

The risk of zoonoses from wildlife: options for regulation

**Yann Laurans, Lucien Chabason, Aleksandar Rankovic,
Julien Rochette, Khalil Elouardighi (IDDRI)**

When governments move out of crisis management mode and begin reflecting on how the next pandemic can be prevented, their thinking around institutional and instrumental reform should be built around practices that need to be limited, banned, regulated or promoted. This consideration of the practices in question, their characteristics and relative contribution to generating risk, should aim at ensuring that the proposed institutional innovations effectively target the behaviours that contribute to the emergence and management of pandemic risk. An approach centred around instruments that target practices should not preclude an analysis of the deeper and more systemic causes that give rise to these practices or make them impossible to change.

The risk of emerging zoonotic diseases is associated in part with the raising of livestock and in part with the increased interaction between humans and wildlife.¹ This *Issue Brief* analyses options for the regulation of this interface between humans and wildlife. Based on a study of the available literature, it attempts to identify the four main behavioural factors that contribute to the risk of zoonotic diseases emerging from wildlife sources. These behavioural factors call for varying institutional responses. Indeed, when formulating these policies, it is crucial to distinguish between issues pertaining to different practices of wild meat consumption and the different drivers of deforestation.

¹ Potential avenues for the reform or creation of institutions to manage health crises have been outlined in a *Note* published by IDDRI: <https://www.iddri.org/fr/publications-et-evenements/autre-publication/quelle-gouvernance-mondiale-pour-mieux-lutter-contre>

KEY MESSAGES

International pressure pushes for banning markets that sell live wild animals, sometimes also known as *wet markets*. The advantage of such a ban approach is that it is radical, comprehensive and helps manage health risk for humans while protecting endangered species and animal welfare. However, such a measure would increase the likelihood of hard-to-regulate illegal practices, and thus to perpetuate an uncontrolled risk. It may actually be more effective to control this risk by better hygiene regulation of existing markets.

This issue should not be confused with wildlife hunting such as for bushmeat, the management of which requires the on-ground deployment of teams which can mediate between local authorities and the concerned population groups, minimize disease transmission and provide healthcare.

Encroachments on forest land, which increase contact between humans and wildlife, can be dealt with by increasing the resources allocated to monitoring illegal activities by the police forces and environmental justice mechanisms.

Lastly, deforestation resulting from a change in land-use—which interferes with ecosystems and increases the risk of epidemics—is linked to the broader and more worrying question of the growing consumption of land for agriculture, and, to a lesser extent, for urbanisation. Long-standing options such as the strengthening of international and European commitments towards reducing imported deforestation, expanding protected areas, and more effective oversight of existing protected areas, may benefit from a regained momentum in view of preventing disease risk.

1. REGULATION OF LIVESTOCK FARMING AND WILDLIFE CONSUMPTION: PROHIBITION IS NOT THE ONLY AVAILABLE OPTION

Wild animal markets create an environment in which the close proximity of different animal species encourages the spread and mutation of pathogens and evidently increases the chances of spillover to humans through frequent handling of these animals (Krief, 2020). Predominantly present in China and South-East Asia, these markets contribute little to the overall caloric intake of the population. Apart from their use in traditional medicine, the consumption of “exotic meats” in these parts seems to be a practice driven by cultural pressure and the drive to chase status through conspicuous consumption.²

The pressure to put an end to these practices through bans enshrined in international and national laws will continue to mount,³ as reflected in the letter⁴ signed by 66 US Senators to the World Health Organisation (WHO), the statement made by the acting executive secretary of the UN Convention on Biological Diversity,⁵ and the petition signed by 241 animal welfare organisations,⁶ all calling for a ban on live wildlife markets. China has issued a temporary ban on wildlife sale once in the past, at the height of the SARS epidemic, but went on to lift it a few months later. This time again, China has temporarily banned the sale of wild animals—other than livestock—for food. The advantage of such an approach is that it helps combat illegal animal trade, especially that of protected species like the pangolin, which should, in theory, not be openly possible, as is still the case in some markets in China and South-East Asia. Such bans also respond to concerns about animal welfare to a certain degree. If they are enforced firmly and effectively, they can drastically reduce such criminal practices over the long term, just as selective hunting and trapping bans have helped to protect certain species in Europe.

However, another approach—not based on outright bans—is often proposed for the regulation of disease risk, and also has its advantages. When monitoring a practice becomes difficult because it is widespread, unorganised, and common in remote areas, a ban can give rise to illegal behaviours which cannot be regulated. It might therefore be preferable to favour an approach that allows for the limited sale of certain

economically-significant, non-protected species. At the same time, the consumption of luxury meats should be discouraged. Funding mechanisms should be put in place to ensure compliance with the highest health and hygiene standards at zero-cost to stakeholders, so as to prevent the emergence of underground markets. This should be combined with a crackdown on the international trade of protected species as regulated by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)⁷, and a revision of national legislation around the species authorized for trade. By hastily opting for a blanket ban which does not allow for this kind of nuancing, the risk of a new epidemic emerging from underground “car-boot” trade could remain high. And we all know by now that it takes a single “patient zero” to kickstart a pandemic.

2. REDUCING THE RISKS ASSOCIATED WITH THE CONSUMPTION OF WILD ANIMAL MEAT: ESTABLISHING OUTPOSTS

The problem, and the solutions are different when it comes to the consumption of wild animal meat (such as “bushmeat” in Africa), i.e. wild animals hunted in the forests or savannahs, and which contribute in part to meeting the nutritional requirements of rather poor populations in Africa (bushmeat consumption has been cited as a probable cause of the HIV and Ebola outbreaks) and South America.⁸

As such, it must be distinguished from the poaching and illegal international trade of protected species. Hunting is an almost integral part of human life for local and indigenous communities living in forests or unique ecosystems. While hunting has had a non-negligible impact on biodiversity loss in Africa (Diaz *et al.*, 2019), it is often neither concretely feasible nor politically desirable to simply ban bushmeat consumption. In fact, centralized, uniform regulation of this technical kind has not been the most effective approach in dealing with even primate hunting, which presents a graver threat to biodiversity. An analysis of the literature shows that the most advanced approaches—which emerged notably as a response to the Ebola outbreak—entail the establishment of networks to closely monitor the concerned population groups. These networks should be formed of small multi-disciplinary teams, including anthropologists who can function as cultural mediators between these groups and local authorities. The teams should be able to rapidly detect, control and treat emerging pathogens and thus function as a global early warning system (Wolfe, Dunavan, et Diamond, 2007). The cost of establishing such a monitoring system in the 49 most at-risk countries has even been estimated

² <http://www.humanite-biodiversite.fr/article/la-crise-du-coronavirus-est-une-crise-ecologique>

³ <https://www.washingtonpost.com/opinions/2020/03/16/how-we-can-stop-next-new-virus/>

⁴ <https://files.constantcontact.com/e4694ef8001/a38aa9c1-c697-4711-a50d-b2c127a6b5e8.pdf>

⁵ <https://www.theguardian.com/world/2020/apr/06/ban-live-animal-markets-pandemics-un-biodiversity-chief-age-of-extinction>

⁶ <https://www.code-animal.com/241-organisations-de-la-protection-animale-demanded-l-interdiction-mondiale-permanente-des-marches-d-animaux-sauvages/>

⁷ <https://www.cites.org/fra>

⁸ This issue is not a concern for wildlife that is hunted in temperate, developed countries as the hunted species are not sold, do not transmit as many pathogens to humans, and in any case, we have well-established vaccines for most of them (such as tuberculosis, for instance).

at 850 million dollars (Machalaba *et al.*, 2017), i.e. much lower than the estimated costs of a pandemic, and much lower, with greater effectiveness, than centralized control systems (Bird et Mazet, 2018). Stronger enforcement of both international and national-level laws targeting the trade of protected wildlife thus needs to be supplemented by the use of international development aid to support detection programmes of this kind. These solutions are already proven to be effective and have been implemented by NGOs working on this issue for over a decade.

3. REGULATING THE RISKS ASSOCIATED WITH DEFORESTATION: DISTINGUISHING BETWEEN ENCROACHMENTS AND LAND-USE CHANGE

Deforestation is the result of a series of successive human activities taking place over time. While this takes different forms in different continents, the first stage in the process of forest land conversion is “encroachments” on native-inhabited land by non-native groups. These may be for the purposes of hunting or trapping (as described above), woodcutting, mining activities, carving out trails or building small human settlements, etc. Although not always, these encroachments are often illegal, as in the case of protected areas and regions designated as belonging to indigenous groups (IPAs). Encroachments may enable incidental contact between humans and the pathogens present in these environments, to which they do not have immunity. These pathogens can then be potentially transmitted to other humans, putting them at risk of a new disease.

Action against forest encroachment: above all an issue of police enforcement

Forest encroachments almost always come under the purview of national forest laws, which are usually quite stringent and comprehensive. However, implementation of this legislation in practice is notoriously lacking across the board due to insufficient or overwhelmed capacities for monitoring and enforcement, inconsistent application of regulations, corruption and weak justice systems. At the same time, international legal mechanisms that can oblige States to effectively implement their national laws are currently limited.⁹ International pressure can nonetheless have an impact in certain cases, as we are seeing today with the focus on live animal markets in China or more recently with cuts to Brazil's deforestation monitoring programmes.

As far as international action is concerned, a part of the solution would involve the mobilisation of financial and technical resources to assist law enforcement services. A specific initiative to fund the increased need for monitoring and law enforcement—by way of institutions such as the World Bank or the International Development Finance Club—can and should be envisaged. Without waiting for a specific international legal agreement on the issue, an international programme to strengthen the application of forest legislation may benefit from increased attention in the wake of the health crisis and help give it momentum. Such an approach should of course not be considered for the management of indigenous cultural practices, as it rather links to the above proposals dealing with the consumption of bushmeat.

Just as with illegal drug trafficking, protecting our forests, endangered species and potentially deadly pathogens from human encroachment requires a combination of legal enforcement and social action. This will not be entirely driven by a new international treaty, but also requires the mobilization of dedicated international aid funds from developed to developing nations.

Action against the circumstances driving deforestation: a (much) broader question

When it comes to deforestation through land-use change and ecosystem deterioration and loss, both the consequences and solutions to the problem are different. This type of deforestation results from the emergence of human settlements taking over forest land and being close to it (Ahmed *et al.*, 2019), and/or the associated agricultural or pastoral intensification (Wilcox et Ellis, 2006). Through the destruction of wildlife habitats and ecosystem loss occasioned by replacing wild biomass with one that is essentially made up of only cattle and humans, deforestation interferes with natural regulation mechanisms and increases the risks of pathogen mutation and transmission (Allen *et al.*, 2017; Keesing *et al.*, 2010).

Land-use change is the major driver of biodiversity loss and regulating it has been on the top of the international biodiversity policy agenda for decades, but these efforts have only met with limited success. However, since a large number of articles have now drawn attention to the interrelationship between loss of biodiversity and pathogen risk, it can be hoped that the existing initiatives combatting deforestation will benefit from greater political support.

This increased attention could be first leveraged to strengthen the objectives which are currently under negotiation as part of the Convention on Biological Diversity (CBD), which deals with these issues. These objectives are yet to be identified and defined, especially when it comes to the indirect drivers which need to be targeted, such as agricultural and food policies. A negotiation process is currently underway seeking a global commitment to protect a certain proportion of terrestrial land in each country. This negotiation aims to increase the ambition of the current target for protected areas of 17% by 2020, which we are well on track to achieving, and to supplement this strengthened target with an additional, albeit lower, target for strictly

⁹ It must also be noted that the rules on environmental regulation are routinely bent and examples of institutional laxism in enforcing compliance have been observed in almost all the countries of the world. Read more on the French case here: https://geo-avocats.com/blog/show_article.php?id=89

protected areas.¹⁰ The final rules should be adopted at COP15 of the CBD, to be held in China in spring 2021. With the COP15 coming so close on the heels of the first wave of the current pandemic—and due to which it was delayed—the negotiations are sure to resume with a new perspective.

The interlinkages between deforestation and human health could also boost the willingness of rich countries to reduce their environmental footprint via imported deforestation, and give some teeth to their policies and strategies targeting this issue, which are not currently reflected in strong economic or legal mechanisms.¹¹ Lastly, it can be hoped that the enhanced awareness of the relationship between global biodiversity and health will help support those looking for a “greening” of international trade agreements. This would notably require a strengthening of domestic legislation, i.e. an adoption of standards that would apply for each internal market and aim to reduce the impact of production on land-use change. Once these standards are anchored in domestic law, international trade agreements will have to respect them. But of course, the major OECD economies can—and should—also use their leverage in order to demand, and themselves implement, stronger guarantees in this domain, once the negotiations on trade agreements resume.

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¹⁰ <https://www.iddri.org/sites/default/files/PDF/Publications/Catalogue%20Iddri/Propositions/202001-PB0120FR-draft%20post2020%20CDB.pdf>

¹¹ Although recent decisions of the Commission seem rather to be reducing the priority attached to the drafting of such a policy, which has nonetheless been awaited for years.

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CONTACT

yann.laurans@iddri.org

Institut du développement durable
et des relations internationales
41, rue du Four - 75006 Paris – France

WWW.IDDRI.ORG

[@IDDRI_THINKTANK](https://twitter.com/IDDRI_THINKTANK)