



## Towards living in harmony with nature by 2050

### A Science-Policy Dialogue

#### Objectives

This science-policy dialogue will bring together and engage scientists and policy makers to discuss how science can inform the post-2020 global biodiversity framework. The discussions will particularly focus on what scientists could offer to the preparation of the post-2020 agenda, on concepts for transition, the role of scenarios for pathways, as well as scale and scope of actions towards the 2050 vision. They will also aim at framing the post-2020 targets, including on restoration and nature-based solutions as tools to reach biodiversity targets. The Forum will include panel and round-table discussions, providing a platform for the participants to share knowledge, experiences and solutions and to showcase success stories, good practices and approaches, and lessons learned.

#### Key questions

What is necessary to achieve the 2050 vision? What are the options and how can we ensure action? How to operationalize transitions and transformational change for biodiversity and human wellbeing? Discussions during this Science Forum will address these questions with a view to open new pathways to design nature-based solutions for nature, people and the economy across different sectors, and on engaging wider parts of the society.

#### Outputs

The Forum is expected to support discussions at the fourteenth meeting of the Conference of the Parties and its outputs will contribute to the further global process on developing the post-2020 global biodiversity framework.

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**23/11/2018. Day 1: A framework for transition.**

***Which framing for the target setting for the post-2020 framework?***

9.00 **Opening address**

Cristiana Paşca Palmer, CBD Executive Secretary.

Hiroyuki Takeda, IUBS President.

Humberto Delgado Rosa, European Commission.

Anne Larigauderie, IPBES Executive Secretary.

Moderation: Marcos Regis da Silva, IAI Executive Director

9.25 **Introduction: Aims and outputs of this dialogue**

What are the expectations from the CBD secretariat for this dialogue? Which process will benefit from this dialogue? Which outcomes would be useful? Lessons from the 2010 and 2020 policies on biodiversity and the need for a new vision, as well as what scenarios to 2050 can tell us. What are the options? What is necessary? How to make it happen? How to ensure action? The presentation will draw the path from Sharm el-Sheikh to Beijing.

**Speaker:** David Cooper or Alexander Shestakov (tbc)

### 9.35 Session 1: Concepts of transition

Setting the ground for broader understanding of transitions and the need for social-ecological transformations with views from key scientists. Bending the curve – how to come to the 2050 vision and new targets for the post-2020 agenda. What is the role that research should take? How to cope with uncertainty when designing and implementing urgent measures? How can NBS support the 2050 vision, and allow us to achieve biodiversity and development goals in a more coherent manner? What should our expectations and priorities be?

**Speaker:** Josef Settele “Drivers of change and transformations – where we stand”- challenges for a global view – 15’ min

**Panel discussion (and active involvement of audience)** on the role of transitions for the post-2020 process from the scientists’ perspectives; reactions from policy makers; reflections from experience what is possible (from panel and audience). Participants in the panel will have 2-4 minutes to make a statement on the content of the session, to stimulate the discussion.

**Panel:** Josef Settele, Mark Zimsky, Mundita Lim, Bernadette Fischler, Hesiquio Benitez

*The moderator asks panellists to give short statements on the theme of session. A moderated discussion between panel and audience follows, based on the guiding questions of the session.*

#### Background

- **Transitions** are defined as long-term processes of disruptive and non-linear systemic change in complex societal systems, such as economic sectors or regions. As transitions imply break-down and destabilization of the regime while, at the same time, future pathways and outcomes are still unclear, they often involve a high degree of uncertainty. Therefore, it is important to focus on desired transitions towards the vision for 2050 in this session.
- Our collective actions and policy decisions during the coming years will largely influence the future outcomes of emerging transitions. It is necessary to agree upon global targets that actually lead to transformative actions on the ground, as well as to aim for effective translation of scientific and expert knowledge on biodiversity and ecosystem challenges.
- Within the broader global transition, there is a biodiversity transition taking place in the way biodiversity conservation and sustainable use is understood, organized and implemented. We need to better define the guiding mission of this transition, as well as to identify pathways to institutionalize practices, culture, and structures that support a sustainable economy.
- With this session we aim to set the ground for a broader understanding of transitions and the need for social-ecological transformations for biodiversity conservation and sustainable use. We wish to re-think the concepts, keeping in mind the post-2020 framework and the biodiversity vision towards 2050. What should be our goals, our expectations and what should be our priorities? Can we think outside the box and re-evaluate the interpretations of terms such as growth and prosperity?

How could the Convention on Biological Diversity facilitate this transition by: (a) bringing scientific knowledge to Parties in order to identify transition potentials; (b) supporting the development of national and sectoral transition strategies; (c) synthesizing national ambitions and implementation agendas; and (d) bringing in new methods, processes and expertise.

#### Guiding Questions:

- a) What does transformational change mean in terms of biodiversity action, from the perspective of science and of policy?
- b) How is this translated to the transformations we need to achieve the 2050 biodiversity vision?
- c) How can we foresee/internalise these transformations into global and national policy actions?

10.55 Coffee break [20 minutes]
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### 11.15 ***Session 2: From the current to the future status of biodiversity***

What is the current state of biodiversity? How can we promote the role of integrated assessments and scenarios/models for policy making in the post-2020 process? What can research advance on devising and adapting the pathways? How to bring this into the post-2020 biodiversity discussion? This session will give input to session 4 on framing the post 2020 targets.

#### **Speakers:**

Henrique Miguel Pereira - Scenarios and models from another perspective – Introduction on the role of scenarios and models for pathways towards the 2050 vision, and for the post-2020 biodiversity agenda – 12' minutes

Marcel Kok - How can the scientific community help with evidence and tools for the post-2020 framework? How can the scientific community relay on the work done by CBD and IPBES to identify needs and priorities? – 12' minutes

**Panel discussion (and active involvement of audience)** on role of science for developing and applying scenarios and models for pathways to 2050 [to focus on specific aspects].

**Panel:** *Henrique Miguel Pereira; Marcel Kok; Eiji Tanaka; Bernardo Strassburg*

*The moderator asks panellists to give short statements on the theme of session. A moderated discussion between panel and audience follows, based on the guiding questions of the session.*

#### **Background**

- We now know with certainty that systemic change is necessary to change the current state of biodiversity. Ecological and resilience research shows that current processes in climate and ecosystems that might lead to an acceleration of environmental disruption in the next decades with irreversible change that could lead to catastrophic consequences for life on Earth. Unmitigated economic and societal pressure on the environment makes such tipping points more likely to occur. The embedded nature of currently dominant and unsustainable cultures, structures and practices makes biodiversity conservation challenging. Remediating or softening their negative impacts is not sufficient to reduce the long-term and fundamental risks these impacts pose to societies, let alone improving the state of the environment or creating opportunities for societal well-being in the long-term.
- New assessment methods and expertise are needed for modelling and scenario developments, that take into account interactions and interdependencies between biodiversity, environment and socio-economic pathways, including the assessment of opportunities and risks. Scientists working on scenarios and models and integrated assessments focus on the post-2020 global biodiversity framework, and on long-term strategic directions to the 2050 vision for biodiversity.
- The 2050 biodiversity vision should be supported with new analytical and modelling work informing policies and decisions, and testing them against the range of identified indicators. This session will look into the role of more integrated assessments, and monitoring processes.

#### **Guiding Questions:**

- a) What information can science provide for the current state of biodiversity? What are the key monitoring tools to assess progress in improving its state?
- b) What are the limitations of existing methods and processes science need to overcome (e.g. the need to better integrate interactions and dependencies between the different components of biodiversity and social, environmental and economic drivers of change, especially climate change)?
- c) How can science inform policy through scenarios on what kind of actions are feasible? What does policy need from science in terms of modelling and assessment? How to deal with uncertainty?

13.00 Lunch
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### 14.00 Session 3: Unfolding the 2050 biodiversity vision

Starting from the CBD 2050 vision for biodiversity, how can we translate it into tangible terms regarding science, policy and society in regional and global levels? And after “painting the picture” of the future vision, what are the short and long-term actions that we need to undertake to reach it? Inputs from the speakers will provide an introduction for a participatory back-casting exercise, the results of which will provide input for session 4.

**Speaker:** Bernardo Strassburg - 12' minutes

**Breakout groups** will work on two exercises: a) aiming to make the 2050 biodiversity vision more tangible by describing how this vision will be translated in every day's life; and b) keeping this tangible description of the vision in mind, identify actions which will allow us to reach it.

#### **Background:**

- The 2050 vision aims at “Living in harmony with nature” where “by 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people”. While not expressed in quantitative terms, the elements of the 2050 vision statement provide the essence of a long-term goal for biodiversity. Indeed, the 2050 vision has been interpreted as a 2050 goal for biodiversity in various scenario-building exercises and efforts are under way to provide a more quantitative basis and plausible pathways for achieving such a vision, as discussed below.
- To identify the potential and required efforts for achieving the 2050 vision in conjunction with key human development goals, scientific evidence can support the design of long-term policy, while allowing for innovation and creativity in the development of new types of narratives and strategies. The use of back-casting thinking allows developing the vision in robust terms and identifying potential pathways to reach it. Combining this with modelling enable us to move from the current situation towards a set of specified actions and targets for achieving the vision.
- Pathways consist of different engagement strategies and courses of actions that build on each other, from short-term to long-term actions into broader transformation. Working on pathways allows going beyond the biodiversity conservation community, working across sectors on the practice of qualitative problem analysis and policy-led implementation of solutions. Developing pathways is a way of engaging policy- and decision-makers on which strategies and actions may be compatible with an identified vision.
- Pathways and back-casting enable us to inform discussions on scope and possible content of the post-2020 global biodiversity framework, including on scale and scope of actions necessary to make progress towards 2050.
- In this session we want to explore together the role of back-casting and pathways in the development of new narratives and strategies which can unfold the 2050 vision. This should prepare for the development of different strategies and actions reflecting the engagement of different sectors, types of stakeholders and on multiple scales. Starting from the 2050 vision for biodiversity, how can we translate it into tangible terms regarding science, policy and society at regional and global levels? And after “painting the picture” of the future vision, what are the short and long-term actions that we need to undertake to reach it? The results of this participatory back-casting exercise will provide input for session 4.

#### **Guiding questions:**

- a) Starting with the 2050 vision in mind: How would this vision translate in tangible terms, regarding biodiversity, in everyday life, at the local/regional, international level?
- b) Keeping these tangible interpretations of the 2050 vision in mind, which actions we need to undertake to bring ourselves there?

## 16.00 Coffee break -20 minutes

16.20 **Session 4: Target setting for the post- 2020 framework**

Translating the necessary actions to reach the 2050 biodiversity vision into target areas for the post-2020 framework: How can science help to make progress in the quantification and attribution/ allocation of the targets? How can measurable indicators and actions allow us assessing progress towards these targets (and the 2050 vision)? This session looks closer at key areas for target setting:

- a. Land (protection, retention, restoration)
- b. Oceans
- c. Species
- d. Direct drivers (include which ones)
- e. Indirect drivers (include which ones)

**Speaker:** James Watson: informs on methodologies for target setting – 15' minutes

**Panel:** James Watson, Neville Ash, Carolyn Lundquist, Günter Mitlacher, Roby Biwer.

*The moderator asks panellists to give short statements on the theme of session. The rest of the time will be devoted to work in the break-out groups.*

**Break out groups** will work on how to enable target setting for the post-2020 agenda.

**Background:**

- To support the 2050 biodiversity vision, we need well-defined, ambitious and measurable targets. Science can help making progress in the quantification and attribution/allocation of the targets thanks to new analytical and modelling work on different policy options for governments and different business decisions, and testing them against a range of identified indicators to set milestones for 2030 and 2040.
- Discussions are ongoing whether to develop overall science-based biodiversity targets for 2050 equivalent to the 2°C / 1.5°C temperature rise cap agreed under the Paris Agreement for climate. These targets should express necessity rather than feasibility, and be science-based, succinct, positively framed, bold, and quotable. Success factors, weaknesses, interactions and limits of possible targets, linking CBD, the Paris agreement and SDGs will frame this work.
- Beyond the SMART framing, the session should look into other framework conditions:
  - Existing targets not yet implemented/new commitment targets
  - Specificities between outcome-oriented and process-oriented targets
  - Establishing clear links with the policies necessary to reach the targets, as well as with the 2050 vision and other key global commitments like the SDGs.
  - Beyond any accountability of CBD parties, can the targets be disaggregated for sub-national and local governments and for different types of non-state actors wishing to commit voluntary (specific economic sectors, financial organisations, etc.)?
  - How to maximise synergies and reduce trade-off between different targets?
- This work should build on existing indicators, including those listed in decision XIII/28, additional indicators identified by the Biodiversity Indicators Partnership and the indicators for targets under the Sustainable Development Goals.

**Guiding Questions:**

- a) Development of SMART biodiversity targets and measurable indicators and actions which will allow us assess our progress towards these targets (and the 2050 vision)
- b) What are the best targets from the perspective of policy and science (pro & contra)?

18.15 **Wrap-up: Conclusions from day 1:** EKLIPSE, IUBS, IAI, EC.

**24/11/2018. Day 2: Increasing solutions for restoration (scaling-up nature-based solutions).**

***Which transitions for transformational change? Implementation***

9.00 **Opening: Information on the programme**

Information from relevant sessions of parallel events:

Messages from the summit of Local and Subnational Governments: Ingrid Coetzee, Cities Biodiversity Centre, ICLEI Africa Secretariat

Messages from the Nature and Culture Summit: tbc

Messages from the Sustainable Ocean Day: Joe Appiott, CBD Secretariat

Messages from the Consortium of Scientific Partners on Biodiversity: Ana Maria Hernandez, Humboldt Institute Colombia

### 9.30 **Session 5: Scaling up: Nature-based solutions for restoration agenda and beyond**

This session informs on needs for research and policy setting on restoration to be taken further for giving multiple benefits beyond climate change mitigation, adaptation and biodiversity conservation and restoration. Can such nature-based solutions help achieving across the Sustainable Development Goals? Which challenges, opportunities and unresolved issues exist?

#### **Speakers:**

Judy Fisher - "Introduction of NBS into the CBD agenda." – 12' minutes

Harriet Bulkeley - "Nature-Based Solutions (NBS) for successful transitions regarding social-ecological systems, biodiversity and ecosystem services – priorities for research and policy" – 12' minutes.

**Panel discussion and plenary discussion:** What can science say for scaling-up restoration and connecting it to human needs (CBD restoration action plan and ecosystem-based approaches for climate change and disaster risk reduction)? How can NBS help bringing the biodiversity and climate change agenda together?

**Panel:** Judy Fisher, Harriet Bulkeley, Frédéric Lemaitre, Karin Zaunberger, Luc Bas

*The moderator asks panellists to give short statements on the theme of session. A moderated discussion between panel and audience follows, based on the guiding questions of the session.*

#### **Background**

- We need new research and policy settings which tackle at the same time climate change mitigation, adaptation and biodiversity conservation and restoration. How NBS will support the post-2020 agenda is part of the discussion we want to have with scientists and policy-makers.
- How can NBS also support the restoration agenda? Which use of NBS goes beyond restoration? Which challenges, opportunities and unresolved issues exist?
- The session will also look at the follow-up of the meeting between IPCC and IPBES on climate change and biodiversity in Paris (18/10/18). This meeting highlighted that NBS as "win-win" measures for achieving co-benefits between climate change and biodiversity, and the SDGs.
- One key objective of the *Sharm el-Sheikh to Beijing Action agenda for Nature and People* is to "Inspire and help implement NBS to meet key global challenges". How to implement this?
- How could science contribute to knowledge on NBS, focusing on implementing the post-2020 agenda? Could there be guiding principles? What are the policy needs?

#### **Guiding Questions:**

- a) How can NBS assist restoration actions in achieving our goals towards the 2050 vision? What is the role of science on that and what are the policy needs?
- b) What is the role of NBS in combining the requirements of biodiversity and climate change agenda together? How NBS can contribute/become part of the future perspective?

10.50: Coffee break

### 11.10 **Session 6: Increasing resilient solutions for restoration**

Understanding the need for restoration and using nature-based solutions, including in urban settings, to reach biodiversity targets, on the example of Africa. Which are the recommendations of science for policy makers? What is the role that research should take? How to bring this into the post-2020 biodiversity discussion? What are the options? What can be done?

#### **Speakers:**

Marwa Halmy “Opportunities for avoiding land and ecosystem degradation and for restoration, including in urban areas, and the role of nature-based solutions for enhancing life quality” – 12’ min

Hamdallah Zedan on messages of and reflections on the African summit for science and policy regarding to the role of restoration in the post-2020 agenda – 12’ min

**Panel and plenary discussion** on role of science for scaling-up restoration and connecting it to human needs (linking to the CBD restoration action plan and ecosystem-based approaches for climate change and disaster risk reduction).

**Panel:** Judy Fisher, Omar Defeo, Hamdallah Zedan, Eric Wikramanayake, Jesca Osuna Eriyo

*The moderator asks panellists to give short statements on the theme of session. A moderated discussion between panel and audience follows, based on the guiding questions of the session.*

#### **Background**

- The African Union biodiversity summit ahead of COP focused on avoiding land and ecosystem degradation. The discussions were relevant to the challenge of fast growing urbanisation and on opportunities for restoration and on the need for restoration for an increased resilience in Africa. Such actions provide opportunities for tackling both climate change and biodiversity loss by promoting the development and use of nature-based solutions. Finding resilient solutions for restoration, together with up-scaling, will be the core of the discussion across ecosystems – so that we can contribute to sustainable use and sustainability.
- A conservation approach based on restoration of natural capital could lead to a future vision embracing both protection and development, connecting the biodiversity community with like-minded actors, representing sustainable businesses, local initiatives, and other sectors and stakeholders embarking on sustainability pathways for all terrestrial and marine ecosystems.
- During this session we would like to achieve further understanding of the need for scaling up restoration and the use of nature-based solutions, including in urban settings, to reach biodiversity targets, setting our focus to the discussions coming from Africa. What can science say on how to achieve it? What do policy-makers believe is possible for 2030? What is the role that research should take? How can this be brought into the post-2020 biodiversity discussion? What are the options? What can be done?

#### **Questions to be discussed:**

- a) What can science do to support the scaling-up of restoration, the role of NBS for restoration, and what are the needs of policy regarding that?
- b) How can restoration goals be transformed into SMART targets connected to biodiversity conservation?
- c) How can the input from the African Summit regarding the role of restoration be used in other regions? Can good practices and lessons learned in other regions be applied in Africa?

12.30 Lunch

### 13.30 **Session 7: Uptake of actions towards the 2050 vision**

Understanding the frame in which the targets are set in the post-2020 agenda to prepare for the development of the post-2020 global biodiversity targets. Building on the results of the back-casting exercise of day 1 (sessions 3 and 4), participants will work towards connecting post-2020 targets with the Sustainable Development Goals and discussing challenges and opportunities in that context.

#### **Speakers:**

Jerry Harrison: How can targets and actions enable transitions and transformational change towards the 2050 vision for biodiversity? – 12 minutes

Axel Paulsch: Scientific priorities to support sustainable transformation, linked to the target setting of the post-2020 framework –12 minutes

**Break out groups:** 10-12 people in each group, with groups for uptake of sessions 3, 4, 5, 6.

#### **Background:**

This session should build upon the results from sessions 3 (Unfold the 2050 vision) and 4 (Target setting for the post-2020 frameworks). It should also take the role of NBS (session 5) and the restoration agenda (session 6) for the post-2020 framework into account.

#### **Guiding questions:**

- a) How can these targets and actions enable transitions and transformational change towards the 2050 vision? How can the post-2020 agenda enable the Sustainable Development Goals?
- b) Which incentives to implement restoration actions? Can upscaling NBS make a difference in the uptake of action, because they deliver different benefits at once?
- c) How can we ensure up-take from policy? What are the limitations we need to overcome? Can monitoring tools help with the uptake of actions? Can we identify good practices?

14.40 Coffee break

### 15.00 Session 8: Engaging Society, Science and Policy in transformative change

Discussion on the needs from science in implementing social-ecological transitions. Where should future research focus on? How to engage various stakeholders? What are priorities for research and policy to advance transitions regarding social-ecological systems, biodiversity and benefits from nature?

**Speaker:** Thomas Elmqvist - How can the planetary boundary concept help in identifying actions for transition? – 12' minutes

**Panel and plenary discussion** on how society can be engaged in implementing transitions and on the role of science in implementing social-ecological transitions, through future research priorities.

**Panel:** Thomas Elmqvist, Katia Karousakis, Dicky Simorangkir, Thomas Brooks, Daniel Vincente Ortega

*The moderator asks panellists to give short statements on the theme of session. A moderated discussion between panel and audience follows, based on the guiding questions of the session.*

#### Background

- The actions that are required to foster the desired transitions go beyond biodiversity actions and change the way society functions. The global biodiversity agenda should connect with the targets and processes of other international agreements, like the SDGs and the Paris Climate Agreement.
- Experts argue that we have now entered the fourth industrial revolution, an era characterized by multiple different technologies that are being created at an incredible speed and scale. These new technologies are fusing the physical, digital and biological worlds, impacting all disciplines, economies and industries. This 4th industrial revolution presents a wide range of opportunities, but also risks. Therefore, it is imperative to better understand it, utilize it, and channel it to better prepare societies for the future and to better safeguard the Earth.
- For defining "transition" actions, what can planetary boundaries, the 4th industrial revolution and further concepts tell us at global level, while maintaining biotic integrity at local levels? How can society be engaged in this process?
- The speed of change in technology is at odds with the slow institutional process of change. It is thus essential that the biodiversity community begins to think about how to exploit the opportunities of this revolution when preventing the weaknesses to transform into threats, e.g. how the biodiversity community can engage consumers and citizens to utilize these technologies in a way that promotes sustainability transitions?
- The biodiversity regime should engage more directly with societal systems that determine how natural resources are used and how their use implicates biodiversity and ecosystems, for example in agriculture, fisheries, forestry, tourism, energy, mining and infrastructure, health and manufacturing, all of which are sectors in which biodiversity needs to be mainstreamed as per the decisions of the Conference of the Parties to the Convention. Additionally, how can economic, financial and ecological policies and actions be designed to place biodiversity at the center of the development paradigm as a key natural asset?

#### Questions to be discussed

- a) Discuss how society can be engaged in this transition process for the biodiversity agenda?
- b) How can science inform progress? Could we look for impacts in biodiversity? At which pace? What are the tangible, future research priorities we need to focus on to achieve the necessary transitions?
- c) Discussion on the role of science in implementing and supporting social-ecological transitions, through future research priorities: which requests do policy makers have towards researchers? And which requests can researchers tackle, and how?

## 16.10: Coffee break

16.30: ***Synthesis: Wrap-up and next steps***

*EKLIPSE with panel from IUBS, EC, IAI, CBD secretariat: Meeting conclusions and recommendations suggested for the post-2020 process.*

The facilitator will provide a 15-minute presentation, summarizing the conclusions of the sessions of the Forum, with particular emphasis on the work of the groups, in two blocks (for day 1 and for day 2). Participants will be invited to give additional inputs from the panel and the audience for the final refinement/structuring of these conclusions. The panel members will be asked to give their opinion on the development and outputs of the forum. The facilitator will invite comments and inputs from the audience on the overall setting of the meeting and the potential for the development of future similar discussions.

Two interventions will give an outlook on possible follow-up actions and future use on the outputs of this Science Forum.

**Speakers:**

Ana Maria Hernandez, Humboldt Institute, Colombia for The Consortium of Scientific Partners on Biodiversity

Andreas Schei, Norwegian Environment Institute, organising the upcoming 9<sup>th</sup> Trondheim Conference

*Participants will be asked for their further suggestions.*

*In closing this session, participants will also be asked whether they agree on the messages this Science Forum gives to the COP and to the further process on discussion the post-2020 agenda.*

18.00 ***Closing panel***

Sameh H. Soror, Foreign Secretary & Supervisor of Scientific and Cultural Relations Egypt, Academy of Scientific Research and Technology (ASRT): Reflection on the role of science towards policy

COP presidency: Moustafa Fouda, Egyptian Presidency

**Suggested references (this list is not exhaustive)****General and session 1**

**Recommendation SBSTTA-XXI/1:** Scenarios for the 2050 Vision for Biodiversity. This SBSTTA recommendation invites scientists working on scenarios and related assessments to focus on relevant issues for the development of the post-2020 global biodiversity framework, and on long-term strategic directions to the 2050 vision for biodiversity. <https://www.cbd.int/recommendations/sbstta/?m=sbstta-21>

CBD Information on the **preparation of the post-2020 global biodiversity framework**. This includes submissions from Parties, other Governments, relevant organizations and indigenous peoples and local communities on the preparations for the Post-2020 Biodiversity Framework, as well as results of the Bogis-Bossey Dialogues for Biodiversity Transformation, and the CBD Seminar on Transformational Change for the Biodiversity Agenda. <https://www.cbd.int/post2020/>

**IPBES Summaries for policymakers** are available on <https://www.ipbes.net/document-library-categories/assessment-reports-and-outputs>

**CBD/SBSTTA/22/INF/31** Effective use of knowledge in developing the post-2020 global biodiversity framework (Framing the Future for Biodiversity: Effective use of knowledge in developing a post-2020 global biodiversity agenda. Report of the meeting of the Cambridge Conservation Initiative). <https://www.cbd.int/meetings/SBSTTA-22>

**Session 2**

**[Aiming higher to bend the curve of biodiversity loss \(2018\)](#)**, Mace, G. M., Barrett, M. Burgess, N. D., Cornell, S.E., Freeman, R., Grooten, M., Purvis, A. Nature Sustainability DOI: 10.1038/s41893-018-0130-0

The Bending The Curve initiative set out to advance quantitative modelling techniques towards ambitious scenarios for biodiversity: **Towards pathways bending the curve of terrestrial biodiversity trends within the 21st century**. Leclere D, Obersteiner M, Alkemade R, Almond R, Barrett M, Bunting G, Burgess N, Butchart S, et al. (2018).

<http://pure.iiasa.ac.at/15241>

**WWF Living Planet Report 2018** <https://www.worldwildlife.org/pages/living-planet-report-2018>

**Session 3 and 4**

**How Sectors Can Contribute to Sustainable Use and Conservation of Biodiversity (2014)**. PBL Netherlands Environmental Assessment Agency Secretariat of the Convention on Biological Diversity, Montreal. **CBD Technical Series No. 79** available at <https://www.cbd.int/doc/publications/cbd-ts-79-en.pdf> (Coordinating Authors Marcel Kok, Rob Alkemade)

**Investments to reverse biodiversity loss are economically beneficial** (2017), Sumaila, R. *et al.* In: Current Opinion in Environmental Sustainability 29: 82-88. <https://doi.org/10.1016/j.cosust.2018.01.007>)

**IPBES Guide on production and integration of assessments from and across all scales** <https://www.ipbes.net/guide-production-assessments>

**CBD decision XIII/28, Indicators for the Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets:** additional indicators identified by the Biodiversity Indicators Partnership and the indicators for targets under the Sustainable Development Goals.

## Session 5

**Recommendation SBSTTA 22/7 on Biodiversity and climate change:** ecosystem-based approaches to climate change adaptation and disaster risk reduction <https://www.cbd.int/recommendations/sbstta/?m=sbstta-22>

**CBD/CCB/WS/2018/2/3 Report of the Workshop on Biodiversity and Climate Change:** integrated science for coherent policy with UNFCCC/IPCC and CBD/IPBES: this meeting highlighted that NBS can be “win-win” measures for achieving co-benefits between climate change and biodiversity, and the Sustainable Development Goals.

**UN Biodiversity Conference 2018, Sharm El-Sheikh, Egypt Announcement:** Sharm El-Sheikh to Beijing Action Agenda for Nature and People: One key objective of the *Sharm el-Sheikh to Beijing Action agenda for Nature and People* is to “Inspire and help implement nature-based solutions to meet key global challenges”.

## Session 6:

**CBD decision XIII/5 Ecosystem restoration: short-term action plan**

**IPBES Summary for Policymakers** of the Assessment Report on Land Degradation and Restoration

**IPBES Summary for policymakers** of the regional and subregional assessment of biodiversity and ecosystem services for Africa

The African Ministerial Summit on Biodiversity on 13/11/18 under the theme “Land and ecosystem degradation and restoration: Priorities for increased investments in biodiversity and resilience in Africa”, adopted, among others, the African Ministerial Declaration on Biodiversity and the Pan-African Action Agenda on Ecosystem Restoration for Increased Resilience. <https://www.cbd.int/conferences/2018/cop-14-afr-hls>

## Session 7:

IPBES reports assessing Aichi targets vs SDGs. <https://www.ipbes.net/assessment-reports>

## Session 8:

The 4<sup>th</sup> Industrial Revolution, by the World Economic Forum: <https://www.weforum.org/about/the-fourth-industrial-revolution-by-klaus-schwab>