



FNI REPORT 4 | 2022

KRISTIN ROSENDAL, GØRILD M. HEGGELUND, CHRISTIAN PRIP AND KRISTIN INGSTAD SANDBERG

Global cooperation on health and nature issues in the (longer) wake of COVID-19

Effects on poverty alleviation, and the role of China



FRIDTJOF NANSENS INSTITUTT
FRIDTJOF NANSEN INSTITUTE

FNI REPORT 4 | 2022

KRISTIN ROSENDAL, GØRILD M. HEGGELUND, CHRISTIAN PRIP AND KRISTIN INGSTAD SANDBERG

Global cooperation on health and nature issues in the (longer) wake of COVID-19

Effects on poverty alleviation, and the role of China

**Kristin Rosendal, Gørild M. Heggelund,
Christian Prip and Kristin Ingstad Sandberg**

Fridtjof Nansen Institute

krosendal@fni.no
gheggelund@fni.no
cprrip@fni.no
kingstadsandberg@gmail.com



FRIDTJOF NANSENS INSTITUTT
FRIDTJOF NANSEN INSTITUTE

Abstract

The era of globalization has brought many people out of poverty, but in the wake of COVID-19 inequality is raising. The pandemic highlighted the nature- and climate crises, and both are likely to hit poor people the hardest. Dwindling wilderness, loss of biodiversity and ecosystems have led humans and their domesticated animals in closer proximity to wild animals – increasing the likelihood of zoonotic-based diseases. Constituencies expect governments to be prepared and handle pandemics – and today's medicinal technology has responded more quickly than ever before. China is central to the debates on the origin of COVID-19 and on vaccine developments. These linkages have had a brief appearance within global health and environment arenas: The concept of 'One Health' has been discussed in the WHO, the CBD, UNEP, the EU, OECD, IPBES and IPCC. In this report, we examine the ongoing debates on health and environment linkages – and the policies they produce. Where are these debates heading and do we see a trend towards greater policy interaction between the knowledge-silos separating health and the environment? Are responding policies likely to increase or lighten the burden of the world's poor? What is the role of China in development aid in Africa? And how does China handle its role as host to COP15 of the Convention on Biological Diversity?

Sammendrag

Mens globaliseringens oppside er de mange menneskene som ble rykket ut av fattigdommen, står vår post-corona verden foran økende ulikheter. Bekymringene for natur- og klimakrisene ble aksentuert av pandemien og legger også en ekstra byrde på de aller fattigste. Pressede økosystemer og svinnende villmark fører mennesker og husdyr tettere på ville dyr – noe som øker sjansen for zoonose-baserte sykdommer, dvs. smitte fra ville til tamme dyr og mennesker. Beredskap ved og bekjempelse av pandemier anses som myndighetenes felles ansvar og i dag kan medisinsk innovasjon raskere enn noen gang før håndtere utfordringene. Både diskusjoner om pandemiens opphav og vaksineutvikling har gitt Kina en sentral rolle. Sammenhengene mellom naturtap og zoonose-baserte pandemier står på dagsorden innen mange globale arenaer: Fellesbegrepet er 'One Health' og diskuteres i bl.a. Verdens helseorganisasjon, Konvensjonen om biologisk mangfold, UNEP, OECD, EU, IPCC og IPBES. I denne rapporten studerer vi disse debattene og forslagene som angår de globale sammenhengene mellom helse og miljø. Hvilken retning tar debattene og gir de opphav til nye politiske tiltak på tvers av tidligere silo-tenkning mellom miljø og helse? Hvordan vil slike tiltak kunne hjelpe eller øke belastningen for verdens fattigste? Hvilken rolle spiller Kina relatert til landets økende rolle som bistandsaktør i Afrika? Og utøver landet lederskap som vertsnasjon for COP15 av Konvensjonen om biologisk mangfold?

© Fridtjof Nansen Institute, October, 2022

ISBN 978-82-7613-747-7

ISSN 1893-5486

FNI Report 4|2022

Global cooperation on health and nature issues in the (longer) wake of COVID-19

Effects on poverty alleviation, and the role of China

Kristin Rosendal, Gørild M. Heggelund, Christian Prip and Kristin Ingstad Sandberg

Front page photo: PixxlTeufel from Pixabay

The Fridtjof Nansen Institute is a non-profit, independent research institute focusing on international environmental, energy and resource management. The institute has a multi-disciplinary approach, with main emphasis on political science and international law.

Contents

1. Introduction	1
2. Collaboration across fields: One Health and biodiversity	1
2.1 Zoonoses and protection of biodiversity.....	1
2.2 Agriculture and zoonoses	1
2.3 Markets, trade and zoonoses	2
2.4 Nature and medicines.....	3
2.5 Developments in science–politics and interests since 2020.....	4
2.6 From science to politics	5
3. One Health on international health and environmental arenas	7
3.1 The biodiversity cluster conventions.....	7
The Convention on International Trade in Endangered Species of Wild Fauna and Flora	7
The Convention on Biological Diversity (CBD)	8
3.2 Health forums: One Health debates	9
4. On China’s role in global health and nature governance	12
4.1 China presiding over COP 15	12
4.2 China’s leadership ambitions in the health-environment debate.....	13
4.3 China in Africa	14
5. Conclusions: poverty aspects	16
Literature	17

1. Introduction

This report takes its point of departure in our ‘Global governance of health and nature in the wake of COVID-19. Attentive to the role of China and to poverty perspectives’ (Heggelund et al., 2021), written in 2020. At that time, the pandemic had spurred attention to the interaction between health and biodiversity, and there was an urgent need for global responses. International forums with scant interrelations prior to the pandemic were becoming attentive to each other’s agendas; several produced evidence on the importance of world-wide cooperation across their policy fields of health and nature. But is this link between health and biodiversity loss likely to remain? And are concrete policy options or proposals emerging? Here we focus on how related policy measures might affect poverty-related aspects. The health and nature issues raised by the pandemic touch on several of the UN Sustainable Development Goals (SDGs). In the longer run, it may be become more difficult to attain these SDGs, under the pressure of possible global economic setbacks and increasing inequalities world-wide. China, with its growing global influence and presence, plays a significant role in these trajectories.

Our examination falls into three sections:

i) First, we explore the *state of scientific agreement* regarding interlinkages between zoonoses and loss of biodiversity. A high level of scientific discord coupled with sharply conflicting interests will tend to reduce the role of science in environmental decision-making (Underdal, 2000). Our previous study (Heggelund et al., 2021) examined how *central concepts* (One Health, biodiversity loss, poverty and zoonoses) were applied in key reports on how to tackle the post-Covid era. This is further examined in the first part of the present report. Next, we consider the interests involved at the international level between international secretariats and between states.

ii) The *inter-institutional scene* is important – due partly to the expected turf-wars between inter-

national secretariats scrambling for scarce resources at the global level, and partly because of the need to discuss the division of labour between interacting global arenas, including health and the environment (Biermann, 2014, 2020). Here we will discuss signs of policies developing across the typical ‘silo-boundaries’ of international forums on health and environment.

iii) As to interests at the *inter-state level*, China is of particular relevance. First, China has rapidly become more influential on the global scene, with greater presence and interests in many African countries. Second, it has been subject to both criticism (lack of transparency) and appreciation (funding vaccines in LDSs) for its actions regarding the pandemic. Third, China will preside over the 15th conference of the parties (COP15) to the Convention on Biological Diversity (CBD). This was originally to take place in Kunming in October 2020, was then postponed due to the pandemic and finally moved to Montreal, scheduled for December 2022. China’s role in the pandemic and as host/presiding over COP15 represent an *arena for leadership* but could also give rise to uncertainties.

Heggelund et al. (2021) investigated the *global governance* aspects of the debates on how to cope with the *division of labour* between health and nature forums. That study also examined the roles played by two major institutions – the CBD and the World Health Organization (WHO)). In the present report, we revisit these institutions, examining how zoonoses and One Health are currently dealt with in the CBD COP 15 and in WHO. ‘One Health’ is also important here: we discuss *science–policy relations* and seek to uncover *conflicts of interest*. We present the findings from our case-study of China and discuss how poverty aspects are dealt with in proposed policy measures. As the handling of the pandemic sheds light on an arena for global power politics, we also revisit our findings on the potential *effects for poverty alleviation* as regards current policy measures and options.

2. Collaboration across fields: One Health and biodiversity

In this section we investigate the *state of scientific agreement* on interlinkages between human health and biodiversity loss. First of all, what do these interlinkages entail? The central concept is ‘One Health’, which draws attention to the close links among ecosystems, animal and human health. The ‘One Health’ initiative involves the UN Food and Agricultural Organization (FAO), the WHO and the World Organization for Animal Health (OIE). Here we have examined recent proposals for regulating natural habitat protection, international trade in wildlife, informal markets, bushmeat, zoonoses, and the ‘One Health approach’ (Heggelund et al., 2021; CBD, 2020; IPBES, 2020, 2019; GBO, 2020; Dasgupta, 2020; OECD, 2020a, 2020b; UN, 2020; UNEP & ILDRI, 2020; WHO, 2018a, 2018b, 2018c, 2019a, 2019b, 2020a, 2020b; 2022; 2022a; World Bank, 2018; WWF, 2020). These reports show that the major relevant interlinkages between health and nature concern linkages between i) zoonoses and ecosystem management, including biodiversity protection; ii) zoonoses and agriculture; iii) zoonoses and trade; and iv) biodiversity and medicine. We examine recent developments in the science–policy debates, and the implications of proposed policy measures from a poverty perspective.

2.1 Zoonoses and protection of biodiversity

There is international agreement on the importance of including pandemic and health responses in the post-corona phase to halt the loss of biodiversity and to enhance nature conservation. Proposed efforts aim at better collaboration between the health and nature sectors, as well as science, policy, and practice.

Our examination reveals a potential ambiguity concerning the effect of biodiversity on pathogens and zoonoses. On the one hand, a superficial reading of the situation could give the impression that

biodiversity itself represents a threat to human health: zoonoses originate in the wild, and human contact with this wildlife-side is a precondition for contracting pathogenic viruses (Jones, 2008). Prior to the pandemic, One Health focused largely on nature-related health *risks*, taking the potential nature-related health *benefits* less into account (Keune et al., 2022). More recently, the interlinkages between biodiversity, wildlife, and human health have become more widely recognized (Keune et al., 2022), and biodiversity conservation is now deemed likely to reduce zoonotic diseases because resilient and sufficient wildlife habitats reduce the contact between wildlife, livestock, and humans (European Parliament, 2020). Similarly, Keesing and Ostfeld (2021) argue that recent research demonstrates that some taxa (rodents in particular) are much more likely to be zoonotic hosts than are others: and these animals often proliferate in human-dominated landscapes, increasing the likelihood of spill-over. In less-disturbed areas, these zoonotic reservoir hosts are less abundant, and other species dominate (Dasgupta, 2020). Thus, biodiversity conservation (maintaining less-disturbed areas) seems likely to decrease the risk of human exposure to new as well as established zoonotic pathogens (Keesing and Ostfeld, 2021). The effects are exacerbated by agricultural and livestock systems that increasingly encroach on natural areas, causing deforestation and habitat deterioration. Humans and livestock now constitute 96% of the world’s mammalian biomass: more species are threatened with extinction than ever before in human history (Pörtner et al., 2021). These aspects provide the backdrop for the One Health approach and the focus on agricultural systems.

2.2 Agriculture and zoonoses

Historically, the domestication of animals led to livestock pathogens infecting humans, as in the case of influenza, measles and smallpox. The proximate

source of pathogen spill-over to humans is more likely to have concerned contact with domesticated rather than wildlife species, given the generally closer human contact with domesticated animals (Smith et al., 2009; SBSTTA, 2017, p. 3). The central role of land-use change in the increasing emergence of zoonoses is linked to the explosion of human and livestock populations (Pörtner et al., 2021), with more contact among people, livestock and wildlife, while wildlife habitats dwindle. The massive decrease in natural environments may lead to a direct increase in the emergence of zoonoses; several reports note the urgent need for better governance of the agri-food-business sector (UNEP, 2020; Morand et al., 2020). Kock (2014, p. 2) has argued that ‘zoonotic transmission is uncommon and often involves a domestic animal bridge’, as with livestock like pigs, ducks and horses. Similarly, Patz et al. (2000, p. 2) link emerging zoonoses to habitat loss due to agriculture: ‘The replacement of forests with crop farming, ranching, and raising small animals can create supportive habitats for parasites and their host vectors.’ The Dasgupta report (Dasgupta et al., 2020) and Johnson et al. (2020) also indicate that ‘anthropogenic activities that have caused losses in wildlife habitat quality, have increased opportunities for animal–human interactions and facilitated zoonotic disease transmission’ (Johnson et al., 2020, p. 1). Since 1940, agricultural drivers have been associated with more than 25% of all infectious diseases and over 50% of zoonotic ones to emerge in humans (Rohr et al., 2019). Rohr’s synthesis article concludes with policy recommendations for tackling the increasing problems caused by expanding and intensified agriculture, including concerns for developing countries.

Thus, more intensive food production systems may relieve the pressure on dwindling natural ecosystems, reducing the contact between humans and zoonoses – but these systems could themselves help to spread diseases, posing zoonotic challenges. We pursue this issue of food markets in the following section.

2.3 Markets, trade and zoonoses

Global and local trade in food and medicines also play an important part in the spread of zoonoses.

Informal (live animal or ‘wet’) markets in poor countries constitute the backbone for local livelihoods but may also involve illegal and uncontrolled export of wildlife. In addition, the COVID-19 pandemic has showed that intensive, high-tech, food systems may spark the spread of the disease. Industrialized, large-scale slaughterhouses have on several occasions been shown to be a major source of infection (UNEP et al., 2020). In many African and Asian countries, meat supply from wild animals may exceed that supplied by domesticated animals (UNEP et al., 2020, p. 31). According to IPBES (2022, p. 5) an estimated 70% of the world’s poor depend directly on wild species and on businesses fostered by them. The 2022 IPBES report notes that protected areas generated US\$600 billion a year prior to the COVID-19 pandemic, with wildlife tourism being crucial for local livelihoods (IPBES, 2022, p. 5).

A growing concern is that responses to zoonoses and related diseases may involve the world’s poorest populations disproportionately (UNEP et al., 2020, p. 42). For poor people, some of the responses made to control outbreaks may entail the extra burden of reducing access to animal sources of food, for instance through large-scale culling of domestic animals (UNEP et al., 2020, p. 23). Moreover, the burden of neglected zoonoses tends to fall heaviest on poor, vulnerable and marginalized populations. With any intervention, the possible benefits must be weighed against the potential trade-offs.

Important for global trade are the sanitary and phytosanitary (SPS) measures of the World Trade Organization, but also the CITES regulations could apply. The CITES already bans international trade in pangolin, which is triply relevant: The pangolin is well-known as a source of zoonoses; it is central in traditional Asian and Chinese medicine – and it has become the world’s most illegally trafficked mammal, now severely threatened with extinction (Vyawahare, 2020) (see section 2).

WTO regulations have also received renewed attention, as they are central for access to COVID-19 vaccines. In June 2020, several developing countries notified the WTO concerning the right to compulsory licencing allowing for the production of patented vaccines. The notification is in line with the WTO Doha Declaration (2001) on compulsory

licencing of patented medicines, intended to ensure access in least developed countries (LDCs). The concern is also reflected in the WHO draft resolution of 18 May 2020, which backs the rights of Low- and Medium-Income Countries to challenge patents on COVID-19 vaccines. At the time, the WHO resolution was strongly opposed by, among others, the USA and Norway, where supporters included the EU and China (A73/CONF/ 1Rev1, 18 May 2020). Norway argued that patenting represents only one of several constraints on vaccine delivery in poor countries. The Norwegian pandemic response has been to help to build and support the COVAX alliance (GAVI, CEPI, WHO, UNICEF), which made an early pledge to deliver two billion doses of covid vaccines to LDCs. At the time of writing this updated report, an average of 70% of the world population had been vaccinated, of which some 22% in African countries (African Union et al., 2022). As the pandemic releases its grip on the Western world, the urgent call from the WHO that ‘no one is safe until all are safe’ has not been heeded. There remains scientific uncertainty about how the virus will develop in unrestrained areas.

2.4 Nature and medicines

Vaccines and medicines point to yet another vital connection between health and biodiversity. Like the pathogens brought by zoonoses, medicines and vaccines also originate from nature. (As Kock (2014, p. 1) comments, ‘where else should they come from?’) From a One Health perspective, these links to medicines and vaccines are obvious, and depend on resilient ecosystems and ecosystems services. Loss of biodiversity is also the cause of the loss of potential new medicines. Less than 1% of all flowering plants, insects, microorganisms, and marine organisms have been screened and studied for their medicinal properties. This activity is known as bioprospecting: the systematic search for biochemical and genetic information in nature, to develop commercially valuable products. WHO (2020) has drawn

attention to the implications of biodiversity loss for health and medicine: ‘Significant medical and pharmacological discoveries are made through a greater understanding of the earth’s biodiversity. Biodiversity loss means that we are losing, before discovery, many of nature’s chemicals and genes, of the kind that have already provided humankind with enormous health benefits.’¹ WHO and CBD (2015, p. 12) conclude: ‘Estimates suggest that the global trade in plants for medicinal purposes reaches a value of over USD2.5 billion.’

The pandemic has spurred renewed attention to the provisions for Access and Benefit Sharing (ABS) under the Convention on Biodiversity and its Nagoya Protocol. With health and biodiversity relationships figuring more prominently on the political agenda, it is increasingly recognized that nature can be a resource (genetic resources as sources of medicines), but can also pose threats through zoonoses, depending on how biodiversity is governed (UNEP, ILRI, 2020).

Bioprospecting, also for medicinal purposes, takes place by directly collecting organic material from nature, and through genetic sequencing of such material that has already entered biobanks – also known as Digital Sequence Information (DSI). DSI remains a controversial issue in the CBD COP negotiations, as it could undermine the ABS regime, which was primarily envisaged as a financial mechanism to support poor countries.² However, ABS gives rise to a predominantly North–South conflict, exacerbated by the diverging norms embedded in internationally harmonized patent regimes (IPR-/intellectual property rights),³ and the ABS regime of the CBD with its Nagoya Protocol, respectively (Oberthür and Rosendal, 2014). In Norway, a pending administrative order on how to regulate ABS relating to foreign bioprospectors at home underwent two separate hearings in 2012 and 2017 (Rosendal and Skjærseth, 2022).

¹ www.who.int/globalchange/ecosystems/biodiversity/en/ accessed 31. August 2020.

² The CBD, Article 2, defines ‘genetic resources’ as genetic material of actual or potential value, and ‘genetic material’ as any material of plant, animal, microbial or other origin containing functional units of heredity. The second definition

has given rise to dispute, as genetic sequences and enzymes applied in synthetic biology do not necessarily contain functional units of heredity.

³ As regards the TRIPS agreement under the World Trade Organization.

The international debate on ABS and DSI centres on whether to define genetic resources solely in terms of the ‘functional units of heredity’ that they carry, or in terms of their informative aspects, which are applied in biotechnology. Bioprospecting in nature has been less in focus for the past few decades, as many biotechnology corporations have turned to synthetic biology. However, similar to the disappointments related to bio- and gene technology prospecting in the wild (which gave rise to the ABS regime in 1992), synthetic biology has not lived up to expectations: the rate of new drugs has been halved during its 20 years in effect (Krabbe, 2021, p. 71). This development is acknowledged by Novozymes, a leading biotechnology corporation. According to their Head of R&D, Peter Falholt, ‘I’m a little bit sceptical of synthetic biology [as being able to provide sufficient genetic material for bioprospecting], because you cannot beat four billion years of evolution.’ Novozymes is also a pioneer in advocating ABS as a business strategy (Rosendal and Skjærseth, 2022).⁴ Bioprospecting in nature might still prove to be a useful component of drug development, and could revitalize the ABS-IPR debate, as recognized by the CBD ad hoc expert group on DSI (CBD, 2020).

For developing vaccines, rapid access to the pathogenic virus is essential. This was illustrated by the conflict involving Indonesia, pharmaceutical corporations and the WHO during the advent of avian flu. Indonesia was hardest hit by avian flu and WHO requested access to Indonesia’s virus samples from patients. Indonesia set the condition that, as a poor country hard hit by avian flu, it should be granted affordable access to the ensuing vaccine. WHO could not guarantee this, as the vaccines would be the intellectual property of the pharmaceutical corporations involved. The conflict gave rise to WHO’s PIP framework – the Pandemic Influenza Preparedness agreement, which enables quick access to pathogens and vaccines alike. However, corona/covid is not an influenza virus, so PIP did not enter the equation here. China has been lauded for providing relatively rapid access to the full genome of the virus, which was essential for the speed at which COVID-19 vaccines could be developed (more on China’s role in part 4).

2.5 Developments in science–politics and interests since 2020

We now examine reports and collaborative activities (global discussions) that have emerged since our previous work. Despite, but also because of, the short time that has elapsed, our task here is to examine whether the issues have become stronger or weaker on international and domestic political agendas. The interlinkages involving human, animal and environmental health are central in the ‘One Health approach’, but the collaboration has been criticized for not including other environmental organizations, and it has been faulted for being more of a principle than a programme for action (Morand et al., 2020; Norad, 2021).

A pioneering recent European Parliament report (EP, 2020) has taken the health-biodiversity issue forward. Three areas are singled out for concrete policy options: areas with limited human influence, areas under anthropogenic influence, and areas connected with wildlife hunting and trade: i) The first area lends itself particularly well for biodiversity conservation as a major policy, including buffer zones and retaining forest cover in tropical countries. A concrete measure here is the already proposed trade policy to enable legally binding tools to ensure deforestation-free trade. Large, protected areas involve less risk of disease emergence than smaller scattered habitats. ii) Improved sanitary conditions are singled out as the main tool for reducing the risks of zoonoses in livestock production. Urban wildlife could increase zoonotic risks but is still stressed as necessary, and the risks can be controlled through sanitation, rodent control, and animal vaccination. iii) The EP report takes into consideration the importance of wildlife hunting and trade for indigenous and local people, stressing the need for better control and sanitary regulations to reduce the spread of zoonotic diseases. Also here, the possibility of extending the role of CITES has been discussed. Another option is to develop payment for the contributions of indigenous peoples and local communities to the conservation of local biodiversity. Part ii of the EP report makes clear the responsibilities of the agricultural sector for avo-

⁴ [The enzyme hunters | Feature | Chemistry World](#)

iding zoonoses, and part (iii) notes the need for strengthened financial mechanisms to support One Health globally and in poor countries.

This third objective is also central in a report published by the Norwegian Directorate for Development Cooperation (Norad) in late 2021. Norad launched the report as part of its development cooperation strategy for 2030, pledging that all sectors of development aid shall contribute to reduced emissions, adaptation and nature conservation (Norad, 2021). Still (as also indicated by its title 'The contribution of aid in reducing emissions'), it is apparent that climate concerns take precedence over nature. One section in the report deals with nature-based solutions for responding to the climate crisis and emphasizes this preference. Hence, there is still some way to go before Norad appreciates the need to respond to the joint nature and climate crises, despite advice by the UN. In June 2021 the UN IPCC and IPBES published a common report on how the two crises are intertwined and require common solutions (Pörtner et al. 2021).⁵ Several observations and measures in the 2021 Norad report are relevant as the world emerges from the pandemic. Essentially, the report is critical to the fact that little action has emerged in support of concrete action for the goals of 'build back better' and 'One Health'. It points to the UN Sustainable Development Goals and to Kate Raworth's 'Doughnut' economics theory for how to respond to ecological footprints and social sustainability in tandem. Like the EU report, Norad highlights protection of wildlife and nature, and how to contribute to the development of new financial mechanisms, as eco-tourism revenues are dwindling in the wake of the pandemic and its travel restrictions. Central to the Norad report is the Dasgupta (2021) and IPBES (2019) realization that fragmentation of nature increases the risk of zoonoses, and that restoring nature is much more expensive than protecting it in the first place.

As regards the interlinkages between health and environment, the 'One Health approach' calls for further examination. In November 2021, central Norwegian institutions (FHI, the Veterinary Institute, the University of Oslo, and NMBU) organized

a debate on 'One Health in the 21st century'. For the One Health approach, the health and biodiversity links are fundamental. However, the collaboration effort struggles to achieve attention, and major barriers remain concerning analyses of implementation. The collaboration has not yet drawn on political science or international law experts; and once again, no speakers from the social sciences were involved in the discussions. Keune et al. (2022) argue that in the post-corona phase, global health governance and the One Health approach will need better interdisciplinary collaboration, to overcome and avoid the 'knowledge silos' between health and environment, in order to strengthen early warning systems for emerging infectious diseases.

2.6 From science to politics

There seems to be considerable scientific agreement concerning the need to stem biodiversity loss as a central measure for enhancing human health and decreasing the spread of zoonotic diseases. Against this background, we turn to the broader picture of the interest structures encompassing the issue-linkages between health and biodiversity.

Scientific agreement seems to be growing, but the issues are less straightforward regarding interest structures. The measures envisaged (like more funding for conservation in poor countries) are likely to involve costs/benefits, and uncertainty remains concerning distribution (the costs/benefits might fall unevenly on the parties negotiating such measures globally). Tropical countries, home to the bulk of the world's terrestrial biodiversity and habitats (ecosystems), are sceptical to global burden-sharing where they would be expected to carry the costs of conservation. Today's industrialized countries have historically damaged much of their own wildlife areas, and continued delivery of the world's ecosystem services still relies partly on conservation in tropical countries (Rosendal, 2000). The CBD negotiations were much affected by this uneven relationship, which gave developing countries strong leverage and resulted in the access and benefit sharing (ABS) regime of the CBD (1993), later

⁵ Scientific outcome of the IPBES-IPCC co-sponsored workshop on biodiversity and climate change | Zenodo

strengthened by the CBD Nagoya Protocol (2010). International burden-sharing for biodiversity conservation has been a topic of significant attention in the CBD COP 15 – partly because ABS has delivered scant compensation to poor countries thus far, and partly because the pandemic has brought renewed emphasis on bioprospecting in nature (as discussed in section 2.4 above on ABS, DSI and IPR).

This North–South conflict is less clearly defined today than it was during the UN Rio Conference on Environment and Development that gave birth to the CBD and the UNFCCC. Funding is still a major point of contention in the climate-change negotiations, as poor countries seek international funding for climate adaptation and mitigation measures – claiming that, given the historical emission record, the better-off countries should carry the costs. Global funding for biodiversity conservation is similarly controversial, as evident in the continued problems in raising sufficient international funding. A question here is whether the costs are regarded as additional, or as contributing to synergy (contributing to win–win solutions). At UNFCCC COP 26 in Glasgow (November 2021), Norway pledged US\$ 14 million to climate measures for developing countries; and China has pledged US\$ 230 million to a new Kunming Biodiversity Fund for biodiversity conservation in poor countries, inviting other countries to join these efforts at CBD COP15 (November 2021–autumn 2022).

At the UN Environment Assembly in February 2022 (UNEA-5.2), with the resumed fifth session of the Open-ended Committee of Permanent Representatives (OECPR), health and biodiversity were major, controversial topics. Here, the EU advocated resolutions on linking One Health to biodiversity conservation as central to reducing zoonoses interaction. However, key representatives of the Global South (Brazil, Argentina) maintained that health and biodiversity issues must first be better linked to ABS, to developing vaccines in accordance with ABS principles, and to support member-states in health-related biotechnology activities. Brazil, Argentina, the USA, China, and Russia all expressed reservations about UNEP playing a central role in linking biodiversity and health issues, preferring this to be

reserved as the domain of the WHO.⁶ The rationale for this scepticism seems multifaceted and complex: China’s reluctance to highlight health, biodiversity and zoonoses links could well be due to the Wuhan incident (COVID-19). Brazil and many developing countries have been pursuing all possibilities to advocate for ABS, as DSI is increasingly challenging the regime. The USA is essentially sceptical to the ABS regime, which is the main reason why it is the only UN member that has not signed the CBD. Similarly, the USA is deeply opposed to referring to patent rights or any intellectual property rights (IPR). At UNEA-5 in February 2022, the developing countries were adamant on linking health and biodiversity discussions to the ABS principles, and on including DSI and IPR.

Convening in March 2022, the CBD’s Subsidiary Body on Scientific, Technical, and Technological Advice (SBSTTA), Subsidiary Body on Services (SBI) and the Open-ended Working Group on the post-2020 global biodiversity framework (WG2020) witnessed the same controversy over ABS and DSI. This time, agreement was reached on including access and benefit sharing (ABS) in further DSI talks, but concerns remained over the One Health approach (ENB, 2022, 9(775)). This is further explored in section 3.1. below.

We have noted the increase in explicit links between biodiversity and health – but what about climate change? Climate change is recognized as an increasing threat to biodiversity and the ecosystem services it provides; it is also acknowledged that climate change may affect the frequency and emergence of infectious diseases. The UN increasingly holds that the climate and nature crises should be recognized as inseparably intertwined, requiring concerted action. As such, the IPCC (2022) represents a watershed in linking the climate and nature crises, highlighting ecosystems and biodiversity at all policy levels and sectors. There is no mention of One Health, but many references to human well-being, ecosystem, and planetary health: ‘health’ is mentioned 66 times, ‘biodiversity’ 34 times, and ‘ecosystems’ 133 times in the IPCC Summary report for policymakers (2022). The nature crisis is fully dealt with in the IPCC’s latest report.

⁶ [UNEA Flagship Side Events | IISD Earth Negotiations Bulletin](#)

3. One Health on international health and environmental arenas

3.1 The biodiversity cluster conventions

There is an untapped potential in academic empirical research on global health governance and implementation of related policies. The role of the social sciences in understanding the policy processes involved in achieving the One Health objectives and improved global health governance and implementation is largely overlooked.⁷ While the social sciences have been broadly applied to study international environmental agreements, there has been less attention to global health governance. To demarcate this wide theme, we shall briefly investigate three questions here: i) How are the health and environment interlinkages dealt with in the current nature conservation negotiations under the CBD COP 15 – and are any concrete measures proposed? ii) Has the health complex proceeded with concrete measures for handling the health and environmental linkages relating to the ‘One Health approach’? iii) How has CITES dealt with proposals that the agreement should encompass monitoring of zoonoses in international trade?

The wake-up call on the state of human relationships with nature in view of the COVID-19 pandemic should lead multilateral environmental agreements dealing with biodiversity and wildlife to focus more on the serious threats to human health posed by zoonoses. In its recent report (2020) on preventing zoonotic diseases UNEP, the UN host of most these conventions, argues that environmental considerations have been insufficiently incorporated into the One Health approach, as it started out in collaboration among WHO, FAO and OIE. This, according to UNEP, has significantly limited the success of the One Health approach (UNEP et al. 2020). Also, the July 2020 IPBES Workshop on Biodiversity and Pan-

demics recommends a stronger role for the biodiversity-related conventions in global governance of zoonoses prevention (IPBES, 2020). The biodiversity-related conventions of greatest relevance in this context are CBD and CITES. In the context of zoonoses, better coordination is needed between addressing climate change (the Paris Agreement) and protecting biodiversity.

The Convention on International Trade in Endangered Species of Wild Fauna and Flora

It has been argued that CITES could/should offer its long experience with robust and enforceable regulation of wildlife trade and its effective institutional design to include animals known to carry serious diseases (Weissgold et al., 2020). CITES will now have an opportunity to consider its role in relation to zoonotic diseases at its COP 19, scheduled for 14–25 November 2022.

In 2021 the CITES Standing Committee decided to establish an intersessional working group to consider what role, if any, CITES could play in reducing the risk of future zoonotic disease emergence associated with the international wildlife trade. The group has prepared draft decisions aimed at contributing to mitigate the risks of pathogen spillover from international wildlife trade, mainly in the form of instructions to the CITES Secretariat.⁸ Through the Standing Committee these have been submitted to COP 19 for decision.

Concerned that these recommended decisions do not adequately reflect the urgent need for CITES to address pathogen emergence and zoonotic disease transmission, several West African countries (Côte d’Ivoire, Gabon, The Gambia, Liberia, Niger, Nigeria, Senegal) have submitted a more strongly worded

⁷ Reiterated at the webinar hosted by the *Lancet* One Health Commission : [One Health Policy, Governance and the EID/NTD Interface](#), 3 December 2020. <https://youtu.be/INWONDEUvko>

⁸ [CoP19 Doc. 23.1. Role of CITES in reducing risk of future zoonotic disease emergence: Working document for CITES CoP19](#)

draft decision, directed mainly to CITES country parties. The proponents argue that CITES

... as the Multilateral Environmental Agreement that governs international trade in wild flora and fauna, has a central role in addressing zoonotic disease transmission risks associated with wildlife trade. CITES Parties must ensure that international trade in wildlife as regulated by the Convention is conducted in a way that seeks to reduce the risk of pathogen emergence, amplification, mutation and spillover, in order to protect the health of animals and people.

The countries recommend, among other things, that Parties take into consideration the One Health approach in implementation of the Convention, develop and strengthen synergies with appropriate national and international animal and public health authorities, and develop a One Health CITES Action Plan to reduce the risk of zoonotic disease transmission during the chain of events from catch through sale (including at markets) to shipment and transshipment of CITES listed species and specimens.^{9, 10}

As regards views on the CITES Secretariat, we discussed in our 2020 report a statement made by the Secretariat that ‘matters regarding zoonotic diseases are outside of CITES’s mandate’, and that ‘therefore the CITES Secretariat does not have the competence to make comments regarding the recent news on the possible links between human consumption of wild animals and COVID-19’. That statement can still be found on the CITES webpage, albeit in amended form. The Secretariat has now added that it is aware of the media commentary indicating possible links between the human consumption of pangolins (or other wild animals) and COVID-19. It is underlined that international commercial trade in pangolins and other Annex 1 species is generally prohibited under the Convention, and that Parties may also introduce measures stricter than those stated in the Convention.¹¹

The CITES Secretariat has also commented on the draft decisions for COP 19 outlined above. It is generally in support of the submission by the Standing Committee, and even states: ‘CITES can and should support intergovernmental bodies which have a role in public health and preventing zoonotic disease emergence to sustainably balance and optimize the health of people, animals and ecosystems. As regards the West African proposal, the Secretariat finds it ‘premature’ to adopt a resolution of this kind but sees it as an important contribution to the debate.

While the above-mentioned statements by the Secretariat appear somewhat ambiguous as to the role of CITES, the submissions for COP 19 by the Standing Committee and a group of nation-state parties indicate that the role of international wildlife in the spread of zoonotic diseases has now reached the CITES agenda – as hoped for by several commentators mentioned in our previous report (Heggelund et al., 2020).

The Convention on Biological Diversity (CBD)

When the COVID-19 pandemic broke out in 2020, CBD COP 15 and the related international meetings were postponed several times. However, work as such was not halted. Processes and special events continued in the form of online meetings, consultations, webinars, etc. Clearly influenced by the pandemic, these recognized the important role of biodiversity in helping to prevent the spread of zoonotic diseases. Most prominent was the case for a Biodiversity Summit 30 September 2020 held on the margins of the 75th session of the UN General Assembly. The UN Secretary-General as well as several state leaders called for embedding nature-based solutions in pandemic recovery plans. The COVID-19 pandemic was also seen as an opportunity to rethink mankind’s relationship with nature and to align climate and biodiversity global goals.¹²

However, the momentum for biodiversity created by COVID-19 and zoonotic diseases now appears to

⁹ [CoP19 Doc. 23.2. Role of CITES in reducing risk of future zoonotic disease emergence. Working document for CITES CoP19.](#)

¹⁰ Ibid.

¹¹ [CITES Secretariat’s statement in relation to COVID-19.](#)

¹² [United Nations Summit on Biodiversity --30 September 2020.](#)

have been lost. When physical meetings were resumed in March 2022 to prepare for COP 15, there was no agreement on even taking note of the important 2019 IPBES Global Assessment Report on Biodiversity and Ecosystem Services, which noted that zoonotic and vector-borne diseases are significant threats to human health, and that emerging infectious diseases in wildlife, domestic animals, plants or people can be exacerbated by human activities. Moreover, in its operative part, the draft recommendation included only some very general statements on the One Health approach.

Before the pandemic, the CBD COP 14 in 2018 had started a process for developing a global action plan to mainstream biodiversity and health linkages into national policies, building on the One Health approach. This work has apparently not progressed, despite the major events that have taken place since the last COP in relation to biodiversity and health. The recommendation to COP 15 – in brackets implying no agreement – requests the Secretariat to complete the work programme only for COP 16, expected to be held in 2024.

The current heavily bracketed Post-2020 Global Biodiversity Framework to be adopted by COP 15 includes 22 targets, with no mention of the zoonoses–biodiversity interface.¹³ During the fourth meeting of the Open-ended Working Group on the post-2020 global biodiversity framework in Nairobi 2022, preparing for COP15, the UK proposed a 23rd target: the implementation of a biodiversity-inclusive One Health approach, focusing especially on the risks of the emergence and transmission of zoonotic diseases to avoid or reduce risks to the health of humans, wild and domesticated species, and ecosystems.¹⁴ However, African countries held that the One Health approach was not mature enough to be included in the Global Biodiversity Framework as it lacked reference to benefit-sharing (ABS). Namibia offered an alternative formulation of the suggested Target 23, calling for fair and equitable benefit-sharing for potentially pandemic pathogens, including better access to zoonosis response tools, to be realized by the adoption of a

specialized international instrument by the World Health Assembly before 2025 and its recognition by the CBD at COP17 (ENB, 2022, 9(776)). This could involve building on the WHO PIP framework (pandemic influenza preparedness), which in turn is heavily inspired by the ABS regime of the CBD (Oberthür and Rosendal, 2014).

At the time of this writing, before CBD COP 15, it seems that high-level political initiatives will be needed to influence the CBD process, if COVID-19 and zoonotic diseases are to receive attention at COP 15 with decisions to that effect. As the country of origin of the COVID-19 virus, and host and president of the COP15, China would be an obvious candidate for exercising leadership in this regard.

3.2 Health forums: One Health debates

In academic debates and global governance arenas, the past ten years have seen growing alignment between the issues of biodiversity and health. From a health perspective more generally, such interlinkages have long been recognized as fundamental, and have been broad in scope – ranging from ecosystem services such as clean water and nutrition, to green urban spaces, to resources for pharmaceuticals and traditional medicines, as well as the microbial ecology that forms the basis for zoonoses and the emergence of new infectious diseases in human beings (Korn et al., 2019). Why, then, has it taken so long for these connections to be made in policy processes? And can they be expected to persist?

The foremost arenas in terms of global policymaking are the World Health Assembly (WHA) and the Executive Board of the WHO. The WHA is indeed an arena for public debate, but there are others, such as think-tanks with an academic grounding but often external (often philanthropic) funding, including non-profit organizations such as the *Eco Health Alliance* or time-restricted activities such as the

¹³ [CBD/WG2020/REC/4/1. Recommended Post-2020 global biodiversity framework](#)

¹⁴ [Earth Negotiation Bulletin. 4th Meeting of the Open-ended Working Group on the Post-2020 Global Biodiversity Framework. Summary report 21–26 June 2022.](#)

Lancet One Health Commission.¹⁵ Examination of the decisions of the WHO Executive Board (from February 2019 to May 2022) and those of the WHA (from May 2018) for the relevant keywords here indicates that the One Health concept has been the most salient in connecting biodiversity and health.

We find only one mention of the concept of zoonoses – at the February 2020 Executive Board meeting, following up the first international Food Safety Conference and International Forum on Food Safety and Trade. Foodborne zoonoses are noted as an issue also in the WHO strategic plan. Although this scant attention to zoonoses seems surprising, reference was also made in conjunction with the One Health approach to food safety and managing risks along the entire food chain, emphasizing the interconnection between food safety, and human, animal, plant and environmental health (WHO, 2020b, p. 13).

In decisions of the World Health Assembly, the One Health concept features in relation to national plans for health emergency preparedness, as an example of existing multisectoral processes to build on (WHO, 2018c, pp. 70–71), and in relation to antimicrobial resistance (WHO, EB, 2022). It also appears in ‘WHO global strategy on health, environment and climate change (WHO, 2019b)’, where adoption of a One Health approach ‘is to be sought where appropriate’. Moreover, the topic of Chinese traditional medicine (TCM) came up at the WHO Executive Board meeting held in late 2018 (EB 144, 22), preparatory to the revision of international classification of diseases to be addressed at the following WHA. The EB decision does not refer to the issue of wildlife trade, or any other aspect of ecosystems or habitats from which ingredients are sourced, and it states explicitly that the categories ‘.. do not refer to – nor endorse – any form of treatment’ (WHO, 2018a, p. 7).

Technological developments are often important to political processes and what is deemed politically feasible. The interconnections between the One

Health approach and bio-surveillance came to the forefront with the COVID-19 outbreak. The pandemic made it easier to argue for robust bio-surveillance networks, combining veterinary and human health, noting people and wildlife driven together (human activity; economic development) as a key factor driving emerging infectious disease (as with Ebola, SARS, MERS, COVID-19). Also relevant here was the fact that several bio-surveillance initiatives had been or were in danger of being de-funded, and the pandemic represented an opportunity to get the issue back on the agenda.

Since around 2010, interest in identifying unknown viruses in wildlife has grown, initially spearheaded by the US Agency for International Development, with an early cross-sectoral effort to link biosurveillance and pandemic preparedness. The Global Virome Project (GVP), launched 2018, aimed at discovering and providing risk characterizations of potentially zoonotic viruses, in order to ‘...identify and characterize the majority of currently unknown viruses in key wildlife groups’ (Carroll et al., 2018). Further, there have been calls to establish a global genomic-based bio-surveillance platform, as a collaboration involving the research programmes BIOSCAN, the Earth BioGenome Project (EBP) and the GVP (Kress et al., 2020). The aim is to create a ‘pandemic interception system’ to identify potential pathogens and to improve our understanding of host/pathogen interactions. Technology has made this possible through DNA sequencing platforms. However, the utility of such endeavours is debated in the health community – specifically the cost-benefit issue in relation to other measures (Jonas and Seifman, 2019).

Merging nature and health still faces the challenges of administrative turf wars and competition for scarce funding. The global health community consists of multiple sub-groups that have advanced separate agendas and that often compete for the same political and financial resources – also the One Health approach may be segregated by methodological and publishing silos (Manlove et al.,

¹⁵ In global health-policy debates, the lines between what constitutes a platform/arena and stakeholder/policy practitioner are often blurred, so keeping track of actor interests is always important. In connection with a desk-study

like the present one, it should be borne in mind that much information – particularly on debate and disagreements – will be hidden from public view, or even the grey literature.

2016). Moreover, the One Health approach, linking biodiversity and pandemics, constitutes one of several possible interconnections between biodiversity and global health. From a Global Health perspective, the case for cross-sectoral coherence inherent in the approach would seem to indicate that it is in the domain of health governance (or health policies) that these issues should be taken up, prioritized and funded. Kress et al. (2020), for instance, point out that the health sector is where the information is to be acted upon. Cunningham et al. (2017) note that some sectors of the medical profession are under-represented in the debate, particularly those involved in implementation. Such mainstreaming challenges are familiar from other-issue areas, where no-one objects to the cross-sectoral aspiration, but where competition over limited resources and internal priority-setting in each sector raises the bar for realization (Faid, 2012). The question becomes: What kind of institutional changes are required at the global level – and, from a health-perspective, what trade-offs will have to be made at the level of national health policy, where various sectors of the health system are already scrambling for scarce resources?

In fact, the major challenges may not involve how to operationalize and implement a One Health approach, but how to keep it on the agenda. The most recent reports from WHO (2022) and the WHO – EB (2022) show that One Health is still rarely mentioned (twice; not at all).

From a poverty perspective, One Health could pull in two directions. The promotion of the human–veterinary health aspects of biosecurity as the core of the One Health approach, especially in times of crisis, has been criticized for ignoring broader environmental issues as well as the concerns of traditional rural societies in poor countries (Morand et al., 2020). On the one hand, there are other concepts or approaches, notably Ecohealth, that operate within a broader frame, and take into consideration the interlinkages between ecosystem-changes and human health, including biodiversity.¹⁶ Moreover, as noted above, the Global South has

criticized the One Health approach for being immature and as lacking integration of the ABS principle. On the other hand, certain parts of the One Health approach could evolve into broader concerns for poor countries: This is seen in the work of the Lancet One Health Commission that builds on experiences of addressing the zoonoses of Neglected Tropical Diseases. The Commission has proposed three pathways for engagement: a) the concept of shared environments among livestock, wildlife and humans in rural and urban settings; b) food safety and food systems (including anti-microbial resistance and agricultural practices); and c) a more integrated approach to veterinary and human medicine (Amuasi et al., 2020).

¹⁶ See for instance the EcoHealth Alliance project on forest management in Liberia, <http://www.ecohealthalliance.org/program/forest-health-futures>

4. On China's role in global health and nature governance

A major finding from our previous study is the dual role of China in the health-biodiversity complex. The international debate soon made China subject to criticism and distrust concerning the ultimate source of the virus – whether it originated from a laboratory or from poorly governed wet-markets. Recent studies conclude that the virus most probably originated in the Wuhan market, though there is no definitive evidence about ‘what type of animal might have harboured the virus before it spread to humans’ (Maxmen 2022). At the same time, as the source of the corona virus, China immediately shared the virus-genome for much needed research on developing a vaccine against COVID-19. Moreover, China was quick in responding to criticism, changing its domestic legislation on regulation of trade in traditional foods, and tightening regulations for use of pangolin (raised to A-class). Officially China also removed pangolin scales from the 2020 edition of the Traditional Chinese Medicine Pharmacopoeia (IFAW 2020). Pangolin, classified as a Class 1 animal, may not be traded on the market – only by authorized hospitals and medical firms. This means that trade continues, now though by authorized personnel – but there could still be opportunities for illicit trade.

In the process leading up to COP15, China participated in high-level meetings on biodiversity. At the UN Biodiversity Summit in 2020, President Xi Jinping stressed that the combination of ecosystem degradation and illegal consumption and trade of wild animals acted to increase the risk of zoonotic diseases: ‘China completely bans illegal wildlife trade, eliminates the abuse of wild animals, promotes the construction of ecological civilization and demonstrates its determination to strengthen environmental protection’ (People’s Daily 2020). Regarding health, Xi also declared that the combination of ecosystem degradation and illegal consumption and trade of wild animals was increasing the risk of zoonotic diseases (People’s Daily 2020).

As host to the CBD COP15, China currently has a more visible platform in biodiversity governance. Moreover, it has a strong presence in Africa, where much of the international trade in wildlife origins. For both reasons, there is unprecedented attention to the role of China.

A pertinent question for the ensuing meeting of the CBD parties at COP15 is whether China will propose concrete actions on health and environment inter-linkages. It will also be of interest to see whether and how the focus on corona may affect China’s leadership ambitions in the health-environment debate and how the One Health approach may affect its actions in Africa. It is still too early to answer these questions with any confidence; in the following, we explore some indications.

4.1 China presiding over COP 15

A process for a new global post-2020 framework for biodiversity with another round of goals and targets is now underway. It was to be decided in Kunming, China, at the COP 15 planned for October 2020, which was postponed until 2021, due to the COVID-19 pandemic. The CBD Kunming (part 1) convened virtually with a limited number of delegates physically present, and adopted the Kunming Declaration, calling for ‘urgent and integrated action to reflect biodiversity considerations in all sectors of the global economy’ (ENB 2022).

At the Kunming COP 15, Xi Jinping announced the establishment of a Biodiversity Fund: US\$232m (CNY 1.5 bill.) to assist developing countries, adding: ‘China also calls for and welcomes contributions from other parties to the fund’ (China Daily 2021). COP 15 further underscores China’s commitment to its overarching environmental policy, ecological civilization: indeed, the theme of the meeting was Ecological Civilization: Building a Shared Future for All Life on Earth (ENB 2021). Moreover, the Kunming

Declaration notes One Health in the post-2020 global biodiversity framework:

Increase the application of ecosystem-based approaches to address biodiversity loss, restore degraded ecosystems, boost resilience, mitigate and adapt to climate change, support sustainable food production, promote health, and contribute to addressing other challenges, enhancing One Health and other holistic approaches and ensuring benefits across economic, social, and environmental dimensions of sustainable development, through robust safeguards for environmental and social protection, highlighting that such ecosystem-based approaches do not replace the priority actions needed to urgently reduce greenhouse gas emissions in a way that is consistent with the goals of the Paris Agreement (CBD 2020b).

The follow-up meeting, held in Geneva March 2022, did not give room for optimism. As Greenpeace East Asia (senior policy advisor Li Shuo) put it: ‘With so many outstanding issues, time is not on China’s side. As the COP15 president, China should work out a contingency plan to deliver a complex package with quality and ambition.’ It was finally decided to shift COP15 to Montreal, Canada (5–17 December 2022). China, as COP 15 President, will continue to preside over the Meetings, and will also convene the High-Level Segment and lead the facilitation of negotiations (CBD 2022). Moreover, China will fund the travel of Ministers from Least Developed Countries and Small Island Developing States to Canada to participate in the High-Level Segment (CBD 2022), in line with China’s aid policy (SCIO 2021)

4.2 China’s leadership ambitions in the health-environment debate

Environmental governance and biodiversity have received increasing attention in China, and COVID-19 has brought wildlife trade and management to the fore.

China’s recent policies and regulations on wildlife management and consumption have the potential to stem the illegal trade in wild pangolins. The regulations also reflect the country’s growing com-

mitment to protecting wildlife. However, there remains a need for better enforcement and greater public awareness, to reduce the demand for such products. Culturally rooted perceptions, and the centuries-long use of wildlife in TCM, make this task a demanding one that will take time. Nevertheless, there are grounds for optimism: the Chinese public reacted very negatively when linkages were announced between the pandemic and trade in wild animals, and there was a public outcry against the consumption of wild animals. It is encouraging to note that the authorities have rapidly responded to people’s concerns. Moreover, CBD COP15 offers a suitable arena for China and other countries to make further commitments to protect wild animals.

Biodiversity in China has received growing attention, although not as much as climate change. Notably, China has pushed for nature-based solutions in the climate negotiations (Reuters, 2019). Domestically, China scores high on conservation areas and reforestation policies, and has introduced ecological ‘red lines’ to restrict human and industrial activity (Schmidt-Traub, 2020). International cooperation on biodiversity has been important for China through bilateral, multilateral projects. China and the EU have stated their intention to work together on biodiversity in the EU–China Joint Communiqué on Climate and Environment (European Commission, 2021). Also, the Biodiversity Fund calls for international cooperation and contributions.

The growing focus on biodiversity is also reflected in several recent domestic policy papers. In 2021 the General Office of the Central Committee of the Communist Party of China and the General Office of the State Council issued the ‘Opinions on Further Strengthening the Protection of Biodiversity’ in relation to the Kunming COP. The following goals are to be achieved by 2035: the forest coverage rate to reach 26%, the comprehensive vegetation coverage of grasslands to reach 60%, and the wetland protection rate increased to about 60%. Also, China must implement the ‘Overall plan for major projects in the protection and restoration of important national ecosystems’ (2021–2035)’. Notably, the 14th Five-year Plan (2021–2025) highlights the need to ‘implement major biodiversity conservation

projects and build a biodiversity conservation network' (State Council 2021, p. 89).

Biodiversity protection is also closely related to poverty alleviation, and links to COVID and the trade in wild animals. A government-sponsored report in 2017 by the Chinese Academy of Engineering estimated that the industry employs more than one million people (CNN 2020). It will be very difficult to enforce a ban unless there are alternative opportunities for livelihoods (IDDRI 2020). Banning the trade in wild animals will have socio-economic impacts with severe repercussions for poverty alleviation efforts in rural areas in China.

In a new study (CCICED 2022) on nature-based solutions, commissioned by the China Council for International Cooperation on Environment and Development (CCICED), the focus is on links between climate and biodiversity, but there is little on health-related issues.

In 2016, *Time* magazine wrote: 'an estimated 1 million of the creatures [pangolin] have been taken from the wild across Asia and Africa for consumption almost exclusively in China, where many people believe their scales can be used to treat everything from rheumatoid arthritis to inflammation' (*Time* 2016). According to China's Ministry of Industry and Information Technology (MIIT), revenues from traditional Chinese medicine made up 22.4% of the national pharmaceutical industry in the first half of 2016 (*Time* 2016). TCM received considerable publicity when the chemist Tu Youyou was awarded the 2015 Nobel Prize for wormwood-based malaria treatment, artemisinin (*Time* 2016). However, several renowned TCM experts/practitioners have explicitly distanced themselves from animal-based remedies, including animal penises, which, they state, do not help male performance. To counter the trade, the Convention on Illegal Trade in Endangered Species of Wild Fauna and Flora (CITES) conference in South Africa in 2016 banned all trade in all eight species of pangolin (*Time* 2016).

Chelin and Daghar (2020) note that TCM as practised throughout Asia is one of the drivers of the illegal wildlife trade. Endangered species such as rhinos and pangolins have been poached in Africa to supply the rising demand of these products in Asia.

They refer to a 2019 report by ADM Capital Foundation (ADMCF 2018), stating that 'the illegal wildlife trade has been dominated by demand from the traditional Chinese medicine industry for the past 10 years'. As yet, there is no clear picture as to the trend in the trade in wild animals – but without strict law enforcement in China, the illegal wildlife trade from Asian and African countries to China is likely to continue.

4.3 China in Africa

China cooperated with African countries following the establishment of the People's Republic of China in 1949; Premier Zhou Enlai in 1964 laid out eight principles for assistance, which included mutual benefit, non-conditionality of assistance, and quick returns (Cordell, 2021). Political ties were in focus until the 1990s, when economic interests became increasingly important (Shinn, 2019). The Forum on China–Africa Cooperation (FOCAC), established in 2000, is the most important platform for China–Africa cooperation. Ministerial conferences are organized every three years, alternating between Beijing/China and an African country. The Ministerial Conference of FOCAC, held in Dakar, Senegal, in 2021, adopted the Forum on China–Africa Cooperation Dakar Action Plan (2022–2024). Areas of collaboration include Medical Care and Public Health, as well as food security and agriculture, and the environment. Recently, via video link on 18 August 2022, a Coordinators' Meeting on the Implementation of the Follow-up Actions of the Eighth Ministerial Conference of the Forum on China–Africa Cooperation took place (MFA 2022).

Chinese involvement in African countries has been criticized for deliberately using a debt strategy to acquire strategic assets there and elsewhere. According to *The Economist* (2022), 'new research suggests China has been neither the benevolent partner of propaganda nor the scoundrel of the West's imagination'. The more complex picture of China–Africa relations is also stressed by Deborah

Brautigam:¹⁷ ‘Narratives of China’s lending to Africa are often oversimplified, focusing on the Belt and Road initiative writ large, and levelling accusations of ‘debt-trap diplomacy’. However, closer examination reveals an increasingly complex web of Chinese financiers and contractors, African government planning and finance bodies, and numerous other infrastructure agencies. A mixed picture is also conveyed by *The Economist* (2022), which states that there is little substance to claims of ‘debt-trap diplomacy’: China is a big lender but rarely accounts for the debts of most African countries. Nevertheless, there is a conflict between China’s approach and its rhetoric of benevolence: two-thirds of China’s investments – \$160bn between 2000 and 2020 – have concerned infrastructure: roads, buildings, etc.

In response to the criticism and ‘debt-trap diplomacy’ accusations, 23 interest-free loans to 17 African countries due by the end of last year would be cancelled as announced by Foreign Minister Wang Yi in August 2022 (Nyabiage, 2022). China will also re-channel US\$10 billion of its IFM special drawing rights (SDR) to African countries to help them recover from the devastating effects of the Covid-19 pandemic and debt crisis.

China’s Belt and Road Initiative (BRI) is blamed for increasing debt in the participant countries. Moreover, there is increasing competition in Africa, from initiatives such as the US-initiated Global Investment and Infrastructure Partnership adopted by the G7 in June 2022. Russia’s foreign minister Sergei Lavrov also toured African countries to offer assistance/aid (Burke 2022). China’s interest-free loans are offered by the China International Development Cooperation Agency (CIDCA), although these constitute only about 5 per cent, of the total loans China has advanced to African countries (Nyabiage, 2022). In sum, China has gone from being an aid recipient to becoming a major donor, a major player in development aid (Liu and Luo 2020).

¹⁷ Deborah Brautigam is Director of the China Africa Research Initiative (CARI) at Johns Hopkins University.

5. Conclusions: poverty aspects

We find that both the ‘One Health approach’ and the ‘Build back better approach’ seem less concerned with poverty issues than with environmental aspects. By contrast, the Norad, the EU, the UNEP and the IPBES workshop reports warn against the potentially negative poverty effects of policy measures aimed at fighting epidemics: the culling of livestock, the widespread use of insecticides, and travel restrictions that reduce the income from ecotourism. The Least Developed Countries (LDCs) have been hard hit by the corona crisis due to falling prices in raw materials, decline in tourism, and trade – in addition to shortcomings in global vaccine solidarity.

However, improved biodiversity policies and nature-based solutions may help to reduce poverty in LDCs, where populations are most directly vulnerable to loss of the ecosystem services provided by biodiversity. Conservation of ecosystem services indicates another facet of the WHO truism that ‘no one is safe until all are safe’: as the pandemic has highlighted our common global dependence on nature as a reservoir for medicines and vaccines. Nature-based solutions may help to provide win–win–win solutions, responding to the combined needs of health, nature, and poverty alleviation.

As regards COP15 and China’s role in presiding over the CBD meeting, the Global Biodiversity Framework process is still riddled with North–South conflicts over ABS. This poverty-related aspect of the CBD negotiation process could constitute a barrier to bringing in new issues pertaining to nature and health. The ongoing debates on ABS and DSI make clear this challenge: One Health offers win–win solutions in terms of health and nature but may still be immature in terms of responding to poverty needs. Because One Health lacks reference to ABS, it seems unacceptable to the Global South as a vehicle within the Global Biodiversity Framework. However, it might not be too difficult to equip the One Health approach with integrating equitable

benefit-sharing for potentially pandemic pathogens and improved access to zoonosis response tools, building on the WHO PIP framework.

As to the more practical organizational aspects, CITES now seems increasingly willing to take on responsibility for monitoring transborder zoonoses. This could be good news, as CITES is better equipped than most other Multilateral Environmental *Agreements* as regards highly developed administrative bodies for monitoring compliance.

Among health forums, One Health seems to have made but a brief appearance. Basically, the silos between health and nature are likely to remain, constituting a barrier to further development of the One Health approach. Similarly, the silos between disciplines seem to persist, as evident from the persistent absence of the social sciences in global health debates. This lack could also constitute an impediment to improving the poverty assessments of One Health in global health governance.

Literature

- ADMCF 2018. Trading-in-Extinction-The-Dark-Side-of-HKs-Wildlife-Trade-Report-EN.pdf (admc.org)
- African Union, African CDC, WHO. 2022. COVID-19 Scientific and public health policy update. [COVID-19 Scientific and Public Health Policy Update \(28 September 2022\) – Africa CDC](#)
- Amuasi, JH, Lucas, T, Horton, R, Winkler, AS. 2020. Reconnecting for our future: The Lancet One Health Commission. *Lancet*, 395(10235): 1469–1471.
- Biermann F. 2014. Global Governance and the Environment. In: Betsill M.M., Hochstetler K., Stevis D. (eds) *Advances in International Environmental Politics*. Palgrave Macmillan, London. https://doi.org/10.1057/9781137338976_10
- Biermann F. et al., 2020. *Architecture of Earth System Governance. Institutional complexity and structural transformation*. Pp. 254–274. Cambridge University Press. DOI: <https://doi.org/10.1017/9781108784641.012>[Opens in a new window]
- Brautigam, D., Hardin, A. The Road to Who Knows Where: What one highway project in Cameroon can tell us about the complexities of Chinese lending in Africa [China Africa Research Initiative \(sais-cari.org\)](#) <http://www.sais-cari.org/>
- Burke, J. 2022 Blinken makes case for democracy at start of sub-Saharan Africa tour, *The Guardian*, 8 August, <https://www.theguardian.com/us-news/2022/aug/08/blinken-makes-case-for-democracy-at-start-of-sub-saharan-africa-tour>
- Carroll D, Daszak P, Wolfe ND, Gao GF, Morel CM, Morzaria S, Pablos-Mendez A, et al. 2018. The Global Virome Project, *Science*, 359(6378), 872–874.
- CBD 2022. Venue and Date for Part Two of the Fifteenth meeting of the Conference of the Parties, the Tenth meeting of the Parties to the Cartagena Protocol and the Fourth meeting of the Parties to the Nagoya Protocol [ntf-2022-041-cop15-en.pdf \(cbd.int\)](#)
- CBD 2020. CBD/POST2020/PREP/2/1. Update of the zero draft of the post-2020 global biodiversity framework. www.cbd.int/doc/c/3064/749a/0f65ac7f9def86707f4eaefa/post2020-prep-02-01-en.pdf
- CBD. 2020a. CBD/DSI/AHTEG/2020/1/7. REPORT OF THE AD HOC TECHNICAL EXPERT GROUP ON DIGITAL SEQUENCE INFORMATION ON GENETIC RESOURCES. CBD Secretariat, Montreal, Canada. Cunningham, AA, Scoones, I, Wood, JLN (2019) One Health for a changing world: new perspectives from Africa. *Philosophical Transactions of the Royal Society*, 372(1725)
- CBD. 2020b. Kunming Declaration. Declaration from the High-Level Segment of the UN Biodiversity Conference 2020 (Part 1) under the theme: “Ecological Civilization: Building a Shared Future for All Life on Earth” Final Draft <https://www.cbd.int/doc/c/df35/4b94/5e86e1ee09bc8c7d4b35aaf0/kunmingdeclaration-en.pdf>
- CCICED 2022. Special Policy Study: Value Assessment of Nature-Based Solutions CCICED Special Policy Study Report, June <http://en.cciced.net/POLICY/rr/pr/2022/202206/P020220617504982517018.pdf>
- Chelin, R. and Daghar, M. 2020. China’s mixed messages on wildlife trade since Covid-19, *ISS Today*, 2 November (dailymaverick.co.za)
- China Daily* 2021. Full text: Xi Jinping’s speech at the COP15 leaders’ summit, 12 October <https://www.chinadaily.com.cn/a/202110/12/WS61653286a310cdd39bc6e685.html>
- CNN 2020. China’s wet markets are not what some people think they are, 23 April. <https://edition.cnn.com/2020/04/14/asia/china-wet-market-coronavirus-intl-hnk/index.html>
- Cordell, K.A.2021. Chinese Development Assistance: A New Approach or More of the Same?, 23 March, <https://carnegieendowment.org/2021/03/23/chinese-development-assistance-new-approach-or-more-of-same-pub-84141>
- Dasgupta Review* – Independent Review on the Economics of Biodiversity, Interim Report. 2020. Commissioned by the UK government’s Economic and Finance Ministry.
- Earth.Org. 2020. As COVID-19 pandemic deepens, global wildlife treaty faces an identity crisis. <https://earth.org/covid-19-pandemic-deepens-global-wildlife-treaty-cites-faces-an-identity-crisis/>
- The Economist* 2022 Chinese loans and investment in infrastructure have been huge, 20 May <https://www.economist.com/special-report/2022/05/20/chinese-loans-and-investment-in-infrastructure-have-been-huge>
- European Commission 2021. Joint Press Communiqué following the Second EU–China High Level Environment and Climate Dialogue, https://climate.ec.europa.eu/news-your-voice/news/joint-press-communiqué-following-second-eu-china-high-level-environment-and-climate-dialogue-2021-10-10_en
- European Parliament 2020. *The link between biodiversity loss and the increasing spread of zoonotic diseases*. ISBN 978-92-846-7679-8 | doi:10.2861/160956 | QA-03-20-888-EN-C
- Faid, M. 2012. Tackling cross-sectoral challenges to advance health as part of foreign policy. *FNI Report 2/2012* Lysaker: Fridtjof Nansen Institute.
- GBO. 2020. Global Biodiversity Outlook 5. Secretariat of the Convention on Biological Diversity. Montreal. (ISBN-9789292256883)
- Gorman, James. 2020. China’s ban on wildlife trade a big step, but has loopholes, conservationists say. *New York Times*, 27 February.

- Guido, S.T. 2020. Learning from China to protect nature, *China Dialogue*, <https://chinadialogue.net/en/nature/11921-learning-from-china-to-protect-nature/>
- Heggelund, G.M., C. Prip, K. Rosendal, K.I. Sandberg. 2021. *Global governance of health and nature in the wake of COVID-19. Attentive to the role of China and to poverty perspectives*. FNI Report, 2021/1.
- IDDRI 2020. The impacts of Covid-19 on wildlife management policies in China and the preparation of biodiversity COP15 www.iddri.org/en/publications-and-events/blog-post/impacts-covid-19-wildlife-management-policies-china-and
- IPBES 2019. Global Assessment Report. Intergovernmental Panel on Biodiversity and Ecosystem Services.
- IPBES 2020. IPBES Workshop on Biodiversity and Pandemics. Workshop report. https://ipbes.net/sites/default/files/2020-10/20201028%20IPBES%20Pandemics%20Workshop%20Report%20Plain%20Text%20Final_0.pdf
- IPBES 2022. Summary for policymakers of the thematic assessment of the sustainable use of wild species of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. J.-M. Fromentin, M.R. Emery, J. Donaldson, M.-C. Danner, A. Hallosserie, D. Kieling, G. Balachander et al. (eds.). IPBES Secretariat, Bonn, Germany. <https://doi.org/10.5281/zenodo.6425599>
- IPCC. 2022. Summary for Policymakers. February 2022.
- Johnson, C. et al. 2020. "Global shifts in mammalian population trends reveal key predictors of virus spillover risk", *Proceedings of the Royal Society B: Biological Sciences*, Vol.287/1924 <http://dx.doi.org/10.1098/rspb.2019.2736>
- Jonas O, Seifman R. 2019. Do we need a Global Virome Project? *The Lancet*, 7(10): E1314–E1316.
- Jones, KE; Patel, NG; Levy, MA; Storeygard, A; Balk, D; Gittleman, J L, & Daszak, P. 2008. Global trends in emerging infectious diseases, *Nature*, 451/7181: 990–9983. DOI: 10.1038/nature06536
- Jones, B. et al. 2013. 'Zoonosis emergence linked to agricultural intensification and environmental change', *Proceedings of the National Academy of Sciences of the United States of America*, 110 (21), 8399–8404. <http://dx.doi.org/10.1073/pnas.1208059110>.
- Keesing, F. and R.S. Ostfeld. 2021. Impacts of biodiversity and biodiversity loss on zoonotic diseases. Perspective. <https://doi.org/10.1073/pnas.2023540118>
- Keune, H., U. Payyappallimana, S. Morand, S.R. Ruegg. 2022. One Health and Biodiversity. In *Transforming biodiversity Governance* ed I. Visseren-Hamaker and M. Kok. Cambridge University Press.
- Kock, R. 2014. 'Drivers of disease emergence and spread: Is wildlife to blame?', *Onderstepoort Journal of Veterinary Research* 81(2), #739, <http://dx.doi.org/10.4102/ojvr.v81i2.739>
- Korn H., Stadler J., Bonn A. 2019. Global Developments: Policy Support for Linking Biodiversity, Health and Climate Change. In: Marselle M., Stadler J., Korn H., Irvine K., Bonn A. (eds) *Biodiversity and Health in the Face of Climate Change*. Cham: Springer https://doi.org/10.1007/978-3-030-02318-8_14
- Kress WJ, Mazet JAK, Hebert PDN. 2020. Opinion: Intercepting pandemics through genomics. *Proceedings of the National Academy of Sciences of the USA* 117(25), 13252–13855.
- Liu M, Lo K (2020) Pathways to international cooperation on climate governance in China: a comparative analysis. *J Chin Gov* 6(3):417–434. <https://doi.org/10.1080/23812346.2020.1721230>
- Manlove, KR, Walker, JR, Craft ME, Huyvaert, KP, Joseph MB, Miller, RS. 2016. 'One health' or three? Publication silos among the one health disciplines, *PLoS Biol.*, 14 (4), e1002448-14
- Maxmen, A. 2022. Wuhan market was epicentre of pandemic's start, studies suggest, *Nature*, 27 February, <https://www.nature.com/articles/d41586-022-00584-8>
- MFA 2022. Joint Statement of the Coordinators' Meeting on the Implementation of the Follow-up Actions of the Eighth Ministerial Conference of the Forum on China-Africa Cooperation (FOCAC) https://www.fmprc.gov.cn/mfa_eng/wjdt_665385/2649_665393/202208/t20220819_10745593.html
- Morand, S, Guégan, J-F, Laurans, Y. 2020. From One Health to EcoHealth, mapping the incomplete integration of human, animal and environmental health. *Iddri*, Issue Brief No 04/20.
- Norad. 2021. Bistandens bidrag til å redusere klimagass utslipp. Oslo: Norad.
- Nyabiage, J. 2022 China hits back at Africa debt-trap claims with loan write-off offer, 24 August, https://www.scmp.com/news/china/diplomacy/article/3189998/china-hits-back-africa-debt-trap-claims-loan-write-off?module=lead_hero_story&pgtype=homepage
- Oberthür, S., Rosendal, G. K. (eds.) 2014. *Global Governance of Genetic Resources: Access and Benefit Sharing after the Nagoya Protocol*. London: Routledge.
- OECD 2020a Environmental health and strengthening resilience to pandemics. COVID-19 and environmental health. 21 April.
- OECD 2020b. Building back better: A sustainable, resilient recovery after COVID-19. 5 June.
- Patz, JA, Graczyk, TK, Geller, N, Vittor, AH. 2000. Effects of environmental change on emerging parasitic diseases, *International Journal for Parasitology*, 30/12: 1395–1405.
- People's Daily 2020. Injecting confidence and strength into promoting the construction of global ecological civilization - President Xi Jinping's important speech at the United Nations Biodiversity Summit has aroused enthusiastic response from the international community, 2 October http://www.gov.cn/xinwen/2020-10/02/content_5548968.htm (In Chinese)
- Pörtner, H.O., R.J. Scholes, J. Agard, E. Archer, A. Arneth, X. BaiT. Ngo et al. 2021. 'Scientific outcome of the IPBES-IPCC co-sponsored workshop on biodiversity and climate change', Bonn, Germany: IPBES Secretariat.

- Reuters 2019. China to tackle climate change with 'nature-based solutions', 18 September, <https://www.reuters.com/article/us-climate-change-china-biodiversity-idUSKBN1W3080>
- Rosendal, G.K. and J.B. Skjærseth. 2022. Industry responses to evolving regulation of marine bioprospecting in Polar Regions. In *Transforming Biodiversity Governance* ed I. Visseren-Hamaker and M. Kok, Cambridge University Press.
- SBSTTA 2017. CBD/SBSTTA/21/9, Subsidiary Body on Scientific, Technical and Technological Advice: Guidance on integrating biodiversity considerations into One Health approaches. Twenty-first meeting, Montreal, Canada, 11–14 December.
- [Schmidt-Traub](https://chinadialogue.net/en/nature/11921-learning-from-china-to-protect-nature/) G. 2020. Learning from China to protect nature, *China Dialogue*, <https://chinadialogue.net/en/nature/11921-learning-from-china-to-protect-nature/>
- SCIO (State Council Information Office) 2021. China's International Development Cooperation in the New Era China and aid: China's White Paper on Aid <http://epaper.chinadaily.com.cn/a/202101/11/WS5ffb7d83a31099a23435323b.html>
- Shinn, DH 2019 'China–Africa Ties in Historical Context', in Arkebe Oqubay and Justin Yifu Lin (eds) *China–Africa and an Economic Transformation*, Oxford, 2019; online edn, Oxford Academic, 20 June, <https://doi.org/10.1093/oso/9780198830504.003.0004>, accessed 6 Oct. 2022.
- State Council 2021. The People's Republic of China's 14th Five-Year Plan of National Economic and Social Development and Outline of Vision Goals for 2035. http://www.gov.cn/zhengce/2020-11/03/content_5556991.htm Accessed 16 July 2021, in Chinese
- Swaine, Michael D. 2020a. Chinese crisis decision making: managing the COVID-19 pandemic. Part One: The domestic component, 1 June, *China Leadership Monitor* ;www.prcleader.org/swaine
- Swaine, Michael D. 2020b. Chinese crisis decision making: managing the COVID-19 pandemic. Part Two: The international dimension, 1 September, www.prcleader.org/swaine-1
- UN 2020. A UN framework report for the immediate socio-economic response to COVID-19.
- UNEP and ILRI. 2020. Preventing the next pandemic – Zoonotic diseases and how to break the chain of transmission. Nairobi, Kenya.
- Vyawahare, M, 2020. As COVID-19 pandemic deepens, global wildlife treaty faces an identity crisis. <https://news.mongabay.com/2020/05/as-covid-19-pandemic-deepens-global-wildlife-treaty-faces-an-identity-crisis/>
- Waltner-Toews, D. 2017. Zoonoses, One Health and complexity: wicked problems and constructive conflict. *Philosophical Transactions of the Royal Society*, 372(1725)
- Wang, Chen, and Jiang, Yifan. 2020. The legal proposals shaping the future of wildlife in China, 3 April <https://chinadialogue.net/en/nature/11940-the-legal-proposals-shaping-the-future-of-wildlife-in-china/>
- Weissgold, BJ, Knights P, Lieberman, S, Mittermeier, R. 2020. How we can use the CITES Wildlife Trade Agreement to help prevent pandemics. At the moment, we can't—so let's adapt it. *Scientific American*. www.scientificamerican.com/article/how-we-can-use-the-cites-wildlife-trade-agreement-to-help-prevent-pandemics/
- WHO & CBD 2015. Connecting global priorities: biodiversity and human health. A state of the knowledge review. World Health Organization & Secretariat of the Convention on Biological Diversity.
- WHO 2018a. Eleventh revision of the International Classification of Diseases. Report by the Director-General. Executive Board 144th session. Provisional agenda item 5.9 12 Dec. EB 144/22.
- WHO 2018b. Health, environment and climate change. Human health and biodiversity. Report by the Director General. 71st World Health Assembly. Provisional agenda item 11.4. A71/11, https://apps.who.int/gb/ebwha/pdf_files/WHA71/A71_11-en.pdf
- WHO 2018c. Seventy-first World Health Assembly. Resolutions and Decisions WHA 71/2018/REC/1
- WHO 2019a. Executive Board, 144th session. Resolutions and decisions. EB144/2019/REC/1. https://apps.who.int/gb/ebwha/pdf_files/EB144-REC1/B144_REC1-en.pdf#page=50
- WHO 2019b. Seventy-second World Health Assembly. Resolutions and Decisions WHA72/2019/REC
- WHO 2020a. Seventy-third World Health Assembly. Agenda item 13.2. Strengthening preparedness for health emergencies: implementation of the International Health Regulations (2005). 13 November 2020.
- WHO 2020b. Executive Board, 146th Session. Resolutions and decisions. EB146/2020/REC/1
- WHO 2022. Strategic preparedness, readiness and response plan to end the global COVID-19 emergency in 2022. WHO/WHE/SPP/2022.1
- WHO Executive Board 2022. Evaluation. Annual report. EB 151.4.
- Wildlife Conservation Society (WCS) 2020. *WCS Statement and Analysis: On the Chinese Government's Decision Prohibiting Some Trade and Consumption of Wild Animals*, 26 February.
- World Bank 2018. One Health. Operational framework for strengthening human, animal and environmental public health systems at their interface. World Bank Group.
- WWF 2020. Living planet index. World Bank Group.
- Xinhua 2019 *Beijing Call for Biodiversity Conservation and Climate Change*, Full text: Beijing Call for Biodiversity Conservation and Climate Change - Xinhua | English.news.cn (xinhuanet.com)



FRIDTJOF NANSENS INSTITUTT
FRIDTJOF NANSEN INSTITUTE

Fridtjof Nansens vei 17 | P.O. Box 326 | NO-1326 Lysaker | Norway
Telephone (+47) 67 11 19 00 | E-mail post@fni.no | www.fni.no