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**Plenary of the Intergovernmental Science-Policy
Platform on Biodiversity and Ecosystem Services****Ninth session**

Bonn, Germany, 3–9 July 2022

Item 8 of the provisional agenda*

**Building capacity, strengthening knowledge
foundations and supporting policy****Work on building capacity, strengthening knowledge
foundations and supporting policy****Note by the secretariat****Introduction**

1. Section I of the present note provides background information for agenda item 8 (a), on work programme deliverables and task force workplans, while section II provides background information for agenda item 8 (b), on the nature futures framework prepared by the task force on scenarios and models.

I. Work programme deliverables and task force workplans

2. In decision IPBES-7/1, the Plenary of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), at its seventh session, adopted the rolling work programme of IPBES for the period up to 2030. The six objectives of the work programme include objective 2, building capacity; objective 3, strengthening knowledge foundations, which comprises objectives 3 (a), advanced work on knowledge and data and 3 (b), enhanced recognition of and work with indigenous and local knowledge systems; and objective 4, supporting policy, which comprises objectives 4 (a), advanced work on policy instruments, policy support tools and methodologies, 4 (b), advanced work on scenarios and models of biodiversity and ecosystem functions and services and 4 (c), advanced work on multiple values.

3. In the same decision, the Plenary extended the mandates of the task force on capacity-building (section III of the decision) and the task forces on knowledge and data and on indigenous and local knowledge (section IV) and established task forces on policy tools and methodologies and on scenarios and models, for the implementation of the related objectives of the work programme (section V). It also requested the task forces to develop specific deliverables for each of the priority topics set out in paragraph 8 of the work programme¹ for consideration by the Plenary at its eighth session.

* IPBES/9/1.

¹ The three priority topics are: (a) understanding the importance of biodiversity in achieving the 2030 Agenda for Sustainable Development; (b) understanding the underlying causes of biodiversity loss and determinants of transformative change and options for achieving the 2050 Vision for Biodiversity; and (c) measuring business impact and dependence on biodiversity and nature's contributions to people.

4. The general terms of reference of the task forces, set out in annex II to decision IPBES-7/1, foresee that, among other activities, each task force will provide a regular progress report and, in consultation with the Multidisciplinary Expert Panel and the Bureau, develop and update a workplan that sets out clear milestones and deliverables with regard to the relevant topics and objectives of the rolling work programme up to 2030 for periodic consideration by the Plenary.
5. At its eighth session, in sections III, IV and V of decision IPBES-8/1, the Plenary welcomed the progress made by the task forces in the implementation of the respective objectives of the work programme and in the development of deliverables supporting objectives 2, 3 and 4 and the three initial priority topics of the work programme, and decided to consider the deliverables at its ninth session.
6. The Plenary will therefore be invited to consider, at its ninth session, the work programme deliverables as well as the workplan for each task force for the intersessional period 2022–2023. In addition, a draft workplan for each task force for the intersessional period 2023–2024 has been provided for the information of the Plenary, noting that the Plenary will be invited to review the mandates and terms of reference of the task forces at its tenth session. The deliverables and workplans are set out in annexes I to V to the present note. The workplans indicate dates within the intersessional periods for each activity, but these are tentative and remain subject to change.
7. A draft of the deliverables and workplans presented in annexes I to V was made available for review between 16 December 2021 and 17 January 2022. The comments received, including those from eight Governments (Belgium, Bolivia (Plurinational State of), Canada, France, Germany, Mexico, Trinidad and Tobago and United States of America), were taken into account in the finalization of the workplans.
8. In addition to the specific activities described in the workplans, each task force plans to hold an in-person meeting to coordinate its work during both intersessional periods, in addition to regular online meetings. With all work having been conducted remotely since 2020 because of the pandemic circumstances, an in-person meeting for each task force for the intersessional period 2022–2023 was considered necessary to revitalize their work. An in-person meeting of each task force is also planned for the intersessional period 2023–2024, as elections for membership of the task forces will be held following the tenth session of the Plenary and the newly elected task force is likely to benefit from an in-person meeting as a group.
9. The activities described in annexes I to V to the present note would be implemented by the respective task forces, supported by the respective technical support units under the guidance of the Multidisciplinary Expert Panel and the Bureau. The Plenary would receive, at its tenth session:
- (a) For its consideration:
 - (i) A proposal for revised terms of reference for the task forces;
 - (ii) Further revised workplans for the task forces for the intersessional period 2023–2024;
 - (b) For its information:
 - (i) A report on the implementation of activities for the intersessional period 2022–2023;
 - (ii) Draft workplans for the task forces for the intersessional period 2024–2025.

II. Nature futures framework prepared by the task force on scenarios and models

10. At its fourth session, in section V of decision IPBES-4/1, the Plenary approved the summary for policymakers of the *Methodological Assessment Report on Scenarios and Models of Biodiversity and Ecosystem Services*² and accepted the individual chapters of the report. In the same decision, the Plenary requested the Multidisciplinary Expert Panel to oversee further work related to scenarios and models, and to appoint an expert group to perform that work.

11. In decision IPBES-7/1, the Plenary established a task force on scenarios and models for the implementation of work programme objective 4 (b), building on the work of the former expert group on scenarios and models, whose mandate ended with the seventh session of the Plenary. In accordance

² IPBES, *The Methodological Assessment Report on Scenarios and Models of Biodiversity and Ecosystem Services*, S. Ferrier and others, eds. (IPBES secretariat: Bonn, Germany, 2016).

with objective 4 (b), the task force's mandate is to provide advice on scenarios and models to other expert groups, in particular those assessing the use of existing models and scenarios, and to catalyse the development of new scenarios and models for the future work of IPBES and the application in policy development.

12. In order to catalyse the further development of scenarios and models for future IPBES assessments, the former IPBES expert group on scenarios and models and the current IPBES task force on scenarios and models produced the "nature futures framework". The proposed framework is compatible with the IPBES conceptual framework and provides a tool for the development of future scenarios of nature and nature's contributions to people. It was developed in direct response to the conclusions of the *Methodological Assessment Report on Scenarios and Models*, which identified limitations of existing scenario approaches in terms of their usefulness for biodiversity and ecosystem services, particularly in their ability to incorporate policy objectives related to nature conservation and human well-being. To address those limitations, input from stakeholder groups and modellers was collected through more than 10 workshops (held between 2016 and 2021), which resulted in the development of the nature futures framework. The nature futures framework provides a framework for the scientific community to develop new scenarios for future IPBES assessments, and for the modelling communities to develop models to identify the impact of such scenarios on biodiversity and nature's contributions to people.

13. In decision IPBES-8/1, the Plenary approved the interim workplan of the task force on scenarios and models for the intersessional period 2021–2022, which included a process for collecting feedback on the nature futures framework and the methodological guidance on the use of the framework through an external review and consultations with Governments, with modelling groups and with the wider scientific community (including experts in social science and the humanities), experts on indigenous and local knowledge and representatives of indigenous peoples and local communities.

14. The nature futures framework and its methodological guidance were made available for external review from 6 September 2021 to 31 October 2021. To support the review, online dialogues were held between 28 September and 19 October 2021 with indigenous and local knowledge holders, IPBES national focal points and other stakeholders. The document was revised based on some 1,000 review comments from the external review.

15. The foundations of the nature futures framework are presented in annex VI to the present note and the draft methodological guidance on the use of the framework is set out in document IPBES/9/INF/16.

16. The Plenary may wish to invite the scientific community and other relevant actors to accelerate the development of scenarios and models for biodiversity and ecosystem services for use in IPBES assessments, addressing the gaps identified in the *Methodological Assessment Report on Scenarios and Models* and using, as appropriate, the nature futures framework described in annex VI to ensure the comparability of scenarios and models.

17. The Plenary may further wish to invite funders of research on biodiversity and ecosystem services to support those efforts.

Annex I

Building capacity

1. Detailed information on the progress made in implementing objective 2 of the IPBES rolling work programme up to 2030, “building capacity”, during the intersessional period 2021–2022 and on the workplans for the intersessional periods 2022–2023 and 2023–2024 is set out in document IPBES/9/INF/12.

I. Workplan deliverables for objective 2

2. In response to the request by the Plenary in decision IPBES-7/1, the task force on capacity-building prepared a set of deliverables for objective 2,¹ namely:

- (a) For objective 2 (a), enhanced learning and engagement:
 - (i) Implementation of the fellowship programme;²
 - (ii) Implementation of the training and familiarization programme;³
 - (iii) Organization of science-policy dialogues with national focal points;
- (b) For objective 2 (b), facilitated access to expertise and information:
 - (i) Support for the uptake of approved assessment reports and other deliverables, and encouragement of the development of communities of practice around them;
 - (ii) Convening of regular meetings of the capacity-building forum;
- (c) For objective 2 (c), strengthened national and regional capacities:

Encouragement of the development of science-policy platforms, networks and assessments for biodiversity and ecosystem services at the national and (sub)regional levels.

II. Workplan for the intersessional period 2022–2023 (for approval)⁴

A. Objective 2 (a): Enhanced learning and engagement

3. Activities for the implementation of the fellowship programme will include:

- (a) For the nexus assessment: participation of fellows (13 fellows, selected in 2021) in the second author meeting for the assessment (March 2023);
- (b) Participation of fellows of the scenarios and models task force (5 fellows, selected in 2019) to attend a working meeting or workshop on scenarios and models (October/November 2022);
- (c) Organization of an annual fellows training workshop for fellows in ongoing assessments and in the scenarios and models task force. The workshop will enhance the capacity of fellows regarding key topics relevant to their activities in IPBES and provide an opportunity for fellows to engage with and learn from each other, both within and between different cohorts of fellows (April/May 2023);

¹ Objective 2 has three subobjectives corresponding to the three components of the capacity-building rolling plan for building and developing the capacity of individuals and institutions to address the priority needs identified by the IPBES Plenary in decisions IPBES-3/1 and IPBES-5/1. The capacity-building rolling plan is available at https://www.ipbes.net/sites/default/files/ipbes_capacity-building_rolling_plan_and_executive_summary_0.pdf.

² <https://ipbes.net/ipbes-fellowship-programme>.

³ Including webinars and other online resources, guides, learning materials and workshops for actors in the science-policy interface facilitated by IPBES.

⁴ All activities described in this section will be undertaken with due regard to achieving balanced participation across regions, gender, disciplines and knowledge systems, including indigenous and local knowledge systems, in line with the functions, operating principles and institutional arrangements of IPBES. Activities and programmes are designed and implemented to facilitate engagement of IPBES members and stakeholders from all age groups and inclusion of indigenous peoples and local communities.

(d) Provision of support to the IPBES fellows and alumni network, including through promoting engagement of fellows and alumni in activities supporting the implementation of objective 2, mapping and further developing activities of the network and organizing an online meeting to facilitate knowledge exchange across the various cohorts of the fellowship programme (September 2022);

(e) Issuance of a call for the nomination of early-career individuals by Governments and organizations and selection of up to 12 fellows for the business and biodiversity assessment by the assessment management committee (August 2022).⁵

4. Activities for the implementation of the training and familiarization programme for IPBES experts and others involved in the science-policy interface will include:

(a) Further development and promotion of the IPBES webinar series, online tools and videos on approved IPBES assessment reports and other products, including the sustainable use and values assessment reports following their approval by the Plenary at its ninth session; development of a pilot educational interface on the findings of the invasive alien species assessment in collaboration with the management committee of the invasive alien species assessment and the communications team at the IPBES secretariat; and work on the pilot educational interface, including identification of a service provider and development of a draft of the final product to be revised and launched following the approval of the assessment report;

(b) Further provision of support to relevant training activities tailored to IPBES needs, catalysed by IPBES and developed by other organizations and institutions (e.g., printed or electronic materials, feedback on draft agendas or contact details for relevant IPBES experts);

(c) Organization of a youth workshop to strengthen the engagement of young people in the work of IPBES and to support the uptake of assessments among young people, other individuals and organizations, subject to the availability of in-kind contributions (September 2022);⁶

(d) Collaboration with the task force on indigenous and local knowledge in the organization of workshops and webinars as part of the implementation of the approach to recognizing and working with indigenous and local knowledge in IPBES.

5. Activities related to science-policy dialogue meetings will include the organization of an in-person dialogue meeting with new IPBES members and observer States to develop capacity on IPBES deliverables and processes and encourage IPBES membership (first quarter 2023).

6. Activities related to dialogue workshops for stakeholders will include the organization of online dialogue meetings with stakeholders and experts during the first external review of the nexus and transformative change assessments (January/February 2023).

B. Objective 2 (b): Facilitated access to expertise and information

7. Activities to support the uptake of approved assessment findings and other deliverables and encourage the development of communities of practice around them will include:

(a) Distribution of the call for nominations of experts and fellows for the business and biodiversity assessment through relevant networks to encourage applications from as wide a range of experts as possible; and provision of assistance to the Multidisciplinary Expert Panel in the implementation of the process for filling gaps in expertise for the assessment expert group, where required;⁷

(b) Issuance of a call for contributions to support the uptake of approved IPBES assessments and other products, including for the sustainable use and values assessments^{8, 9} (July 2022);

⁵ Pending a decision by the Plenary to undertake the assessment;

https://www.ipbes.net/sites/default/files/ipbes_fellowship_programme_selection_process_and_criteria.pdf.

⁶ The workshop will target individuals representing youth organizations from different United Nations regions that have an active voice in their community. An open call, including selection criteria, will be issued.

⁷ Pending a decision by the Plenary to undertake the assessment.

⁸ Pending approval of the assessment reports at the ninth session of the IPBES Plenary.

⁹ An open call will be launched for institutions and organizations to undertake uptake events or in other ways encourage the use of findings from IPBES deliverables. Organizers of uptake activities may, upon request, receive non-monetary support, as relevant.

(c) Provision of support for uptake activities for IPBES deliverables organized by other organizations (e.g., printed or electronic materials, feedback on draft agendas or contact details for relevant IPBES experts);

(d) Further encouragement of communities of practice¹⁰ to facilitate access to expertise and information relevant to IPBES, and exploration of opportunities to support potential communities of practice around the values and sustainable use assessments;

(e) Collaboration with the other task forces in the catalysation of activities to further build capacity on IPBES approaches and processes, including the approach to recognizing and working with indigenous and local knowledge in IPBES.

8. A sixth meeting of the capacity-building forum will be convened to facilitate engagement with, and to build and further enhance collaboration among, organizations and institutions for the implementation of the IPBES rolling capacity-building plan. The specific theme of the forum meeting will be identified by the task force and agreed by the Bureau (February 2023).

C. Objective 2 (c): Strengthened national and regional capacities

9. The task force will continue to encourage, engage with and strengthen national and (sub)regional science-policy platforms, networks and assessments for biodiversity and ecosystem services. Activities undertaken will focus on facilitating sharing of knowledge and best practices among existing national and (sub)regional science-policy platforms, those interested in establishing a new platform and organizations and institutions that could support such efforts. An online dialogue workshop will be organized as part of this work (February 2023).

III. Draft workplan for the intersessional period 2023–2024 (for information)

A. Objective 2 (a): Enhanced learning and engagement

10. Activities for the implementation of the fellowship programme will include:

(a) For the transformative change assessment: participation of fellows (12 fellows, selected in 2021) in the second author meeting of the assessment (May 2023);

(b) For the business and biodiversity assessment: organization of an “induction day” and participation of fellows (12 fellows, to be selected in 2022) in the first author meeting (July 2023) of the assessment, as well as the second author meeting (September 2024);¹¹

(c) For the nexus and transformative change assessments: participation of fellows (13 and 12 fellows, respectively, selected in 2021) in the third author meetings of the nexus and transformative change assessments (January/February 2024);

(d) Selection of up to five fellows for the scenarios and models task force (second half of 2023);¹²

(e) Organization of an annual training workshop for fellows in ongoing assessments and the task force on scenarios and models. The workshop will enhance the capacity of fellows regarding key topics relevant to their activities in IPBES and provides an opportunity for fellows to engage with and learn from each other, both within and between the various cohorts of fellows (October 2024);

(f) Provision of support to the IPBES fellows and alumni network, including through promoting engagement of fellows and alumni in activities supporting the implementation of objective 2, mapping and further developing activities of the network and organizing an online meeting to facilitate knowledge exchange across the various cohorts of the fellowship programme (October 2023).

¹⁰ In this context, communities of practice are groups of experts, policymakers and/or practitioners who work to increase access to expertise and information on a specific topic or focus area, both to support the implementation of the IPBES work programme and to increase the reach and impact of work programme deliverables. These communities of practice are self-organizing groups and may have different modalities and working arrangements.

¹¹ Pending a decision by the Plenary to undertake the assessment.

¹² The five fellows selected in 2019 will end their term at the tenth session of the IPBES Plenary, at which time the terms of reference of the task force will be reviewed and the five fellows in question will become part of the IPBES alumni network.

11. Activities for the implementation of the training and familiarization programme for IPBES experts and others involved in the science-policy interface will include:
- (a) Further development and promotion of the IPBES webinar series, online tools and videos on approved IPBES assessment reports and other products, including finalization of the pilot educational online interface on the findings of the invasive alien species assessment;¹³
 - (b) Further provision of support for relevant training activities tailored to IPBES needs, catalysed by IPBES and developed by other organizations and institutions (e.g., printed or electronic materials, feedback on draft agendas or contact details for relevant IPBES experts);
 - (c) Organization of a youth workshop to strengthen the engagement of young people in the work of IPBES and to support the uptake of assessments among young people, other individuals and organizations,¹⁴ subject to the availability of in-kind contributions (September 2024);
 - (d) Collaboration with the task force on indigenous and local knowledge in the organization of workshops and webinars as part of the implementation of the approach to recognizing and working with indigenous and local knowledge in IPBES.
12. An in-person dialogue workshop with national focal points will be organized to further enhance capacity to use completed IPBES assessments and other IPBES work by Governments and to facilitate the participation of Governments in the development of ongoing IPBES assessments (March 2024).
13. Online dialogues with national focal points and with stakeholders will be organized in the context of the second external review of the nexus and transformative change assessments (November/December 2023), as well as the external review of the business and biodiversity assessment (May 2024).

B. Objective 2 (b): Facilitated access to expertise and information

14. Activities to support the uptake of approved assessment findings and other deliverables and encourage the development of communities of practice around them will include:
- (a) Distribution of call(s) for nominations of experts for any scoping process initiated by the Plenary, through relevant networks to encourage applications from as wide a range of experts as possible; and provision of assistance to the Multidisciplinary Expert Panel in the implementation of the process for filling gaps in expertise for the expert group, where required;
 - (b) Issuance of a call for contributions to support the uptake of approved IPBES assessment reports and other products (May 2023);
 - (c) Provision of support for uptake activities for IPBES deliverables organized by other organizations (e.g., printed or electronic materials, feedback on draft agendas or contact details for relevant IPBES experts);
 - (d) Further encouragement of communities of practice to facilitate access to expertise and information relevant to IPBES;
 - (e) Collaboration with the other task forces in the catalysation of activities to further build capacity on IPBES approaches and processes, including the approach to recognizing and working with indigenous and local knowledge in IPBES.
15. A seventh meeting of the capacity-building forum will be convened to facilitate engagement with, and to build and further enhance collaboration among, organizations and institutions for the implementation of the IPBES rolling capacity-building plan. The specific theme of the forum meeting will be identified by the task force and agreed by the Bureau (May 2024).

¹³ Pending approval of the assessment report by the Plenary at its tenth session.

¹⁴ The workshop will target individuals representing youth organizations from different United Nations regions that have an active voice in their community. An open call, including selection criteria, will be issued.

C. Objective 2 (c): Strengthened national and regional capacities

16. The task force will continue to encourage, collaborate with and strengthen national and (sub)regional science-policy platforms, networks and assessments for biodiversity and ecosystem services. Activities undertaken will focus on facilitating sharing of knowledge and best practices among existing national and (sub)regional science-policy platforms, those interested in establishing a new platform and organizations and institutions that could support such efforts. An online dialogue workshop will be organized as part of this work (June 2024).

Annex II

Advanced work on knowledge and data

1. Detailed information on the progress made in implementing objective 3 (a) of the IPBES rolling work programme up to 2030, “advanced work on knowledge and data”, during the intersessional period 2021–2022 and related to the workplans for the intersessional periods 2022–2023 and 2023–2024 is set out in document IPBES/9/INF/14.
2. The activities under objective 3 (a) are implemented by the task force on knowledge and data working in two subgroups, on knowledge generation catalysis and on data management, to implement the two work streams of objective 3 (a).

I. Advanced work on knowledge generation catalysis

A. Workplan deliverables for objective 3 (a) – knowledge generation catalysis

3. In response to the request by the Plenary in decision IPBES-7/1, the subgroup on knowledge generation catalysis of the task force on knowledge and data prepared a set of deliverables on the knowledge generation catalysis aspects of objective 3 (a), namely:
 - (a) Review and further development of the process for catalysing the generation of new knowledge, the living guidelines to support assessment authors in identifying knowledge gaps and the template for the collection of knowledge gaps, based on lessons learned from ongoing assessments;
 - (b) Provision of support to assessment authors in identifying knowledge gaps, including in producing a list of knowledge gaps as part of the assessments, using the guidelines and template;
 - (c) Promotion of the uptake of identified knowledge gaps by relevant external organizations and initiatives;
 - (d) Monitoring of the impact of knowledge generation catalysis efforts to effectively fill the identified gaps.

B. Workplan for the intersessional period 2022–2023 (for approval)

4. The task force will review and further develop the process to catalyse the generation of new knowledge, the living guidelines to support assessment authors in the identification of knowledge gaps and the template for the collection of knowledge gaps, based on lessons learned from ongoing assessments.
5. Activities to support assessment authors throughout the assessment in the process of identifying knowledge gaps, including in producing a list of knowledge gaps as part of the ongoing assessments using the guidelines and template and ensuring its earliest possible availability in accordance with IPBES procedures, will include:
 - (a) Online or in-person sessions for the invasive alien species assessment (second half of 2022);
 - (b) Online or in-person sessions or presentations for the second author meetings of the nexus and transformative change assessments (March/May 2023).
6. Activities to promote the uptake of identified knowledge gaps by relevant external organizations and initiatives will include:
 - (a) Regional online or in-person dialogues with programmers and funders on the generation of new knowledge, focused mainly on the gaps identified in the values and sustainable use assessment reports (January/February 2023);¹
 - (b) Exchange of information with programmers and funders on the projects they initiate to address the gaps identified in completed assessment reports;
 - (c) Provision to national focal points and the scientific community of access to the identified gaps.

¹ Pending approval of the assessment reports at the ninth session of the IPBES Plenary.

7. Monitoring of the impact of knowledge generation catalysis efforts to effectively fill the identified gaps will include:

- (a) Implementation of a monitoring plan for the catalysis of new knowledge generation based on the gaps identified in IPBES assessment reports;
- (b) Updating of the monitoring plan as necessary based on lessons learned.

C. Draft workplan for the intersessional period 2023–2024 (for information)

8. The task force will review and further develop the process to catalyse the generation of new knowledge, the living guidelines to support assessment authors in the identification of knowledge gaps and the template for the collection of knowledge gaps, based on lessons learned from ongoing and future assessments.

9. Activities to support assessment authors throughout the assessment in the process of identifying knowledge gaps, including in producing a list of knowledge gaps as part of the ongoing assessments using the guidelines and template, and ensuring its earliest possible availability in accordance with IPBES procedures, will include:

- (a) Online or in-person sessions or presentations for the nexus and transformative change assessments;
- (b) Online or in-person sessions or presentations for the business and biodiversity assessment.²

10. Activities to promote the uptake of identified knowledge gaps by relevant external organizations and initiatives will include:

- (a) Regional online or in-person dialogues with programmers and funders on the generation of new knowledge, focused mainly on the gaps identified in the invasive alien species assessment (October/November 2023);³
- (b) Exchange of information with programmers and funders on the projects they initiate to address the gaps identified in completed assessment reports;
- (c) Provision to national focal points and the scientific community of access to the identified gaps.

11. Monitoring of the impact of knowledge generation catalysis efforts to effectively fill the identified gaps will include:

- (a) Implementation of a monitoring plan for the catalysis of new knowledge generation based on the gaps identified in IPBES assessment reports;
- (b) Update of the monitoring plan as necessary based on lessons learned.

II. Advanced work on data management

A. Workplan deliverables for objective 3 (a) – data management

12. In response to the request by the Plenary in decision IPBES-7/1, the subgroup on data management of the task force on knowledge and data prepared a set of deliverables on the data management aspects of objective 3 (a), namely:

- (a) Data and knowledge management policy and long-term vision on data and knowledge management;
- (b) Provision of support to assessment authors on aspects relating to the data and knowledge management policy and the generation, management, handling and delivery of IPBES products;
- (c) Exploration and establishment of collaborations with external initiatives and service providers on data, including geospatial and earth observation, infographic and cartographic visualizations, and web systems and services.

² Pending a decision by the Plenary to undertake the assessment.

³ Pending approval of the assessment report by the Plenary at its tenth session.

B. Workplan for the intersessional period 2022–2023 (for approval)

13. Activities related to the data and knowledge management policy and the long-term vision on data and knowledge management will include:
- (a) Review of, and if needed, revision of the IPBES data and knowledge management policy;
 - (b) Support and monitoring of the implementation of the IPBES data and knowledge management policy in work on all the objectives of IPBES;
 - (c) Further development of the long-term vision on data and knowledge management, including a draft implementation workplan for its targets up to 2025.
14. Activities to support the sustainable use assessment and values assessment on aspects relating to the data and knowledge management policy and the generation, management, handling and delivery of IPBES products will include support provided to the technical support units of those assessments for the wrap-up, documentation and archiving of the work carried out during the assessments.
15. Activities to support the ongoing IPBES assessments on aspects relating to the data and knowledge management policy and the generation, management, handling and delivery of IPBES products will include:
- (a) Continued support for the implementation of the data and knowledge management policy, including the development of data management reports and handling of indigenous and local knowledge;
 - (b) Continued support for access to and handling of a wide range of external datasets;
 - (c) Continued support for the application of advanced data technology to support the assessment process.
16. In support of ongoing assessments, the task force will engage, as appropriate, with other entities (such as the Intergovernmental Panel on Climate Change), initiatives and service providers on data and knowledge, including but not limited to geospatial and Earth observations, socioeconomic datasets, participative observatories datasets, infographic and cartographic visualizations and web systems and services.

C. Draft workplan for the intersessional period 2023–2024 (for information)

17. Activities related to the data and knowledge management policy and the long-term vision on data and knowledge management will include:
- (a) Review of and, if needed, revision of the IPBES data and knowledge management policy;
 - (b) Support and monitoring of the implementation of the IPBES data and knowledge management policy in work on all the objectives of IPBES;
 - (c) Finalization of the long-term vision on data and knowledge management, including an implementation workplan for all targets.
18. Activities to support the invasive alien species assessment on aspects relating to the data and knowledge management policy and the generation, management, handling and delivery of IPBES products will include support provided to the technical support unit of the assessment for the wrap-up, documentation and archiving of the work carried out during the assessment.
19. Activities to support the ongoing IPBES assessments on aspects relating to the data and knowledge management policy and the generation, management, handling and delivery of IPBES products will include:
- (a) Continued support for the implementation of the data and knowledge management policy, including the development of data management reports and handling of indigenous and local knowledge;
 - (a) Continued support for access to and handling of a wide range of external datasets;
 - (b) Continued support for the application of advanced data technology to support the assessment process.

20. In support of ongoing assessments, the task force will engage, as appropriate, with other entities (such as the Intergovernmental Panel on Climate Change), initiatives and service providers on data and knowledge, including but not limited to geospatial and Earth observations, socioeconomic datasets, participative observatories datasets, infographic and cartographic visualizations and web systems and services.

Annex III

Enhanced recognition of and work with indigenous and local knowledge systems

1. Detailed information on the progress made in implementing objective 3 (b) of the IPBES rolling work programme up to 2030, “enhanced recognition of and work with indigenous and local knowledge systems”, during the intersessional period 2021–2022 and on the workplans for the intersessional periods 2022–2023 and 2023–2024 is set out in document IPBES/9/INF/13.

I. Workplan deliverables for objective 3 (b)

2. In response to the request by the Plenary in decision IPBES-7/1, the task force on indigenous and local knowledge prepared a set of draft deliverables for objective 3 (b), namely:

- (a) Implementation of the approach to recognizing and working with indigenous and local knowledge in IPBES;
- (b) Strengthening of the implementation of the participatory mechanism.

II. Workplan for the intersessional period 2022–2023 (for approval)

3. Activities for the implementation of the approach to recognizing and working with indigenous and local knowledge in IPBES, will include:

- (a) Support for the selection of assessment expert groups:
 - (i) Distribution of the call for nominations of experts and fellows for the business and biodiversity assessment through relevant networks to encourage applications from indigenous and local knowledge experts and experts on indigenous and local knowledge;
 - (ii) Provision of assistance to the Multidisciplinary Expert Panel in the implementation of the process for filling gaps in expertise for the business and biodiversity assessment expert group, where required;¹
- (b) Support for indigenous and local knowledge liaison groups² for assessments:
 - (i) Provision of capacity-building and training on recognizing and working with indigenous and local knowledge to the indigenous and local knowledge liaison groups for the invasive alien species, nexus and transformative change assessments, in collaboration with the capacity-building task force, where appropriate;
 - (ii) Provision of ongoing support to indigenous and local knowledge liaison groups in using multiple types of evidence on indigenous and local knowledge and in identifying gaps relating to indigenous and local knowledge;
- (c) Dialogue workshops with experts on indigenous and local knowledge and members of indigenous peoples and local communities:

In-person or hybrid dialogue workshops for the review of the first order draft of the chapters of the nexus and transformative change assessments (January/February 2023);
- (d) Peer review of assessment reports:
 - (i) Peer review by the task force of the first order draft of the chapters of the nexus and transformative change assessments (January/February 2023);
 - (ii) Dissemination of the invitation to review through relevant networks;
 - (iii) In collaboration with the capacity-building task force, provision of support regarding indigenous and local knowledge-related content to the dialogue

¹ Pending a decision by the Plenary to undertake the assessment.

² An indigenous and local knowledge liaison group is a group of assessment experts from across an assessment report’s chapters who are tasked with working with indigenous and local knowledge in their chapter and with ensuring coherent narratives and approaches throughout the assessment report.

workshops for national focal points and stakeholders during the first external review of the nexus and transformative change assessments;

- (e) An online call for contributions on indigenous and local knowledge for the nexus, transformative change and business and biodiversity assessments;³
 - (f) Post-assessment activities:
 - (i) Collation and dissemination of materials of relevance to indigenous peoples and local communities from the sustainable use and values assessment reports, in all six official United Nations languages, including, in collaboration with the task force on capacity-building, to national and regional platforms on biodiversity and ecosystem services and to indigenous peoples and local communities;⁴
 - (ii) With the task forces on capacity-building and policy tools and methodologies, provision of support for the development of materials from completed assessments by other organizations and institutions, and for related uptake and outreach activities by other organizations and institutions;
 - (iii) Provision of input to the in-person dialogue meeting with new IPBES members and observer States to develop capacity on IPBES deliverables and processes and encourage IPBES membership (first quarter 2023);
 - (g) Provision of support for the work of other task forces regarding aspects related to indigenous and local knowledge, including:
 - (i) Further work with the task force on scenarios and models around indigenous and local knowledge and scenarios of the future;
 - (ii) Support for the implementation of the IPBES data and knowledge management policy;
 - (h) Review of the inclusion of indigenous and local knowledge in IPBES functions and deliverables, including proposals for strengthening the implementation of the approach to recognizing and working with indigenous and local knowledge in IPBES, with regard to:
 - (i) The ways indigenous and local knowledge has been included in IPBES products;
 - (ii) Enhancing methodologies for working with indigenous and local knowledge;
 - (iii) Enhancing the participation of indigenous peoples and local communities across IPBES functions and deliverables.
 - (i) Further development, as necessary, of the methodological guidance on the implementation of the approach to recognizing and working with indigenous and local knowledge in IPBES, based on the outcomes of the review referred to in the previous paragraph.
4. Activities to strengthen the implementation of the participatory mechanism, will include:
- (a) Continued support for the Multidisciplinary Expert Panel in the implementation of the participatory mechanism by the task force on indigenous and local knowledge;
 - (b) Engagement and capacity-building with indigenous peoples and local communities through assessment activities, including the support for indigenous and local knowledge liaison groups, assessment dialogue workshops and post-assessment activities undertaken for the implementation of the approach to recognizing and working with indigenous and local knowledge in IPBES, as described above;
 - (c) Engagement and capacity-building with indigenous peoples and local communities through webinars and side events at relevant meetings, both online and in-person, including provision of information on how to participate in IPBES activities;
 - (d) Further development of the indigenous and local knowledge section of the IPBES website, for improved usability and display of information;

³ In the case of the business and biodiversity assessment, pending a decision by the Plenary to undertake the assessment.

⁴ Pending approval of the assessment reports at the ninth session of the IPBES Plenary.

(e) Further development of the communications and engagement strategy for strategic partners and collaborative supporters (e.g., International Indigenous Forum on Biodiversity and Ecosystem Services);

(f) Monitoring of participation of experts on indigenous and local knowledge and indigenous and local knowledge experts in IPBES processes.

III. Draft workplan for the intersessional period 2023–2024 (for information)

5. Activities for deliverable (a), implementation of the approach to recognizing and working with indigenous and local knowledge in IPBES, will include:

- (a) Support for indigenous and local knowledge liaison groups for assessments:
 - (i) Provision of capacity-building and training on recognizing and working with indigenous and local knowledge to the indigenous and local knowledge liaison groups for the nexus and transformative change assessments, in collaboration with the capacity-building task force, where appropriate;
 - (ii) Provision of ongoing support to indigenous and local knowledge liaison groups in using multiple types of evidence on indigenous and local knowledge and in identifying gaps relating to indigenous and local knowledge;
- (b) Dialogue workshops with experts on indigenous and local knowledge and members of indigenous peoples and local communities:
 - (i) In-person or hybrid dialogue workshops for the review of the second order draft of the chapters of the nexus and transformative change assessments (November/December 2023);
 - (ii) In-person or hybrid dialogue workshop for developing key indigenous and local knowledge questions for the business and biodiversity assessment (third quarter 2023);⁵
 - (iii) Online dialogue workshop for scoping of a second global assessment, if applicable (March 2024);
 - (iv) In-person or hybrid dialogue workshop for the review of the business and biodiversity assessment (second quarter 2024);⁶
- (c) Peer review of assessment reports:
 - (i) Peer review by the task force of the second order draft of the chapters of the nexus and transformative change assessments (November/December 2023);
 - (ii) Dissemination of the invitation to review through relevant networks;
 - (iii) In collaboration with the capacity-building task force, provision of support regarding indigenous and local knowledge-related content for the dialogue workshops for national focal points and stakeholders organized during the relevant external review periods.
- (d) Post-assessment activities:
 - (i) Collation and dissemination of materials of relevance to indigenous peoples and local communities from the invasive alien species assessment report, in all six official United Nations languages, including, in collaboration with the task force on capacity-building, to national and regional platforms on biodiversity and ecosystem services and to indigenous peoples and local communities;

⁵ Pending a decision by the Plenary to undertake the assessment.

⁶ Pending a decision by the Plenary to undertake the assessment.

- (ii) With the task forces on capacity-building and policy tools and methodologies, provision of support for the development of materials from completed assessments by other organizations and institutions, and to related uptake and outreach activities by other organizations and institutions;
 - (e) Provision of support for the work of other task forces regarding aspects related to indigenous and local knowledge;
 - (f) Further development of the methodological guidance on the implementation of the approach to recognizing and working with indigenous and local knowledge in IPBES, based on experience from completed and ongoing assessments and the activities described in this workplan, with a focus on enhancing the dialogue within IPBES between indigenous and local knowledge systems and science.
- 6. Activities to strengthen the implementation of the participatory mechanism, will include:
 - (a) Continued support for the Multidisciplinary Expert Panel in the implementation of the participatory mechanism by the task force on indigenous and local knowledge, including by considering the results of the review of the implementation of the approach to recognizing and working with indigenous and local knowledge in IPBES, carried out in the previous intersessional period;
 - (b) Engagement and capacity-building with indigenous peoples and local communities through assessment activities, including the support for indigenous and local knowledge liaison groups, assessment dialogue workshops and post-assessment activities undertaken for the implementation of the approach to recognizing and working with indigenous and local knowledge in IPBES, as described above;
 - (c) Engagement and capacity-building with indigenous peoples and local communities through webinars and side events at relevant meetings, both online and in-person, including provision of information on how to participate in IPBES activities;
 - (d) Further development of the indigenous and local knowledge section of the IPBES website, for improved usability and display of information;
 - (e) Further development of the communications and engagement strategy for strategic partners and collaborative supporters (e.g., International Indigenous Forum on Biodiversity and Ecosystem Services);
 - (f) Monitoring of participation of experts on indigenous and local knowledge and indigenous and local knowledge experts in IPBES processes.

Annex IV

Advanced work on policy instruments, policy support tools and methodologies

1. Detailed information on the progress made in implementing objective 4 (a) of the IPBES rolling work programme up to 2030, “advanced work on policy instruments, policy support tools and methodologies”, during the intersessional period 2021–2022 and on the workplans for the intersessional periods 2022–2023 and 2023–2024 is set out in document IPBES/9/INF/15.

I. Workplan deliverables for objective 4 (a)

2. In response to the request by the Plenary in decision IPBES-7/1, the task force on policy tools and methodologies prepared a set of draft deliverables for objective 4 (a), namely:

- (a) Promotion of and support for the use of findings of IPBES products in decision-making;
- (b) Strengthening of the policy relevance of IPBES assessments;
- (c) Provision of support to authors of the policy chapters in IPBES assessment reports.

II. Workplan for the intersessional period 2022–2023 (for approval)

3. Activities to promote and support the use of IPBES products in decision-making will include:

- (a) Convening up to four dialogue workshops for actors at the science-policy interface, to understand and promote the use of completed IPBES assessment reports and other IPBES products in decision-making processes. Dialogue workshops will be held online or in person and, to the extent possible and when advantageous, as part of or back to back with an existing regional or subregional meeting. Dialogue workshops will be primarily targeted to IPBES national focal points, other government officials, relevant IPBES experts and regional and subregional organizations working on matters related to the scope of each dialogue. Participation of other actors will be considered on a case-by-case basis depending on the scope of each dialogue workshop (fourth quarter 2022 and first quarter 2023);
- (b) Providing input to the meeting of IPBES national focal points organized by the task force on capacity-building to increase government participation in the use of IPBES deliverables and processes;
- (c) Providing further support to strengthen the IPBES impact tracking database (TRACK);
- (d) Identifying entry points and potential modalities for increasing the use of IPBES products by intergovernmental processes at the global, regional and subregional levels within their mandates, as well as potential barriers that may hinder engagement;
- (e) Piloting the development of fact sheets from approved IPBES assessments by assessment authors (third/fourth quarter 2022).

4. Activities to strengthen the policy relevance of IPBES assessments will include peer review by task force members of the first order draft of the chapters of the nexus and transformative change assessment reports.

5. Activities to support authors of policy chapters in IPBES assessment reports will include:

- (a) Convening and/or contributing to webinars for authors of the nexus and transformative change assessment reports based on the methodological guidance on how to assess policy instruments and facilitate the use of policy support tools and methodologies through IPBES assessments;
- (b) Ensuring that supporting materials are ready for use by the authors of the business and biodiversity assessment report;¹
- (c) Providing support for the identification of policy-related knowledge gaps in IPBES assessment reports through the process led by the task force on knowledge and data.

¹ Pending a decision by the Plenary to undertake the assessment.

III. Draft workplan for the intersessional period 2023–2024 (for information)

6. Activities to promote and support the use of IPBES products in decision-making will include:
 - (a) Convening up to four dialogue workshops for actors at the science-policy interface, to understand and promote the use of completed IPBES assessment reports and other IPBES products in decision-making processes. Dialogue workshops will be held online or in person and, to the extent possible and when advantageous, as part of or back-to-back with an existing regional or subregional meeting. Dialogue workshops will be primarily targeted to IPBES national focal points, other government officials, relevant IPBES experts and regional and subregional organizations working on matters related to the scope of each dialogue. Participation of other actors will be considered on a case-by-case basis depending on the scope of each dialogue workshop;
 - (b) Providing input to the meeting of IPBES national focal points organized by the task force on capacity-building to increase government participation in the use of IPBES deliverables and processes;
 - (c) Conducting a second edition of the “survey on the use of IPBES assessments in policymaking at national and subnational levels” to gather information relating to new IPBES assessments (third quarter 2023);
 - (d) Providing further support to strengthen the IPBES impact tracking database (TRACK), including by suggesting policy-relevant information obtained from the dialogue workshops convened to understand and promote the use of completed IPBES assessment reports and other IPBES products in decision-making processes;
 - (e) Identifying entry points and potential modalities for increasing the use of IPBES products by intergovernmental processes at the global, regional and subregional levels within their mandates, as well as potential barriers that may hinder engagement;
 - (f) Supporting the development of fact sheets from approved IPBES assessment reports by assessment experts.
7. Activities to strengthen the policy relevance of IPBES assessments will include peer review by task force members of the second order draft of the chapters and first order draft of the summaries for policymakers of the nexus and transformative change assessment reports.
8. Activities to support authors of policy chapters in IPBES assessment reports will include:
 - (a) Ensuring that supporting materials are ready for use by the authors of the nexus, transformative change and business and biodiversity assessment reports;
 - (b) Providing support for the identification of policy-related knowledge gaps in IPBES assessment reports through the process led by the task force on knowledge and data.

Annex V

Advanced work on scenarios and models of biodiversity and ecosystem functions and services

1. Detailed information on the progress made in implementing objective 4 (b) of the IPBES rolling work programme up to 2030, “advanced work on scenarios and models of biodiversity and ecosystem functions and services”, during the intersessional period 2021–2022 and on the workplans for the intersessional periods 2022–2023 and 2023–2024 is set out in document IPBES/9/INF/16.

I. Workplan deliverables for objective 4 (b)

2. In response to the request by the Plenary in decision IPBES-7/1, the task force on scenarios and models of biodiversity and ecosystem services prepared a set of draft deliverables for objective 4 (b), namely:

- (a) Provision of support on scenarios and models for IPBES assessments;
- (b) Catalysation of the further development of scenarios and models for future IPBES assessments.

II. Workplan for the intersessional period 2022–2023 (for approval)

3. Activities to provide support on scenarios and models for IPBES assessments will include:

(a) Distribution of the IPBES call for nominations of authors and fellows for the business and biodiversity assessment through relevant networks to encourage applications by experts on scenarios and models; and provision of assistance to the Multidisciplinary Expert Panel in the implementation of the process for filling gaps in expertise for the assessment expert group, where required;¹

(b) Organization of webinars for authors of the nexus and transformative change assessment reports to support the development of scenario chapters for those reports based on the *Methodological Assessment Report on Scenarios and Models*;

(c) Peer review by the task force of the first order drafts of the chapters of the nexus and transformative change assessment reports and dissemination of the invitation to review through relevant networks (January/February 2023);

(d) Provision of support for the invasive alien species, nexus and transformative change assessments on the use of currently available scenarios, including those developed for previous global-scale assessments and the Shared Socioeconomic Pathways framework assessed by the Intergovernmental Panel on Climate Change;

(e) Organization of an online or in-person dialogue workshop with experts on indigenous and local knowledge and members of indigenous peoples and local communities, aimed at discussing indigenous and local knowledge and scenarios, including ways to address scenarios in ongoing and future assessments. This could be focused on developing approaches to gather and upscale local-scale scenarios by indigenous peoples and local communities, as well as to understand how this work can inform IPBES assessments at the global scale. The workshop will consider diverse indigenous and local knowledge systems and reflect on concepts including “nature as culture” and “living in harmony with Mother Earth” (September 2022).

4. Activities to catalyse the further development of scenarios and models for future IPBES assessments will include:

(a) Further development of the draft methodological guidance on the use of the nature futures framework, both as a tool for facilitating the use of existing scenarios and models in IPBES assessments by making them comparable, and as a tool for further catalysing the development of new scenarios for biodiversity and ecosystem services to serve as input for upcoming IPBES assessments. This work will be undertaken in direct response to the conclusions of the IPBES *Methodological Assessment Report on Scenarios and Models* (2016), which identified limitations of existing scenario approaches in their usefulness for biodiversity and ecosystem services, particularly in their ability to

¹ Pending a decision by the Plenary to undertake the assessment.

incorporate policy objectives related to nature conservation and human well-being. The further developed methodological guidance will be presented to the Plenary for its information at its tenth session;

(b) Organization of an online dialogue with IPBES national focal points in support of the further development of the draft methodological guidance for using the nature futures framework, in collaboration with the IPBES capacity-building task force (September 2022);

(c) Organization of an online or in-person workshop with experts on scenarios and models, to catalyse the further development of scenarios and models for future IPBES assessments, including by using the nature futures framework. The workshop would also serve to collect additional feedback on the methodological guidance for using the nature futures framework and to further catalyse the development of qualitative and quantitative case studies that would be available for the nexus and transformative change assessments. Participants could include modellers, experts on social sciences and the humanities, policymakers, indigenous and local knowledge experts and experts on indigenous and local knowledge (October 2022);

(d) Catalysation of the further development of scenarios and models for future IPBES assessments through encouraging the application of the nature futures framework and its methodological guidance by various stakeholders:

- (i) Encourage the publication of third-party research in external peer-reviewed journals and grey literature on scenarios and models (e.g., with illustrative examples of scenarios and models that used the nature futures framework) that provide the wider scientific community and future IPBES assessments with new and desirable futures for nature;
- (ii) In collaboration with the IPBES task force on knowledge and data, undertake an effort to identify emerging publications and their underlying data sets on scenarios and models that use the nature futures framework;
- (iii) Organize capacity-building activities in collaboration with the task force on capacity-building on broader scenarios work and application of the nature futures framework to facilitate the use of existing scenarios and models in IPBES assessments and catalyse the development of new scenarios and models, targeting Governments and IPBES stakeholders;
- (iv) For IPBES experts, provide guidance on the possible use of the nature futures framework in IPBES assessments (e.g., to facilitate the comparability of existing scenarios and models for IPBES assessments);
- (v) Support attendance at and development of talks and sessions for major conferences to catalyse the further development of scenarios and models for future IPBES assessments, including by using the nature futures framework;
- (vi) Explore the development of a knowledge base of case studies using the nature futures framework, in collaboration with the task force on knowledge and data.²

III. Draft workplan for the intersessional period 2023–2024 (for information)

5. Activities to provide support on scenarios and models for IPBES assessments will include:

(a) Organization of webinars for authors of the nexus, transformative change and business and biodiversity³ assessment reports to support the development of scenario chapters for those reports based on the *Methodological Assessment Report on Scenarios and Models* and further work on scenarios and models by the task force (such as the nature futures framework);

² A first overview of articles in peer-reviewed journals will be made available to the Plenary at its ninth session as an annex to the information document on the work of the task force (IPBES/9/INF/16).

³ In the case of the business and biodiversity assessment, pending a decision by the Plenary to undertake the assessment.

(b) Peer review by the task force of the second order drafts of the chapters of the nexus and transformative change assessment reports and the draft of the business and biodiversity assessment report⁴ and dissemination of the invitation to review through relevant networks;

(c) Provision of support for the nexus, transformative change and business and biodiversity⁵ assessments on the use of currently available scenarios, including those developed for previous global-scale assessments and the Shared Socioeconomic Pathways framework assessed by the Intergovernmental Panel on Climate Change.

(d) Organization of a further online or in-person dialogue workshop with experts on indigenous and local knowledge and members of indigenous peoples and local communities, aimed at discussing indigenous and local knowledge and scenarios, including how to work on this in ongoing and future assessments.

6. Activities to catalyse the further development of scenarios and models for future IPBES assessments will include:

(a) Further development of the draft methodological guidance on the use of the nature futures framework as a tool for facilitating the use of existing scenarios and models in IPBES assessments by making them comparable, and as a tool for catalysing the development of the next generation of scenarios for biodiversity and ecosystem functions and services, which will be presented to the Plenary for its information at its eleventh session;

(b) Organization of an online or in-person workshop with experts on scenarios and models, to catalyse the further development of scenarios and models for future IPBES assessments, including by using the nature futures framework. The workshop would also serve to further catalyse the development of qualitative and quantitative case studies of scenarios that would be available for future IPBES assessments;

(c) Organization of an online dialogue with IPBES national focal points to further the development of the draft methodological guidance for using the nature futures framework, in collaboration with the IPBES capacity-building task force;

(d) Catalysation of the further development of scenarios and models for future IPBES assessments through encouraging the application of the nature futures framework and its methodological guidance by various stakeholders:

- (i) Encourage the publication of third-party research in external peer-reviewed journals and grey literature on scenarios and models (e.g., with illustrative examples of scenarios and models that used the nature futures framework) that provide the wider scientific community and future IPBES assessments with new and desirable futures for nature;
- (ii) Organize capacity-building activities in collaboration with the task force on capacity-building on broader scenarios work and application of the nature futures framework to facilitate the use of existing scenarios and models in IPBES assessments and catalyse the development of new scenarios and models, targeting Governments and IPBES stakeholders;
- (iii) For IPBES experts, provide guidance on the possible use of the nature futures framework in the IPBES assessments (e.g., to facilitate the comparability of existing scenarios and models for IPBES assessments);
- (iv) Support attendance and development of talks and sessions at major conferences to catalyse the further development of scenarios and models for future IPBES assessments, including by using the nature futures framework;
- (v) Further develop the knowledge base of case studies using the nature futures framework, in collaboration with the task force on knowledge and data.

⁴ Pending a decision by the Plenary to undertake the assessment.

⁵ In the case of the business and biodiversity assessment, pending a decision by the Plenary to undertake the assessment.

Annex VI

Foundations of the nature futures framework

I. Introduction: how scenarios are used in policy- and decision-making on biodiversity and ecosystem services

A. Use of scenarios and models

1. Scenarios and models of changes in biodiversity and ecosystem services are powerful tools for informing decision-makers and other stakeholders on potential future impacts of changes across scales on nature, nature's contributions to people and good quality of life.¹ In this context, and in line with the IPBES conceptual framework, scenarios are alternative pathways to possible futures for one or more key components in a system, particularly for drivers of change in nature and nature's contributions to people, including alternative policy or management options (IPBES, 2016a; Díaz et al., 2018).² Models are qualitative or quantitative representations of key components of a system and of relationships between those components, and can be used to translate scenarios of possible futures for drivers of change or policy interventions into projected consequences for nature and nature's contributions to people (IPBES, 2016a). In combination, scenarios and models can play important roles in relation to the major phases of the policy cycle, which are (i) agenda setting, (ii) policy design, (iii) policy implementation and (iv) policy review, as described in the *Methodological Assessment Report on Scenarios and Models* (IPBES, 2016b, figure SPM.2). “Exploratory scenarios” can contribute to problem identification and agenda setting by examining a range of plausible futures, while “intervention scenarios” can contribute to policy design and implementation by evaluating alternative policy or management options – through either “target-seeking” or “policy-screening” analysis (IPBES, 2016b, figure SPM.2). Scenarios and models have been used in the IPBES *Global Assessment Report on Biodiversity and Ecosystem Services* (IPBES, 2019a; 2019b) and regional assessments of biodiversity and ecosystem services (IPBES, 2018a; 2018b; 2018c; 2018d) to provide assessments of the current status of biodiversity and ecosystem services and to explore projections under different potential futures.

2. The *Global Assessment Report* indicates that the decline of biodiversity and ecosystem services is projected to continue or worsen in many future scenarios that consider rapid human population growth, unsustainable consumption and declining production (see, for example, figure SPM.8 of the *Global Assessment Report* (IPBES, 2019a; 2019b)). In contrast, scenarios with assumptions of low-to-moderate human population growth across scales, low carbon growth, a circular economy, and transformative changes will better support long-term sustainability and good quality of life (IPBES, 2019a, figure SPM.8; 2019b).

B. Limitations of current scenarios and models

3. As is pointed out in the IPBES *Methodological Assessment Report on Scenarios and Models* (IPBES, 2016a), most existing scenario approaches for biodiversity and nature's contributions to people have a number of shortcomings. The obvious main limitation is the extent of knowledge about the properties of nature and of its components, and about the interactions and feedback processes associated with those components. Most existing scenario approaches, especially at the global and regional scales, have been developed to address climate change issues rather than biodiversity and ecosystem services issues per se, and are limited to assessing the impacts of drivers on states of nature and nature's contributions to people. They often consider biodiversity gains or losses as an endpoint, rather than recognizing the full range of interconnections and feedback between nature and people that are central to the IPBES conceptual framework (Seppelt et al., 2020). Existing scenario approaches are

¹ “Nature”, “nature's contributions to people” and “good quality of life”, as well as “instrumental values”, “intrinsic values” and “relational values”, are terms used in the IPBES conceptual framework, in the preliminary guide on values and throughout IPBES assessments and documents (see Díaz et al., 2015; Pascual et al., 2017; Díaz et al., 2018 for further details). “Nature” embodies different concepts for different people, including biodiversity, ecosystems, Mother Earth, systems of life and other analogous concepts. “Nature's contributions to people” broadly captures different concepts, such as ecosystem goods and services and nature's gifts. Both nature and nature's contributions to people are vital for human existence and good quality of life (human well-being, living in harmony with nature, living well in balance and harmony with Mother Earth, and other analogous concepts).

² For a full list of references, see document IPBES/9/INF/16.

also limited in their ability to incorporate diverse values, norms and policy objectives related to nature conservation and good quality of life (IPBES, 2016a). As a result of limited stakeholder involvement, scenarios have often underrepresented the diversity of worldviews and indigenous and local knowledge (Obermeister, 2019). Furthermore, institutional barriers to the use of scenario outcomes and the timing of presenting scenarios to governments (e.g., “windows of opportunity” – see Kingdon, 1984) may need to be addressed, with a view to increasing the chance that scenario-related insights are taken up in political agendas. All models have strengths and weaknesses (IPBES, 2016a), and it is therefore vital that their capacities and limitations be carefully evaluated and communicated in assessment and decision-making processes (see Sietz & van Dijk 2015; Fonte et al., 2012). Limitations of current scenarios and models are not necessarily a reflection of deficiency in approach – rather, they are a reflection of the degree of complexity involved in solving current problems. Existing approaches often explore the impacts of direct and indirect drivers on nature and people (e.g., adverse climate change impacts on biodiversity and ecosystem services), rather than focusing on the transformative changes required to achieve international goals for both nature and people (e.g., the emerging post-2020 global biodiversity framework (CBD, 2021); nationally determined contributions under the Paris Agreement; and the Sustainable Development Goals).

C. Addressing shortcomings for the development and use of scenarios and models in the context of nature and nature’s contributions to people

4. Addressing the shortcomings of existing scenario approaches for nature and nature’s contributions to people at different scales requires better integration of the feedback processes between nature and good quality of life for people. It also requires recognition and inclusion of both synergies and trade-offs between the targets of the emerging post-2020 global biodiversity framework, the goals of and means for responding to climate change under the Paris Agreement, and the Sustainable Development Goals. Participatory approaches are also required to involve stakeholders in the development of future scenarios for nature and people and to incorporate multiple value perspectives and different pathways to achieve societal goals (IPBES, 2016a; Rosa et al., 2017; Pereira et al., 2020; Kim et al., 2021, in preprint; Lundquist et al., in prep.). Inclusion of values of nature can enhance the development of new global scenarios for nature and nature’s contributions to people, as it allows the diversity of human-nature relationships to inform context- and place-specific policy options based on locally held values of nature (Braun & Castree, 2005; Cronon, 1996; Descola, 2013; Head, 2016; Latour, 2004; Robin, Sörlin, & Warde, 2013).

5. To address these requirements, the IPBES Plenary mandated the expert group (2016–2019) and task force (2019–present) on scenarios and models to catalyse the development of new scenarios that can better inform policymaking for nature and nature’s contributions to people (see terms of reference of the task force, annex II to decision IPBES-7/1), building on the *IPBES Methodological Assessment Report on Scenarios and Models* (IPBES, 2016a). To capture the plurality of value perspectives on nature, the former expert group and current task force have worked on a new framework for the development of nature-centred scenarios, called the “nature futures framework”. Having a framework that is applicable across different scales, regions and value perspectives allows the development of comparable new scenarios to better support future IPBES assessments.

D. Development of a new framework to promote the effective use of scenarios for nature and nature’s contributions to people

6. The nature futures framework is designed to help its users to consistently articulate a variety of desirable futures that focus on human-nature relationships. Specifically, the framework aims to catalyse the development of scenarios that focus on achieving a world that realizes the 2050 Vision for Biodiversity of “Living in Harmony with Nature” (CBD, 2010) while considering the 2030 Agenda for Sustainable Development and its Sustainable Development Goals. These visions and goals require reversing declines in biodiversity and nature’s contributions to people (Pereira et al., 2020). There are many ways of “living in harmony with nature”, depending on what particular value perspectives on nature are considered to be “harmony”. The framework is explicitly designed to include multiple values of nature in scenarios and models, in order to allow consideration of alternative ways to achieve the 2050 Vision for Biodiversity and the Sustainable Development Goals. Positive or desirable nature futures represent scenarios where biodiversity and nature’s contributions to people are improved in one or more value perspectives in relation to the current situation.

7. Creating scenarios and models based on multiple values can make them more inclusive. The explicit inclusion of multiple values of nature enables scenarios and models to better consider and incorporate indigenous and local knowledge systems and values, as well as to better consider sociocultural contexts and alternative governance and economic systems, diverse methods of

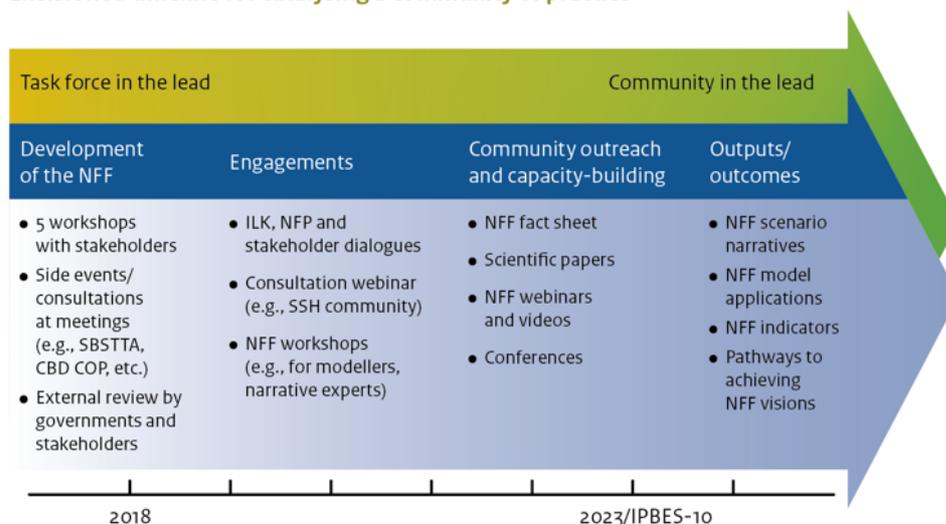
sustainable resource utilization and diverse approaches to biodiversity conservation. The IPBES task force on scenarios and models is developing methodological guidance on how to apply the nature futures framework to the development of quantitative and qualitative scenarios for a diversity of settings and scales. A draft of the methodological guidance is set out in document IPBES/9/INF/16.

8. The present document does not contain actual scenarios developed on the basis of the nature futures framework. Scenario development by the scientific community with models and other tools, and the narrative development and refinement with stakeholders, still need to be carried out and are planned for the next four years, with final outputs available in time for use in a potential second edition of the *Global Assessment Report on Biodiversity and Ecosystem Services* (figure 1).

Figure 1

Envisioned process for catalysing a community of practice for developing scenarios based on the nature futures framework over time^a

Envisioned timeline for catalysing a community of practice



Abbreviations: CBD – Convention on Biological Diversity; COP – Conference of the Parties; ILK – indigenous and local knowledge; NFF – nature futures framework; NFP – national focal points; SBSTTA – Subsidiary Body on Scientific, Technical and Technological Advice; SSH – social sciences and humanities.

^a The yellow-green colour gradient represents transitions in the lead of the listed activities from the IPBES task force on scenarios and models to the broader community. While the weight of the involvement of the task force is transferred to the broader community over time, there has been strong stakeholder engagement from the onset of the process. The blue arrow presents the activities of the task force on scenarios and models. It is anticipated that community engagement and outreach activities will lead to the formation of research consortiums and funded research projects that will achieve the goal of creating multi-scale (from local to global) scenarios based on the nature futures framework, which would continue to be developed and refined over the long term.

II. Foundations of the nature futures framework

A. History and contribution of the nature futures framework to catalyse the development of scenarios and models

9. The nature futures framework succinctly describes a diverse set of desirable futures for nature and people that differ in their emphasis on the types of values that people assign to nature (Pereira et al., 2020). It takes into consideration the call for plural values of nature and nature's contributions to people to be recognized, referring to the preliminary guide regarding diverse conceptualization of multiple values of nature and its benefits, including biodiversity and ecosystem services, developed under the first IPBES work programme.³ This preliminary guide on values, as well as the ongoing IPBES values assessment, are underpinned by the view that the use of diverse conceptualizations of multiple values of nature and its benefits to people must be acknowledged and fostered in order to adequately address the challenge of global sustainability (Pascual et al., 2017; IPBES, 2015). Whereas both the ongoing IPBES values assessment and the nature futures framework incorporate values of nature, they have different purposes: the former assesses existing literature and describes different

³ IPBES/4/INF/13, annex III.

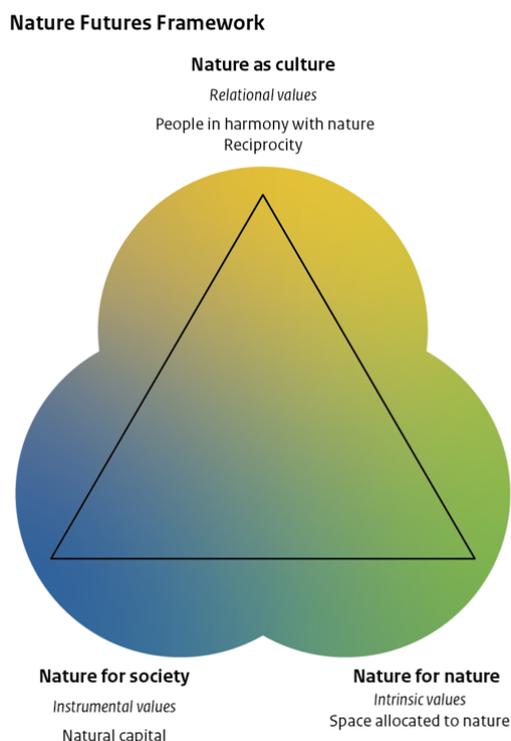
approaches to the conceptualization of values of nature, whereas the latter serves as a starting point for co-development of scenarios.

10. Taking into account the properties, interactions and feedback that operate in nature, the nature futures framework emerged from stakeholder consultations that gathered a wide range of visions of desirable futures for biodiversity and people (Lundquist et al., 2017; Pereira et al., 2020). It reflects three primary value perspectives of nature, embracing the diversity of human-nature relationships. The term “value perspectives of nature” is used to encapsulate the diversity of values that humans assign to nature, while focusing primarily on broad-scale differences between intrinsic, instrumental and relational values. This framework allows those involved in scenario-building to recognize and address, in a more explicit manner, plural values ascribed to nature and nature’s contributions to people, which conventional scenario-building methods often fail to capture. The framework places the values that humans assign to nature at its core. The underlying assumption for formulating any type of positive future vision of nature is that nature is valued much more in the future, but the reasons why it is valued – the underlying value perspectives – can vary widely. The diverse ways in which humans value nature can be used to develop a diversity of possible future scenarios. The framework is novel in that it explicitly provides a space for inclusion of relational values within a global biodiversity scenarios framework, acknowledging that relational values, such as cultural identity, sense of place, traditions and reciprocity with nature, are often poorly represented or marginalized in assessments of biodiversity and ecosystem services.

B. Description of the nature futures framework

11. The nature futures framework represents value perspectives on human-nature relationships within a triangular figure (figure 2). Each corner of this triangle illustrates the orientation towards one of the following three value perspectives on the relationship between humans and nature: intrinsic: nature for nature; relational: nature as culture; and instrumental: nature for society (see glossary in IPBES/9/INF/16, annex I/A). The space within the triangle represents a continuum or gradient between these three value perspectives. As such, all the potential locations within the triangle relate to each of the three corners and thus offer some combination of all three value perspectives. It is important to bear in mind that the vertices, or corners, of the triangle offer extreme cases of what could be considered a “desirable future for nature” that are limited to a particular perspective. These “desirable” futures may be place- or context-specific, subject to local cultures and values. Examples of “desirable futures for nature” are provided in the boxes in section 4.2 of the methodological guidance (IPBES/9/INF/16). The framework does not aim to identify any particular narratives or scenarios as preferred based on their location in the nature futures framework, reflecting the fact that value preferences vary culturally and geographically. The vertices of the framework may be more representative in the local context, reflecting particular value perspectives that are locally specific, whereas the centre of the triangle may be reflective of regional or global contexts, incorporating multiple value perspectives (Lundquist et al., in prep; Kim et al., 2021, in preprint).

Figure 2
Nature futures framework^a



^aThe nature futures framework presents three value perspectives of nature in a triangle: intrinsic: nature for nature; relational: nature as culture; and instrumental: nature for society. The coloured circles associated with each value perspective blend together where they intersect, showcasing that they are not mutually exclusive. Desirable futures for nature are represented within the triangle, whereas undesirable states for nature and people are represented by the space outside the triangle. The framework is based on the understanding that there may be undesirable futures that perform well for a particular aspect of nature or nature’s contributions to people, but may result in negative consequences for many others. The lines of the triangle indicate that the boundary between desirable and undesirable futures is often context- or place-specific. As there is no hierarchy among the three value perspectives, users may choose which value appears at the top of the triangle.

12. In the “nature for nature” perspective, people view nature as having intrinsic value, and value is placed on the diversity of species, habitats, ecosystems and processes that form the natural world, and on nature’s ability to function autonomously. This perspective has dominated much of the conservation movement’s concern about the extinction crisis and the protection of wilderness, and is well represented in the Aichi Biodiversity Targets for protected areas and some of the draft goals of the emerging post-2020 global biodiversity framework under the Convention on Biological Diversity (CBD, 2021) and within concepts such as “Half-Earth” and rewilding.

13. The “nature as culture” perspective primarily highlights relational values of nature, where societies, cultures, traditions and faiths are intertwined with nature in shaping cultural landscapes (Himes & Muraca, 2018). This perspective emphasizes people living in harmony with nature and is often exemplified in spiritual and other non-material human-nature relationships such as cultural identity, sense of place and sense of belonging. The “nature as culture” perspective is not limited to indigenous and local knowledge systems, and is increasingly recognized worldwide by initiatives that promote humans reconnecting with nature within urban and rural landscapes, traditional lifestyles and nature’s contributions to mental health (e.g., the Japanese concepts of *satoyama* and *satoumi*, which represent places where human presence is integrated in such a way that it promotes the well-being of the natural landscapes). Culture and cultural connections with nature are not restricted to this perspective; rather, “nature as culture” is meant to emphasize that nature and culture are inseparable and that people are an integral part of, not separate from, nature.

14. The “nature for society” perspective highlights the utilitarian benefits and instrumental values that nature provides to people and societies. This view is reflected in concepts such as ecosystem services, natural capital, green infrastructure and nature-based solutions, which cast nature as a provider of services to society (UNEP, 2021). A wide variety of approaches exist to quantify the benefits that people receive from nature, such as food production and water filtration, and their influence on human health. Many of these instrumental values form direct connections between nature

and society and are represented within the Sustainable Development Goals, the Aichi Biodiversity Targets and the emerging post-2020 global biodiversity framework. Many nature-based solutions (e.g., saltmarsh or mangrove restoration for carbon sequestration) exemplify the instrumental benefits of nature.

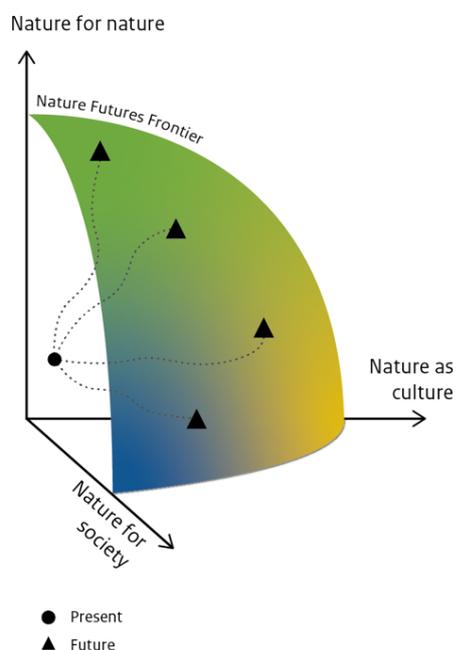
15. While the nature futures framework builds on the concepts of intrinsic, relational and instrumental values, the three value perspectives do overlap to some degree and the framework allows for their coexistence, addressing some of the criticisms expressed by Piccolo (2017) about value dimensions. The framework allows recognition of the diversity of ways in which people define “nature”, and of the understanding that knowledge-scapes, interactions and identity influence the values that individuals attribute to nature (Berghöfer et al., 2020). “Nature for nature” both represents intrinsic values and indirectly provides instrumental values through the non-material benefits of healthy ecosystems. “Nature for society” is dominated by the direct and indirect use of a subset of instrumental values, while “nature as culture” captures the relational values, including the non-material contributions of nature. Examples of where the overlap between “nature for society” and “nature as culture” is strong include mental health and recreational benefits of nature. The intrinsic value of nature is integral to many cultures, which is where “nature for nature” and “nature as culture” meet each other.

16. The state of the planet or any place on the planet can be assessed across these three perspectives (figure 3). The goal for scenario development with the nature futures framework is to improve the state of a place across one or more of these three perspectives. Therefore, one aims to move a place from a current condition, one that is often degraded from one or more of these perspectives (figure 3), to a higher score. As one approaches high scores in one of the perspectives, there may be trade-offs with others. At the global level, one may be speaking of multidecadal timescales (e.g., 2020–2050), while at the local scale, multi-year timescales for scenario development may be more adequate (e.g., 5–10 years).

Figure 3

Conceptual illustration of how the nature futures framework can be used to define pathways toward sustainable futures^a

Nature Futures Framework



^a Each axis corresponds to one of the three value perspectives for nature. In this example, actions take place to improve nature and nature’s contributions to people across one or more of the value perspectives toward a more desirable nature futures frontier. Increasing scores for one value perspective may require trade-offs with another value perspective (modified from Kim et al., 2021, in preprint).

C. What is unique in the nature futures framework?

17. The nature futures framework can be used to develop scenarios that represent a diversity of futures based on different value perspectives for nature, which is novel within a framework for global environmental scenarios. While the nature futures framework is intended to catalyse the development of scenarios that can be compared, it does not pre-define specific characteristics for individual scenarios; rather, it allows the development of place- and context-specific scenarios that represent local and regional priorities, ecologies and values. The use of a single framework combining different value perspectives for nature facilitates its application to a diversity of regional and socioeconomic contexts, where common and specific features (see section 3 of the methodological guidance, IPBES/9/INF/16) allow for comparison across individual scenarios. To apply the framework, users can develop nature-futures-framework-based scenarios within a range of sociocultural, economic and political contexts and across a wide range of spatial scales, which may identify pathways towards desirable futures that achieve the emerging post-2020 global biodiversity framework targets and the Sustainable Development Goals (IPBES, 2016a). The specificity of individual scenarios can thus be easily translated to local conditions and applied to issues of interest to local policymakers.

18. The nature futures framework can be differentiated from scenario approaches such as representative concentration pathways (commonly known under the acronym RCPs) and shared socioeconomic pathways (commonly known under the acronym SSPs), developed in support of the assessments of the Intergovernmental Panel on Climate Change (van Vuuren et al., 2014). The Shared Socioeconomic Pathways–Representative Concentration Pathways framework is prescriptive in terms of outcomes for greenhouse gas concentrations and many other direct and indirect drivers of climate change, such as human population growth, economic growth and agricultural productivity (O'Neill et al., 2017). Box 3 of the methodological guidance (IPBES/9/INF/16) illustrates how the nature futures framework can be matched across shared socioeconomic pathways and representative concentration pathways, and various efforts currently in place to use the shared socioeconomic pathways as entry points into novel nature-futures-framework-based scenarios.

19. The nature futures framework allows for flexibility in how international goals and policy targets are applied at local and regional scales. Even though it is not as prescriptive as the Shared Socioeconomic Pathways–Representative Concentration Pathways framework, the nature futures framework still allows the development of prescriptive scenarios and models for such goals and targets (e.g., for a possible 30 per cent protected area target (CBD, 2021)). Where a quantitative target is suggested, the nature futures framework gives the user the ability to specify the numerical target (i.e., percentage of area under protection and other effective area-based conservation measures), as well as the flexibility to decide which area-based conservation measures could be used and how those measures are spatially distributed. The nature futures framework thus allows flexibility in applying the emerging targets of the post-2020 global biodiversity framework to local contexts.

III. Concluding remarks

20. The use of the nature futures framework by the scientific community and other stakeholders will lead to the further development, identification and utilization of new qualitative and quantitative scenarios and model applications. This, in turn, can provide valuable input for future IPBES assessments and trigger much-needed actions and societal transformations towards a desirable future for nature and people.
