



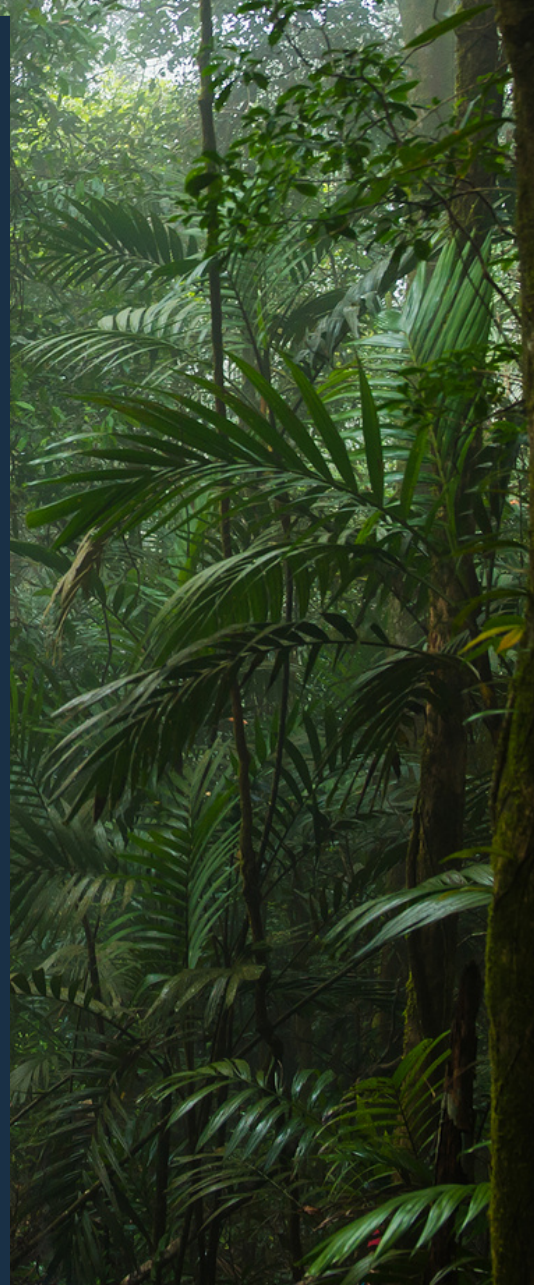
Policy Brief

ADDRESSING THE ROOT CAUSES OF ZONOTIC PANDEMICS

protecting ecosystems and improving
wildlife trade regulation



September 2021



Addressing the root causes of zoonotic pandemics

Protecting ecosystems and improving wildlife trade regulation

ABSTRACT

By September 2021 roughly 4.5 million deaths had occurred worldwide from COVID-19¹ and by July 2020 the pandemic had already cost \$8-16 trillion². COVID-19 is a wake-up call and we need to act now.

There is a global urgency to prevent the next pandemic and build resilience, which requires a much bigger effort with all countries and all sectors sharing the responsibility. Because rather than COVID-19 being the peak in zoonosis emergence, experts predict that the next pandemic may well be even worse.

The WHO Annual Assembly has made calls to develop a new 'international treaty for pandemic preparedness and response'. However, these calls do not make any mention of **addressing the root causes** of zoonotic pandemics - increased contact of people and livestock with wild animals, as a result of unsustainable land conversion and the illegal and poorly regulated legal trade in wildlife. We propose solutions in this policy brief and advocate for a more integrated approach, recognising that it is much more economical, and less damaging, to prevent a pandemic than to respond to it.

This policy brief outlines the recommendations for governments and the private sector to act with urgency to tackle the root causes of zoonotic diseases. It proposes the need for an overarching global fund for pandemic prevention, which employs a One Health approach, integrates the private sector into funding and oversight, involves and values Indigenous People and local communities, and incorporates measures at international, national and local levels.

¹ Johns Hopkins University (2021) Coronavirus resource centre <https://coronavirus.jhu.edu/>

² IPBES (2020) Workshop report on biodiversity and pandemics. IPBES secretariat, Bonn, Germany. https://ipbes.net/sites/default/files/2020-12/IPBES%20Workshop%20on%20Biodiversity%20and%20Pandemics%20Report_0.pdf

POLICY BRIEF

Challenge

The most probable cause for the emergence of the novel COVID-19 (SARS-CoV-2) virus and current global pandemic is zoonotic (i.e. of animal origin), likely jumping from a bat species to a so far unidentified intermediary animal and then human beings.^{3,4} The analysis of public genome sequence data from SARS-CoV-2 and related viruses found no evidence that the virus was made in a laboratory or otherwise engineered.⁵ By September 2021 roughly 4.5 million deaths had occurred worldwide from COVID-19⁶ and by July 2020 the pandemic had already cost \$8-16 trillion⁷.

Scientists estimate that three quarters of new or emerging infectious diseases in people come from animals.⁸ An analysis of infectious diseases that have emerged since 1940 found that the number originating from wild animals has increased significantly over time.⁹ Zoonoses that have emerged in recent years, in addition to COVID-19, have included Ebola, HIV, SARS, MERS, swine flu, avian flu, West Nile virus, Zika, Lassa fever, and Nipah. These diseases have led to substantial morbidity and mortality and significant financial costs. Almost 2 million people died from HIV/AIDS in 2006 (the peak of the epidemic) and almost 1 million still die from it every year.¹⁰ In 2015, Guinea,

³ Mallapaty, S. (2020) Where did COVID come from? WHO investigation begins but faces challenges. *Nature*, 587, p. 341-342

⁴ National Geographic (2021) We still don't know the origins of the coronavirus – here are 4 scenarios <https://www.nationalgeographic.com/science/article/we-still-dont-know-the-origins-of-the-coronavirus-here-are-four-scenarios>

⁵ Scripps Research Institute (2020) COVID-19 coronavirus epidemic has natural origin. *Science News* <https://www.sciencedaily.com/releases/2020/03/200317175442.htm>

⁶ Johns Hopkins University (2021) Coronavirus resource centre <https://coronavirus.jhu.edu/>

⁷ IPBES (2020) Workshop report on biodiversity and pandemics. IPBES secretariat, Bonn, Germany. https://ipbes.net/sites/default/files/2020-12/IPBES%20Workshop%20on%20Biodiversity%20and%20Pandemic%20Report_0.pdf

⁸ CDC (n.d.) Zoonotic disease <https://www.cdc.gov/onehealth/basics/zoonotic-diseases.html>

⁹ Jones et al. (2008) Global trends in emerging infectious diseases. *Nature*, 451, p. 990-993

¹⁰ Roser, M. & Ritchie, H. (2019) HIV/AIDS <https://ourworldindata.org/hiv-aids>

Liberia and Sierra Leone lost over \$2 billion in GDP as a result of the Ebola epidemic.¹¹ It has been estimated that zoonoses cause \$1 trillion in global losses every year.¹²

While the world is addressing the impacts of the most serious pandemic in the last century, very little attention is being given to the root causes of zoonotic pandemics: increased contact of people and livestock with wild animals, as a result of unsustainable land conversion and the illegal and poorly regulated legal trade in wildlife. Even the international treaty for pandemic preparedness and response that was recently proposed by the World Health Organization (WHO) and the leaders of 23 countries makes no mention of these crucial drivers of future pandemics¹³.

When land is cleared for agriculture, livestock, mining or logging, or to build roads or human settlements, ecosystems and habitats are destroyed. As a result, wildlife are increasingly in closer proximity to each other and to humans, increasing the chances of humans becoming infected with viruses and other zoonotic pathogens. Thus, humans and livestock come into contact with wildlife at the new edges of these habitats; wildlife enter human settlements after being displaced by destruction of their habitat; and humans encounter wildlife by entering into previously inaccessible areas for hunting.

Humans are also using wild animals for often deep-rooted cultural practices (such as traditional medicines), for fashion, status symbols or as pets. This results in the continued prevalence of trade in wildlife, involving a quarter of land vertebrate species. The illegal wildlife trade is valued at \$7-23 billion per year and the (poorly regulated) legal trade is valued at \$100 billion per year.¹⁴ In addition, for some Indigenous People and Local Communities, wildlife is their only source of protein. Removing wild animals from their natural habitats for any of these purposes is causing people involved in the commercial, consumption and use chain to be in closer proximity to wild animals in the countries involved in the trade (whether exporting, transiting and/or importing).

¹¹ CDC (n.d.) The cost of the Ebola epidemic

<https://www.cdc.gov/vhf/ebola/history/2014-2016-outbreak/cost-of-ebola.html>

¹² IPBES (2020) Workshop report on biodiversity and pandemics. IPBES secretariat, Bonn, Germany.

https://ipbes.net/sites/default/files/2020-12/IPBES%20Workshop%20on%20Biodiversity%20and%20Pandemic%20Report_0.pdf

¹³ Reuters (2021) Leaders of 23 countries back pandemic treaty idea for future emergencies

<https://www.reuters.com/article/us-health-coronavirus-treaty-idUSKBN2BM009>

¹⁴ IPBES (2020) Workshop report on biodiversity and pandemics. IPBES secretariat, Bonn, Germany.

https://ipbes.net/sites/default/files/2020-12/IPBES%20Workshop%20on%20Biodiversity%20and%20Pandemic%20Report_0.pdf

By coming into contact with wild animals, humans and livestock can catch diseases from the wild animals – an occurrence called a ‘spillover’ event.¹⁵ Generally, the disease spread ends there. The problem arises when the pathogen evolves and manages to mutate so that it can then be spread from human to human.¹⁶ That is how an outbreak can occur, which can lead to an epidemic or even pandemic, especially in our increasingly globalised world. With contact events becoming more frequent, the chance of such a mutation happening increases.

Further compounding the issue – when animals are stressed (which occurs when their habitat has been destroyed or when they are kept in poor conditions in wildlife markets), their immune systems are weaker and so they are more likely to catch diseases, which can then be spread.¹⁷ In wildlife markets, disease transmission between animals and people is further promoted through unhygienic conditions, overcrowding, and close contact between animals that would not normally interact in the wild.

A number of organisations have published reports in recent months with recommendations on protecting ecosystems and/or improving wildlife trade regulation

¹⁵ Plowright, R.K. et al. (2017) Pathways to zoonotic spillover. *Nature Public Health Emergency Collection*, 15(8), p. 502-510

¹⁶ Wasik, B.R. (2019) Onward transmission of viruses: how do viruses emerge to cause epidemics after spillover? *Philosophical Transactions of the Royal Society*, 374

¹⁷ IPBES (2020) Workshop report on biodiversity and pandemics. IPBES secretariat, Bonn, Germany.
https://ipbes.net/sites/default/files/2020-12/IPBES%20Workshop%20on%20Biodiversity%20and%20Pandemics%20Report_0.pdf

in order to prevent future pandemics^{18,19,20,21,22,23} but these reports have not laid out specific plans for how to pay for the actions they recommend. While there have been some proposals for how to fund pandemic *preparedness*²⁴ (i.e. dealing with the diseases once they emerge), there has been a lack of discussion on how *preventative* measures can be funded and coordinated, despite the fact that it is much cheaper to prevent a pandemic than to respond to it. In addition, current approaches and initiatives aiming to address these issues are fragmented, underfunded, and narrow in scope, and are not sustained over time.

Measures taken to protect ecosystems and improve wildlife trade regulation have the added benefit of aiding with efforts to tackle climate change and prevent biodiversity loss; are consistent with the 'wellbeing economy' movement²⁵ and the World Economic Forum's 'great reset'²⁶; and assist in working towards achieving the Sustainable Development Goals, the Convention on Biological Diversity (CITES), the Paris Agreement and the Rio Conventions.

This policy brief will outline recommendations for governments and the private sector to act with urgency to address the root causes of zoonotic pathogens, and thereby reduce the incidence of future pandemics. It will outline the need for an overarching global fund for pandemic prevention, which employs a One Health approach, integrates

¹⁸ IPBES (2020) Workshop report on biodiversity and pandemics. IPBES secretariat, Bonn, Germany.

https://ipbes.net/sites/default/files/2020-12/IPBES%20Workshop%20on%20Biodiversity%20and%20Pandemics%20Report_0.pdf

¹⁹ FAO, CIRAD, CIFOR and WCS (2020) White paper: build back better in a post-COVID-19 world – reducing future wildlife-borne spillover of disease to humans. Sustainable Wildlife Management Programme, Rome.

<http://www.fao.org/3/cb1503en/CB1503EN.pdf>

²⁰ UNEP (2020) Preventing the next pandemic – zoonotic diseases and how to break the chain of transmission

<https://www.unenvironment.org/resources/report/preventing-future-zoonotic-disease-outbreaks-protecting-environment-animals-and>

²¹ OECD (2020) Environmental health and strengthening resilience to pandemics

<http://www.oecd.org/coronavirus/policy-responses/environmental-health-and-strengthening-resilience-to-pandemics-73784e04/>

²² CBD (2020) End wildlife trade: an action plan to prevent future pandemics

<https://www.biologicaldiversity.org/programs/international/pdfs/End-Wildlife-Trade.pdf>

²³ ROUTES (n.d.) Animal smuggling in air transport and preventing zoonotic spillover

<https://routespartnership.org/industry-resources/publications/animalsmuggling>

²⁴ Usher, A.D. (2020) New funds proposed to prevent pandemics. *Lancet*, 396, p. 155

²⁵ Wellbeing Economy Alliance (n.d.) WEAll's Mission <https://wellbeingeconomy.org/about>

²⁶ World Economic Forum (n.d.) The Great Reset <https://www.weforum.org/great-reset>

the private sector into funding and oversight, involves and values Indigenous People and Local Communities, and incorporates measures at the international, national and local levels.

We need to act now. And all countries and all sectors share in the responsibility. Because rather than COVID-19 being the peak of these trends in zoonosis emergence, the WHO and other experts predict that the next pandemic may well be even worse.^{27,28,29}

PROPOSAL

1. Coordinate the response

1.1 Establish an intergovernmental international council with governments, NGOs, businesses and Indigenous People on addressing the root causes of pandemics

This intergovernmental council would:

- Develop and coordinate the national- and international-level approaches needed to tackle ecosystem destruction and regulation of wildlife trade (see Section 3), using government policies and multilateral agreements; this will involve governments coordinating actions, collaborating, learning from each other, and holding each other to account
- Devise solutions for incorporating future pandemic costs into policies and budgets in order to incentivise prevention
- Design and implement a framework for monitoring progress towards pandemic prevention goals

²⁷ WHO (2020) The best time to prevent the next pandemic is now
<https://www.who.int/news/item/01-10-2020-the-best-time-to-prevent-the-next-pandemic-is-now-countries-join-voices-for-better-emergency-preparedness>

²⁸ IPBES (2020) Workshop report on biodiversity and pandemics. IPBES secretariat, Bonn, Germany.
https://ipbes.net/sites/default/files/2020-12/IPBES%20Workshop%20on%20Biodiversity%20and%20Pandemics%20Report_0.pdf

²⁹ Council on Foreign Relations (2020) Improving pandemic preparedness: lessons from COVID-19
https://www.cfr.org/report/pandemic-preparedness-lessons-COVID-19/pdf/TFR_Pandemic_Preparedness.pdf

and CBD. The response is that for years before COVID-19 emerged, scientists called for the need to protect ecosystems and improve wildlife trade regulation to prevent future pandemics, but clearly existing organisations and mechanisms were not sufficient to tackle these issues, despite all their efforts. COVID-19 is a wake-up call. There is a global urgency to prevent the next pandemic and build resilience, and this requires a much bigger effort and momentum and more integrated funding -- a change to the status quo.

Accordingly, we would argue that, while it is important to support and coordinate with existing organisations, currently such programs are fragmented and too narrow in scope for the broader goal of pandemic prevention. CITES is focused only on the trade of listed species so its scope is very limited by design. The CBD Secretariat was set up to support the CBD's goals but "its primary functions are to organise meetings, prepare reports, assist member governments in the implementation of the various programmes of work, coordinate with other international organisations and collect and disseminate information"³³; thus it sets goals and recommendations, measures progress and advises rather than directly coordinating implementation. The GEF is focused on promoting biodiversity and ending the (illegal) wildlife trade, but it has no focus on pandemic prevention, and human health outcomes are not within its operating sphere. The WHO addresses the health impacts once zoonoses have already emerged, as demonstrated by the treaty for pandemic preparedness and response that it recently proposed. The FAO-OIE-WHO Tripartite Alliance is limited to its three specific priorities: antimicrobial resistance, animal influenza and rabies. And new mechanisms recently proposed or established focus on *preparing* for when the next pandemic does emerge, rather than *preventing* the pandemic from emerging in the first place, or are simply too limited in their funding or scope (e.g. USAID's Strategies to Prevent Spillover (STOP)).

We need an overarching, comprehensive, and collaborative initiative which addresses both the protection of ecosystems *and* the improvement of wildlife trade regulation through multifaceted and cross-sectoral approaches. To develop and implement effective solutions we need to bring together ecologists, public health practitioners, governments, the private sector, Indigenous People and Local Communities, civil society, veterinarians, economists, farmers, law enforcement agencies, park rangers, NGOs and non-profits, conservationists, epidemiologists, trade experts, anthropologists, and forestry and agricultural experts, amongst others.

³³ CBD (2013) Welcome to the CBD Secretariat <https://www.cbd.int/secretariat/>

The global collective experience of COVID-19 is an opportunity to bring individuals, institutions and sectors together over this shared focused purpose.

Thus, the proposed global fund is not about creating a separate independent system that duplicates efforts and increases bureaucracy; it is about bringing efforts together more efficiently and effectively. Moreover, implementing a global fund model in this context will provide the framework for adaptability and quick resource mobilization and implementation.

To maximise coordination and accountability, the global fund could be overseen by the GEF with its experience as the financing mechanism for major international environmental conventions such as the Convention on Biological Diversity. The global fund can also report to the intergovernmental council (Section 1.1), whose members will hold it accountable.

There is precedence for establishing such global fund initiatives to address multidimensional international challenges. For example, the Global Fund to Fight AIDS, Tuberculosis and Malaria was set up in 2002 to pool resources and develop innovative integrated solutions through partnership. It has disbursed over \$45 billion and is estimated to have saved 38 million lives through its programs.³⁴ The Green Climate Fund is another example, which supports developing countries to reduce climate change and its impacts.³⁵

2.2 Commit to the goal of raising the \$22-31 billion needed annually for pandemic prevention

Scientists have estimated that \$22-31 billion is needed for the sorts of measures proposed in this brief.³⁶ These calculations are broken down into funding for monitoring and reducing wildlife trade; programs to reduce spillovers and for early detection and control; and reducing deforestation – areas which are also discussed in Section 3 of this brief. While only an estimate, this can serve as a useful benchmark against which to aim for this global fund.

³⁴ The Global Fund (n.d.) Global Fund overview <https://www.theglobalfund.org/en/overview/>

³⁵ Green Climate Fund (n.d.) Overview <https://www.greenclimate.fund/about>

³⁶ Dobson, A.P. (2020) Ecology and economics for pandemic prevention. *Science*, 369(6502), p. 379-381

Zoonotic diseases cost the world \$1 trillion per year, and by July 2020 the COVID-19 pandemic had already cost \$8-16 trillion³⁷, so investing in prevention can lead to substantial cost savings. These measures would also lead to billions of dollars in savings through reduced greenhouse gas emissions, and economic gains through supporting and promoting ecosystem services.^{38,39}

2.3 Acquire financing from governments with additional contributions from the private sector

Government COVID-19 recovery packages are largely focused on getting the economy back up and running and have often employed conventional short-term 'grey recovery' measures to achieve this. Focusing instead on nature-based solutions in recovery and stimulus efforts would be a sustainable investment, helping to address climate change, build higher societal resilience through nature and prevent future pandemics while maximising job creation.⁴⁰ As part of this green recovery, investment in the global fund and its programs should be integrated and ringfenced within COVID-19 recovery programs.

The COVID-19 response and stimulus packages have shown how important it is for governments to take the lead in providing the funding; but to be sustainable, we also need to recognise the importance of private sector investment in guiding these decisions. In the past year, the private sector has become acutely aware of how devastating pandemics can be for businesses. Clearly, they benefit economically from preventing the next pandemic, and as employers and solution providers, businesses have an important say in pandemic prevention plans and need a seat at the table. They can also play an important role in helping to cut down on slow-moving and rigid bureaucracy. So, the private sector will also be encouraged to contribute to the global fund's financing and management.

Other international partnerships between the public and private sector have shown this to be a valuable and effective model, as demonstrated by the work of, for example, the

³⁷ IPBES (2020) Workshop report on biodiversity and pandemics. IPBES secretariat, Bonn, Germany.
https://ipbes.net/sites/default/files/2020-12/IPBES%20Workshop%20on%20Biodiversity%20and%20Pandemics%20Report_0.pdf

³⁸ Dobson, A.P. (2020) Ecology and economics for pandemic prevention. *Science*, 369(6502), p. 379-381

³⁹ OECD (2020) Biodiversity and the economic response to COVID-19: ensuring a green and resilient recovery
<https://www.oecd.org/coronavirus/policy-responses/biodiversity-and-the-economic-response-to-covid-19-ensuring-a-green-and-resilient-recovery-d98b5a09/>

⁴⁰ WWF & ILO (2020) Nature hires: how nature-based solutions can power a green jobs recovery
https://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/publication/wcms_757823.pdf

World Economic Forum and Gavi, the Vaccine Alliance. International campaigns such as the 1% for the Planet movement have further shown that the private sector can be engaged in contributing to environmental and public health causes.

2.4 Distribute funds through Country Coordinating Mechanisms

International initiatives are sometimes criticised for outsiders parachuting into a country, imposing one-size-fits-all approaches, and implementing their own programs without country ownership, ignoring and operating separately from established national systems.⁴¹

The Country Coordinating Mechanisms used to distribute funding by the Global Fund to Fight AIDS, Tuberculosis and Malaria provide an alternative. Each country has a team composed of medical experts, government representatives, local experts, civil society and representatives of people whose lives are affected by the diseases. It is the country who chooses how this team is set up, its composition and how it is integrated within existing mechanisms. This team proposes a plan for their community. An independent panel of experts reviews the plan and may suggest changes. Once the Board approves the plan it is implemented by local experts.⁴² An evaluation of 40 case studies of these Country Coordinating Mechanisms across 19 countries found that, through the transparency and openness of the model, they can be particularly effective at empowering the private sector, civil society and local individuals and communities to meaningfully collaborate at the institutional level, to shape and drive resource mobilisation and distribution.⁴³

The Country Coordinating Mechanism approach has the advantage of being country-led, partnership-driven and streamlined by being integrated within existing country mechanisms. Rather than being an extra system, creating additional levels of bureaucracy, it is in essence a way of bringing stakeholders together. Our proposed global fund for pandemic prevention would therefore model its funding allocation practices on this approach, rather than having an in-country presence of its own personnel.

⁴¹ ODI (2010) Global funds: allocation strategies and aid effectiveness

https://assets.publishing.service.gov.uk/media/57a08af4e5274a31e0000898/Global_Funds.pdf

⁴² The Global Fund (n.d.) Global Fund overview <https://www.theglobalfund.org/en/overview/>

⁴³ The Global Fund (n.d.) A report on the Country Coordinating Mechanism model

https://www.theglobalfund.org/media/5488/ccm_lessonslearnedinthefieldhealthfinancingandgovernance_report_en.pdf?u=637278311810000000

3. Protect ecosystems and improve wildlife trade regulation through the global fund

3.1 Protect ecosystems

Ecosystem protection can be promoted by reducing demand for products associated with land use changes. Accordingly, programs of the global fund should work towards reducing the consumption of products such as meat, palm oil, mined products and exotic wood, as high levels of land conversion currently occur to produce enough of these products to meet the high global demands for them.⁴⁴ Products that reduce the need for land conversion or are alternatives to products that drive land use changes could be labelled as such through a certification process to encourage their use. Private sector companies should be encouraged to ensure they have responsible supply chains that do not involve habitat destruction. Sustainable use of agricultural lands should be encouraged and incentivised to promote food security while preventing the need for agricultural expansion into forests and other undeveloped land. In an increasingly globalized world, all countries are responsible for doing their part.

Governments should implement policies to discourage land conversion. For example, they could:

- Consider taxes or incentives to discourage consumption of products with high risk for land conversion or to prevent habitat destruction for their production; and reform subsidies that encourage land use change
- Mandate the inclusion of pandemic risk considerations in health impact assessments for decision-making on major development projects and land conversions
- Integrate restrictions on land conversion for imported products into bilateral trade deals
- Establish new protected areas and strengthen existing ones, with an emphasis on effective management

Crucially, Indigenous People's land and human rights need to be protected, strengthened and enforced in the development and implementation of the policies. This

⁴⁴ IPBES (2020) IPBES workshop on biodiversity and pandemics, executive summary
https://ipbes.net/sites/default/files/2020-11/201104_IPBES_Workshop_on_Diversity_and_Pandemics_Executive_Summary_Digital_Version.pdf

has been highlighted as key by the FAO, GEF, IUCN and IPBES amongst others.^{45,46,47,48} Indigenous People should also be involved at each stage of the process of developing policies to protect ecosystems for pandemic prevention.

3.2 Improve wildlife trade regulation in export, transit and import countries

Zoonotic disease emergence has been linked to both illegal and legal wildlife trade so both must be addressed.

National and international agencies monitoring legal wildlife trade and enforcing bans on illegal wildlife trade (including online trade) need to be supported. These include CITES, the World Organisation for Animal Health (OIE), Reducing Opportunities for Unlawful Transport of Endangered Species (ROUTES), and the UN Office on Drugs and Crime's Global Programme for Combating Wildlife and Forest Crime. Countries should also strengthen their enforcement of protected areas to prevent illegal wildlife hunting within them.

Demand for traded wildlife and their products also needs to be addressed: communication campaigns should explain the links between consuming or using wildlife and derived products, and the risk of zoonotic disease outbreaks. Messaging should be targeted to the forms of wildlife most in demand in the country. For example, wildlife is commonly used in traditional medicine in China and Vietnam, whereas in the United States demand is high for pets, and wildlife-derived products such as paintbrushes and fishing flies made from animal hair, boots and jewellery using animal parts, or skulls for display.^{49,50} Products used for cultural practices will require a careful strategic approach

⁴⁵ FAO, CIRAD, CIFOR and WCS (2020) Sustainable Wildlife Management (SWM) Programme Policy Brief - Build back better in a post COVID-19 world: Reducing future wildlife-borne spillover of disease to humans. Rome. <https://doi.org/10.4060/cb1490en>

⁴⁶ GEF (2020) White paper on a GEF COVID-19 response strategy http://www.thegef.org/sites/default/files/council-meeting-documents/EN_GEF_C.59_Inf.14_White%20Paper%20on%20a%20GEF%20COVID-19%20Response%20Strategy_.pdf

⁴⁷ IUCN (2020) Amplifying indigenous voices <https://www.iucn.org/sites/dev/files/ipo-c19-brief.pdf>

⁴⁸ IPBES (2019) The global assessment report on biodiversity and ecosystem services https://ipbes.net/sites/default/files/2020-02/ipbes_global_assessment_report_summary_for_policymakers_en.pdf

⁴⁹ CBD (2020) Dealing in disease: how US wildlife imports fuel global pandemic risks https://www.biologicaldiversity.org/programs/international/pdfs/Dealing-in-Disease_Center-wildlife-imports-report-9-28-20.pdf

⁵⁰ CBD (2020) Dealing in disease: how US wildlife imports fuel global pandemic risks https://www.biologicaldiversity.org/programs/international/pdfs/Dealing-in-Disease_Center-wildlife-imports-report-9-28-20.pdf

-- if campaigns are seen as an attack on cultural practices and traditions there is likely to be resistance or pushback. Labelling of legal products as contributing to pandemic risk could also be mandated to discourage their use.

Emphasis should be placed on the animals that, according to evidence, are most likely to infect humans, such as bats, primates, rodents, civets and pangolins.⁵¹ More research should be conducted to deepen our understanding of which animals are most likely to be involved in spillover events to ensure this approach can be evidence-based. These communication campaigns will need to be tactful and sensitive in their targeting of specific species to ensure that these species are not vilified. Governments and agencies should consider banning the trade of specific species deemed by scientists or international bodies to present a particularly high pandemic risk.

Captive breeding programs of wildlife should also be discouraged as these support demand for the animals and their products, and often include wild individuals within their stock.⁵² These farms have been identified as one of the potential sources of COVID-19.⁵³

Wet markets are markets where fresh meat, fish and/or produce is sold. Sometimes live animals are sold, and sometimes wildlife specifically, but not always. It is thought that COVID-19 likely spread to humans in a wet market⁵⁴ and so there have been calls to ban these. But wet markets are an important food source for large proportions of the population in many low and middle-income countries, particularly in East and South East Asia, and West and Central Africa. There are concerns that banning wet markets may simply result in sending the trade underground where it cannot be regulated, thereby increasing disease risk (the same arguments hold for banning all wildlife trade more broadly). Banning wet markets may also negatively impact food security and livelihoods, particularly for deprived and marginalised communities.

⁵¹ IPBES (2020) Workshop report on biodiversity and pandemics. IPBES secretariat, Bonn, Germany. https://ipbes.net/sites/default/files/2020-12/IPBES%20Workshop%20on%20Biodiversity%20and%20Pandemics%20Report_0.pdf

⁵² IPBES (2020) Workshop report on biodiversity and pandemics. IPBES secretariat, Bonn, Germany. https://ipbes.net/sites/default/files/2020-12/IPBES%20Workshop%20on%20Biodiversity%20and%20Pandemics%20Report_0.pdf

⁵³ WHO (2021) WHO-convened global study of origins of SARS-CoV-2 <https://www.who.int/health-topics/coronavirus/origins-of-the-virus>

⁵⁴ Mallapaty, S. (2020) Where did COVID come from? WHO investigation begins but faces challenges. Nature, 587, p. 341-342

We therefore advise that governments instead closely regulate wet markets, implementing the WHO's recommendations.⁵⁵ These include specifications on sanitary standards and welfare such as ensuring appropriate infrastructure and practices are in place for hand washing, cleaning and drainage; zoning of the market to prevent cross-contamination between commodities such as raw meat and ready-to-eat food, and to ensure that slaughtering of animals occurs separately; and training for everyone in the food chain about food safety and hygiene. These markets should need to have licenses demonstrating that they are meeting these standards to be allowed to operate.

Countries need to establish or improve systems for carrying out ongoing and systematic disease surveillance (for known and novel pathogens) at each stage of the supply chain -- for animals and people, including farmers, hunters, transporters and traders, for wildlife and derived products sold at wet markets and elsewhere. This can be done in collaboration with initiatives such as the Global Virome Project. Additionally, specific hygiene practices must be mandated all along the supply chain.

It will be important to work with local people whose livelihoods depend on wildlife hunting or trading to support them in finding alternative sources of income. In areas where local people hunt wild animals ('bushmeat') for their own consumption, programs will be needed to help find and encourage consumption of potential low-cost alternative sources of protein.

It is important to remember that the wildlife trade is global, not only confined to low-income countries. This is shown by the fact that from 2012-2016, over 1,300 species of live animals were legally exported from 189 countries, and from 2000-2014, more than 3 billion individual live animals were legally traded just by the US.⁵⁶ So all countries are responsible for mitigating these risks.

3.3 Support research

Policies need to be evidence-based. So research that can help to inform approaches to protect ecosystems and improve wildlife trade regulation should be supported.

More research is needed on the dynamics and mechanisms of spillover events, which diseases are most likely to spillover and how, and from which animals.

⁵⁵ WHO (2006) A guide to healthy food markets

https://www.who.int/foodsafety/publications/capacity/healthymarket_guide.pdf

⁵⁶ GEF (2020) White paper on a GEF COVID-19 response strategy

http://www.thegef.org/sites/default/files/council-meeting-documents/EN_GEF_C.59_Inf.14_White%20Paper%20on%20a%20GEF%20COVID-19%20Response%20Strategy_.pdf

We also need a better understanding of how habitat destruction and habitat protection or restoration influence disease emergence to be able to more effectively design approaches. Detailed mapping of areas of high pandemic emergence risk would be useful, so that these areas can be targeted and prioritised, helping with efficient use of resources. Research into novel methods to farm existing land more sustainably could lead to reduced pressure to further convert intact ecosystems into agricultural land.

Furthermore, it is important to monitor and evaluate how effective the pandemic prevention policies are at protecting ecosystems and improving wildlife trade regulation. And approaches need to be devised for how to measure whether ecosystem protection and wildlife trade regulation does in fact reduce the risk of pandemics. An analysis of the economic costs and benefits from these efforts should also be conducted.

This research could be carried out by a network of universities and research institutes around the world, collaborating together to share and build upon each other's expertise and findings. This could involve simple linking between the institutions, or could be coordinated through an organisation such as the National Institutes of Health Centers for Research in Emerging Infectious Diseases.

3.4 Prioritise education, awareness and capacity building with Local Communities and other stakeholders

It is important to build awareness through education and communication campaigns, for example through social media, about how habitat destruction and the illegal and legal wildlife trade increase the risk of future pandemics, and more broadly about links between environmental health and human health and wellbeing. Target audiences include those involved in the use and trade of wildlife, business owners, government workers, the general public, and other stakeholders. Messages need to be culturally appropriate and locally relevant.

Indigenous People and Local Communities should be involved in designing these campaigns and other initiatives recommended in the above sections, which can be developed through a participatory approach. Community engagement programs such as using asset-based community development will be invaluable for building on local knowledge, experience and expertise, getting local buy-in, and building local capacity, with broader benefits for local people's health and wellbeing.



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Dr. Abigail J Enoch has a PhD in Population Health from Oxford University, and a Master of Public Health and Masters in African Studies from UCLA. Her experience includes global health, public health, ecology and conservation, and she has experience in the US, UK, Kenya, Ghana and Indonesia. Dr. Enoch currently lives and works in Dubai, and is building upon her specialism by studying for a degree in Biodiversity, Wildlife and Ecosystem Health from Edinburgh University.

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Following the release of the IPBES report on ending pandemics as well as other studies, Tanzeed and Paola decided to develop a short policy brief that can help position the topic for policy makers. They were joined by Dr Abigail Enoch, who expressed interest in collaborating with Earth Matters Consulting to lead the writing of the brief.

At Earth Matters Consulting, we are committed to addressing the climate crisis and human development challenges. The COVID-19 pandemic shows how vulnerable we are to major shocks and it presents both opportunities and challenges. We work closely with our clients to make sense of a complex world, but to also be optimistic that practical solutions exist that make good business sense. Please get in touch if you want to work closely with us on any of the topics that have been identified here.

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