainstorming exercise on how to move forward with the vision narratives after the workshop, several ideas were proposed:

[note: the ideas below are proposals from the task force members at the workshop, and have not yet been decided on officially by the entire task force]

- The task force will develop pathways for each narrative, but other groups in the broader research community may come up with alternative pathways to the visions. This will enrich the discussions on the use of the NFF.
- Regarding modelling: for some of the narratives, how to model these is already somewhat clear, but for others it's more fuzzy. Thus, there is a need to start thinking about indicators and pathways. A next workshop could focus on the translation to modelling: what can be done and what cannot?
- Consider which processes the task force wants to inform: the next IPBES global assessment, but also starting to experiment and integrate the narratives in earlier products (e.g. other IPBES assessments). The timeline of the IPBES Nexus Assessment is particularly interesting because it might continue a year longer than the Transformative Change Assessment (depending on approval of these assessments in the upcoming 8th IPBES plenary). If the task force publishes the NFF scenarios in the next 1.5 years, the modelling community can work with it in time to quantify these scenarios.
- The task force meeting in May 2020 will be essential for the pathway development. Work on indicators and feedback loops (continuing the work of the Vancouver, Canada, workshop, held in 2019) will be integrated during the pathway development. Similar is integration of IPBES/CBD terminology and concepts, including the IPBES work on values.
- Parallel route forward 1: consider a special issue publication as a full presentation of the NFF visions and pathways. The Shared Socioeconomic Pathways (SSPs) were launched in a special issue. The narratives could be launched in a similar way: a special issue with a framework/overview paper plus thematic articles. A next meeting can be used to draft this special issue, and which manuscript subjects and analyses should be developed further.
- Parallel route forward 2: a buddy system to refine narratives and draft pathways. A plan was made for engaging all task force members who could not attend the workshop on-site in Japan. A 'buddy-system' was designed to enable discussions in smaller groups with all task force members, in which there would be time to discuss the narratives in-depth; subsequently, a bigger call would be organised to involve all of the task force. The buddy groups should be pairs of 3-4 people for each narrative: 1 from the on-site team in Japan and 2-3 other task force members who have a different background, preferably within one time zone. The first step for the buddy teams is to get buy-in and agreement on what the final states of the 6 scenarios look like (cross-comparison table) and how they differentiate from each other (megatable). Having reached this (and maybe have a general call with everyone to share their final vision descriptions), the next step is to start the process of building pathways (using the three horizons approach of documenting transformative change over time) within the buddy groups. This will reflect the initial discussion for narrative 1. A subsequent input would be to match the descriptions in the pathways and cross-comparison table to existing variables as a first input to the May workshop.

Key follow up actions needed after this workshop:

- A discussion and strategy on how to move forward, acknowledging that this is an iterative process, e.g. how to integrate the IPBES conceptual framework, CBD terminology, results from the workshop organised by the former IPBES expert team on scenarios and models in Vancouver (PBL, 2019) into the narratives.

- Set an agenda on what to discuss with modellers. Collaboration with the modelling community (incl. those with experience from adapting SSP scenarios for the IPBES global assessment) can be picked up, preferably in parallel with further developing the variables and pathways, rather than waiting for a final list of variables. The cross-comparison table and new short narrative texts are useful starting points for this. It would be useful if these could be linked later on to existing scenarios (for the more economic, distant drivers etc). It would be interesting to have the modelling community assessing gaps in our narratives, but also to look into what they can and cannot model in the narratives.
- Continued work on the narratives can be organised using a buddy system (see previous paragraph).
- To do a comparison with existing scenario archetypes, and to clarify where they are different from our narratives to prevent forcing our narratives to fit with existing scenario work, while also to taking into account what already exists (such as the ISIMIP project¹² working on adding biodiversity to the Shared Socioeconomic Pathways (SSPs) scenarios framework, the 'bending the curve' initiative¹³ led by IIASA¹⁴ and WWF¹⁵, and GEOBON¹⁶ working on modelling Essential Biodiversity Variables).

¹² The Inter-Sectoral Impact Model Intercomparison Project: <https://www.isimip.org/>

¹³ For further information on the initiative see: WWF (2018) Living Planet Report - 2018: Aiming Higher. Grooten, M. and Almond, R.E.A.(Eds). WWF, Gland, Switzerland.

¹⁴ International Institute for Applied Systems Analysis: <https://www.iiasa.ac.at/>

¹⁵ World Wide Fund For Nature: <https://wwf.panda.org/>

¹⁶ The Group on Earth Observations Biodiversity Observation Network: <https://geobon.org/>

5. Work by the task force members on the historical-present narrative

Through the course of the week, the task force members also revised the pre-workshop draft of the “historical-present” narrative, and contributed their individual expertise to the cross-comparison table developed for the 6 vision narratives.

The further development of the historical-present narrative required the following steps:

1. Reaching consensus on the purpose of the historical-present narrative and the way forward
2. Restructuring the template to fit the purpose of this narrative
3. Enriching its content with additional sources
4. Further synthesis and editing of the text
5. Identifying the remaining tasks for this narrative

5.1 Discussions on the purpose of the historical-present narrative and the way forward

The first step in further developing the historical-present narrative was to identify points of discussion and address questions on the purpose of this narrative in order to reach a consensus on the way forward. The following points served to clarify the purpose of the historical-present narrative:

- Describing what happened in the past helps to ground what happens in the future. Therefore the purpose of the historical-present narrative is to provide the foundation for developing the pathways to the visions, i.e. it connects the pathways to a common understanding of the present-day.
- The historical-present narrative should thus provide an overview of the most important societal changes and the main trends that have affected biodiversity and ecosystem services over the last 30 years (1990 - present).

Based on this understanding, the following challenges in drafting the historical-present narrative were identified:

- Reconciling a global narrative with geographic diversity requires careful formulation, as some of the aspects described in the document (feedback, drivers) can be controversial, or differ widely between continents or countries. These differences should be described to make the text representative for the whole world and not limited to a certain perspective. There might be disagreement on the use of certain words or concepts which can be resolved by capturing the nuances and different perspectives.
- Finding a balance of inclusiveness of geographic diversity and conciseness is a challenge. The document should not be too long, but it cannot be superficial either. There should be space to discuss a variety of themes (e.g. mobility, connectivity) with a similar level of detail provided for each theme.
- The narrative should represent temporal dynamics. Historical ‘conflicts’ that are relevant to the present and future should be reflected as well, rather than limiting the narrative to current/ongoing conflicts.
- To ensure the connection with the vision narratives, a cross-check should be made of what is addressed in the vision narratives, especially on drivers, and cover them in the

historical-present document. The 5 common themes of the vision narratives should be incorporated in the historical-present narrative. More attention should be given to describing institutions and governance systems and other indirect drivers of change, direct drivers and anthropogenic assets.

- The ambition of the Nature Futures narratives is to highlight the seeds of conservation efforts that could be extrapolated to regional or global scales to enhance biodiversity and ecosystem services. To fulfil this ambition, the historical narrative may be useful in identifying questions that are important for global assessments to address in the future. The task force also needs to consider how to better synthesize information from the existing global-scale assessments into the narratives.

5.2 Restructuring the historical-present narrative

The pre-workshop template for the historical-present narrative had the same structure as the future vision narratives, which did not entirely fit the agreed purpose of the narrative to tell the global story of nature in the last decades. There was thus a proposal to restructure the document as follows:

- How society has changed (text describing the overall trends of the common themes from 1990-2020)
- Current conflicts
- Current key slow variables: shaping global change
- Fundamental feedbacks
- Heterogeneity & differences (current - complementing what was not mentioned before)

5.3 Sources to enrich the historical-present narrative

Recognising the challenges in elaborating on the historical-present narrative while keeping it manageable, the task force members agreed that they should build on existing work and avoid reinventing the wheel. They thus focused on the following:

- Start with the IPBES global assessment as a source for material; for each section of the historical-present narrative, relevant (sub-)chapters of the global assessment were identified as possible sources for extracting useful variables and trends.
- When describing trends, it is useful to review the local seeds (i.e. small scale activities that are resulting in measurable increases in biodiversity and ecosystem services) described in the Auckland report (Lundquist et al. 2017).
- Identifying key variables provides structure for the historical-present narrative. Therefore, the group initiated the development of a table with various time scales to illustrate the key variables and trends. To avoid excluding relevant information, the group agreed to start with the table(s) from the workshop preparation phase and to take into account information on variables from the SSP scenarios (Shared Socioeconomic Pathways, O'Neill et al., 2017¹⁷) and values.
- For the difficult topic of conflicts, information from the compilation of narrative elements gathered from previous stakeholder consultations can be used.

¹⁷ <https://doi.org/10.1016/j.gloenvcha.2015.01.004>

5.4 Remaining tasks for the historical-present narrative

In the last part of the workshop, the participants continued to work on the historical-present document: cleaning, editing and synthesizing the narrative text. In finalizing the text, special attention was given to addressing specific themes (governance, education, water, etc.).

To finalise, the progress of the week was reflected on and post-workshop tasks were defined:

- Achieving consensus on the different values, descriptions of the current state and introduction paragraphs of the historical-present document is needed as a baseline, preferably with numbers, so that the starting point for the pathways towards the future visions is made explicit.
- Add broad ideas on feedbacks. This topic was discussed at length in the Vancouver workshop (PBL, 2019), and notes from that meeting (extracted in the compilation of narrative elements) could be useful. In the IPBES global assessment, the feedback-related content may not be easily extractable (would need interpretation and expert judgement).
- Clarify and gain consensus on the need to include scenarios for the historical narrative.
- Synthesize and shorten the historical narrative.
- Revisit the whole set of narratives to ensure clear links between the historical-present and future narratives.

6. Task force work plan

On the last day of the workshop, the task force dedicated time to plan specific activities defined under sub-deliverables of the overall scenarios and models task force work plan, as defined during the joint task force meeting in Bonn in November 2019 (see Annex A). The work plans for each sub-deliverable will be combined into an implementation plan for the task force, and will help to define planning up to the 8th IPBES plenary.

Over two teleconference sessions, Machteld Schoonenberg, head of TSU scenarios and models, gave an introduction to the previously agreed work plan and relevant timelines, and presented the following principles for drafting the sub-deliverable work plans:

- Previously allocated (co-)leads of each sub-deliverable are asked to initiate and organise collaboration with those who previously signed up for that sub-deliverable.
- Draft sub-deliverable work plans can be simple (1-2 pages).
- The allocation of names does not determine who will and may implement the work. Allocations only mean that earlier interest was expressed, and who will collaborate in writing the draft sub-deliverable work plans. When implementing activities, all task force members will be given the chance to participate, and the TSU will keep track of contributions, regardless of initial task allocation. In case of publications, authorship will be allocated in a similar inclusive and fair way.
- The aim of working in small groups is to bring all task force members back on board, allowing easier participation for those who are new or less comfortable speaking up.
- These work plans will form the basis of the task force activities up to IPBES-8 and help to efficiently allocate budget for the different activities to achieve task force objectives.
- Cross-task thematic groups (sub-deliverables that are strongly interlinked) will be formed to ensure consistency along strongly related sub-deliverables.
- All teams are requested to deliver a quick draft to the TSU, who will gather all plans in one document, to allow review of the work plan in its entirety, and cross-compare.

Discussion points on this (from both calls / presentations)

- Clarification: the sub-deliverable on mobilising the impact modelling community focuses on global impact models and linked to a possible workshop in October 2020. Mobilisation goes beyond meetings, extending to collaborations in implementing modelling work.
- An extensive list of modellers that potentially can become involved has previously been compiled for engagement. These materials are useful for implementation of the work.
- There are no concrete plans for engagement at CBD meetings for now, but this can certainly be considered, for stakeholder engagement for instance.
- Sub-deliverable "Developing zero order draft narratives for Nature Futures Framework scenarios (using existing material from prior work)" is implemented through the buddy system and follow-up plans defined in this workshop.

7. Evaluation

The situation with COVID-19, which just started to have its influence on global travelling, offered insights into remote workshop organisation, lessons for the next occasion.

Challenges

- For the task force members present in Japan, it was difficult to both continue on their work together face-to-face and keep those working remotely engaged and up to date.
- Only a third of the expected participants could make it to Japan due to COVID-19 travel restrictions, and thus the on-site group missed certain disciplines and members with a background in the Nature Futures Framework.
- It is easier to understand each other and get on the same page if you are physically in the same room. Also, with different time zones, participants could not always catch up.
- People have different understandings of concepts, which are difficult discussions to have remotely. Longer online meetings would be good for such discussions.
- Everyone working on materials at the same time but remotely is really tricky in terms of versions, decisions, discussions.

Successes

- The task force managed to do extensive work both on the future narratives, and on the historical-present document.
- Working on the historical-present document was somewhat independent of the future narrative progress, allowing to progress, with a smaller group in closer time zones.
- For the online group, the combination of notes, recordings, email threads and calls offered a structured way of working.
- The on-site team in Japan was happy with how the narratives are developing and the progress made, and to have had some time to discuss implications for modeling these.
- Recording the tele-conversations, offered an opportunity for others to catch up in their own time zone and send in questions.

Lessons

- Need for specific requests to online participants, so they can work more independently outside of the online calls.
- Working in teams in similar time zones is very useful.
- For the next iteration on the narratives and work plans, there is a need for a larger, plenary meeting with all task force members.
- Working either only on-site or all online is better for organisation and collaboration. Doing both, there is a need for an on-site moderator, linking the online and on-site work.
- It is difficult to generate common understanding through short online calls with a large group of people. Reaching common ground, working through different assumptions and diverse understandings asks for in-depth conversations, to avoid repeating discussions.
- There is a potential pitfall of work, done partly online and partly on-site / face-to-face, whereby the on-site team can move through issues quickly, while those online do not have enough time to share their ideas and can feel left out of discussions. Navigating these human dynamics is important for future work.
- It is important to have facilitators (who understand the process) who are not participants, to free experts to take part in discussions.

8. Next steps

The workshop has served as a kick-off for many streams of work for the task force as a whole, to continue working on post-workshop in the weeks following the workshop:

- **Setting up “buddy” teams and calls:** this will be in small teams of 3-4 task force members, including at least 1 member from the on-site team in Japan, to share in-depth discussions on each of the 6 New narratives and the historical-present narrative.
- **The task-specific work plans:** the technical support unit will be collecting the (quick) draft work plans.

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Annex I. IPBES task force scenarios & models work plan

IPBES Objective 4b: Advanced work on scenarios and models of biodiversity and ecosystem functions and services	
Deliverable: Provide support to IPBES assessments on scenarios and models	
<u>Sub-deliverable:</u> Mobilize experts for assessments and for scoping of upcoming assessments	§ Task force identifying experts to attend scoping workshops, author meetings upon request; for the invasive alien species assessment, the nexus assessment, the transformative change assessment and the business and biodiversity assessment
<u>Sub-deliverable:</u> Mobilize reviews of drafts of assessments	§ Disseminate call for reviews themselves to own networks
	§ Review of assessments by the task force on scenarios and models: on the invasive alien species assessment First Order Draft; on the values assessment Second Order Draft; on the sustainable use assessment Second Order Draft
<u>Sub-deliverable:</u> Provide advice to assessments	§ Small subgroup of task force members to coordinate inputs to the scoping of upcoming assessments: the nexus assessment, and the transformative change assessment
	§ Support to scoping process as resource person: the nexus assessment, and the transformative change assessment
	§ Contributing to filling gaps in expertise
	§ Proactive approach: coaching authors on gaps through match-making before the First Order Drafts go out
	§ Liaison group of task force experts (incl. fellows) providing input to assessments: <ol style="list-style-type: none"> 1) Advise assessment authors to advise on producing coherent chapters on scenarios and models <ol style="list-style-type: none"> a) Translate the methodological assessment on scenarios & models into practical to-do's for assessment authors b) Share experience on assessments with new authors c) Recommended resources/databases/case studies d) Cross-chapter box on scenarios and models 2) Organise for example: webinars; calls with ongoing assessments to respond to requests for advice; a cross-assessment workshop on scenarios and models with the nexus and transformative change assessment authors. 3) Participate in internal reviews of the invasive alien species, of the sustainable use, and the values assessments.

<u>Sub-deliverable:</u> Coordinate/ stimulate development of scenarios and models, tailored to assessments	§ Coordinating a compatible input for assessments with relevant groups, e.g. joint publications, visions, qualitative and quantitative scenarios of the Nature Futures Framework (NFF), indicators, linkages with existing scenario work (e.g. SSPs).
	§ Mobilising new work to fill gaps in the assessments: <ol style="list-style-type: none"> 1) Identification of experts for nexus and transformative change assessments 2) Tailor the nature futures scenarios to inform future assessments
Deliverable: Catalyse the further development of scenarios and models for future IPBES assessments	
<u>Sub-deliverable:</u> Further development of the Nature Futures Framework and scenarios	§ Developing zero order draft narratives for Nature Futures Framework scenarios (using existing material from prior work)
	§ Developing first order scenario narratives
	§ Planning strategic engagement of relevant stakeholders in scenario narrative formulation
	§ Developing quantitative scenarios: Work with modelling community on how scenario narratives can be translated into models, indicator development and parameterisation
	§ Mobilizing impact modelling community: on drivers, responses, socio ecological feedbacks
<u>Sub-deliverable:</u> Identify/ develop indicators	§ Identifying minimum critical set of (inclusive) indicators that cover the Nature Futures Framework
	§ Coordinating within IPBES (on existing IPBES indicators and on possible integration with priority policy options)
	§ Synergies with the work of other bodies working on producing indicators (e.g. with GEOBON and other relevant groups)
<u>Sub-deliverable:</u> Continued interaction with broader modelling community	§ Building on prior work of the scientific community (e.g. comparing the draft nature futures narratives to SSPs)
	§ Linking with other modelling communities beyond those already engaged (economic, health, etc.)
<u>Sub-deliverable:</u> Guide on conducting case studies to support broadening of narratives, indicators, etc.	§ Written guide and templates for conducting subglobal participatory scenario-building processes based on the Nature Futures Framework (extracting methods and lessons from developing and applying the NFF)
<u>Sub-deliverable:</u> Further revision of scenarios and narratives	§ Elaborating on outcomes of the Japan workshop to prepare for the next stakeholder workshop
	§ Exploring possibilities to host next stakeholder workshop/task force meeting (TBD)

Annex II. Workshop agenda

This agenda was used by those onsite in Japan. Please note that due to cancellations related to the Corona virus, part of the task force engaged remotely, online. The agenda informs of the main steps that will be taken throughout the week.

Online participants are engaged through presentations, materials to read and use in virtual workspaces, interactive online documents to work in, and teleconference calls with those task force members present in Japan.

MONDAY (24 February) - <i>Shonan Village center (hotel)</i>		
8h00 - 9h00	Registration	
9h00 - 9h15 <i>Auditorium</i>	Plenary	Welcome
9h15 - 10h30 <i>Auditorium</i>	Plenary Introduction to the week and update on previous work	Get to know each other, speed dating To share NFF and bring everyone up to speed by introducing the goal of the day and remind people of the framework: <i>short</i> presentation followed by triangle exercise to get people into groups and then a world cafe to unpack the framework.
10h30 - 10h45	Coffee	
10h45 - 12h00 <i>Auditorium</i>	Plenary	Create groups for the rest of the week Identify concerns about how NFF is communicated- are there missing variables, other issues? E.g. in Japanese context
12h00 - 13h00	Lunch	
13h00 - 15h00	Breakout groups Japanese case / global in parallel <i>TF: break outs in 7 groups</i>	Task force: <ul style="list-style-type: none"> • Focal set of scenarios (4-7) • Criteria used to select them • Method for revisiting the choice in the future if needed • How clear is the draft, problems, additions, what did you want to add? • Develop a set of variables based on the text (across perspectives) • What is happening to these variables in this scenario? Japanese group: Japan versions of all the scenarios Step 1: To Understand the past and agree where we are now <i>Make a version of the global history for japan related to NFF</i>
15h00 - 15h30 <i>Auditorium</i>	Plenary presentations	Report back from groups and divide into 3 groups: (NS, NN, NC) to compare all scenarios from each nature value's perspective
15h30 - 15h45	Coffee	

15h45 - 17h00	Breakout groups Japanese case / global in parallel <i>TF: break outs in 3 groups</i>	Task force: compare all scenarios from each nature value's perspective // 3 break out groups (this session possibly longer than the first session) <ul style="list-style-type: none"> Pool all relevant variables for this perspective from the 7 groups Map and Compare variables from each Nature Value perspective across the 7 scenarios Agree on a set of key variables for the respective perspective (can reference the table) consider how important variables are across scenarios, what can be modelled, and data availability. From this perspective, what can be merged and what are the gaps? (Are they plural? Do we need to make more, less, which we should combine, are we missing something?) Japanese group: Japan versions of all the scenarios Step 1: To Understand the past and agree where we are now <i>Make a version of the global history for japan related to NFF</i>
17h00 - 17h30 <i>Auditorium</i>	Plenary presentations	<ul style="list-style-type: none"> Report back from groups Present each perspective's view on what the 4-7 final groups should be. These will be the final groups for Day 2

TUESDAY (25 February) - IGES headquarters		
9h00 – 9h15 <i>Conference room nr.1</i>	Plenary	Welcome and recap
9h15 – 10h30 <i>Conference rooms 1-4</i>	Breakout groups Japanese case / global in parallel <i>TF: break outs in 7 groups</i>	TF: [continue work Monday afternoon??] identify similarities and gaps/merge as needed or identify additional subgroups to lead gap narratives, working towards having, by end of day Wednesday, a concise suite of narratives (ie final agreement on which ones we are preparing narratives for). Japanese group: Japan versions of all the scenarios Step 2: To develop future scenarios relevant to Japan Divide into 2-3 groups and take forward 2-3 of the visions in Japan based versions
10h30 - 10h45	Coffee	
10h45 –12h00 <i>Conference rooms 1-4</i>	Breakout groups Japanese case / global in parallel <i>TF: break outs in 7 groups</i>	[continue work Monday afternoon]
12h00 - 13h00	Lunch	
13h00 - 17h30 <i>Conference room nr.1</i>	Public Seminar	<ul style="list-style-type: none"> Opening remarks by IGES president. Connecting different scales: Linking IPBES's Nature scenarios with PANCES scenarios
17h30 -	Reception	hosted by IGES

WEDNESDAY (26 February) - IGES headquarters <i>Consolidate the resulting focal set of scenarios (4-7) AND the present/past scenario</i>		
9h00 – 9h15 <i>Conference room nr.1</i>	Plenary	Welcome by the Institute for Global Environmental Strategies (IGES) president, Prof. Takeuchi Kazuhiko.
9h15 – 9h45 <i>Conference room nr.1</i>	Plenary Recap and key objectives of the day	TF Group: Present draft sets of scenarios. Agree on the way forward. Short discussion to identify consensus & disagreement Link the narratives to tables of variables, both quantifiable and qualitative. Key is to both have variables that can be supported with data, other types of information and some that we lack data to track, but can maybe develop some proxies or identify data sources that could be developed.
9h45 - 10h30 Breakout groups <i>Conference rooms 1-4</i>	Japanese case / global in parallel <i>TF: break outs in groups</i>	TF group break out groups: <ul style="list-style-type: none"> • A: breakout groups on each new scenario. • B: Each scenario group addresses how variables related to the different NFF corners change across three horizons. • C: Break into a set of focal groups. Regional or thematic groups or both. Japanese group: Japan versions of all scenarios Step 2: Develop future scenarios relevant to Japan. Divide into 2-3 groups and take forward 2-3 of the visions in Japan
10h30 - 10h45	Coffee	
10h45 - 12h00 <i>Conference rooms 1-4</i>	Japanese case / global in parallel <i>TF: breakout groups</i>	[continue Breakout groups]
12h00 - 13h00	Lunch	
13h00 - 15h30 <i>Conference room nr.1</i>	Plenary presentations	<i>Japanese Group + TF together</i> Japanese group: Present Japan versions of all the scenarios and discussion on application, evaluation of using NFF; lessons learned.
15h30 - 15h45	Coffee	
15h45 - 17h30 <i>Conference room nr.1</i>	Plenary presentations	[continue plenary meeting]
17h30 <i>Conference room nr.1</i>	Plenary Meeting adjourned	Closing words and thanks.

THURSDAY (27 February) Task Force only - IGES headquarters		
9h00 – 10h30 <i>Conference room 1</i>	Plenary presentations	Introduction and: 1. Present results from previous days and discuss where we are 2. Check for consistency and resolve inconsistencies; consolidate and bring them into more agreed structure/theme/dimension 3. Identify critical gaps or overlaps: combine overlaps and discuss what to do with gaps- this should result in fewer final scenarios
10h30 - 10h45	Coffee	
10h45 – 12h00 <i>Conference room 1</i>	Plenary presentations	<i>[continue plenary]</i>
12h00 – 13h00	Lunch	
13h00 – 14h00 <i>Conference room 1</i>	Plenary	Discuss workplan: Deliverable 1 and 2, all tasks, not just narratives
14h00 – 15:30 <i>Conference rooms 1-4</i>	Breakout groups	Work on work plans for specific tasks. Breakout groups and key topics to focus discussion on future workplan based on task force members that are attending to maximize what is achieved.
15h30 – 15h45	Coffee	
15h45 – 17:00 <i>Conference rooms 1-4</i>	Breakout groups	<i>[break outs groups continue]</i>
17h00 – 17h30 <i>Conference room 1</i>	Plenary discussions	Report back from groups
FRIDAY (24 February) Expert group meeting - IGES headquarters		
9h00 – 10h30 <i>Conference room 1</i>	Final plenary	Discussion on the next steps plan.
10h30 - 10h45	Coffee	
10h45 – 12h00 <i>Conference room 1</i>	Final plenary	Discussion on the next steps plan.
12h00 – 13h00	Lunch	
13h00 – 15h30 <i>Conference rooms 1-4</i>	Breakout groups on work plan	Task force working session on work plans, budgets, proposals, incl: <ul style="list-style-type: none"> Refine and finalise the Fellows + Laura SESNYC proposal Develop 'cross-fertilisation' with IPBES assess. scenario analysis (bring in systematically reviewed assessment findings into Nature Futures + insert Nature Futures results into assessm.)
15h30 – 15h45	Coffee	
15h45 – 17h30 <i>Conference room 1</i>	Plenary	Report back from groups and discuss other relevant topics, e.g.: <ul style="list-style-type: none"> Task force working session / on work plans, budgets, proposals To write up results into draft papers + report Conclusion and goodbyes

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Annex IV. Report of sessions on the Japanese scenarios & the national scale application of the Nature Futures Framework

This report on the Japanese scenarios and the national scale application of the Nature Futures Framework contained in this annex is not a product of the IPBES task force on scenarios and models. Its content solely reflects the views of the participants in the workshop and may serve as an input to future work of the task force.

Among the objectives of this *'New Narratives for Nature: operationalizing the IPBES Nature Futures scenarios'* workshop was the aim to build on the Nature Futures Framework (NFF) by testing the application of the NFF on sub-global levels through a national-level case study in the form of an exchange on national scenarios in Japan. This annex describes the workshop sessions with Japanese research partners in which several task force members were present to facilitate this part of the workshop.

The national level Japanese scenarios that were used for this case study are scenarios made under the "Predicting and Assessing Natural Capital and Ecosystem Services through an Integrated Social-Ecological Systems Approach" (PANCES) project. The PANCES project has been launched to respond to scientific and policy needs, to predict and assess future natural capital and ecosystem services and their natural and social-economic values by building an integrated model of social-ecological systems. Through the presentation and analysis of several future scenarios, the PANCES project aims to demonstrate the ideal form of a society in harmony with nature. It also explores effective strategies to strengthen the interface between science and policy and aims to contribute to domestic and international biodiversity policy and international frameworks (more information: [PANCES.net website](https://pances.net)).

1. Introduction to each other's work

Shizuka Hashimoto presented the mandate of the IPBES task force on scenarios and models (as approved at the 7th IPBES Plenary session), and gave a historical overview of the activities of the former IPBES expert group and current task force scenarios and models. This was followed by a short introduction to the Nature Futures Framework and the objectives of this workshop (see 'workshop aim and structure'). Lastly, he presented the different groups involved in this case study exercise: members of the IPBES task force scenarios and models, several experts of current or previous IPBES assessments, and PANCES project members.

Secondly, **Carolyn Lundquist** introduced the need for positive and participatory scenarios, as identified in the IPBES Methodological Assessment on scenarios and models (2016). She then presented the outcomes of the visioning workshop in Auckland (Lundquist et al. 2017) and the process of consulting stakeholders on the 7 positive visions created in Auckland, that led to the Nature Futures Framework (NFF; PBL, 2018). She introduced the different perspectives of the triangular NFF (nature for nature, nature for society and nature as culture), both in a conceptual way, and using real world examples typical for the three

perspectives. Lastly, she indicated the current step taken into this workshop to draft narratives from the NFF.

Laura Pereira facilitated an icebreaker session for participants to better understand the NFF. The exercise asked participants:

- (1) to position themselves inside the NFF
- (2) and to share with other participants their choice of choosing that particular spot.

Osamu Saito presented the work of the PANCES project, which already developed national and local scenarios for Japan (Box 1), as well as downscaled national scenarios.

Box 1 Overview of the PANCES scenarios

The PANCES scenarios were developed with the scenario-axes technique and are composed of:

1. natural capital based dispersed society (Nd)
2. natural capital based compact society (Nc)
3. produced capital based dispersed society (Pd)
4. produced capital based compact society (Pc)

where 'natural capital basis' entails higher food self-sufficiency, ecotourism and expansion of tourism in domestic countryside, use of ecosystem-based and green infrastructures and increase in the use of renewable energy; 'produced capital basis' entails inexpensive and diverse choices by increased imports, extensive use of ICT/AI for improved productivity, conventional infrastructure development, improved efficiency in conventional power generation and energy consumption and utilization of CCS technology; 'dispersed population' entails counter urbanization, decentralized heat and energy, local production and consumption, decentralized governance and community oriented; and 'urban compactification' entails promotion of compact cities, re-wilding/greening underutilized land, centralized heat and energy, preference for domestic products and association-oriented societies.

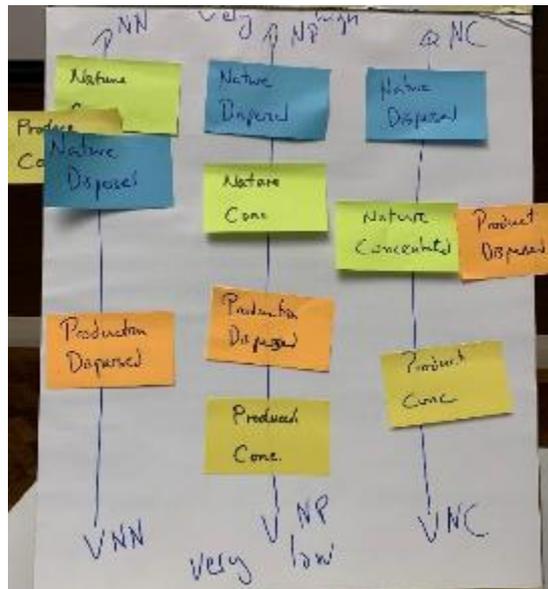
Wanhui Huang (Research Institute for Humanity and Nature) presented a study that compared different policy and land demand scenarios to mitigate flood risk in the Shiga prefecture, Japan. **Miho Kamei** (IGES) presented three case studies that downscaled and evaluated the Shared Socioeconomic Pathways (SSP1) scenario in three different locations, i.e., Tokyo, Japan, Bhutan and Da Nang, Viet Nam.

Reflecting upon the different presentations, the group then identified important topics to be discussed further in the following steps of the exercise: teleconnections and urban-rural connections in the PANCES and NFF scenarios, including how technology, education, geography influence this into the future, and how local scenarios are different from downscaled scenarios.

2. Japanese PANCES scenarios in the Nature Futures Framework

In collaboration with the PANCES project team, the task force conducted a Japanese case study on applying the Nature Futures Framework (NFF) at national-level by positioning scenarios into the NFF. In an exercise to locate the endpoint of the four PANCES scenarios in the NFF, they found it challenging to position the four PANCES scenarios in the NFF, and thus mapped the four scenarios on three axes of the corners from low to high instead (**Figure X.1**). Here, they placed 'natural capital based compact society (Nc)' linked to nature for nature (NN), natural capital based dispersed society (Nd) to nature for society (NS) and nature as culture (NC). In the next step, they plotted the scenarios on a 3-D space.

Figure X.1: Locating the four PANCES scenarios on the three NFF corners from top to high



The following step was to review the historical trends of the variables that represent NN, NC and NS, referring to the indicators used by PANCES and the second Japan Biodiversity Outlook (JBO2; MOEJ, 2016¹⁸). For NN, two contrasting trends were identified: terrestrial protected areas and farmland abandonment and expanding wild mammal distributions increased, while marine life and degrading freshwater systems have declined. NP also showed contrasting trends among indicators: while domestic food and material production have declined continuously, the number of road stations which sell a wide variety of locally produced food increased, as well as the amount of visitors to the world natural heritage sites. Recreational use of natural sites boomed alongside the Japanese bubble economy towards the 1990s. The NC aspects continuously declined, particularly traditional knowledge and cultural people-nature ties that were inherent in rural agriculture- or fisheries-based societies. However, efforts have been made to reinforce human-nature interactions through volunteering and social networking services.

This was followed by a last session which looked further into their root causes in the PANCES scenarios and drew causal loop diagrams on the drivers of urban population concentration in Japan (Figure X2) and the causes of the expansion of grey infrastructure in Japan (Figure X3). Also, since the 1960s, Japan has been increasing its dependence on imports for food,

¹⁸ <https://www.env.go.jp/en/nature/biodiv/jbo2.pdf>

timber and energy supplies, sharply decreasing the calorie-based domestic supply rate for food and domestic timber supply. For timber, this was mainly driven by the reduction in the tariff on timber in the 1960s to cope with the high timber demand and prices during the post-war reconstruction to the high economic growth period, which led to massive timber imports, triggering deterioration of forest resources in exporting countries.

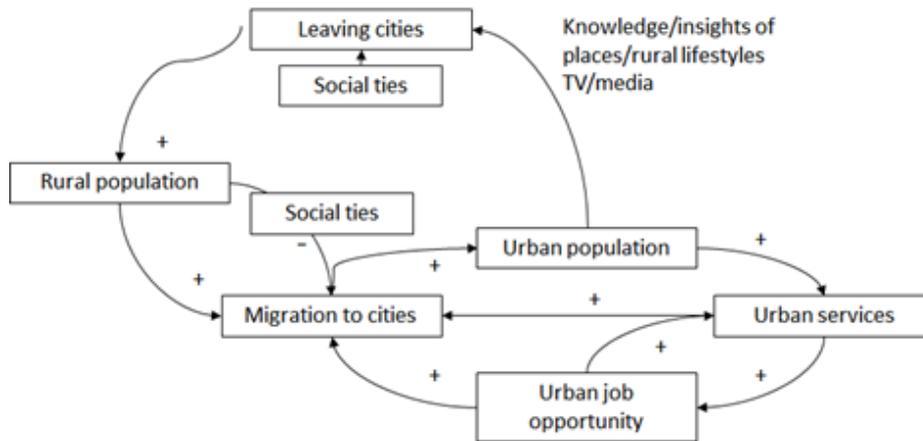


Figure X2: A causal loop diagram explaining the drivers of urban population concentration in Japan (redrawn from the whiteboard)

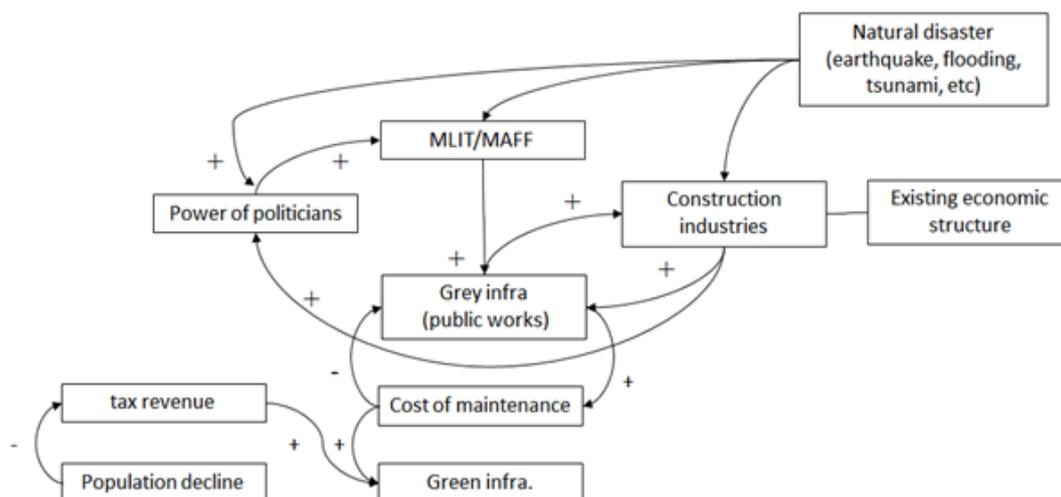


Figure X3: A causal loop diagram explaining the causes of the expansion of grey infrastructure in Japan (redrawn from the whiteboard)

Through discussions to locate the PANCES scenarios in the NFF triangle and relevant historical trends, the group found that the two PANCES scenarios, i.e., a natural capital based compact society (Nc) and a natural capital based dispersed society (Nd) were scalign with the overall direction that the Nature Future scenarios envisage. The group also recognized that the other two PANCES scenarios, i.e., a produced capital based compact society (Pc) and a produced capital based dispersed society (Pd), which assume heavy reliance on produced capital and on imported ecosystem services, were likely to generate high global ecological footprints.

On these bases, the group discussed the changes required for Japan to shift its socio-ecological system to a more sustainable pathway. The group identified some emerging trends and initiatives that were yet strong enough but likely to lead to such changes. Recently more urban people had become interested in migrating to rural areas. In 2009 the government started 'local vitalization cooperator (LVC) (Chiiki Okoshi Kyoryoku Tai)' programme that

provides employments contributing to local vitalization and necessary life support for three years to migrants. So far the programme has shown success, with 1,061 local governments recruiting 5,530 LVCs in 2018, and with more than half staying living in the same municipality. Increasing number of people prefer not to choose between the city and the countryside, but live a multi-habitation lifestyle. A new business model emerged to promote rural tourism by providing paid jobs in primary industries in depopulating rural communities, called "*Otetsu-Tabi*".

The group also identified opportunities to pursue a more natural capital based society. Increasing but underutilized timber stock can be more effectively utilized through the production of engineered wood for building and for biomass heat and power generation. Efforts for nature conservation, rehabilitation and sustainable use had progressed as shown in the increase in protected area coverage, water quality improvements and sustainable fisheries management. The government started looking into the potential of green infrastructure, e.g., sustainable forest management and reforestation of abandoned lands, to cope with increasing and intensifying natural disasters, given projected population and tax revenue decline.

Some trends and efforts indicated the possibility to reduce Japan's global ecological footprints and waste. Aging and declining population directly leads to a reduction in consumption and waste. Some efforts to boost domestic sustainable production were underway, such as an agri-environmental payment scheme to promote organic farming, voluntary sustainability standards and certification, and support to local production for local consumption. The government enacted the Clean Wood Act in 2017, obliging businesses to endeavour using legally-harvested wood and wood products. The Act was expected to further reduce the consumption of timber grown in unsustainable manners.

3. Lessons learned from this case study exercise

To wrap-up the Japan case study sessions, the participants exchanged the lessons they learned from an exercise to locate the PANCES scenarios in NFF. These included:

- **Scenario-axes technique is not designed for visioning or seeking for preferred futures:** the PANCES scenarios were developed with the so-called scenario-axes technique. Scenarios developed through this approach result in mutually-exclusive, distinct futures with each other. The approach helps developers/users to assess a wide range of environmental consequences resulting from extreme scenarios. However, one of the extremes of scenario axes does not necessarily represent preferred socio-economic conditions, which is less useful when the objective of scenario building is to support the visioning of the desired future society. In this regard, the **Nature Future Framework can be more effective in helping discuss what kind of society is more favorable** for us in a more positive manner.
- **Value-neutral nature of the scenario-axes technique:** the scenario-axes technique tends to produce value free scenarios, where, in principle, each scenario axis does not represent specific social values. Though, in reality, it is hard to exclude social-value-related assumptions scenarios. The PANCES scenario narratives describe how each future society looks like, but do not clearly tell what kind of social-values are emphasized. In contrast, the NFF is value explicit. Therefore, when the **NFF** is used to capture the existing scenarios, it **helps elucidate implicit social values embedded in storylines**, which was clearly demonstrated by our exercise.

The Japan/PANCES working group agreed to write a paper focused on how existing scenarios at a sub-global level can be used/reused under the NFF. According to the Japanese research partners, the NFF provides a framework for richer discussions resulting in a list of ways to develop and further engage with the PANCES work. Values were more implicit in the PANCES

scenarios, and the NFF helped make these explicit and to better communicate them to stakeholders.

4. Wrapping up the case study exercise

On the last, third day with the Japanese researchers, **Kazuhiko Takeuchi**, the IGES President, gave welcome remarks in a short plenary session, followed by a presentation by **Jan Kuiper**, a fellow of the IPBES task force on scenarios and models, on the Biosphere Futures website, a global collection of biodiversity and ecosystem services scenario studies (<https://www.biospherefutures.net/>). After the end of this part of the workshop, a short recap of the work with the Japanese researchers was given to the online participating task force participants.

A question for the IPBES task force on scenarios and models to reflect on, following this workshop is: how do the narratives that we are developing fit with the PANCES scenarios or any other sub-global level nature future scenarios? A take away message was that the PANCES/NFF exercise gave useful information on how to move forward with completing the historical narrative; the exercise included looking at the past, identifying contradictions, and helped them to think about how to get from current trajectories to the one/future we want.

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Annex V. Public seminar

On February 25th, the PANCES project partners organized the public seminar “**Connecting different scales: Linking IPBES’s Nature scenarios with PANCES scenarios**”. The seminar invited scientists from the IPBES task force on scenarios and models to present their work, as well as hot topics currently discussed in IPBES communities. It also aimed to foster cross-fertilization between the IPBES task force on scenarios and models and the PANCES project, and the major findings of the PANCES project were presented with a focus on its scenario analysis.

The seminar started with a presentation by **Shizuka Hashimoto**, co-chair of the IPBES task force on scenarios and models, who gave an overview of the scenarios and models activities under the IPBES work programmes 2014-2018 and 2019-2030, followed by the introduction of the Nature Futures Framework (NFF) and the four types of scenarios developed by the PANCES project.

Subsequently, **Kazuhiko Takeuchi** and **Osamu Saito** presented the “Predicting and Assessing Natural Capital and Ecosystem Services” (PANCES) project. They introduced the international context of the project (IPBES assessments), the framework and methodology used in the PANCES project, and the relation between the NFF and the PANCES scenarios. Then, the following main results of PANCES project were discussed:

- Quantification of ecosystem services;
- Changes in rice production under PANCES scenarios;
- Assessment of multiple cultural services;
- Evaluation of participatory options and the use of traditional and local knowledge for the management of natural capital and ecosystem services;
- Marine natural capital and ecosystem services.

At the national level, the PANCES project contributed to Japan's 5th environment plan, the review of the National Biodiversity Strategy, and Japan's Climate Change Adaptation Plan. At the international level, the results of the PANCES project have been published in a special feature issue in Sustainability Science journal vol.14, nr. 1. Continued work of the PANCES project may include the downscaling of some scenarios at regional/local scale.

The presentation was followed by a round of Q&A, in which the different PANCES scenarios in relation to different types of policies and trends were discussed. A policy working group within the PANCES project identifies key policy options in different subjects (population, terrestrial, marine, population, etc.). These will be embedded in the scenarios analysis.

Carolyn Lundquist, co-chair of the IPBES task force on scenarios and models gave a presentation (by videoconference) about the Nature Futures Framework (NFF) and on the need for new visions for nature and nature’s contributions to people for the 21st century. The Auckland stakeholder visioning workshop (Lundquist et al., 2017), and the origin of the IPBES NFF in the The Hague workshop in 2018 (PBL, 2018) were discussed.

Laura Pereira, member of the IPBES task force on scenarios and models, talked about transformative change in the context of IPBES. Her presentation covered how transformative change happens within mental models, system structure, patterns of behaviour and events. She discussed leverage points and innovation, including how to effect change, enable transformative change in a system, and identify alternative visions and pathways. Furthermore, she addressed where transformative changes should take place (context of inequality), dynamics of agency and power (who should do the change?), impact (scaling up, scaling out and scaling deep), and transformative potential: learning from social innovation.

Lastly she presented a reality check of our current trajectory by looking at the past, and by setting criteria to identify potential transformative change.

The subsequent round of Q&A touched upon the inclusion of political views in the process of developing nature futures narratives. It was explained that the process indeed includes political views, as promoting transformative change is not possible without talking about cultural and political aspects. Participants also discussed what would be needed for the CBD COP15 to play a role in transformative change. Recognition of the political complexity and diversity is fundamental, it is crucial to move away from these tick boxes and simple global targets to be more impactful. Particularly in the CBD process, it is important to acknowledge that biodiversity happens in space and culture. Multiple serious events (such as the COVID-19 virus crisis, heavy rainfall, climate change, etc.) and how they may lead to transformative change was also discussed. How do we take crisis management into account in the transformative change process? A crisis is an opportunity context, it is the step that happens between the preparation and transition phase. If you prepared something that can help you move on to a different trajectory during the preparation phase, it helps. This notion of crisis, and more generally dystopian ideas, are often not very useful for developing new position trajectories.

The last presentation, by videoconference, was given by **Rob Alkemade**, IPBES technical support unit on scenarios and models, on scenarios used in the IPBES Global Assessment, and the intercomparison of biodiversity and ecosystem services models catalysed by IPBES. The presentation reflected on the 2016 IPBES methodological assessment on scenarios and models, the IPBES Conceptual Framework, and review of scenario studies conducted for previous IPBES assessments. Most scenarios were not developed for biodiversity, and lacked participatory approach. They are therefore often incomplete and are not relevant to IPBES work. The use of a 6 scenario archetypes (storylines) approach helps all the assessments in assessing future biodiversity: economic optimism, reformed markets, global sustainability and development, regional sustainability, regional competition, business as usual. The presentation also introduced the BES SIM, a multi-model scenario analysis. This exercise was an analysis of Shared Socio-Economic Pathways (IPCC scenarios), plausible futures (Economic optimism, regional competition, global sustainability), including land use change and climate change, and results on global trends for biodiversity and ecosystem services (NCPs). Lastly, he addressed what we can learn from the IPBES Global Assessment.

The Q&A session addressed topics such as which scenario would be the best for biodiversity, the lack of nature-centred scenarios, and the need for the development of additional biodiversity indicators beyond species richness (there are cultural, genetic and other aspects which are all relevant for decision making). In terms of the best scenario for biodiversity, the models consistently indicate that the global sustainability scenario (GSS) shows the lowest biodiversity loss. The GSS is a very policy-rich scenario, with a lot of assumptions on sustainable consumption and production, population growth, and development. Regarding nature-centred scenarios, the Millennium Ecosystem Assessment (MEA) was actually the most focussed on the ES part, but still the experts that created the scenarios mainly looked at the economic and social developments, and used land-use and land-cover as a proxy for ecosystems. At the time of the assessments, there were not yet biodiversity based models.

The public seminar ended in a plenary discussion, which covered the following topics:

- *We have tried to synthesise scenarios through archetypes (regional, global). When considering the dimensions of NF scenarios, which archetype will you use?* Archetypes for the NF scenarios are in development, and are related to the global sustainability archetypes, and maybe even more to the regional sustainability archetype. The task force aims to build it from bottom up and at multiple levels. It is not decided yet if other archetypes are within the scope of the NF scenarios.

- *Is it possible to have scenarios with an increase in biodiversity?*
At the global level, species are decreasing, but local indicators or drivers (local species) can actually increase (with restoration of ecosystems). The approach of the Nature Futures Framework is to have positive scenarios. A lot of it is recognizing that we need more transformative changes to allow that. There are multiple positive opportunities and trade-off models, and we would like to find the win-win opportunities.
- *PANCES scenarios use demographic distribution, but we are struggling to link that to NFF. How is this demographic condition captured in the NFF?*
With the initial narrative template for the workshop, the task force plans to include more aspects like demography. This was addressed in consultations on the framework: what urban landscapes would look like, and how to bring in population declines in cities and decentralization. In the NFF we were thinking more about the landscape than the population, but still need to find an agreed approach to incorporating demographics (e.g. distribution, count)..
- *Are there any specific leverage points for each corner of the NFF?*
They would be different across the corners, a key intervention could be about a global ban on sea barge lining, or it could be encapsulated within the narrative. Some leverage points may fit all of the corners, and some may only focus on one.
- *From a conservation perspective, are political aspects considered in the NFF?*
The task force has considered cultural, political and moral factors in the development of the NFF and the participatory scenario development approach.
- *Will bottom up scenarios be successful in describing biodiversity?*
The task force's ambition is to include multiple values, when we talk about ES, people are talking about instrumental values, but also intrinsic values, that can be captured through the bottom up approach. We can incorporate different viewpoints, and work with governments and other stakeholders. As an example, in NZ people would list their ancestors, including rivers, mountains and trees – illustrative of a direct connection to nature due to which one would never purposefully harm nature. These bottom up perspectives can be seeds for actions, and the best way to harness change.
- *How to link the PANCES project and the NFF?*
The NFF is employing a different approach to PANCES. The PANCES relies on an uncertainty framework, the NFF is more value-driven. The challenge when linking both approaches is to address different values embedded in the story lines of NFF, and to understand the values in the PANCES approach. The task force is talking about global NN NP and NC, but in Japan it is very difficult because there might be opposite trends within the same category. Representing the role of teleconnections is a challenge (especially for modelling) but they are important both for Japan and the global scenarios.