COVID-19, human health and the environment

Environmental protection is health protection

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COVID-19, HUMAN HEALTH AND THE ENVIRONMENT

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About the Environmental Funders Network (EFN)

EFN is collaborating to secure a truly sustainable and just world, fit for people and nature. Our mission is to increase financial support for environmental causes and to help environmental philanthropy to be as effective as it can be. Our members are funders, mainly based in the United Kingdom, who pursue these aims at home and overseas. As their network we will work inclusively, efficiently, transparently, accountably, and to high standards of social and environmental responsibility.

EFN does not hold funds, consider or make grants, or advise fundraisers. Please do not send funding requests to EFN as we cannot respond to them. Funders interested in joining EFN or finding out more about the network should contact us at info@greenfunders.org. This report, along with other EFN publications and resources relevant to environmental philanthropy, is available on the Resources page of our website: www.greenfunders.org/resources.

About this report

The Environmental Funders Network is grateful to Liz Gadd for writing this and the other philanthropy briefings in the ‘COVID-19 and the environment’ series while on furlough leave from her role at New Philanthropy Capital (NPC). Liz works within NPC’s Research and Consulting team as a Senior Consultant, and works with charities and funders to improve their effectiveness and efficiency.
Environmental issues are closely intertwined with the COVID-19 pandemic and must be addressed to mitigate the risk of future crises. Philanthropists, in partnership with environmental and health-focused non-governmental organisations (NGOs), can be a powerful force for change in addressing root causes of the deeply interconnected health and environmental issues faced today and by future generations.

**Zoonotic diseases**

Emerging human diseases are rarely new; they are often ancient pathogens moving to humans from other animals. Such diseases, which originate in animals and pass to humans, are termed ‘zoonotic’. Three quarters of emerging infectious diseases, and around 60 per cent of all infectious diseases, are zoonotic. On average, one new infectious disease emerges in humans every four months and zoonotic pathogens are more than twice as likely to be the source of emerging diseases than non-zoonotic pathogens

The most likely animal source of COVID-19 was a bat, but how it reached humans and exactly where is not yet known. Involvement of a wildlife market in China was considered likely— and not unprecedented, as the Severe Acute Respiratory Syndrome (SARS) coronavirus entered the human population via infected civets and/or bats captured and sold as food in the wildlife markets of Guangzhou in China in 2003. However, evidence has emerged that the virus causing COVID-19 was already circulating among humans before it was first confirmed at the market.

COVID-19 follows in a long history of zoonotic pathogens. Flu outbreaks in 1918, 1957, 1968, 1977 and 2009 were all transmitted to humans from birds or pigs. All these outbreaks devastated human populations. The 1918 Spanish flu (H1N1) pandemic killed 20-40 million people globally, and its resurgence in 2009 reached 200 countries and caused one billion infections and 200,000 deaths. Other well-known zoonotic diseases include the 2014 West African Ebola epidemic (>11,000 deaths), malaria (>400,000 deaths globally p.a.), rabies (>60,000 deaths globally p.a.) and HIV/AIDS (>33 million deaths).

Our engagement with animals and the habitats we share therefore plays a critical role in our global health security.

‘While COVID-19 demands immediate action, there also needs to be a long-term vision, one that enables us to fundamentally transform our relationship with the natural world to reduce the risk of future pandemics.’

ELIZABETH MARUMA MREMA, EXECUTIVE SECRETARY OF THE UN CONVENTION ON BIOLOGICAL DIVERSITY
Food, agriculture, the environment and health

The food we grow and produce, and how we distribute that food, is of key significance to our health, as well as being one of the key drivers of environmental degradation. Think, for example, of the impact of clearing tropical forests to grow soy for livestock feed. This land degradation can in turn impact our health by increasing the chances of zoonotic disease emergence. emergence

Emergence of new diseases is also linked to other ways in which we source our food. Hunting wild animals for meat—as well as for medicine and other uses—and their sale in wildlife markets inevitably brings disease transmission opportunities. However, millions of people across the world rely on the consumption of wild animal meat, often referred to as ‘bushmeat’. Bushmeat accounts for 30-80 per cent of protein intake in Central Africa and parts of Latin America, and many people depend on the trade as a source of income. Therefore, in seeking to mitigate risk, a nuanced understanding of the local context is required.

While many zoonotic diseases originate in wildlife, livestock often serve as a bridge between wildlife and human infections. This is particularly the case for intensively-reared livestock as their resilience is hindered by limited genetic diversity in herds bred for food production rather than disease resistance.

More than 50 per cent of zoonotic diseases, and more than 25 per cent of all diseases, can be traced back to agricultural drivers. Our use of pesticides in agriculture is also responsible for lowering the disease resistance of farm workers, local populations and wildlife.
Stress suppresses the immune system in animals as well as humans. A suppressed immune system in animals raised (or captured) and transported for food can in turn increase the health risks to humans. These risks are particularly prevalent in factory farming and wildlife markets.

As another example of the risks to human health posed by consumption of some animal products, bovine leukaemia virus (BLV) has been associated with breast cancer risk in humans. The odds of humans developing breast cancer if tested BLV positive is 3.1 times greater than if BLV negative, which is higher than any of the frequently publicised risk factors for breast cancer, including obesity, alcohol consumption and use of post-menopausal hormones. BLV is likely acquired via consumption of dairy products, and whilst transmission risks are unclear it is known that between 83 per cent (herds under 100) and 100 per cent (herds over 500) of dairy operations test positive for BLV antibodies in pooled milk tanks.

Antibiotic resistance of disease-causing bacteria is known to be, in part, caused by the over-use and misuse of antibiotics in factory farming, which accounts for around half of global antibiotic use. Antibiotics are used extensively in factory farms in order to treat the symptoms of poor animal welfare. According to the World Health Organization (WHO), antibiotic resistance is one of the biggest threats to global health, food security and development today. Globally, failure to address the problem of antibiotic resistance could result in ten million deaths every year by 2050, at a cost of £66 trillion in lost productivity to the global economy.

Reform of factory farming is essential to protect both our environment and our health. To that end, scientists, animal welfare campaigners, food safety experts, vets and environmentalists have been encouraging the ‘One Health’ concept, and most recently the ‘One Welfare’ concept, over the last decade. One Health is an approach to designing and implementing programmes, policies, legislation and research in which multiple sectors communicate and work together to achieve better public health outcomes. The One Welfare concept extends the One Health approach by including a focus on welfare as well as health of humans and animals. Both are ‘systems change’ concepts that recognise the interdependence of health and the environment as well as the inability of any one sector to address these complex issues in isolation.

Not only do our food production systems pose numerous health risks, they also contribute heavily to climate change and its associated health risks, as discussed in the following section. Climate change is driven primarily by increases in greenhouse gas (GHG) emissions, and research has suggested that livestock production may account for between 15 and 50 per cent of the total human-induced GHG emissions per year.

“COVID-19 has shown us that human beings and our economic activity depend on the planet’s ecological balance. If we continue to push against this delicate balance, we do so at our peril.”

AKANKSHA KHATRI, WORLD ECONOMIC FORUM
Climate change and health

The Lancet Countdown, a collaboration of 24 academic institutions and intergovernmental organisations from across the world, tracks the relationship between climate change and health. In 2017 it declared the impact of climate change on health to be ‘the major threat of the 21st century’ and its 2019 report emphasises that ‘the life of every child born today will be profoundly affected by climate change, with populations around the world increasingly facing extremes of weather, food and water insecurity, changing patterns of infectious disease, and a less certain future.

The health impacts of climate change are overwhelmingly negative (despite localised benefits such as reduced winter deaths in temperate climates). Climate change affects many of the social and environmental determinants of health, including clean air, safe drinking water, food and shelter. Between 2030 and 2050, climate change is expected to cause approximately 250,000 additional deaths per year from malnutrition, malaria, diarrhoea and heat stress, and the direct damage costs to health (excluding costs in health-determining sectors such as agriculture, water and sanitation) are predicted to reach USD 2-4 billion per year by 2030.

As a direct result of climate change, food security will become an increasingly significant issue. The global human population is projected to reach ten billion by 2050, increasing demand for food, and yet crop yields will decrease as temperatures increase – for every 1°C temperature rise, wheat yields drop by six per cent and rice yields by ten per cent. More than three billion people could live in areas of extreme heat by 2070, which not only affects food security but also contributes directly to deaths from cardiovascular and respiratory disease; for example, the European heatwave of 2003 caused over 70,000 deaths. Scientists have observed that spikes in vector-borne diseases (those transmitted by the bite of mosquitoes, ticks, sand-flies, etc.) correspond with unusual changes in climate and are also moving further into the global north as temperatures rise. Heat also increases levels of pollen and other aeroallergens that can trigger asthma, which currently affects around 300 million people.

Countries with weak health infrastructure will be least likely to cope with the health implications of climate change and, due to our globally interconnected food system and lifestyles, this has the potential for disastrous health impacts beyond those countries most at risk. To mitigate the increasing risks of climate change, 55 countries (representing at least 55 per cent of total GHG emissions) ratified the Paris Agreement in 2015 to limit the global temperature rise to 1.5°C by 2030. The world is currently on track for a more than 3°C rise, even if all current commitments are met.

Globally, two thirds of citizens believe that the climate change crisis is as serious as the COVID-19 crisis and feel that if their governments do not act now to combat climate change, they will be failing their citizens.

“On our own doorstep in the UK, climate change is affecting more and more people and communities. We see families losing their homes and livelihoods, or suffering from dangerous health conditions, because of more extreme weather events like severe flooding or heatwaves.”

BRITISH RED CROSS 2030 STRATEGY
Air pollution and health

Air pollution is the biggest environmental health risk of our time according to the United Nations Environment Programme (UNEP), killing an estimated seven million people every year and responsible for approximately one in ten deaths globally. Air pollution accounts for a high proportion of deaths and disease from lung cancer (29 per cent), respiratory infections (17 per cent), stroke (24 per cent), heart disease (25 per cent) and chronic obstructive pulmonary disease (43 per cent). Pollutants with the strongest evidence for public health concern include particulate matter, ozone, nitrogen dioxide and sulphur dioxide. Sources of air pollution are various, including vehicle emissions, coal-fired power stations, industrial furnaces and wildfires.

Early research suggests that air pollution is playing an important role in the COVID-19 pandemic. Emerging evidence suggests that prior exposure to air pollution may increase the risk of fatality from diseases such as COVID-19. 80 per cent of COVID-19 deaths have been in areas of high nitrogen dioxide, which many studies have linked to a wide range of health issues, and it is suspected that high levels of fine particulate matter may also support transmission of the virus.

Pollutants not only severely impact health, but also the earth’s climate and ecosystems. Short-lived climate pollutants (SLCPs) like methane and black carbon, a component of particulate matter, often have greater global warming potential than carbon dioxide (CO2). Indeed, black carbon alone is one of the largest contributors to climate change. Policies to reduce air pollution are therefore positive for both our health and our climate, improving cardiovascular and respiratory health and reducing the threat of catastrophic climate change.
Nature and health

There is growing evidence that experiencing nature benefits both our physical and mental health. For example, the psychological wellbeing of human populations has been correlated with proximity to green and blue space, and even nature images and sounds have demonstrated psychological and physiological benefits in controlled laboratory studies\textsuperscript{51}. A study commissioned by The Wildlife Trusts showed that participating in a 12-week nature conservation volunteering programme significantly improved mental wellbeing, and volunteers also reported higher levels of physical activity and improved general health\textsuperscript{52}. Similarly, a survey among participants of The Wildlife Trusts’ ‘30 Days Wild’ campaign demonstrated that engaging with nature provides sustained increases in happiness and health\textsuperscript{53}. Spending more time in nature, and being able to experience nature in urban environments, have been unexpected benefits of the COVID-19 crisis for many people who have spent less and less time in green spaces in recent years\textsuperscript{54}.
The role of the third sector

Third sector environmental organisations play a critical role in protecting wildlife, habitats and the wider environment, and in turn protecting our health. The sector holds policymakers to account, gathers and disseminates evidence, and mobilises communities. Many third sector bodies are coming together to highlight these issues, including the Build Back Better COVID-19 recovery campaign and via calls to government coordinated by The Climate Coalition and New Economics Foundation.

Environmental organisations have almost universally been affected by the COVID-19 pandemic. With a heavy reliance on traded income, memberships and face-to-face fundraising, the lockdown has not been kind to environmental NGO (eNGO) income streams. The biggest concern for 98 per cent of UK-based eNGOs is the postponement or cancelling of planned events or projects and overall loss of revenue. Over a quarter of those surveyed recently were concerned about their financial viability, with estimated average losses of £4 million per organisation in the coming year. Internationally the situation is similarly stark, with 40 per cent of international development charities reporting that they could fold in the next six months.

Despite the financial challenges, eNGOs have been working non-stop to maintain habitats and keep wildlife safe, burning through cash reserves as they do so. As the environmental sector faces an unprecedented funding crisis, key green targets are at risk of not being met and the impact of the COVID-19 pandemic and drivers of future pandemics exacerbated.

The work of environmental charities and the philanthropists supporting them has therefore never been needed more, and as the world makes decisions regarding the post-pandemic recovery model and prepares for key global policy events in 2021, environmental donations will perhaps have greater impact than ever before.
Further information

**WATCH**
Webinar from the European Foundation Centre's European Environmental Funders Group on Can healthy ecosystems prevent future pandemics?

**WATCH**
The Convention on Biological Diversity’s video on the links between biodiversity and human health

**WATCH**
TedX talk from Cóilín Nunan, scientific adviser to the Alliance to Save Our Antibiotics, on Change farming and save our antibiotics

**READ**
The Convention on Biological Diversity’s Questions and Answers on Biodiversity and Infectious Diseases

**READ**
The 2019 report of The Lancet Countdown on health and climate change: ensuring that the health of a child born today is not defined by a changing climate

**INFOGRAPHIC**
The UK Health Alliance on Climate Change’s infographic on Health and Climate Co-benefits

**INFOGRAPHIC**
UNEP’s infographic on What factors are increasing emergence of zoonotic diseases

**EXPLORE**
Decide the best way to slow global warming in this climate simulator

**LOOK OUT FOR**
The TED Countdown Summit in October 2021
## Example NGOs

There are many impactful environmental and health NGOs operating in the UK and globally as well as many charities focused on directly relevant social issues – including the issues touched upon in this paper. This list provides examples of organisations whose work focuses on environmental issues with health benefits, or vice versa. Please note that no due diligence has been conducted by EFN on the organisations listed below.

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Focus areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alliance to Save Our Antibiotics</td>
<td>UK-based alliance of health, medical, civil society and animal welfare groups campaigning to stop the overuse of antibiotics in animal farming</td>
</tr>
<tr>
<td>CHEMTrust</td>
<td>UK charity that aims to prevent man-made chemicals from causing long term damage to wildlife or humans, by ensuring that chemicals which cause such harm are substituted with safer alternatives</td>
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<td>ClientEarth</td>
<td>International not-for-profit that uses the power of the law to protect life on Earth, and coordinates the Healthy Air Campaign coalition</td>
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<td>Compassion in World Farming</td>
<td>UK charity campaigning against the live export of animals, certain methods of livestock slaughter, and all systems of factory farming</td>
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<tr>
<td>Environmental Defense Fund</td>
<td>US-based non-profit organisation using science and different perspectives to make the environment safer and healthier for us all</td>
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<tr>
<td>Environmental Investigation Agency</td>
<td>UK charity that investigates and campaigns against environmental crime and abuse internationally</td>
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<tr>
<td>Heal Rewilding</td>
<td>A non-profit organisation fundraising to buy land in the English lowlands and give it back to nature, to benefit biodiversity, the climate and local people’s wellbeing</td>
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<tr>
<td>Mums for Lungs</td>
<td>London-based grassroots organisation campaigning for clean air for everyone, particularly children and babies</td>
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<tr>
<td>Pesticide Action Network UK</td>
<td>UK charity focused on tackling the problems caused by pesticides and promoting safe and sustainable alternatives in agriculture, urban areas, homes and gardens</td>
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<tr>
<td>Soil Association</td>
<td>UK charity campaigning for healthy, humane and sustainable food, farming and land use</td>
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<tr>
<td>Organisation</td>
<td>Focus areas</td>
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<tr>
<td>Sustain</td>
<td>UK charity representing around 100 national public interest organisations working at international, national, regional and local levels to advocate for food and agriculture policies and practices that enhance the health and welfare of people and animals, improve the working and living environment, promote equity, and enrich society and culture</td>
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<tr>
<td>Sustainable Food Trust</td>
<td>UK charity working to accelerate the transition to more sustainable food and farming systems</td>
</tr>
<tr>
<td>Wildlife Justice Commission</td>
<td>An independent non-profit organisation operating globally to disrupt and help dismantle organised transnational criminal networks trading in wildlife, timber and fish</td>
</tr>
</tbody>
</table>
References

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28 https://veterinaryrecord.bmj.com/content/vetrec/179/16/412/DC1/embed/inline-supplementary-material-1.pdf
30 https://www.researchgate.net/publication/318503396_How_eating_animals_comes_back_to_bite_us_from_Antibiotic_resistance_to_Zoonotic_diseases
33 https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health
37 https://www.propublica.org/article/climate-infectious-diseases
38 https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health
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