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COVID-19: Is agriculture the main culprit?

A little more than one year after it started, the COVID-19 crisis continues to hit the world. With, until today, close to 110 million recorded cases and nearly 2.4 million casualties (compared to 2.6 million cases and 180,000 dead nine months ago), it has had a dramatic impact on the world economy. As a consequence, huge social and recovery programs measured in trillions of dollars have been launched. One thing is, however, quite clear now: despite the recent development of vaccines, this crisis is likely to continue for several more months and its impact will be felt for years.

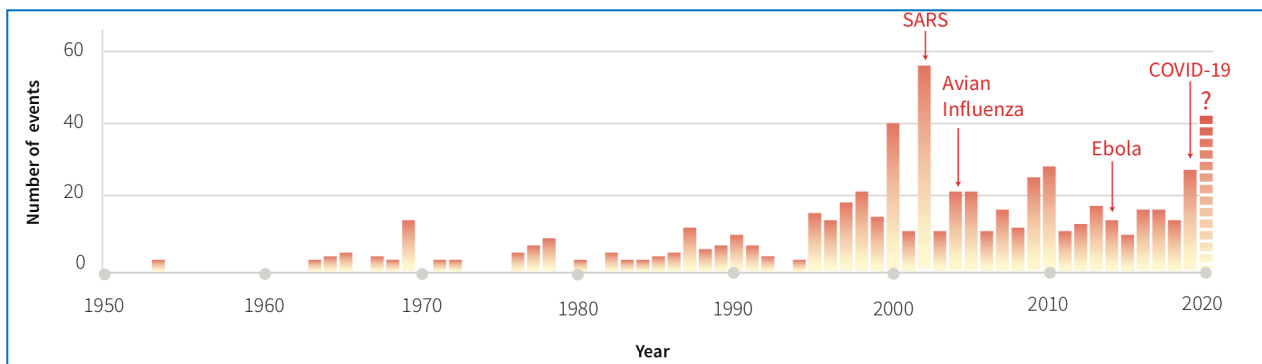
The WHO mission who visited China recently to investigate on the origin of the pandemic has made no definite conclusion – far from it – regarding the source of SARS-CoV-2, the virus responsible for COVID-19. It nevertheless excluded that an accident occurred in a laboratory could be the cause of the outbreak, pointing at an animal origin, probably a bat, with no clear indication of which animal the vector between bats and humans might have been, the pangolin, initially designated as the culprit, having been exonerated since.

This interim conclusion concurs with the general thesis that it is increased interactions between humans and animals that are the root cause of the recent epidemic outbreaks of SARS in 2002, Avian Influenza in 2004, Ebola in 2014 and COVID-19 in 2019.

Facts

Scientific publications have stressed that 60% of infectious diseases in humans originate in animals, of which 72% from wildlife, and that their occurrence is following an increasing trend [\[read\]](#).

Figure 1: Annual numbers of viral epidemic disasters globally over time (up to and including 2019)*



*The incomplete bar for 2020 indicates that data collection for the year is not yet complete but the COVID-19 pandemic includes a large number of epidemic events worldwide

Source: [FAO](#) based on EM-DAT: The Emergency Events Database – Université Catholique de Louvain

Some plausible explanations

Most interactions between humans and wildlife happen at time of hunting and gathering activities in forests, and during deforestation. It is this latter activity, that is usually mentioned in scientific literature as the key cause of contact.

According to [FAO](#), forest area has decreased by almost 4% between 1990 and 2018, with an average yearly reduction of 0.1% to be replaced by agricultural land. Agriculture is therefore considered by far as the major factor of deforestation. Both small subsistence and large commercial agriculture play an important role in it, the latter appearing increasingly as the main actor of clearing [\[read\]](#).



However, deforestation alone cannot explain the sudden surge in epidemic episodes observed over the last 20 years, as there has not been any commensurate extension of deforestation and the frequency and magnitude of epidemics has grown much faster. Deforestation may have contributed to increasing the absolute number of people in contact with forests, but that group constitutes a modest minority when compared to the total world population, probably relatively smaller than in any period in history.

For time immemorial, humanity has been using the forest for hunting and gathering their food. But, until recently, people in contact with wildlife and likely to be infected were living in isolated areas and were not so mobile. They were therefore not very liable to contaminate other humans.

Today, however, individuals are much more mobile and exchanges have developed. It is true locally, as people travel from the rural areas to cities, including in order to sell wildlife meat on markets. And it is also true at the global level, where travel and trade contribute to the spreading of diseases. These two activities have experienced an exponential growth since the 1990s:

- According to the World Bank, the number of air passengers escalated from 1.2 billion per annum in 90s to almost 4.5 billion per year before the outbreak of COVID-19;
- According to the WTO, trade increased from \$3,500 billion in 1990 to \$19,000 billion in 2018 (in addition to legal trade, illegal trafficking of wildlife has also expanded substantially).

Moreover, pathogens disseminated by travellers and traded goods reach people who, because of their lifestyle and age, have become more vulnerable to new infectious diseases. Indeed, “modern” lifestyle present less risk of exposing people to infection, particularly in the case of the better-off, and it is established that human immunity decreases with age.

This may be part of the explanation why there are apparently more victims of COVID-19 in rich countries than in poor countries. Another reason could be the fact that rich countries, themselves, have become more vulnerable. One cause for that is that, maybe by arrogance, they have believed that they were beyond the need for preparedness as pandemics, they thought, were events of the past.

Solutions

Banning the destruction of forest habitats, of hunting and gathering and of wildlife trafficking to control the flow of pathogens from the source, is often seen as the solution for reducing risks of a future propagation that could to create new pandemics.

However prohibiting the consumption of bushmeat, which may be an important element of diet for some population groups, could have serious consequences on

the protection of the environment. For example, researchers estimated that replacing wild meat consumed in the Congo Basin with meat from livestock such as cattle would mean converting 25 million hectares of forest into pastureland [\[read\]](#). Otherwise, depriving the local population from this source of protein and cash could have a considerable impact on nutrition, particularly of children.

The complexity of the matter calls for great care and excludes quick and sweeping decisions [\[read\]](#).

Conclusion (provisional)

The answer to the question in the title of this article is: yes, expansion of agriculture has a large role in the emergence of pathogens. So do some traditional consumption habits. However, for this emergence to translate into pandemics, vectors are needed to transport pathogens to various parts of the world. The explosion of travel and trade have definitely played a central role in this process.

The solution to the problem is not easy.

Reinforcing controls of traded products, checking travellers coming from high-risk areas may prove useful. But they have a cost.

A total ban on deforestation and the protection of forests, although quite desirable, requires a strong political commitment by governments to control effectively activities of forest companies. They also cause a net economic loss for the concerned countries.

A total ban of consumption of bushmeat and of wildlife traffic, apart from being difficult to implement, could also backlash and encourage further deforestation to free land for meat production and generate alternative income, while having, in the immediate, nutritional consequences for the people living near or in forests.

However, the cost of pandemics can be so huge, as illustrated by COVID-19, that it is justified to invest in preventive measures and compensate for the losses these will cause.

To know more:

- FAO, [How to feed the world in times of pandemics and climate change? Opportunities for innovation in livestock systems](#), 2021.
- United National Environment Programme, [Covid-19, the Environment, and Food Systems: Contain, Cope, and Rebuild Better](#). UNEP 2020.
- K.E. Jones et al., [Global trends in emerging infectious diseases](#), Nature, 2008.

Selection of past articles on hungerexplained.org related to the topic:

- The COVID-19 dilemma: Health or the economy? 2020.
- Opinions : Back to reality – Reflections around the COVID-19 crisis, by M. Maetz, 2020.
- Forests: rural communities caught between markets and the objective of conserving the planet, 2013.