



COMMENTARY

COVID-19 and the ecological crisis: What do they have in common?

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Abstract

This lecture transcript is divided in four parts. First, I examine the main public-health strategies in managing the COVID-19 pandemic. Although there are numerous factors capable of explaining national differences in COVID-19 mortality that are not attributable to merits or demerits of governments, I have identified five lethal errors (lack of preparation, misinformation, medicalisation, a policy approach based on a 'laissez-faire' attitude to the virus and social inequity) and four vital actions (testing, tracing, isolating with support, timeliness and immunisation) that best distinguish success or failure in tackling the pandemic. In the second part, I analyse the origin of SARS-CoV-2 and major risk factors for emerging zoonotic diseases (e.g. exploitation of animal wildlife, deforestation, agricultural intensification and climate change) to be addressed to prevent future pandemics. Then, I discuss the interrelationships between the COVID-19 pandemic and the ecological crisis in the context of the so-called neoliberal variant of capitalism. Both crises are largely determined by anthropogenic risk factors influenced by a model of economic development that prioritises infinite economic growth, free trade and a global self-regulating market over any other values of society (including human survival). An alternative economic approach, capable of creating a new balance between the health of humans, animals, and the environment (by modifying their *structural drivers*), is the most important antidote against new spillovers and climate change. It is the humanitarian immune response we need to protect global health from future pandemics and ecological collapse.

Keywords: COVID-19, One Health, neoliberalism, climate crisis, emerging zoonotic diseases

Introduction

On 19 March 2020, official statistics counted more than 6000 COVID-19 deaths in Italy alone, but one of the most renowned Italian experts in the news exhorted everyone to remain calm and explained: 'I never quite understand who dies with the coronavirus or due to the coronavirus . . . do you know how many people died due to COVID-19? [Only] Two!' The hypothesis that the number of COVID-19 deaths is much lower than that presented in official statistics never left us. In fact, it is still quite popular even today. But what does the scientific evidence show?

Let us consider the global COVID-19 death toll up to 20 August 2022: 6,470,763 deaths. Think

about all those names who have lost their lives: it would take more than a month to read them. Is this really a case of overestimation? Quite the opposite. According to analyses based on excess mortality methods – comparison of deaths during the years of the pandemic versus the average deaths recorded in the last five years – published in *Nature*, 'the true death toll of the pandemic' is about three or four times higher than the official number of COVID-19 deaths [1]. As pointed out in the *WHO World Health Statistics 2021* report, COVID-19 has caused an unprecedented increase in mortality since the end of World War II in most European countries and the USA [2]. In Italy, on 20 August 2022, the official COVID-19 death toll was 175,000, but using excess mortality indicators, we should add 50,457 more

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Date received 19 September 2022; reviewed 4 October 2022; accepted 5 October 2022

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DOI: 10.1177/14034948221134339

journals.sagepub.com/home/sjp



deaths. People who died due to COVID-19 had, on average, an additional 16 years of life to live. Moreover, the virus has caused a series of long-term symptoms called ‘long COVID’: months after infection, more than 20% of survivors still report symptoms such as fatigue, dyspnoea, depression and anxiety [3]. Mental health has also been affected by the trauma of having lost a close relative. According to estimates of a *Lancet* study, up to 31 October 2021, about 5.2 million children had lost a parent or a caregiver due to COVID-19 [4]. Finally, although the pandemic does not seem to have increased the number of suicides [5], it has led to detrimental effects on quality of life and social relationships [6].

This article is divided in four parts. First, I examine the lethal errors and vital actions in managing COVID-19. Then, I investigate major risk factors for emerging zoonotic diseases that need to be addressed to prevent the next pandemic. Later, I discuss the interrelationships between the COVID-19 pandemic and the ecological crisis. Finally, I analyse what I consider the key common driver of both crises: ‘the neoliberal variant of capitalism’.

Managing COVID-19: How to save lives during a pandemic

The idea for the first part of this article started from a simple question: how many lives could have been saved from the pandemic? And how? Experts are quite divided on this. Some maintain that governments have done all they could to contain the pandemic, while others have cast doubt even over the usefulness of public-health interventions [7]. Although it is not a perfect measure, mortality seems to be a useful indicator to disentangle successes and failures in managing the pandemic. Yet, comparing countries in terms of their capability to contain deaths due to SARS-CoV-2 is a daunting task. There are numerous factors capable of explaining differences in COVID-19 mortality that are not attributable to merits or demerits of national governments. Among the most important are mean age, population density, percentage of the population in retirement homes, prevalence of co-morbidities, previous exposure to similar pandemics (e.g. SARS, MERS), mobility and international travelling, geographic location, temperature and humidity, air pollution, socio-economic conditions, overcrowding (home, community), percentage of people working in the informal sector and job insecurity.

Although the scientific literature suggests that all these factors have played a key role in determining

cross-national differences in COVID-19 mortality, public-health strategies adopted by national governments made a difference. When considering COVID-19 deaths across nations, it is possible to observe a deeply divided world. A group of nations, overwhelmed by the pandemic, experienced a very high excess mortality and falling life expectancy at birth. Another group of countries, where mortality rates due to COVID-19 have been drastically contained, even experienced reductions in all-cause mortality rates compared to previous years [8]. What can explain such large differences? Although I do not pretend to be exhaustive or fully comprehensive, I have identified five lethal errors and four vital actions that best distinguish success and failure in the management of the pandemic.

Lethal errors

Lack of preparation. Chasing the virus, rather than anticipating it, was a major mistake. We have known for years that ‘an ounce of prevention is worth a pound of cure’, but when the crisis hit, in many countries, pandemic preparedness plans were not ready. Italy, the first European country hit by the pandemic, had not updated its plan for 14 years! As Filippo Curtale put it, ‘the pandemic plan was ignored, the virus entered Italy and circulated freely for weeks, the epidemiological expertise was not activated’ [9]. Some years earlier, the National Center of Epidemiology and Health Promotion in charge of coordinating epidemiological surveillance and prevention activities had been suppressed [10] despite the protests of hundreds of Italian health professionals.

Misinformation. The second lethal error was ineffective COVID communication strategies and misinformation. The latter has been spread not only by ‘influencers’ sharing fake news on social media, but also by renowned experts who have become very popular on TV and newspapers during the pandemic. Some have downplayed the virus danger, saying that it was ‘little more than a flu’, while others have even accused governments of doing ‘too many COVID-19 tests’. Even political leaders have contributed to mislead the public by spreading false information: Donald Trump proposed curing COVID-19 by injecting ‘a disinfectant’ to ‘clean’ the lungs [11].

Medicalisation. The third lethal error was having mistaken the pandemic for a medical problem. But is a pandemic not a medical problem? In a sense it is, but

above all, a pandemic is a public-health issue that cannot be fought only in hospitals or through pharmaceutical interventions. A pandemic is a public-health crisis at the population level and needs to be tackled through community-based prevention interventions at the national and global level. Treating prevention like a second-tier discipline cost dearly in terms of mortality: while a good clinician can cure severe diseases in individuals, a prevention expert can save the lives of millions of people.

A policy approach based on a 'laissez-faire' attitude to the virus. Some policy leaders, economic experts and even epidemiologists have harboured the illusion of protecting the economy without dealing with the pandemic, while sacrificing (human) lives on the altar of a false promise: 'herd immunity' [12]. This is what I defined as a policy approach based on a 'laissez-faire' attitude to the virus. In the first months of the crisis, we heard public figures speaking of 'elderly people who are not indispensable to the productive effort of the country' or sentences such as it's a 'shame if someone dies [due to COVID-19]'. Yet, 'health or economy' is a false dichotomy: scientific evidence clearly showed that the best way to protect productive activities and 'save' the economy is not to let the virus spread, but rather to fight it through effective prevention interventions [13].

Social inequity. After many celebrities and powerful political leaders had been hospitalised because of COVID-19, some regarded SARS-CoV-2 as a 'democratic' virus that does not distinguish between rich and poor. Yet, scientific evidence says exactly the opposite: the less well-off have a greater risk of contagion, hospitalisation and death [14–16]. Socio-economically disenfranchised populations are also more likely to be affected by the economic effects of the pandemic. During the crisis, they needed to be protected through strong social measures and government interventions, but most national strategies were inadequate and failed to address key social determinants of COVID-19.

Vital actions

Successful COVID-19 government strategies include not only avoiding mistakes, but also active prevention interventions that have been known to save lives on a large scale during the pandemic [17]. These strategies include testing, tracing, isolating with support, timeliness and immunisation.

Testing. Fighting a virus without an effective testing strategy is like going to war with an invisible enemy.

The use of mass testing has been a cornerstone of the success of those countries that have best managed the pandemic. It is no coincidence that they have had the lowest excess mortality rates worldwide. A cross-national analysis using aggregate data showed that for every additional swab per 100 people, mortality from COVID-19 has been reduced by 8% after controlling for relevant confounding factors [18].

Tracing. In many countries, contact tracing has been overlooked. In Italy, the track-and-trace app called *Immuni* has completely failed, but this tool could have been one of the most powerful 'sentinels' in the front line in the fight against the virus. An epidemiological surveillance system based on geo-referenced data is essential to identify outbreaks in a timely manner and address them with tailored, community-based preventative interventions [19].

Isolating with support. Testing and tracing are of little use if the isolation of the infected is not guaranteed. People who need to self-isolate, however, must be helped economically [20]. During an emergency, economic solidarity can make a difference. COVID-19 needed to be addressed not only through public-health strategies and vaccinations, but also through economic policies facilitating healthy behaviours and protecting the most vulnerable populations. As remarked by the Vice President of Taiwan, an epidemiologist trained at John Hopkins University School of Public Health, 'support for people who need to isolate is a key strategy of prevention and containment of the virus'.

Timeliness. Testing, tracing and isolating, however, lose much of their effectiveness unless they are adopted in the early stages of an outbreak. In the hunt for the virus, 'speed is everything'. The case of New Zealand is of particular significance when considering a timely approach in adopting prevention measures and contain mortality [21].

Immunisation. Vaccines have been shown to be very effective in reducing COVID-19 deaths and hospitalisations. According to a study published in *Lancet Infectious Diseases*, between 8 December 2020 and 8 December 2021, 'vaccinations prevented 14.4 million deaths from COVID-19 in 185 countries and territories' [22]. Yet, vaccines are not a magic bullet. To be effective, vaccination campaigns need to be complemented by public-health efforts to reduce viral spread and the risk of new 'variants of concern'. Moreover, the enforcement of intellectual property rights and nationalism generated a 'vaccine apartheid', as poorer nations have been left behind in

terms of immunising their own populations. This strategy is particularly short-sighted because the virus does not respect national boundaries: ‘no one is safe unless everyone is safe’.

Preventing the next pandemic

If these life-saving strategies could have helped us to control this pandemic better, what should we do to prevent future ones? Since the beginning of the crisis, the scientific community has mobilised itself to understand the origin of the virus. During the early days of the pandemic, some have supported the hypothesis that the virus could have come from the Wuhan Institute of Virology in the context of the ‘Chinese biological warfare program’ [23]. While some commentators have embraced conspiracy theories, the hypothesis of an accidental leak should not be ruled out a priori. Yet, is there any evidence in support of the lab leak hypothesis? The most credible hypothesis seems that SARS-CoV-2 originated in wildlife. Although the Chinese government now insists that the pandemic did not start within its own border, the most plausible clues about the origin of the COVID-19 have converged around the Huanan Wet Market, a live animal and seafood market in Wuhan City, Hubei. The World Health Organization (WHO) team of experts in charge of investigating the origin of the pandemic identified 174 COVID-19 cases in Hubei province in December 2019, the majority clustered in central Wuhan, with a high density of cases near the Huanan market [24]. Epidemiologists agree that ‘wet’ markets are dangerous hotspots for pandemics not only for their poor sanitary conditions, but also because they put wild animals (often illegally captured) in very stressful conditions. Trade of wild animals seems to account for about 75% of emerging diseases [25]. The 2021 WHO mission report on the origin of SARS-CoV-2 suggests that there are two likely suspects as ‘hosts’ involved in the spillover: the bat and the pangolin. There is ample and solid evidence showing that bats are the main animal reserve of coronaviruses in the world. Bats can fly, are gregarious and possess a unique tolerance to viruses due to their exceptionally powerful immune system. Yet, it is very likely that in the case of SARS-CoV-2, there was an intermediate host. According to an article published in *Nature*, the most likely candidate is the pangolin – a cute anteater and one of the most illegally hunted and exploited mammals on the planet [26].

The pandemic has often been portrayed as a black swan – an extraordinary, unpredictable event. Yet, numerous scholars had warned us. For them, it rather resembles a white swan – an event that was not only

foreseeable but foreseen. David Quammen, in his book *Spillover* (published in 2013), wrote: ‘There is no reason to believe that AIDS will remain the only global disaster of our time caused by a strange microbe that jumped out of an animal. Some well-informed Cassandra even talks about the . . . next big event, as an inevitable fact. Will it be caused by a virus? Will it manifest itself in the rainforest or in a city market in southern China?’ [27]. Debates between the lab leak hypothesis and the natural origin hypothesis, however, miss an important point: the structural socio-economic drivers of emerging pandemics. Pope Francis once remarked that COVID-19 may be ‘nature’s revenge for its maltreatment’, but when considering main risk factors for new pandemics, it is easy to conclude there was no revenge at all: we have done it all by ourselves [28]. There is nothing ‘natural’ about the origin of SARS-COV-2. As underlined by a UN report, the key drivers of pandemic risk are all anthropogenic factors [25]:

1. Increased use and exploitation of wildlife;
2. Deforestation;
3. Increasing demand for animal protein;
4. Unsustainable agricultural intensification;
5. Unsustainable utilization of natural resources accelerated by urbanization, land use change and extractive industries;
6. Travel and transportation;
7. Climate change.

There is plenty of evidence supporting the associations between these anthropogenic risk factors and emerging zoonoses. Researchers have found that hotspots of deforestation are also hotspots for spillovers (and ecological destruction) near the tropics where there is great abundance of bats. A recent study found that ‘increases in outbreaks of zoonotic and vector-borne diseases from 1990 to 2016 are linked with deforestation, mostly in tropical countries’ [29]. If deforestation drives zoonoses, what drives deforestation? The answer is the conversion of primary forests to animal agriculture whose main product is consumption of beef. A second major culprit is palm oil production, which drives about 18% of deforestation [30].

Another key driver of pandemics is animal agricultural intensification. As Rob Wallace in his book *Big Farms Make Big Flu* [31] suggests: ‘Industrialized animal production is associated with the industrialized production of pathogens such as influenza, Zika, Ebola, swine and avian flu and others that are linked to agribusiness practices that create favourable conditions for the development of zoonotic diseases’. Animal agricultural

intensification seems apparently unrelated to the origin of COVID-19. However, a recent study explains that in 2019, the spread of African swine flu generated a devastating impact on the intensive pig farming sector in China, halving pork production. According to the authors of the study, it was this drastic decrease in the supply of pork that was the primary cause for the increase in demand for wildlife animal proteins in China [32].

Scientific evidence also shows that emerging zoonotic diseases are influenced by climate change. In an analysis published in *Nature Climate Change*, a group of authors found that 58% (218 out of 375) of the infectious diseases already faced by humanity around the world were at some point aggravated by climate risks [33]. Another study found that climate change shifted the global distribution of bats contributing to the outbreaks of both SARS-CoV-2 and SARS-CoV-1. As underlined by the study, climate change has transformed the Chinese province of Yunnan (as well as the neighbouring regions Myanmar and Laos) into ideal habitats for bats [34].

The ecological crisis

After having established a mechanism of association between COVID-19 and the ecological crisis (climate change is a potential determinant of emerging pandemics), it is important to highlight an even more important aspect: amplifiers of pandemic risk are also amplifiers of the ecological crisis. According to the Lancet Countdown 2021 report, climate change is the most important global health threat of the century [35]. The sharp increase in global temperatures [36] and the changes associated with the ecological crisis are increasing the likelihood of extreme events such as flood, storms, drought, heatwaves and wildfires [37] that have already generated negative consequences for health. Moreover, the ecological crisis needs to be conceptualised as a threat to human survival. A study which assessed climate change as an existential threat concluded that humanity has a 1-in-20 chance of risk of a catastrophic outcome. As the authors of the study put it, ‘it is equivalent to a 1-in-20 chance the plane you are about to board will crash. We would never get on that plane with a 1-in-20 chance of it coming down, so why are we willing to send our children and grandchildren on that plane?’ [38].

In the bestseller *Collapse: How Societies Choose To Fail Or Survive*, Jared Diamond analysed how and why civilisations have fallen in the past. The major causes of collapse include excessive deforestation, habitat destruction, soil erosion, water mismanagement,

overhunting, overfishing, the adverse effects of introducing new species on native species, overpopulation and increased per-capita impact of people. The second list of drivers is composed of climate change, the build-up of toxins in the environment, energy shortages and the human utilisation of the Earth’s entire photosynthetic capacity. Diamond argued that roughly 10–20 civilisations have ultimately collapsed because of one or more of these factors, but for the first time in history, the risk of breakdown is now global [39]. As an environmental slogan put it, ‘there is no planet B’.

In recent years, there has been an escalation of efforts and proposals to avoid surpassing the so-called point of no return of irreversible climate change or, more technically, the tipping points of the ecosystem. Climate tipping points refer to changes that become self-perpetuating and can lead to abrupt, irreversible and dangerous effects with serious implications for global health. Politicians and some scientists argue that in order to reduce the risk of reaching or overcoming the climatic tipping points, the global average temperature should not exceed 1.5°C above the pre-industrial level. This means that we must stay below the atmospheric threshold of 350 ppm of greenhouse gases, which is achievable by reducing carbon dioxide emissions by about 90% by 2050 compared to 1990 levels. This is an incredibly ambitious goal, and yet recent estimates indicate that even the Paris Agreement goal of limiting warming below 1.5°C carries the risk of crossing multiple tipping points, including the collapse of Greenland and West Antarctic ice sheets, die-off of low-latitude coral reefs and widespread abrupt permafrost thaw. The study also adds that crossing these tipping points could generate more positive feedback that would increase the probability of crossing even more tipping points [40]. Moreover, as the Intergovernmental Panel on Climate Change 2022 report observed: ‘the increase in extreme weather and climatic conditions has produced (already) some irreversible impacts as natural and human systems have been pushed beyond their ability to adapt’ [41].

Clearly, without radical changes to the economy and a rapid transformation of people’s lifestyle, it will become extremely difficult to avoid catastrophic ecological effects and their consequences for global health. Yet, changing policies and societies in such a rapid and pervasive way seems truly challenging, especially when considering that more than half a century of environmental activism, international agreements on climate change and worldwide calls for pro-ecological behaviours have not yet really managed to reverse the growth of carbon dioxide emissions on a global scale. The two historical events

that caused the most rapid annual decreases in carbon dioxide emissions worldwide have been the 2008 global financial downturn and the 2020 COVID-19 pandemic [42].

The neoliberal variant of capitalism

Pandemics such as COVID-19 and the ecological crisis are both influenced by what I call ‘the neoliberal variant of capitalism’. Although modern societies denote a variety of characteristics and have distinguished themselves by heterogeneous political-economic modalities, in recent decades, world economic development has evolved through some common, converging patterns. This evolution has been characterised, on the one hand, by a growing internationalisation and, on the other, by the spread and consolidation of a specific set of policies applied to both developed and developing countries in a ‘one size fits all’ approach. These reforms have become so pervasive in global affairs that were partly adopted, even if atypically, by countries such as China (the ‘Chinese version of neoliberalism’) [43]. Yet, social scientists who have investigated neoliberal reforms and their effects on health and society are often met by odd reactions. Historian Philipp Mirowsky, author of *The Political Movement that Dared Not to Speak Its Name*, affirms that reactions to his work on the history of neoliberalism have taken roughly two forms: the first argues that neoliberalism is nothing more than a ‘fevered delusion of his addled brain’, and the second says that ‘if such a thing [neoliberalism] does indeed exist, it is far too uneven and inconsistent to count as a serious analytical category’ [44].

So, what do we mean by neoliberalism? Sometimes called the ‘Washington Consensus’, ‘laissez-faire capitalism’, ‘hyper-capitalism’, ‘turbo-capitalism’, ‘shock therapy’ (in Eastern Europe) or ‘structural adjustment policies’ (in developing countries), neoliberalism refers to ‘a theory of political economic practices that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterised by strong private property, free markets and free trade’ [45]. A corollary is that state interventions in markets must be kept to a bare minimum because markets are self-regulating and capable of providing optimal results when left free. One of the most influential political champions of neoliberalism, Ronald Reagan, made a famous joke about it: ‘The nine most feared words in the English language? “I’m here from the government, I’m here to help”’. Yet, although in theory neoliberal policies advocated for unfettered free markets, in practice, they often rely on strong state interventions and even authoritarian politics.

If neoliberalism presents too many challenges to be defined analytically, perhaps a more useful approach is to consider specific neoliberal policies such as trade liberalisation (and export promotion) and financial deregulation. Mechanisms connecting neoliberal policies to increased pandemic risk consider, for example, the effects of trade liberalisation on deforestation [46], animal agricultural intensification and urbanisation. Trade policies tailored around economic efficiency and export promotion lead to vertical integration under large-scale agribusiness corporations (Earl Butz’s approach ‘get big or get out’) and new demand and production of meat especially in developing countries. This process increases deforestation and marginalises and displaces small farmers from their lands, pushing them towards overcrowded cities (slums). These conditions create both greater risk for the outbreak and spread of new pathogens [47].

Another mechanism connecting neoliberal policies and pandemics considers the effects of financial deregulation. As observed by Rob Wallace, to understand fully the origin of pandemics, it is useful to ‘follow the money’. If we look at the entities that finance deforestation and highly pathogenic farming methods, for example, ‘we should also consider international financial centers such as London, Hong Kong and New York City as viral epicenters’ and rename ‘viruses and their variants to reflect their political-economic origins’ (e.g. ‘North American Free Trade Agreement (NAFTA) Flu’ and ‘Neoliberal Ebola’) [48]. Indeed, a recent report by University College London highlighted the agri-financial linkages between standard financial practices (such as maximising agricultural land productivity, realising capital gains and achieving scale) and land use change and intensive agricultural practices that drive biodiversity loss and (ecological) degradation [49]. As Andreas Malm put it: ‘If it were not for the economy . . . assailing the wild, encroaching upon it, tearing into it, chopping it up, destroying it with a zeal bordering on lust for extermination, these things would not happen. These pathogens would not come leaping towards us; they would be secure among their natural hosts’ [50].

Finally, aggressive free market and free-trade policies may have hampered the development and application of strong environmental regulations necessary to effectively tackling not only deforestation but also climate change. For example, during the negotiations of the Paris United Nations Climate Conference (COP21), a leaked internal European Union document revealed that European governments have instructed their representatives to ‘oppose any discussion of measures to combat climate change that might be a restriction on international trade’ [51].

Conclusions

Since the outbreak of the pandemic, there have been numerous efforts to prepare for and prevent future pandemics better. The One Health approach, or the idea of protecting the health of animals and the health of the environment in connection with human health, has gained prominence in scientific and political debates. Yet, as Wallace et al. [47] explain, ‘One Health research has omitted addressing fundamental structural causes underlying collapsing health ecologies’. Indeed, it is time to go beyond One Health and study the ‘causes of the causes’ of these crises (Structural One Health) by tackling not only the proximal determinants of pandemics but also the more distal political and economic drivers.

In this article, I have shown that climate change is a potential determinant of emerging zoonoses and a major symptom of the ecological crisis. Moreover, I have explained how new pandemics and climate change are influenced by similar anthropogenic risk factors. I have also argued that emerging zoonotic diseases and climate change share a common driver: neoliberal policies such as trade liberalisation (and export promotion) and financial deregulation. Even more broadly, at the root of new pandemics and the ecological crisis, there is an approach to human progress that prioritises economic goals such as infinite economic growth, free trade and the logic of a global self-regulating market before other values of society, including human survival. As suggested by Jørgen Randers, professor of climate strategy at Norwegian Business School and co-author of *Limits to Growth*, ‘the tyranny of the short term seems to prevail because it is cost-effective to postpone global climate action. It is profitable to let the world go to hell!’ [52].

Is it really easier to imagine the end of the world than the end of neoliberalism?

We have been accustomed to the idea that ‘there are no alternatives’ to neoliberal policies which is treated as the ultimate form of economic organisation and ‘the end of history’. Critics, visionaries of radical societal reforms, are often accused of lacking realism, but the real utopians are those who believe we will be returning to ‘normality’. An alternative approach to economic development – capable of creating a new balance between the health of humans, animals and the environment by modifying their *structural drivers* – is the most important antidote against new spillovers and climate change. It is the humanitarian immune response that we need to protect global health from future pandemics and ecological collapse.

Acknowledgements

The article has been developed from a keynote presentation at the 19th Biennial European Society for Health and Medical Sociology Conference, University of Bologna (Forlì Campus), 25 August 2022.

Declaration of Conflicting Interests

The author declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Funding

The author received no financial support for the research, authorship and/or publication of this article.

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