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SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL AND TECHNOLOGICAL ADVICE
SUBSIDIARY BODY ON IMPLEMENTATION
Special virtual session on biodiversity, One Health and COVID-19
Online, 15-16 December 2020

DISCUSSION NOTE FOR THE SPECIAL VIRTUAL SESSION ON BIODIVERSITY, ONE HEALTH AND THE RESPONSE TO COVID-19

Note by the Executive Secretary

INTRODUCTION

1. The twenty-fourth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice and the third meeting of the Subsidiary Body on Implementation are due to be held in 2021, having been rescheduled from May 2020 to August 2020 and then to November 2020, due to the COVID-19 pandemic. In this context, and with a view to maintaining momentum towards the fifteenth meeting of the Conference of the Parties, and facilitating preparations for the meetings of the subsidiary bodies, a special virtual session of the Subsidiary Body on Scientific, Technical and Technological Advice and the Subsidiary Body on Implementation are being scheduled for 15 to 16 December 2020, as communicated on 19 November 2020 in notification 2020-091.

2. The special virtual session will address the interlinkages between biodiversity and health, the One Health approach,[1] and the response to COVID-19 pandemic. The Executive Secretary has prepared this note to provide relevant background information with the view to informing the discussions at the special session.

3. Section I of this note surveys relevant activities under the Convention regarding health and biodiversity, including recent activities undertaken by the Secretariat in the context of the COVID-19 pandemic. Section 2 provides a brief overview of information on the links between biodiversity and human heath, including pandemics. Section 3 considers the economic stimulus and recovery measures being taken in response to the impacts of the pandemic and provides suggestions for the integration of biodiversity considerations into such stimulus and recovery measures. Finally, section IV suggests some key points for discussion.

4. This note draws heavily on a number of recent reports including the report of a workshop convened by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and studies prepared by the Organisation for Economic Co-operation and Development (OECD) and the United Nations Environment programme (UNEP) as well as the Convention on Biological Diversity. The annex to this note provides a guide to these and other selected information sources. Further technical information on biodiversity and pandemics is provided in CBD/SBSTTA-SBI-SS/2/INF/1.

[1] One Health has been broadly defined by the World Health Organization as "an approach to designing and implementing programmes, policies, legislation and research in which multiple sectors communicate and work together to achieve better public health outcomes." For further information see http://www.who.int/features/qa/one-health/en/. The One Health approach is considered as an integrated approach consistent with the Ecosystem Approach (decision XIII/6, preamble), and among other holistic approaches (decision 14/4, para 2).

I. RELEVANT ACTIVITIES UNDER THE CONVENTION

5. The Conference of the Parties has addressed the interlinkages between biodiversity and human health in its decisions based on a joint programme of work between the Convention on Biological Diversity and the World Health Organization (WHO).

6. The World Health Organization and the Convention on Biological Diversity co-published in 2015 a comprehensive state of knowledge review - *Connecting Global Priorities: Biodiversity and Human Health*.[2] The Conference of the Parties adopted a comprehensive decision (XIII/6) on biodiversity and human health, taking note of the *State of Knowledge Review* and its summary and key messages, and providing information and guidance to Parties and other Governments to promote the understanding of health-biodiversity linkages with a view to maximizing health benefits, addressing trade-offs, and addressing common drivers for health risks and biodiversity loss.

7. The Convention has developed guidance on integrating biodiversity considerations into One Health approaches. The purpose of this guidance is to assist Parties to the Convention and other relevant stakeholders in the process of developing policies, plans, programmes and research aligned with One Health approaches, with more balanced consideration of biodiversity and ecosystem dynamics and management. The Conference of the Parties welcomed this guidance in decision 14/4 and encouraged Parties, and invited other Governments and relevant organizations, to make use of the guidance, in accordance with national circumstances.

8. This work is supported by an Inter-Agency Liaison Group on Biodiversity and Health established pursuant to a memorandum of cooperation between the World Health Organization and the Convention on Biological Diversity.[3] The Convention and the World Health Organization have also organized a series of capacity-building workshops on the interlinkages between biodiversity and human health in the Americas, Africa, Europe and South-Est Asia. At its twenty-fourth meeting, the Subsidiary Body on Scientific, Technical and Technological Advice will consider the development of a global plan of action on biodiversity and health.

9. The work done under the Convention to date, including a number of the elements of guidance contained in decisions XIII/6 and 14/4, is highly relevant in the current context of the COVID-19 pandemic and the development of economic stimulus measures and programmes to "build back better" as well as for the development of the post-2020 global biodiversity framework.

10. The Secretariat has also undertaken a number of activities specifically in the context of the COVID-19 pandemic.

11. Building upon the Convention's ongoing programme of work on biodiversity and health, there have been further efforts to understanding the linkages between biodiversity and health and how the drivers of biodiversity loss increase the risk of zoonotic disease emergence. For example, in cooperation with other organizations, the Secretariat contributed to the following publications (see the annex for details):

(a) The joint WHO-CBD *Questions and Answers on Conservation, Biodiversity and Infectious Disease*;

(b) The report of the United Nations Environment Programme and International Livestock Research Institute: *Preventing the Next Pandemic: Zoonotic diseases and how to break the chain of transmission*;

(c) The Joint Statement of the Collaborative Partnership for Sustainable Wildlife Management (CPW): *The COVID-19 challenge: Zoonotic disease and wildlife;*

(d) The report on a workshop on *Biodiversity and Pandemics* convened by IPBES.

[2] https://www.cbd.int/health/SOK-biodiversity-en.pdf

[3] https://www.cbd.int/doc/agreements/agmt-who-2015-07-23-mou-en.pdf

12. The fifth edition of the *Global Biodiversity Outlook* (GBO-5) launched in September 2020 includes a section on "The Biodiversity-inclusive One Health Transition" – one of eight areas of transition that may be needed to achieve living in harmony with nature.

13. The Secretariat has convened, facilitated or supported number of joint events, statements and other products with other organizations. For example:

(a) The Secretariat chairs the Collaborative Partnership for Sustainable Wildlife Management which facilitated the development of the above-mentioned statement;

(b) The Secretariat of the Convention and WHO co-chair the Inter-Agency Liaison Group on Biodiversity and Health which, at its meeting in May 2020, addressed biodiversity and health linkages in the context of COVID-19 and called for the strengthening of the environmental dimensions of One Health approaches;

(c) The Secretariat has contributed to United Nations system-wide strategies in response to COVID-19, and to ongoing discussions to strengthen the role of UNEP, alongside the Food and Agriculture Organization of the United Nations (FAO), the World Organisation for Animal Health (OIE) and WHO in their collaborative support to One Health, highlighting the importance of a biodiversity-inclusive and holistic approach;

(d) The Secretariat supported the Presidency of the fifteenth meeting of the Conference of the Parties in hosting a Webinar conference "Building back better: protecting biodiversity, combating land degradation and mitigating climate change to reduce the risks of future pandemics";

(e) The Executive Secretary has published or co-published a number of op-eds in various media and has contributed to a number of other news articles.

14. The Secretariat has incorporated issues related to biodiversity and pandemics including COVID-19 and to linkages with health more generally in the development of documents for upcoming meetings of the Subsidiary Body on Scientific, Technical and Technological Advice and of the Subsidiary Body on Implementation and for the development of the post-2020 global biodiversity framework.

15. The Secretariat continues its close cooperation with WHO with respect to the implementation of the Convention, the Nagoya Protocol and the Pandemic Influenza Preparedness Framework for the Sharing of Influenza Viruses and Access to Vaccines and Other Benefits.[4] As part of this collaboration, a questions-and-answers document was jointly developed to address questions regarding the sharing of pathogens in the context of implementation of the Nagoya Protocol.[5]

16. Finally, the Secretariat has adapted its working methods in the light of the pandemic, including by exploring virtual technologies that allow for interactive events and meetings, and opportunities for training for staff and delegates and other meeting participants, to maintain momentum and to develop familiarity, and improve participation through the use of new technologies.

II. INTERLINKAGES BETWEEN BIODIVERSITY AND HUMAN HEALTH INCLUDING PANDEMIC RISK

17. Biodiversity and human health are closely interlinked across a wide range of scales, from the planetary to that of individual human microbiota.[6] Ecosystems and biodiversity help regulate the planet's material and energy flows, and its responses to abrupt and gradual change. Ecosystems, including food production systems, depend on a great diversity of organisms to provide the necessary services for life, including food, clean air, the quantity and quality of fresh water, medicines, spiritual and cultural values, climate regulation, pest and disease regulation, and disaster risk reduction, each of which are fundamental

[4] https://apps.who.int/gb/ebwha/pdf_files/WHA64/A64_8-en.pdf

[5]: See CBD/WHO (2018) Refer to the annex for full citation.

[6] See WHO/CBD (2015) Refer to the annex for full citation. Please also refer to CBD/SBSTTA-SBI-SS/2/INF/1 for further references to the scientific literature.

for human health, both mental and physical. Human microbiota – the symbiotic microbial communities present in the gut, respiratory and urogenital tracts and on skin – help regulate human health at an individual level, contributing to nutrition, aiding immune system function and preventing infection. Biodiversity is thus a key environmental determinant of human health, and the conservation and sustainable use of biodiversity can benefit human health by maintaining ecosystem services and options for the future. Its loss jeopardizes the achievement of many of the Sustainable Development Goals.[7]

18. The COVID-19 pandemic has further highlighted the importance of the relationship between people and nature. While the relationship between biodiversity and infectious disease is complex, it is clear that the loss and degradation of biodiversity undermines the web of life and increases the risk of disease spillover from wildlife to people.

19. The recent report of the Workshop on Biodiversity and Pandemics convened by IPBES,[8] in its Executive Summary, noted that "Pandemics have their origins in diverse microbes carried by animal reservoirs, but their emergence is entirely driven by human activities. The underlying causes of pandemics are the same global environmental changes that drive biodiversity loss and climate change. These include land-use change, agricultural expansion and intensification, and wildlife trade and consumption. These drivers of change bring wildlife, livestock, and people into closer contact, allowing animal microbes to move into people and lead to infections, sometimes outbreaks, and more rarely into true pandemics that spread through road networks, urban centers and global travel, and trade routes. The recent exponential rise in consumption and trade, driven by demand in developed countries and emerging economies, as well as by demographic pressure, has led to a series of emerging diseases that originate mainly in biodiverse developing countries, driven by global consumption patterns." The report identifies a number of policy options to reduce the role of land-use change and the wildlife trade in pandemic emergence, among other conclusions.

20. A number of issues arise from the conclusions of the IPBES workshop report, as well as other recent studies and reports, of relevance for work under the Convention including the development and implementation of the post-2020 global biodiversity framework:

(a) The links between pandemic risk and biodiversity *add further weight to the rationale for addressing the drivers of biodiversity loss* since these are largely common with the drivers of increased pandemic risk. In particular, efforts to reduce deforestation and the loss, degradation and fragmentation of habitats in general, and encroachment of people and livestock into biodiverse areas, are likely to reduce pandemic risk;

(b) More specifically, there is *a need to integrate human health considerations into land-use planning*. This may involve, for example, assessing how habitat conservation measures can reduce pandemic risks, identifying trade-offs where disease spillover risk may increase, and developing and incorporating pandemic and emerging disease risk health impact assessments in all major development and land-use projects. Ecological restoration, which is critical for conservation, climate adaptation and provision of ecosystem services, should integrate health considerations to avoid potential increased disease risk resulting from increased human-livestock-wildlife contact;

(c) There is also *a need to improve the regulation and management of the use of, and trade in, wildlife*, such that it is safe (from a human health perspective) as well as being legal and sustainable. This may involve, for example, reducing or removing species in wildlife trade that are high-risk for disease emergence, improving biosecurity and sanitation in markets and conducting disease surveillance of wildlife, and of wildlife hunters, farmers, and traders, as well enhancing law enforcement on all aspects of the illegal wildlife trade;

[7] IPBES (2019): Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (editors). IPBES secretariat, Bonn, Germany. https://ipbes.net/global-assessment; SCBD (2020) *Global Biodiversity Outlook*.

[8] IPBES (2020) Report of the Workshop on Biodiversity and Pandemics. See annex for full reference.

(d) The risk of emerging diseases and pandemics also reinforces the *need to reform food and agricultural systems, particularly the management of livestock*;

(e) *Pandemic risk could be significantly lowered by promoting responsible consumption and reducing unsustainable consumption* of commodities from emerging disease hotspots, and of wildlife and wildlife-derived products, as well as by reducing excessive consumption of meat from livestock production;

(f) In addressing the linkages between the management of biodiversity and pandemic risk it is also important to *keep in mind that there are multiple dimensions to health and multiple interlinkages between biodiversity and health*. Many people are dependent on the sustainable use of biodiversity and benefit from contact with nature. While this is especially true for indigenous peoples and local communities, it is not limited to these groups;

(g) Accordingly, *an inclusive, transdisciplinary and cross-sectoral One Health approach is required.* Among other things this requires strengthening of the environmental dimensions of the approach (for example by integrating the work of UNEP with the existing tripartite of FAO, OIE and WHO). The IPBES workshop report further suggests the establishment of an intergovernmental panel;

(h) *Reducing disease risk through the conservation and sustainable use of biodiversity is highly cost-effective*. Pandemics and other emerging zoonoses cause widespread human suffering, and likely more than a trillion dollars in economic damages annually (with COVID-19 already costing tens of trillions). On the other hand, global strategies to prevent pandemics based on reducing wildlife trade and land-use change, and increasing One Health surveillance are estimated to cost one or two orders of magnitude less than the damages pandemics produce. This provides a strong economic incentive for transformative change to reduce the risk of pandemics;

(i) *The fair and equitable access and benefit-sharing derived from genetic resources, including pathogens, remains important* as do continued efforts to ensure rapid sharing of microbial samples to facilitate vaccine and therapeutic development.Vaccine and therapeutic development rely on access to the diversity of organisms, molecules and genes found in nature. Many important therapeutics are derived from indigenous knowledge and traditional medicine;

(j) *Attention is also needed to address the short-term impacts of the pandemic on biodiversity.* Introduction of travel restrictions to reduce COVID-19 spread have severely reduced ecotourism and related income with implications for the budgets of conservation agencies. Some programmes intended to control pandemics (often under emergency measures) are of doubtful effectiveness and can have significant negative implications for biodiversity, (e.g. culling of wildlife reservoirs, release of insecticides);

(k) *Increased attention is needed to wildlife health* in strategies for both biodiversity and health since diseases are also a significant threat to endangered wild animal populations;[9]

(l) *The COVID-19 pandemic highlights the urgency of addressing the biodiversity crisis* alongside the climate crisis, and of the need for transformative change.

21. The issues identified above are largely reflected in the fifth edition of the *Global Biodiversity Outlook* which outlines *a biodiversity-inclusive One Health transition* as one of a series of fundamental shifts necessary for a realignment of people's relationship with nature towards sustainability. To some extent, they are also reflected in decisions XIII/6 and 14/4 of the Conference of the Parties. For example, decision XIII/6 notes that consideration of health-biodiversity linkages could contribute to improving many aspects of human health and reinforces the rationale for the conservation and sustainable development of biodiversity. It invites Parties and others, among other things, to facilitate dialogue between health and environment agencies, to strengthen monitoring capacities to anticipate, prepare for and respond to public health threats from ecosystem change, to consider health-biodiversity linkages in various health and

[9] Machalaba et al (2020) Urgent needs for Global Wildlife Health. EcoHelth Alliance. https://www.ecohealthalliance.org/wildlife-urgent-needs

environmental assessments, and to consider the need to strengthen capacity to address health-biodiversity linkages to support preventative approaches to health.

22. Parties to the Convention and others may wish to take these issues into account further in the development of the post-2020 global biodiversity framework as well as in the global plan of action on health and biodiversity to be considered by the Subsidiary Body on Scientific, technical and technological Advice at its twenty-fourth meeting.

III. INTEGRATION OF BIODIVERSITY CONSIDERATIONS IN ECONOMIC RECOVERY PLANS AND POLICIES

23. In addition to its direct impacts on human health, the COVID-19 pandemic and the necessary measures taken to reduce its spread have led to major social and economic impacts including losses of jobs and revenue. Accordingly, governments are implementing measures to protect jobs and incomes and to promote economic stimulus and recovery. Given the links between biodiversity loss and pandemic risk, as well as the importance of biodiversity for sustainable development more generally, it is imperative that such measures address the common drivers of biodiversity loss and pandemic risk and contribute to the conservation and sustainable use of biodiversity.[10]

24. Indeed, WHO's "Manifesto for a healthy recovery from COVID-19" includes "Protect and preserve the source of human health: Nature" as its first prescription.[11] As part of its COVID-19 response, UNEP is promoting building back an inclusive green economy, which expands options and choices for national economies, using targeted and appropriate fiscal and social protection policies.

25. There are many opportunities to integrate biodiversity into stimulus and recovery measures; some examples are set out in paragraph 27 below. According to a recent OECD analysis, a number of countries have already integrated biodiversity measures in their COVID-19 policy response, such as: changes to regulations on wildlife trade to protect human health, or job programmes focussed on ecosystem restoration, sustainable forest management and invasive species control.

26. However, analysis of stimulus and recovery measures to date shows that the volume of spending committed as part of the economic recovery from the COVID-19 crisis that is potentially harmful to biodiversity outweighs the volume of spending beneficial to biodiversity in nearly all countries examined. Only three of the 17 countries analysed are estimated to be net-positive in environmental terms,[12] and even among these, much less attention has been given to addressing biodiversity loss as compared to climate change. It would appear that there is an overall tendency to introduce stimulus measures that threaten to drive further biodiversity loss, for example by weakening environmental regulations or increasing harmful subsidies, ostensibly for the sake of short-term economic growth. Such an approach may be counterproductive in the long term since the further loss and degradation of biodiversity will likely increase pandemic risk and jeopardize achievement of most of the Sustainable Development Goals.

27. There are many opportunities for responses to COVID-19, including both short term stimulus measures and longer-term approaches to 'build back better' to contribute to sustainable development, and reduce the risk of future pandemics. Recent studies have identified a range of options to integrate biodiversity considerations into such stimulus and recovery measures. These include the following:[13]

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[10] Settele, Díaz, Brondizio and Daszak (2020) COVID-19 Stimulus Measures Must Save Lives, Protect Livelihoods, and Safeguard Nature to Reduce the Risk of Future Pandemics. IPBES Expert Guest Article. https:// ipbes.net/covid19stimulus

[11] https://www.who.int/docs/default-source/climate-change/who-manifesto-for-a-healthy-and-green-post-covid-recovery.pdf

[12] https://www.vivideconomics.com/casestudy/integrating-climate-change-and-biodiversity-into-the-response-to-covid-19-green-employment-and-growth/

[13] The following list draws in particular on OECD (2020) and McElwee et al (2020). Refer to the annex for full citation. See also: Global Goal for Nature Group (2020). "COVID-19 Response and Recovery: Nature-Based Solutions for People, Planet and Prosperity." https://www.wri.org/news/2020/10/statement-covid-19-response-and-recovery-nature-based-solutions-people-planet-prosperity

(a) *Maintain and strengthen regulations on land use, wildlife trade and pollution, and ensure that they are effectively enforced*. While the loosening of environmental regulation with a view to speeding up economic recovery may seem politically convenient, over a longer term it would likely be counterproductive given the links between biodiversity loss and pandemic risk. Indeed, such links provide a powerful case for tightening of environmental regulation;

(b) *Ensure that COVID-19 economic recovery measures contribute to and do not compromise biodiversity.* There are a number of options that governments may wish to consider to ensure that public financial support for stimulus and recovery measures is positive for biodiversity. These may include:

(i) Attaching environmental conditionality to bailouts of companies to drive sustainability improvements, particularly for bailouts in sectors with a large biodiversity footprint such as agriculture, energy and industry;

(ii) Screening (*ex ante*) and monitor (*ex post*) stimulus measures for their biodiversity impacts to ensure they are aligned with long-term policy goals for sustainability;

(iii) Setting biodiversity spending targets for COVID-19 stimulus measures and recovery plans. Some Parties have set targets for recovery measures to contribute to climate goals; similar targets could be envisaged for biodiversity goals;

(iv) Employing public procurement to support companies and producers that meet biodiversity criteria;

(v) Employing fiscal policies (e.g. ecological fiscal transfers) to reward biodiversity positive outcomes when financing subnational governments to balance their budgets.

(c) *Promote jobs and income support for biodiversity conservation, sustainable use and restoration to stimulate economic recovery.* Activities such as ecosystem restoration, reforestation, invasive alien species management and environmental monitoring and enforcement tend to be labour intensive and quick to implement, because worker-training requirements are relatively low and projects often have minimal planning and procurement requirements. Investing in biodiversity thus creates immediate job opportunities. Basic income and cash transfers could also be used to support conservation;

(d) *Maintain or enhance support for developing countries to safeguard their biodiversity*. Aid finance is needed both in the short term (especially in the light of reduced revenues from nature-based tourism) and in the longer term to scale up efforts to tackle deforestation and other biodiversity loss and illegal wildlife trade and thereby reduce pandemic risk;

(e) *Improve incentives for biodiversity conservation:*

(i) Reform subsidies harmful to biodiversity. Subsidies that are harmful to biodiversity could be redirected to activities that have larger socioeconomic benefits and positive impacts on biodiversity. The link between biodiversity and pandemic risks provides an additional rationale for such as shift;

(ii) Maintain or increase taxes on activities that harm biodiversity. Revenue from biodiversity-relevant taxes and other environment-relevant taxes could be re-directed towards green stimulus measures or used to reduce budget deficits.

(f) *Engage businesses and the finance sector for a biodiversity-positive recovery:*

(i) Require or encourage disclosure by companies of impacts and dependencies on biodiversity and to integrate biodiversity considerations across all areas of business, including risk management;

(ii) Require or encourage national central banks and all public development banks to reorient their strategies, investment patterns, activities and operating modalities to contribute to sustainable development including the conservation and sustainable development.

(g) *Leverage behavioural change towards sustainable consumption*. There may be an opportunity to leverage this moment to promote transformative change. For example, the pandemic has led many people to question what is truly ‘‘essential’’ and this may have shifted what is regarded as necessary and desirable for a dignified and good quality of life. Governments may also consider moving from indicators such as gross national income to more inclusive measures of progress;

28. Some of these approaches would need to be implemented in the short term to avoid negative impacts of all response measures (e.g. *(a), (b), (d)*) and to leverage biodiversity-positive outcomes from short-term stimulus measures (e.g. *(c)*). Others might be implemented over the medium to longer term (e.g. *(f), (g), (h)*). With a view to promoting a *just transition*, attention will be needed to ensure that measures contribute to reducing inequalities.

29. As appropriate, these measures may be reflected in, or supported by, the post-2020 global biodiversity framework.

IV. SUGGESTED KEY POINTS FOR DISCUSSION

30. Parties and observers at the special session may wish to address the following questions, among others:

(a) How can the Convention on Biological Diversity further contribute to an inclusive, transdisciplinary and cross-sectoral approach to One Health that reflects the full range of biodiversity-health linkages?

(b) How can the Convention on Biological Diversity contribute to ensuring that responses to COVID-19, including both short-term stimulus measures and longer-term approaches to ‘build back better’, contribute to the conservation and sustainable use of biodiversity, bearing in mind that such stimulus and recovery measures are already being designed and implemented?

(c) How should the interlinkages between biodiversity, health and pandemic risk be reflected in the post-2020 global biodiversity framework?

Annex

GUIDE TO SELECTED INFORMATION RESOURCES

WHO/CBD (2015) Connecting Global Priorities: Biodiversity and Human Health. A state of Knowledge review

The report examines the multiple ways biodiversity and health are interlinked and highlights the common drivers of biodiversity loss and ill-health. It explores how biodiversity contributes to clear air and water, food and nutrition, medicines and the prevention of infectious and non-communicable diseases. It also discusses how biodiversity and health interplays with climate change, disaster risk reduction and consumption patterns. Finally, it outlines tools and ways forward of integrating biodiversity and health considerations in policy and practice. The report brings together knowledge from over 100 experts working across several scientific disciplines, including public health, conservation, agriculture, epidemiology, development and others.

Summary of key messages: https://www.cbd.int/health/summary-state-knowledge-review-en.pdf
Full report: https://www.who.int/globalchange/publications/biodiversity-human-health/en/

CBD (2018) Guidance on Integrating Biodiversity Considerations into One Health Approaches

The purpose of this Guidance is to assist Parties to the Convention, and other relevant stakeholders, in the process of developing policies, plans, programmes and research aligned with One Health approaches, with more balanced consideration of biodiversity and ecosystem dynamics and management. The Conference of the Parties welcomed this guidance in decision 14/4 and encouraged Parties, and invited other Governments and relevant organizations to make use of the guidance, in accordance with national circumstances.

https://www.cbd.int/doc/c/8e34/8c61/a535d23833e68906c8c7551a/sbstta-21-09-en.pdf

WHO/CBD (2020) Biodiversity and Infectious Diseases. Questions and answers

This contains information on the links between biodiversity, health and infectious diseases in question and answers format.

https://www.cbd.int/health/doc/qa-infectiousDiseases-who.pdf

CBD/WHO (2018) Implementation of the Nagoya Protocol in the context of human and animal health, and food safety: Questions and answers

These questions and answers were developed to answer questions received regarding the sharing of pathogens in the context of implementation of the Nagoya Protocol.

https://absch.cbd.int/api/v2013/documents/612E94B5-D97A-0B5D-8E5A-40A991E29087/attachments/QA_NP_Public_Health.pdf

UNEP/ILRC (2020). Preventing the Next Pandemic: Zoonotic diseases and how to break the chain of transmission. Nairobi, Kenya

This report provides an overview of emerging infectious diseases including zoonoses, with a focus on coronaviruses and examines the linkages between habitat loss, agriculture, the trade and use of wildlife, and the emergence of novel zoonoses. It provides examples of the application of the One Health approach and related policy response options that can be implemented by governments, civil society and the business sector in their efforts to tackle the drivers of zoonotic diseases with the ultimate goal to minimize the risk of future zoonotic disease outbreaks.

https://wedocs.unep.org/bitstream/handle/20.500.11822/32316/ZP.pdf

CBD (2020) The fifth edition of the *Global Biodiversity Outlook*

GBO-5 highlights that biodiversity is foundational to the 2030 Agenda and that the ongoing loss and degradation of biodiversity jeopardizes achievement of many of the Sustainable Development Goals. The report identifies a number of transitions necessary to achieve the 2050 Vision of living in harmony with nature. It highlights a biodiversity-inclusive One Health transition as one of a series of such shifts necessary for a realignment of people's relationship with nature towards sustainability. Key components of the transition include to (i) reduce disease risk by conserving and restoring ecosystems; (ii) promote sustainable, legal and safe use of wildlife; (ii) promote sustainable and safe agriculture, including crop and livestock production and aquaculture; (iv) create healthy cities and landscapes; and (v) promote healthy diets as a component of sustainable consumption.
www.cbd.int/gbo5

IPBES (2020). Report of the Workshop on Biodiversity and Pandemics (by Peter Daszak et al)

The report analyses: (a) how the relationship between people and biodiversity underpins disease emergence and provides opportunities for pandemic prevention, control and response measures; (b) land use and climate change as drivers of pandemic risk and biodiversity loss; (c) links between the wildlife trade, biodiversity and pandemics; and (d) how controlling pandemics relies on, and affects, biodiversity. It also identifies a number of policy options to foster transformative change towards preventing pandemics including policies to reduce the role of land-use change and the wildlife trade in pandemic emergence.

The Workshop was convened in support of the scoping process for a thematic assessment of the interlinkages among biodiversity, water, food and health in the context of climate change. The workshop report and the recommendations and conclusions contained therein have not been reviewed, endorsed or approved by the IPBES Plenary.

www.ipbes.net/pandemics

FAO/CPW (2020) The COVID-19 challenge: Zoonotic diseases and wildlife

This joint statement by the fifteen members of the Collaborative Partnership on Sustainable Wildlife Management sets out four guiding principles to reduce risk from zoonotic diseases and build more collaborative approaches in human health and wildlife management: (1) recognize the importance of the use of wildlife for many communities, including indigenous peoples and local communities, in policy responses; (2) maintain and restore healthy and resilient ecosystems to reduce risks of zoonotic spillovers and future pandemics; (3) persecution including killing of wild animals suspected of transmitting diseases will not address the causes of the emergence or spread of zoonotic diseases; (4) regulate, manage and monitor harvesting, trade and use of wildlife to ensure it is safe, sustainable and legal. The statement also promotes a nature-based stimulus packages for a greener, more resilient future through an inclusive One Health approach.

https://doi.org/10.4060/cb1163en

OECD (2020) *Biodiversity and the Economic Response to COVID-19: Ensuring a green and resilient recovery*. OECD Policy Briefs, 28 September 2020

This Policy Brief focuses on the vital role of biodiversity for human life and the importance of integrating biodiversity considerations into the recovery from the COVID-19 crisis. The Brief first outlines how biodiversity loss is a key driver of emerging infectious diseases and poses a variety of other growing risks to businesses, society and the global economy. Investing in the conservation, sustainable use and restoration of biodiversity can help to address these risks, while providing jobs, business opportunities and other benefits to society. The Brief then examines how governments are factoring biodiversity into their stimulus measures and recovery plans in practice, highlighting both concerning trends and best practices. The Brief concludes with policy recommendations on how governments can better integrate biodiversity into their COVID-19 stimulus measures and broader recovery efforts.

http://www.oecd.org/coronavirus/policy-responses/biodiversity-and-the-economic-response-to-covid-19-ensuring-a-green-and-resilient-recovery-d98b5a09/

McElwee et al (2020) *Ensuring a Post-COVID Economic Agenda Tackles Global Biodiversity Loss*. One Earth. 2020

Drawing upon the IPBES 2019 Global Assessment, this article discusses a number of tools across a range of actors for both short-term stimulus measures in response to the COVID-19 pandemic and longer-term revamping of global, national, and local economies that take biodiversity into account and tackle the economic drivers that create ecological disruptions. These include measures to shift away from activities that damage biodiversity and toward those supporting ecosystem resilience, including through incentives, regulations, fiscal policy, and employment programmes. By treating the crisis as an opportunity to reset the global economy, we have a chance to reverse decades of biodiversity and ecosystem losses.

https://doi.org/10.1016/j.oneear.2020.09.011
