

DRAFT FOR PEER REVIEW – NOT EDITED

Note: this document will be presented as an annex to a pre-session document for the twenty-fourth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice under agenda item 9 – Biodiversity and Health.

DRAFT GLOBAL ACTION PLAN FOR BIODIVERSITY AND HEALTH

Leveraging biodiversity and health interlinkages to achieve a healthy living in harmony with nature

I. BACKGROUND

1. In decision 14/4, the Conference of the Parties of the Convention on Biological Diversity *requested* the Executive Secretary, subject to the availability of financial resources, and *invited* the World Health Organization, in collaboration, as appropriate, with other members of the Inter-agency Liaison Group on Biodiversity and Health as well as other partners, to develop a draft global action plan to mainstream biodiversity and health linkages into national policies, strategies, programmes and accounts. The Global Action Plan for Biodiversity and Health (here after, Global action plan) has been developed further to this request and in line with other decisions of the Conference of the Parties of the Convention on Biological Diversity (CBD), in particular decisions XII/21, XIII/6, and 14/4.

2. In decision XII/21, the Conference of the Parties recognized the value of the “One Health” approach to address the cross-cutting issue of biodiversity and human health, as an integrated approach consistent with the ecosystem approach (decision V/6) that takes in consideration the complex relationships between humans, microorganisms, animals, plants, agriculture, wildlife and the environment. In decision XIII/6, the Conference of the Parties welcomed the *State of Knowledge Review on connecting global priorities: biodiversity and human health*¹ and requested a guidance to support the consideration of biodiversity and ecosystem management in the application of the “One Health” approach. A *Guidance on integrating biodiversity considerations into One Health approaches*² was subsequently adopted in decision 14/4.

II. INTRODUCTION TO A GLOBAL ACTION PLAN FOR BIODIVERSITY AND HEALTH

3. As a fundamental indicator of sustainable development and human right, health has a central place in the Sustainable Development Goals (SDGs) agenda, with Goal 3 calling on all stakeholders to “ensure healthy lives and promote wellbeing for all at all ages”. In addition to socio-economic determinants of human health, the impact of environmental, climate, ecosystem change and degradation on health is increasingly recognized. Human health ultimately depends upon ecosystem products and services which are prerequisite for health and livelihoods.

4. Biodiversity underpins the nature’s contributions to people and provides ecosystem goods and services that are essential to human health and well-being. Biodiversity is also integral to key development sectors that modulate health outcomes directly or indirectly, such as pharmacy, biochemistry, agriculture, or tourism. The impact of environmental degradation and biodiversity loss on health outcomes is most significant among vulnerable people, particularly those most reliant on natural resources.

¹ Connecting global priorities: biodiversity and human health: a state of knowledge review, WHO/CBD, 2015, <https://www.cbd.int/health/SOK-biodiversity-en.pdf>

² CBD/SBSTTA/21/9

5. One Health recognizes that human health is intimately connected to the health of the planet, animals, plants, and our shared environment. Defined by the World Health Organization (WHO) 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”, One Health is an interdisciplinary and cross-sectoral approach among other holistic approaches that seeks to examine holistically interconnections among human health and environmental or ecosystem health. As biodiversity conservation and ecosystem dynamics have often received less attention in One Health approaches than human-animal interconnections, there are opportunities to further integrate the full range of biodiversity-health interlinkages.

6. Over the last decade, the multiplicity and complexity of linkages between biodiversity and human health have been increasingly recognized, as reflected in the findings of the *State of Knowledge Review on connecting global priorities: biodiversity and human health*³. The Action plan builds on resources and reports developed by CBD, WHO, the Inter-agency Liaison Group on biodiversity and health and other partners over the last years, including the *Guidance on integrating biodiversity considerations into One Health approaches*⁴. The Action plan supports a “biodiversity-inclusive One Health transition” identified in the fifth edition of the *Global Biodiversity Outlook (GBO-5)*⁵ as part of the eight areas of transition that may be needed to achieve living in harmony with nature by 2050 and takes *WHO’s Global Strategy on health, environment and climate change*⁶ into consideration.

7. The COVID-19 pandemic shed light on the impact of biodiversity loss and the risk of disease spillover from wildlife to human, reinforcing a narrative for holistic approaches such as One Health to understand the intricate linkages between the health of plants, animals, humans, and our shared environment. The Action Plan further reflects on the preparatory documents of the special virtual session of SBSTTA and SBI convened in December 2020 to discuss interlinkages between biodiversity and health, the One Health approach, and the response to COVID-19 and pandemics⁷. The Action plan also supports the ‘Build Back Better’ agenda, in line with the *WHO Manifesto for a Healthy Recovery from COVID-19*⁸ with particular attention to the first prescription to *Protect and Preserve the Source of Human health: Nature*.

8. Achieving a biodiversity-inclusive One Health transition that supports the full range of linkages between biodiversity and human health, and addresses the common drivers of biodiversity loss, disease risk and negative health outcomes, will enable a virtuous cycle – reducing the loss and degradation of biodiversity and enhancing human health and well-being.

III. OBJECTIVES AND RATIONALE OF THE ACTION PLAN

9. The *overall objective* of the Action plan is to mainstream biodiversity and health linkages into national, subnational and local policies, strategies, programmes and accounts, and to support Parties and other Governments, at all levels, relevant organizations and initiatives, indigenous peoples and local communities, business and civil society organizations, as well as other stakeholders, to accelerate and upscale efforts towards the conservation and sustainable use of biodiversity, with a view to ensure health and wellbeing for all, in harmony with nature, and to respond to challenges that threaten the health of the planet, human beings, animals, plants, and our shared environment, for the period 2021-2030. It is intended to be implemented in harmony with the *Guidance on integrating biodiversity considerations into One Health approaches*⁹.

³ Connecting global priorities: biodiversity and human health: a state of knowledge review, WHO/CBD, 2015, <https://www.cbd.int/health/SOK-biodiversity-en.pdf>

⁴ CBD/SBSTTA/21/9

⁵ Global Biodiversity Outlook, 5th edition, CBD, 2020, <https://www.cbd.int/gbo5>

⁶ WHO Global Strategy on Health, Environment and Climate Change, WHO, 2020, <https://apps.who.int/iris/bitstream/handle/10665/331959/9789240000377-eng.pdf?ua=1>

⁷ CBD/SBSTTA-SBI-SS/2/2 & CBD/SBSTTA-SBI-SS/2/Inf/1

⁸ WHO Manifesto for a healthy recovery from COVID-19, WHO, 2020, https://www.who.int/docs/default-source/climate-change/who-manifesto-for-a-healthy-and-green-post-covid-recovery.pdf?sfvrsn=f32ecfa7_8

⁹ CBD/SBSTTA/21/9

10. The *operational objectives* of the Action plan are to support Parties and other Governments, organizations and initiatives, as well as other relevant stakeholders, at all levels:

1) In further integrating health and biodiversity linkages in the development and implementation of health, biodiversity and environment policies, and in the work and practices of relevant Ministries or agencies, with a view to contribute to human health and biodiversity and achieve co-benefits by leveraging common interests and mutually-reinforcing policies;

2) In mainstreaming health and biodiversity linkages within and across sectors and into cross-sectoral policies, using a whole-of-government approach, with a view to reduce the common drivers biodiversity loss and negative health outcomes, and thus contribute to biodiversity conservation, human health and well-being;

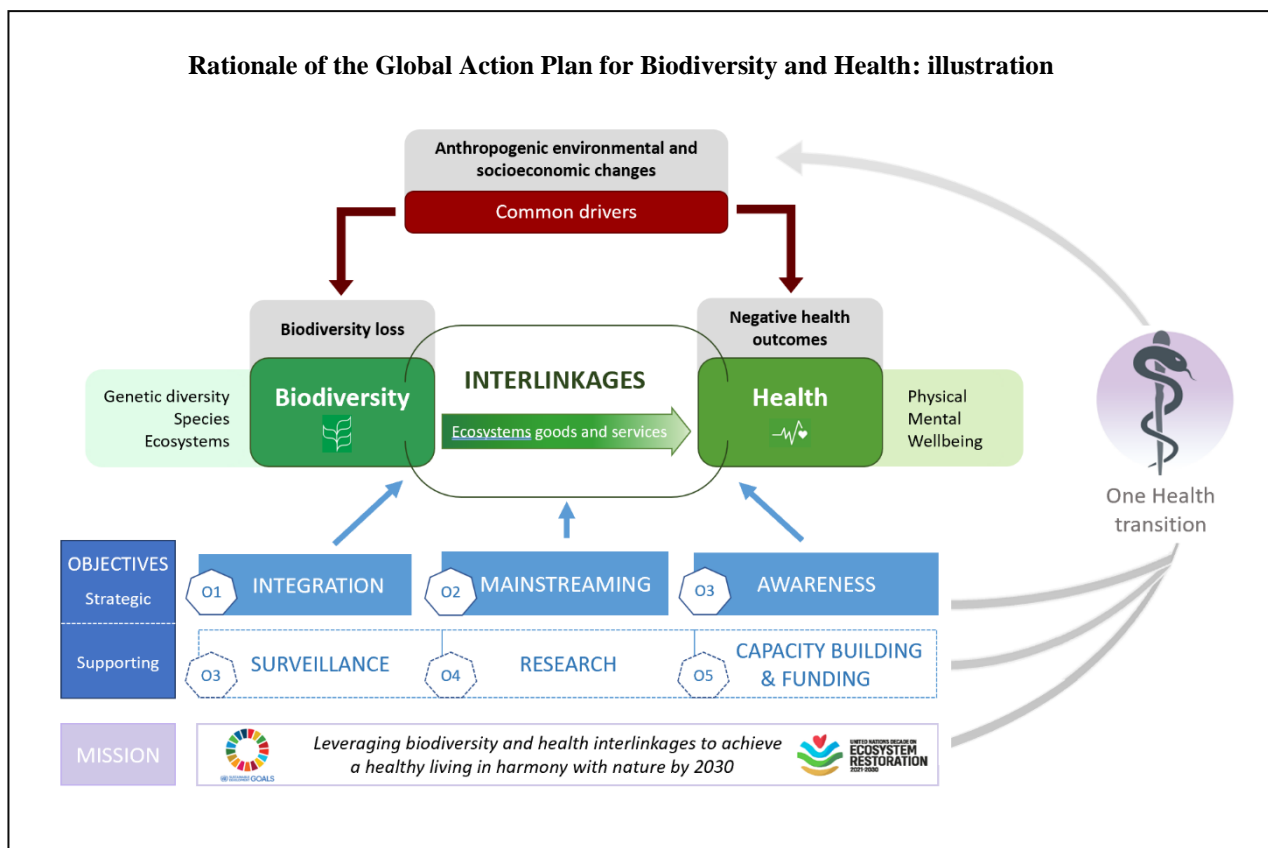
3) In improving awareness and understanding of health and biodiversity linkages, including among the general public and non-State actors, with the aim to catalyse transformative and behavioural change at all levels.

The implementation of aforementioned *operational objectives* will enable and be reinforced by the following *supporting objectives* that will support Parties and other Governments, organizations and initiatives, as well as other relevant stakeholders, at all levels:

4) In strengthening planning, surveillance and address health threats, including the risk of zoonotic diseases and pandemics, through One health approaches among other holistic approaches;

5) In consolidating scientific research to further investigate the full range of linkages between health and biodiversity, in line with One Health approaches among other holistic approaches;

6) In supporting capacity-building and ensuring allocation of predictable and sustainable funding to policies and programmes promoting health and biodiversity linkages and One Health approaches.



IV. PRINCIPLES OF THE ACTION PLAN

11. The Action plan identifies *operational and supporting objectives* with corresponding action areas in section V below which are expected to be supported by Parties and other Governments, at all levels, relevant organizations and initiatives, indigenous peoples and local communities, business and civil society organizations, as well as other stakeholders, based on six guiding principles adapted from the *Guidance on integrating biodiversity considerations into One Health approaches*⁸, as follows:

1) *A human rights approach.* The WHO Constitution enshrines that the highest attainable standard of health is a fundamental right of every human being. Implementation of the Action plan employs a rights-based approach empowering individuals and communities to actively participate in the development of solutions and activities.

2) *A holistic consideration of health and human well-being.* The Action plan encompasses the full range of health outcomes, including food security and nutrition, infectious and non-communicable diseases status as well as the psychological and sociocultural dimensions of health, in line with WHO's definition of health as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity".

3) *An application of the ecosystem approach* to promote conservation and sustainable use of biodiversity and ecosystem services in an equitable way. The ecosystem approach is based on the application of scientific evidence on levels of biological integrity of the ecosystems which encompass the essential processes, functions and interactions among organisms and their environment.

4) *An engagement that relies on participation and inclusiveness,* through an effective involvement of all stakeholders with participation of indigenous and local communities, women and youth. A multi-stakeholder engagement process and gender-responsive approach is instrumental to ensure social justice and gender equality in implementing health and biodiversity related policies.

5) *A cross-sectoral, multinational, and transdisciplinary collaboration.* The management of complex socio-ecological systems requires cross-sectoral, multinational, and transdisciplinary collaboration. The establishment of broad-based partnerships across sectors, the formation of relevant bodies within the Government and the creation of networks along the research-to-delivery continuum in ways that support the sharing of information and experience are essential for policy action.

6) *A flexible approach with due consideration of local contexts and specificities* to address the circumstances and needs of communities and ensure an effective implementation that supports good health and living in harmony with nature. While the Action plan provides an overall framework and objectives to further mainstream health and biodiversity linkages, its strength will lie in the commitment from stakeholders at the national, subnational and local levels.

V. KEY ELEMENTS OF THE ACTION PLAN

12. The Action plan comprises three *operational objectives* and three *supporting objectives*, with suggested action areas and activities to be undertaken, as appropriate and on a voluntary basis, by Parties and other Governments, all at all levels, in collaboration with relevant organizations and initiatives, indigenous peoples and local communities, business and civil society organizations, as well as other stakeholders.

13. The CBD will work closely with its partners, including academia, health and biodiversity experts, UN organizations, existing and newly-established cross-sectoral initiatives, experts and inter-agency liaison groups, to support countries in implementing the Action Plan, by providing and making available policy guidance, necessary documentation and evidence.

14. The strategic *operational and supporting objectives* and corresponding actions areas/activities are presented as follows.

ELEMENT 1: HEALTH-BIODIVERSITY INTEGRATION

Strategic objective:

To integrate health and biodiversity linkages in the development and implementation of health, biodiversity and environment- related policies, and in the work and practices of relevant Ministries or agencies.

Rationale:

The conservation and sustainable use of biodiversity is imperative for the continued functioning of ecosystems at all scales, and for the delivery of ecosystem services that are essential for human health. Further integrating health and biodiversity linkages in respective health, biodiversity and environment-related policies and promoting mutually-reinforcing policy action enables to catalyse greater co-benefits, while contributing to the promotion of better health outcomes and the conservation of biodiversity. There is a potential to better integrate the full range of biodiversity-health linkages across policies and responsible authorities, including relevant Ministries and agencies.

Action area 1.1. Promote biodiversity-health linkages in the work and practices of agencies responsible for biodiversity and health and integrate them in the development and implementation of health, biodiversity and environment policies

Activities:

1.1.1. Facilitate dialogue between agencies responsible for biodiversity and those responsible for health and other relevant sectors, across all levels of government;

1.1.2. Consider relevant health-biodiversity linkages¹⁰ in developing and updating relevant national policies and programmes, strategies, plans, and accounts including health strategies, such as national environmental health action plans, National Biodiversity Strategies and Action Plans (NBSAPs) and sustainable development and poverty eradication strategies;

1.1.3. Take into consideration health-biodiversity linkages in environmental impact assessments, risk assessments and strategic environmental assessments, as well as in health impact assessments, social and economic valuation and the evaluation of trade-offs;

1.1.4. Integrate biodiversity considerations in health policies, with particular emphasis on the needs of indigenous peoples and local communities, by recognizing the importance of ecosystems goods and services for human health, including for the development of pharmaceutical products, traditional medicines, nutritious food, and the positive impact of biodiversity and green/blue space for mental health and the prevention of non-communicable diseases;

1.1.5. Promote sustainable and healthy lifestyles as well as green/blue infrastructure with built landscapes to improve the health and quality of life and reduce the environmental footprint of urban areas and infrastructure;

1.1.6. Address, monitor and evaluate any unintended and undesirable negative impacts of biodiversity interventions on health and of health interventions on biodiversity;

1.1.7. Promote the recognition of interlinkages between biodiversity and health in global instruments and relevant international processes, including the World Health Assembly and the Conferences of the Parties to the Convention on Biological Diversity as well as other as other relevant fora, including the United Nations Framework Convention on Climate Change, the United Nations Convention to Combat Desertification, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the Sendai Framework for Disaster Risk Reduction.

Implementation milestones for monitoring purpose:

- Health and biodiversity linkages are considered and included in National Biodiversity Strategies and Action Plans (NBSAPs).

¹⁰ Annex I provides a summary of interlinkages between biodiversity and health, and opportunities for integration.

ELEMENT 2: MAINSTREAMING HEALTH-BIODIVERSITY LINKAGES IN ALL SECTORS

Strategic objective:

To mainstream health and biodiversity linkages within and across sectors and into cross-sectoral policies, using a whole-of-government approach and leveraging the common interests of the health and biodiversity sectors.

Rationale:

Biodiversity loss, ecosystem degradation and negative health outcomes share many common drivers, such as change in land-use and habitat, unsustainable food production practices, overharvesting, deforestation, water management processes, urbanization, use of pesticides and antimicrobials, climate change, migration, international travel and trade. Leveraging and mainstreaming biodiversity and health linkages within and across sectors is essential to address the common drivers of biodiversity loss and negative health outcomes in a holistic manner. In addition, the health sector¹¹ can contribute to further mainstreaming biodiversity, by adopting resilient and environmentally sustainable practices and preventing unsustainable exploitation of biodiversity for medicinal use or research that endangers species and ecosystems.

Action area 2.1. Mainstream biodiversity and health linkages within and across sectors, including water, human settlements, agriculture and food

Activities:

2.1.1. *Water supply and sanitation:* In water supply and sanitation policies and programmes, including the planning and design of water-related infrastructure, take into account the role of terrestrial and inland water ecosystems as “green infrastructure” in regulating the quantity, quality and supply of freshwater and flood regulation, protect these ecosystems, and address the drivers of their loss and degradation, including land-use change, pollution and invasive species;

2.1.2. *Human settlements:* In urban planning, design, development and management, take into account the important role of biodiversity in providing physiological benefits, in particular the role of vegetation in improving air quality and counteracting the heat-island effect, and in fostering interchange between environmental microbes and the human microbiome; promote opportunities for interactions between people, especially children, and nature, to provide benefits for mental health, to support cultural well-being and encourage physical activity in green and biodiverse spaces, particularly in urban areas, ensuring equitable access to green/blue spaces, and providing for community gardens;

2.1.3. *Agricultural production:* Enhance the diversity of crops, livestock and other components of biodiversity in agricultural ecosystems to contribute to increases in sustainable production, and to the reduced use of antibiotics, pesticides and other chemical inputs, with benefits for human health and the environment, noting the relevance in this respect of the programme of work on agricultural biodiversity (decision V/5), and of the international initiative on pollinators (decision VIII/23 B);

2.1.4. *Food and nutrition:* Promote the diversity and sustainable use of local crops and livestock diversity and wild foods, including from marine and inland water sources, that contribute to human nutrition and dietary diversity, including by making available information on the nutritional value of diverse foods, with a view to improving human health, and promoting sustainable diets, including through appropriate information and public awareness activities, recognition of traditional, national and local food cultures, and the use of social and economic incentives throughout the supply chain, noting the relevance in this respect of the cross-cutting initiatives on biodiversity for food and nutrition (decision VIII/23 A);

¹¹ Health has been identified as one of the areas for mainstreaming biodiversity within and across sectors, in line with CBD COP Decisions XIII/3 and 14/3, along with agriculture, forests, fisheries and aquaculture, tourism, energy and mining, infrastructure, manufacturing and processing. The activities here are intended to be implemented in line with the action plan for the long-term approach to biodiversity mainstreaming (CBD/SBI/3/13/ and CBD/SBI/3/13/Add.1).

2.1.5. In line with the action plan for the long-term approach to biodiversity mainstreaming¹², develop and use existing biodiversity metrics for business to assess and value other sectors' impacts on biodiversity and health, and engage with businesses in all relevant economic sectors, especially large those with the most significant impacts on biodiversity.

Action area 2.2. Mainstream biodiversity and health linkages in wildlife and ecosystem management

Activities:

2.2.1. Promote an integrated (“One Health”) approach to the management of ecosystems, associated human settlements and livestock, minimizing unnecessary disturbance to natural systems and so avoid or mitigate the potential emergence of new pathogens, and manage the risk of transmission of pathogens between humans, livestock and wildlife in order to reduce the risk and incidence of infectious diseases, including zoonotic and vector-borne diseases;

2.2.2. Ensure harvesting, hunting, trading and using of wild species is regulated and ensure practices are legal, sustainable and safe, with enhanced regulations on bushmeat, live-animal markets, and livestock production practices, including through the implementation of hygienic practices, while refraining from measures which would negatively affect communities who depend on wildlife;

2.2.3. Recognize wildlife health in the design, resourcing, and operations of national biodiversity and health programs, promote the understanding of disease processes in wildlife populations and develop appropriate strategies for management and control of wildlife disease epidemics, including by reinforcing capacities in diagnostics and investigation, reporting, planning and response;

2.2.4. *Ecosystems restoration:* Consider human and wildlife health when carrying out ecosystem restoration activities and, where necessary, take measures to promote positive health outcomes and remove or mitigate negative health outcomes, and use strategic integrated health and environment assessments to maximize benefits and minimize risks of interaction with nature;

2.2.5. *Ecosystems conservation:* Promote measures to halt or reduce deforestation and degradation of terrestrial, freshwater, coastal and marine aquatic ecosystems, reduce overexploitation and encroachment into natural habitats, while increasing protection of areas of importance for biodiversity and ecosystem services, especially intact or near-intact areas and potential hotspots of disease emergence;

2.2.6. *Climate change and disaster risk reduction:* In the analysis and implementation of ecosystem-based adaptation, mitigation and disaster risk reduction measures, prioritize measures that jointly contribute to human health and to the conservation of biodiversity and of vulnerable ecosystems, and that support the health, well-being, safety and security of vulnerable human populations, and build resilience of human communities;

2.2.7. Develop approaches for the prevention, control and management of invasive alien species to address biological invasions of pathogenic agents, including zoonotic pathogens, with a view to modify/fine-tune invasive alien species risk analysis, and identify potential “sleeper” alien species that are likely to become more invasive as a result of climate change.

Action area 2.3. Mainstream biodiversity in the health sector

Activities:

2.3.1. In line with the action plan for the long-term approach to biodiversity mainstreaming¹² and with reference to WHO Guidance for Climate Resilient and Environmentally Sustainable Health Care Facilities¹³, encourage health supply chains, health businesses and the pharmaceutical sector, and especially large and transnational companies and those with the most significant impacts on biodiversity, to actively transition towards sustainable technologies and practices and ensure the values, dependencies and impacts on biodiversity throughout their supply chains are accounted for;

¹² CBD/SBI/3/13/ and CBD/SBI/3/13/Add.1

¹³ WHO Guidance for Climate Resilient and Environmentally Sustainable Health Care Facilities, WHO, 2020, <https://www.who.int/publications/i/item/9789240012226>

2.3.2. Protect and promote traditional medical knowledge, innovations and practices of indigenous peoples and local communities, based on prior and informed consent of the traditional knowledge holders, ensuring through mutually agreed term, the fair and equitable sharing of benefits with the knowledge holders;

2.3.3. Avoid the overuse, and unnecessary routine use, of antibiotic and antimicrobial agents, in line with WHO Action Plan on antimicrobial resistance¹⁴, both in human medicine and veterinary practice, to reduce harm to beneficial and symbiotic microbial diversity and to reduce the risk of antibiotic resistance;

2.3.4. Better manage the use and disposal of medical waste in line with WHO Guidance on Safe management of wastes from health-care activities¹⁵, and endocrine-disrupting chemicals to prevent harm to people, biodiversity and ecosystem services and reduce the inappropriate use of non-steroidal anti-inflammatory drugs that threaten wildlife populations;

2.3.5. Promote access to genetic resources and the fair and equitable sharing of benefits arising from their utilization consistent with Article 8(j) and with the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity.

Action area 2.4. Mainstream biodiversity in economic stimulus and recovery measures¹⁶

2.4.1. Set biodiversity spending targets for COVID-19 stimulus measures and recovery plans;

2.4.2. Screen and monitor stimulus measures for their biodiversity impacts to ensure they are aligned with long-term policy goals for sustainability;

2.4.3. Employ public procurement to support companies and producers that meet biodiversity criteria and fiscal policies to reward biodiversity positive outcomes;

2.4.4. Promote jobs and income support for biodiversity conservation, sustainable use and restoration to stimulate economic recovery.

Implementation milestones for monitoring purpose:

- Countries and business implement the action plan for long term approach to biodiversity mainstreaming¹⁷, especially target: “By 2025, develop business-specific targets for minimizing impacts and dependencies on biodiversity (e.g., for reducing the footprint of the production/value chain)”.

ELEMENT 3: PROMOTING AWARENESS OF HEALTH-BIODIVERSITY LINKAGES

Strategic objective:

To improve awareness and understanding of health and biodiversity linkages to catalyse transformative and behavioural change at all levels.

Rationale:

A common narrative and vision is needed to raise the issue of health and biodiversity linkages in the global agenda. While interlinkages between health and biodiversity are multiple and complex, targeted and simple messages are needed for decision and policy makers, as well as the general public. Aligning messages and developing advocacy tools will catalyze a transformative change at all levels.

¹⁴ Global action plan on antimicrobial resistance, WHO, 2015, https://apps.who.int/iris/bitstream/handle/10665/193736/9789241509763_eng.pdf?sequence=1

¹⁵ Guidance on Safe management of wastes from health-care activities, WHO, 2014, https://apps.who.int/iris/bitstream/handle/10665/85349/9789241548564_eng.pdf?sequence=1

¹⁶ Further proposals for recovery measures are provided in Annex II.

¹⁷ CBD/SBI/3/13/ and CBD/SBI/3/13/Add.1

Action area 3.1. Define key messages and advocacy tools on health and biodiversity interlinkages and co-benefits

Activities:

3.1.1. Promote and disseminate advocacy tools, best practices and examples of policies that maximize biodiversity and health co-benefits, building upon the key messages provided in Annex III;

3.1.2. Demonstrate through case studies how conservation policies can result in multiple health benefits and improved resilience for ecosystems and our shared environment;

3.1.3. Leverage health-biodiversity linkages to instil behavioural change towards sustainable consumption, including in the context of the ‘Build Back Better’ agenda, as the pandemic has led many people to question what is truly “essential” and may have shifted what is regarded as necessary and desirable for a dignified and good quality of life;

3.1.4. Support campaigns and activities to engage stakeholders in the promotion of biodiversity-health linkages and One Health approaches, including celebrations on 7 April of World Health Day, on 5 June of World Environment Day, on 10 October of World Mental Health Day and on 18 – 24 November of World Antibiotic Awareness Week.

Action area 3.2. Raise awareness among general public and non-State actors

3.2.1. Promote educational activities with children and students, and support citizen projects on the importance of biodiversity and health linkages in their daily lives;

3.2.2. Encourage network-building activities, including through conferences, dissemination of information on biodiversity-health linkages through public databases, web portals, social media and information networks that facilitate access to all relevant stakeholders;

3.2.3. Promote advocacy efforts for mainstreaming health and biodiversity linkages into the sustainable development agenda, the post-2020 global biodiversity framework, the United Nations decade on ecosystem restoration, and all areas to which biodiversity and health linkages can contribute, building on existing messages developed in Annex III;

3.2.4. Raise the awareness of the private sector and encourage non-State actors to contribute to broader initiatives and commitments agenda led by partners including, such as the CBD Action Agenda “Reversing Biodiversity Loss and Promoting Positive Gains to 2030¹⁸” and building on *WHO Manifesto for a healthy recovery from COVID-19*¹⁹, the United Nations Decade on Ecosystem Restoration, among other initiatives, and consider launching or supporting calls to action²⁰, with a view to catalyse transformative change to achieve a healthy living in harmony with nature by 2050.

Implementation milestones for monitoring purpose:

- Key messages on health and biodiversity linkages incorporated in National Biodiversity Strategies and Action Plans (NBSAPs);
- Non-state actors from various countries pledge to commitments on health and biodiversity under Action Agenda “Reversing Biodiversity Loss and Promoting Positive Gains to 2030”¹⁸.

¹⁸ An agenda for action, Reversing Biodiversity Loss and Promoting Positive Gains to 2030, <https://www.cbd.int/action-agenda/>

¹⁹ WHO Manifesto for a healthy recovery from COVID-19, WHO, 2020, https://www.who.int/docs/default-source/climate-change/who-manifesto-for-a-healthy-and-green-post-covid-recovery.pdf?sfvrsn=f32ecfa7_8

²⁰ Note the initiative of Wildlife conservation society which called in 2019 for the adoption of the Berlin Principles on One Health, <https://oneworldonehealth.wcs.org/About-Us/Mission/The-2019-Berlin-Principles-on-One-Health.aspx>

ELEMENT 4: SURVEILLANCE AND MONITORING

Supporting objective:

To strengthen planning, surveillance and address health threats, including the risk of zoonotic diseases and pandemics, through One health approaches.

Rationale:

Reinforcing planning and surveillance on wildlife habitats and zoonotic disease spillover risk is instrumental to better assess and address health threats and disease risks. Efforts to minimize biodiversity loss can also reduce zoonotic disease and pandemics risk, mostly by reducing contact between humans and wildlife and also limiting introduction of invasive alien species.

Action area 4.1. Reinforce surveillance and monitoring systems through cross-sectoral collaboration, in line with One Health approaches

Activities:

4.1.1. Strengthen cross-sectoral and trans-disciplinary surveillance of essential components of pandemics preparedness, including through the monitoring of emerging infectious diseases, zoonotic disease spillover risk and habitats of wildlife;

4.1.2. Improve routine disease surveillance and monitor wildlife for high-risk pathogens, especially where there is a large diversity of viral strains in wildlife with significant potential for spillover to people, and monitor people who have contact with wildlife to identify early spillover events;

4.1.3. Increase surveillance of wildlife disease events, emerging/resurging and exacerbating communicable and non-communicable disease threats, including water-borne, vector-borne and food-borne diseases;

4.1.4. Promote prompt and clear, timely information sharing and systematic collection, analysis, interpretation and dissemination of health data to help transitioning from reactive public health measures to more preventive actions;

4.1.5. Ensure the use of early warning systems, such as the WAHIS-Wild reporting system developed by the World Organisation for Animal health (OIE) and the implementation of International Health Regulations which require the rapid detection, prompt risk assessment, notification, and response to public health risks;

4.1.6. Foster effective and efficient collaboration among conservation biologists, epidemiologists and relevant experts across disciplines to provide cross-scientific guidance and contribute to disease surveillance programmes.

Implementation milestones for monitoring purpose:

- Disease alerts are reported through surveillance systems, including the OIE-led ‘World Animal Health Information System’ WAHIS–Wild.

ELEMENT 5: RESEARCH ON HEALTH-BIODIVERSITY LINKAGES

Supporting objective:

To consolidate scientific research to further investigate the full range of linkages between health and biodiversity, in line with One Health approaches.

Rationale:

Scientific research contributes to further explore and understanding the full range of health and biodiversity linkages. Ongoing efforts to conduct environmental and health assessments, to strengthen national monitoring capacities and data collection, to develop interdisciplinary education, training and research programmes are instrumental to inform policy action.

Action area 5.1. Strengthen the understanding of the full range of biodiversity-health linkages and support access to scientific evidence, data and good practices

Activities:

5.1.1. Invest in research and support universities, research institutes, collaborating centres and other leading actors involved in research, with a view to accumulate data, experience, evidence, and capture the full breadth of the complex health-biodiversity linkages and One Health approaches, including:

5.1.1.1. The relationships between biodiversity, ecosystem degradation and infectious disease emergence, including the effects of ecological community structure and composition, habitat disturbance and human-wildlife contact, and the implications for land use and ecosystem management, including ecosystem restoration,

5.1.1.2. The interlinkages between dietary diversity, health, diversity of crops, livestock and other components of biodiversity in agricultural ecosystems, marine and inland water ecosystems,

5.1.1.3. The linkages between the composition and diversity of the human microbiome, and biodiversity in the environment, and implications for the planning, design, development and management of human settlements,

5.1.1.4. The significance for health of marine biodiversity, including for food security, and the consequences of multiple stressors on marine ecosystems (including pathogens, chemicals, climate change and habitat degradation),

5.1.1.5. The contribution of biodiversity and the natural environment, including protected areas, in promoting mental and physical health, particularly in urban areas,

5.1.1.6. The significance of soil biodiversity for health,

5.1.1.7. Linkages between migratory species and their corridors and human health,

5.1.1.8. Linkages between invasive alien species and human health;

5.1.2. Strengthen national and subnational monitoring and surveillance capacities through active surveillance systems that facilitate systematic inputs and data exchange between public health, environment, wildlife and other sectors;

5.1.3. Establish data-sharing platforms between the local, subnational and national levels, to establish surveillance mechanisms that gather and disseminate data, including geospatial data of high-risk areas for disease transmission.

Action area 5.2. Promote cross-sectoral collaboration and foster the implementation of One Health approaches at local, national, regional and international levels

Activities:

5.2.1. Strengthen collaboration among conservation biologists, veterinaries, epidemiologists and relevant experts, to build comprehensive scientific guidance for policy action and application of One Health approaches, including through innovative knowledge-sharing platforms, digital technologies, tools and data gathering and dissemination methods;

5.2.2. Promote national, regional and international partnerships, joint work programs, intersectoral collaboration on biodiversity–health linkages, to facilitate the identification and management of risks to human health posed by ecosystem degradation and biodiversity loss, as well as pandemics risk;

5.2.3. Harness findings, reports and recommendations from global platforms, partnerships and initiatives, including experts and inter-agency liaison groups.

Implementation milestones for monitoring purpose:

- Significant percentage of GDP allocated to research on health-biodiversity linkages and One Health;
- Increase in number of research publications on biodiversity and health linkages;
- Countries have collaborating centres and joint programmes focusing on health-biodiversity linkages.

ELEMENT 6: CAPACITY-BUILDING & FUNDING

Supporting objective:

To support capacity-building and ensuring allocation of predictable and sustainable funding to policies and programmes promoting health and biodiversity linkages and One Health approaches.

Rationale:

Building capacities and mobilizing resources to implement health and biodiversity related policies is key to ensure action and long-lasting impact. Investing at the upstream, in prevention and early warning systems is a priority and far less costly (from both a human and economic perspective), than emergency response once an epidemic has emerged.

Action area 6.1. Promote capacity-building at all levels and across disciplines

Activities:

6.1.1. Strengthen the capacity of health, environment and other relevant ministries, agencies and organizations to address health-biodiversity linkages in order to support preventative approaches to health and promote the multiple dimensions of health and well-being;

6.1.2. Support the development of capacity to provide health, environmental, biodiversity and conservation experts best management practices to catalyse the integration and mainstreaming of biodiversity-health linkages and the promotion of One Health approaches;

6.1.3. Promote sharing of knowledge through tools and digital technology and promote capacity-building and mutual learning, including at the local and field level by developing collaborative activities, such as peer-to-peer learning, for the promotion of best practices and policies promoting biodiversity-health linkages;

6.1.4. Protect, maintain and promote traditional knowledge, innovations and sustainable practices of indigenous peoples and local communities related to traditional medicines and sustainable use of biodiversity and promote work mechanisms between traditional and scientific knowledge that contribute to implementing One Health approaches;

6.1.5. Develop partnerships and alliances that support multi-disciplinary approaches, foster synergies and ensure multi-stakeholder participation with respect to health and biodiversity linkages.

Action area 6.2. Mobilize predictable and sustainable resources to enable implementation of biodiversity-health related policies

Activities:

6.2.1. Develop an investment case to help quantifying the positive impact and return on investment from One Health policies, provide evidence on the cost-effectiveness and benefits of such policies, and identify funding needs with greater granularity;

6.2.2. In line with the draft resource mobilization component of the post-2020 Global biodiversity framework²¹, set national targets for domestic resource mobilization and include budget lines for health and biodiversity as part of national biodiversity finance plans;

6.2.3. In line with the draft resource mobilization component of the post-2020 Global biodiversity framework²¹, leverage official development assistance or innovative funding mechanisms to secure adequate resources for programmes and projects related to biodiversity-health linkages and/or One Health approaches, including by leveraging direct and indirect biodiversity-related international finance for developing countries and countries with economies in transition and private sector investment in biodiversity-positive projects.

²¹ CBD/SBI/3/5

Implementation milestones for monitoring purpose:

- Adequate percentage of ODA or domestic finance allocated to programmes related to biodiversity-health linkages and/or One Health approaches;
- Adequate percentage of ODA or financial assistance allocated to least developed countries for projects related to biodiversity-health linkages and/or One Health approaches.

VI. MONITORING OF PROGRESS AND MILESTONES OF GLOBAL ACTION PLAN

15. Monitoring progress and milestones will be instrumental to assess progress made towards the mainstreaming of health and biodiversity linkages, and to ensure that vulnerable populations most dependent on biodiversity are protected from health impacts associated with biodiversity loss and other risk factors, including climate change.

16. Each suggested *implementation milestone* will help to monitor progress for *operational or supporting objectives*. Based on these proposed *implementation milestones*, it is suggested that countries set their own targets taking into consideration the local context, priority, baseline, and capacity.

17. In addition, the impact of the Action plan will be monitored against *outcome indicators* which include indicators from the draft post-2020 global biodiversity framework and additional suggested indicators, which can also inform the elaboration of indicators for the monitoring framework of the post-2020 global biodiversity framework.

18. Suggested *outcome indicators* include draft indicators from the post-2020 global biodiversity framework or monitoring framework related to biodiversity and health (draft component goals and targets, headline indicators, component indicators and complementary indicators), as follows:

Headline indicators:

- B.0.1 Population benefiting from ecosystem services;
- 11.0.1 Average share of the built-up area of cities that is green/blue space for public use for all;
- 14.0.2 Corporate sustainability reporting includes impacts on biodiversity.

Components of the goals and targets:

- 4.1-3. Harvest, trade and use of wild species of fauna and flora is legal, sustainable and safe for human health and biodiversity;
- 11.1. Access to green/blue spaces & 11.2. Contributions of biodiversity to human health and wellbeing;
- 16.1-3 Measures to prevent, manage and control potential adverse impacts of biotechnology on biodiversity and human health.

Components indicators:

- B.1.1. Population benefiting from ecosystem services (B.0.1) by type of ecosystem service;
- 6.1.7. Hazardous waste generated per capita; and proportion of hazardous waste treated, by type of treatment (SDG indicator 12.4.2);
- 10.1.1. Mortality rate attributed to household and ambient air pollution (SDG indicator 3.9.1);
- 14.1.2. Corporate sustainability reporting includes impacts on biodiversity by industrial classification & 14.1.3. Number of countries developing, adopting or implementing policy instruments aimed at supporting the shift to sustainable consumption and production (SDG indicator 12.1.1).

Complementary indicators:

- B.1.1.4. Air quality index;
- B.1.1.5. Air pollution emissions account;
- B.1.1.6. Zoonotic disease in wildlife & Illegal trade by CITES species classification.

19. Suggested additional *outcome indicators* for the Action Plan, as follows, shall also inform the monitoring framework of the post-2020 global biodiversity framework:

- Implementation of International Health Regulations (WHO indicator on Zoonotic Events and the Human-animal Interface, IHR SPAR);
- Environmental burden of disease per year (WHO indicator, %).

ANNEXES

ANNEX I – INTERLINKAGES BETWEEN HEALTH AND BIODIVERSITY: AN OVERVIEW²²

Biodiversity and Health Topic	Health Sector Opportunity
Water <ul style="list-style-type: none"> • Water quantity • Water quality • Water supply 	Direct responsibility: <ul style="list-style-type: none"> • Integrate ecosystem management considerations into health policy Indirect responsibility: <ul style="list-style-type: none"> • Promote protection of ecosystems that supply water and promote sustainable water use
Food and nutrition <ul style="list-style-type: none"> • Species, varieties and breeds including domesticated and wild components • Diversity of diet • Ecology of production systems • Total demand on resources • Sustainability of offtake, harvesting and trade of species used for food • Changing status of species used for food 	Direct responsibility: <ul style="list-style-type: none"> • Recognize and promote dietary diversity, food cultures and their contribution to good nutrition • Recognize synergies between human health and sustainable use of biodiversity (e.g. moderate consumption of meat) Indirect responsibility: <ul style="list-style-type: none"> • Promote sustainable production harvesting and conservation of agrobiodiversity
Diseases <ul style="list-style-type: none"> • Disease source and regulation services • Ecosystem integrity and diversity 	Direct responsibility: <ul style="list-style-type: none"> • Integrate ecosystem management considerations into health policy Indirect responsibility: <ul style="list-style-type: none"> • Promote ecosystem integrity
Medicine <ul style="list-style-type: none"> • Traditional medicines • Drug development (genetic resources and traditional knowledge) • Chemical/ pharmaceutical accumulation in ecosystems • Sustainability of offtake/harvesting and trade of medicinal species • Changing status of species used for medicine 	Direct responsibility: <ul style="list-style-type: none"> • Recognize contribution of genetic resources and traditional knowledge to medicine Indirect responsibility: <ul style="list-style-type: none"> • Protect genetic resources and traditional knowledge • Ensure benefit sharing
Physical, mental and cultural dimensions of health <ul style="list-style-type: none"> • Physical and mental health • Cultural/spiritual enrichment 	Direct responsibility: <ul style="list-style-type: none"> • Integrate 'value of nature' into health policy Indirect responsibility: <ul style="list-style-type: none"> • Promote protection of values, species and ecosystems
Adaptation to climate change <ul style="list-style-type: none"> • Ecosystem resilience • Genetic resources ('options' for adaptation) • Shifting reliance to biodiversity with climate change 'shocks' 	Indirect responsibility: <ul style="list-style-type: none"> • Promote ecosystem resilience and conservation of genetic resources • Decrease vulnerability of people reliant on important food and medicinal species which are likely to be impacted by climate change

²² From Connecting global priorities: biodiversity and human health: a state of knowledge review, WHO/CBD, 2015, <https://www.cbd.int/health/SOK-biodiversity-en.pdf>, p.259

ANNEX II – CBD/SBSTTA-SBI-SS/2/2 (PARA 27), OPTIONS TO INTEGRATE BIODIVERSITY CONSIDERATIONS INTO COVID-19 STIMULUS AND RECOVERY MEASURES

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 following²³:

(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;

²³ The following list draws in particular on OECD, *Biodiversity and the Economic Response to COVID-19: Ensuring a green and resilient recovery*, OECD Policy Briefs, 28 September 2020, <http://www.oecd.org/coronavirus/policy-responses/biodiversity-and-the-economic-response-to-covid-19-ensuring-a-green-and-resilient-recovery-d98b5a09/> and McElwee et al, *Ensuring a Post-COVID Economic Agenda Tackles Global Biodiversity Loss, One Earth*, 2020, <https://doi.org/10.1016/j.oneear.2020.09.011> and Global Goal for Nature Group, *COVID-19 Response and Recovery: Nature-Based Solutions for People, Planet and Prosperity*, 2020, <https://www.wri.org/news/2020/10/statement-covid-19-response-and-recovery-nature-based-solutions-people-planet-prosperity>.

- (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 a shift;
 - (ii) Maintain or increase taxes on activities that harm biodiversity. Revenue from biodiversity-relevant taxes and other environment-relevant taxes could be redirected 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;

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.

ANNEX III – KEY MESSAGES ON MAINSTREAMING HEALTH AND BIODIVERSITY LINKAGES²⁴

Biodiversity and human health are closely interlinked across a wide range of scales, from the planetary to that of individual human microbiota.

- Biodiversity is 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.
- 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 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 an important source of genetic resources used for the development of many treatments, vaccines and a range of biotechnology products used in both modern and traditional medicines, as well as agriculture and industry. These include, for example, artemisinin as a treatment for malaria, and digitalis for heart disease.
- 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.

Land use change, pollution, poor water quality, chemical/waste contamination and causes of ecosystem degradation contribute to biodiversity loss, climate change, negative health outcomes.

- 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.
- Air pollution poses significant threats to biodiversity, contributes to the economic burden and to the rise in noncommunicable diseases including cardiovascular diseases and cancer, respiratory diseases and chronic obstructive pulmonary diseases.
- Direct effects of climate change on health may include stroke and dehydration associated with heatwaves, negative health consequences associated with reduced air quality and the spread of allergens. Effects are also mediated through the impacts on ecosystems and biodiversity. Such effects may include decreased food production and changes in the spread of climate sensitive waterborne and water related, food borne and vector borne diseases. There may be synergistic effects of climate change, land use change, pollution invasive species and other drivers of change which can amplify impacts on both health and biodiversity.
- Overharvesting, habitat alteration, and climate change are among major drivers of declines in commercially important wild plant resources used for food and medicinal purposes. These three drivers pose a threat both to the wild species and to the livelihoods of collectors, who often belong to the poorest social groups.

One health, among other holistic approaches, provides an opportunity to integrate the full range of biodiversity-health linkages.

- We can improve our understanding of the complex linkages between biodiversity, ecosystem services and human health and promote co-benefits through more integrated policies and mutually-reinforcing implementation activities, by strengthening collaboration with the health sector and mainstreaming biodiversity and health linkages into national strategies policies.

²⁴ Adapted from *Connecting global priorities: biodiversity and human health: a state of knowledge review*, <https://www.cbd.int/health/SOK-biodiversity-en.pdf>, CBD/SBSSTA-SBI-SS/2/2, CBD/SBSTTA-SBI-SS/2/Inf/1

- A coordinated, cross-sectoral approaches as One Health helps to address the common drivers of biodiversity loss, climate change, negative health outcomes and increased pandemics risk.
- There are significant strategic opportunities to integrate the full range of biodiversity-health interlinkages in the application of One Health approaches in a more systematic, comprehensive and coordinated manner.

COVID-19 and recovery measures

- 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.
- Overall plans for post-COVID-19 recovery, and specifically plans to reduce the risk of future epidemics, need to go further upstream than early detection and control of disease outbreaks.
- Reducing disease risk through the conservation and sustainable use of biodiversity is highly cost-effective. 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.
- There are many opportunities for responses to COVID-19, including both short term stimulus measures and longer-term approaches to 'build back better', contribute to sustainable development, and reduce the risk of future pandemics.