

Covid-19 & Environmental Sustainability



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There has never been such a sudden and dramatic challenge to the world in the 21st century as the Covid-19 pandemic, which has become simultaneously: (1) a test of leadership; (2) a test of international co-operation; (3) a test of medical capacity; (4) a test of human-human relationship; and (5) a test of human relationship with nature.

Many leaders failed the first test, most notably those of big countries, like the United States, Brazil, the United Kingdom, India, South Africa, Mexico, and initially China too. Interestingly, the female leaders of Germany, Taiwan, New Zealand, Finland, and Iceland gave excellent examples of good governance during the pandemic. The second test – international co-operation – has also failed, partly because of some internal problems within the World Health Organization (WHO) but more crucially because of President Donald Trump's decision to stop financing the WHO, significantly jeopardizing global health governance and international relations. The third test – medical capacity – is still unfolding, with the expectation that various research institutes may produce a safe and accessible vaccine soon. The fourth test – the human-human relationship – presented some remarkable stories of empathy, solidarity, volunteerism and assistance, but Covid-19 also increased tensions in places where xenophobia and conspiracies theories spread.

The fifth test – the human relationship with nature – will be discussed below in this article.

Zoonotic Diseases

The human relationship with nature is twofold: on the one hand, we need nature to stay active and improve our physical and mental health, crucially important during disasters such as pandemics. On the other hand, through improper interaction with nature, humans have altered ecosystems, encroached into wildlife and gradually contributed to the emergence of zoonotic diseases, the latest being Covid-19. Growing land-clearing for agriculture and human settlements resulted in squeezing and mixing species from different habitats, creating an “excellent” opportunity for viruses to pass from one animal to another, and to humans. Another cause for the emergence of zoonotic diseases is the biodiversity loss, as a result of which animals that carry and transmit infectious pathogens are more likely to feed on vertebrates than other species which are no longer abundant. For example, forest fragmentation led to reduced diversity

of vertebrates and increased the abundance of generalist species such as the white-footed mouse in North America, which has become the primary reservoir of the bacteria causing Lyme disease. On the opposite side, increased biodiversity improves human health, because of the “dilution effect” which reduces both the relative density of animals that serve as natural reservoirs for pathogens and the population density of pathogen vectors, resulting in fewer encounters between vectors and the animals they infect. Some governments – Gabon, for example – banned the consumption of bats and pangolins to stop the spread of zoonotic diseases. Others – Myanmar, for example – deregulated wildlife hunting and breeding, and this may create new zoonotic diseases. Poaching in Africa has gone up for high-value products, such as rhino horn and ivory, yet another negative impact.

Green Spaces

To avoid zoonotic diseases humans need to reduce contact with animals and increase contact with the natural environment, necessary for our physical and mental health. During the lockdowns people re-discovered outdoor activities, enjoyed green parks, rivers, lakes and forests, while adhering to the prescribed physical distance and maximum outdoor meetings in groups. Science has long established that access to urban green areas has positive impacts on health, typically due to improved air quality, increased physical activity, social cohesion and stress reduction. Interaction with nature helps also to better recover from stress. Green cities not only support human health, they are economical, improve air quality, and help reduce the “heat island effect” of increasing temperatures. Green areas also reduce flood risks by allowing more water to infiltrate into the soil during rain.

Humans can learn lessons from Covid-19 and (1) mitigate the underlying drivers of zoonotic diseases, such as ecosystem degradation and loss of biodiversity; (2) inspire more planting of green spaces; and (3) boost community action to protect ecosystems from further human incursions.

An interesting situation occurred in Pakistan, where the unemployment caused by Covid-19 facilitated the recruitment of labor for a “Ten Billion Tree Tsunami Campaign” aimed at planting 10 billion trees – the estimated global annual net loss of trees – over the next five years. Strengthening environmental regulations to protect or restore green spaces will be vital. Experiencing nature outside

cities will maintain our health, but only if we can find a healthy balance between use of resources and protecting nature. The cost of managing areas for biodiversity conservation and recreation is easier to communicate, if the full range of benefits are considered, including the contribution they make to human health. A green strategy to “build back better” after Covid-19 can support sustainable development on many accounts, not only for mental and physical well-being, but also to ensure that multiple global goals, such as combating climate change and reducing natural hazard risks, can be achieved.

Air Quality, Water, Fishery

Covid-19, and past pandemics too, show that reduced economic activity helps decrease pollution, allowing the environment to flourish. The significant interruption of industrial activities and travel in year 2020 reduced air pollution. Mega cities like Beijing, Delhi and Mumbai experienced unusually clear skies and fresh air, like never before. When countries enforced lockdowns to contain Covid-19, cities recorded significantly lower levels of nitrogen dioxide and sulfur dioxide, both harmful chemicals released by motor vehicles and power plants. Cities with historically high particulate matter concentration levels (PM2.5) also experienced a substantial reduction in pollution. The decrease of shipping and boat travel cleared not only the air, but also the water in rivers. Fish spread in the Thames, Seine, Rhone, Danube and other big rivers in Europe, almost doubling its biomass. In Venice for the first time in generations the canals were fully cleared and enjoyed greater water flow (“As Italy quarantines over coronavirus, swans appear in Venice canals, dolphins swim up playfully” by Anagha Srikanth, *The Hill*, March 18, 2020). As people stayed home and reduced travel, sea turtles started laying eggs on beaches they previously avoided, such as the coast of the Bay of Bengal. With the increase of the availability of fish, their prices dropped (“Commercial fishing industry in free fall as restaurants close, consumers hunker down and vessels tie up” by Laura Reiley, *The Washington Post*, April 8, 2020).

Climate Change Impact

Before Covid-19 the best progress in implementing the 17 Sustainable Development Goals (SDGs) was recorded with regard to the first two: eradicating extreme poverty and hunger. In contrast, Goal 13 – climate action – was the worst in implementation, because of the purely voluntary character of the commitments in the Paris Agreement and the withdrawal of the US from it. The expectation that

Covid-19 can give states extra time to commit seriously to reducing fossil fuel emissions, slowing down the rise in temperatures, the melting of glaciers and rising sea levels, did not materialize. The CO2 emissions dropped minimally, because of the reduced transport and industrial activities during the lockdowns, but methane (a more potent greenhouse gas than carbon dioxide) emissions from livestock actually continued to rise. Research based on Google and Apple mobility data, reflecting near-real-time travel and work patterns, showed that Covid-19 lockdowns have a negligible impact on climate change, and will cut global warming by just 0.01 C by 2030. Therefore, economy-wide changes are needed for a zero-emissions economy, such as green transport, renewable-energy buildings, and capturing and burying CO2. In a recent newspaper article, Keith Shine of the University of Reading was quoted as stating, “Because CO2 is so persistent in the atmosphere, short-term emission reductions resulting directly from the pandemic lockdowns lead to undetectable reductions in warming. It is only via sustained and radical changes in the way we use fossil fuels that we can hope to meet the Paris climate agreement target.” (<https://www.theguardian.com/environment/2020/aug/07/covid-19-lockdown-will-have-negligible-impact-on-climate-crisis-study>). Piers Forster of the University of Leeds thinks that with an economic recovery tilted towards green stimulus and reductions in fossil fuels, we can avoid future warming of 0.3 C by 2050. Jaise Kuriakose of the University of Manchester notes that people’s activities have changed in previously unthinkable ways by shifting to virtual meetings, reducing air travel, and this public willingness to change to a more sustainable and low-carbon lifestyle should be coupled with structural changes and new policies. Hopefully, long-term societal shifts, like teleconferences, working from home, and traveling less may become the new normal and have more impact on sustainability. The London-based think tank Carbon Tracker suggests that the pandemic may produce the terminal decline of fossil fuels, predicting an annual 2% drop in demand for oil and gas, and profit cuts from an estimated \$39 trillion to \$14 trillion. It suggests accelerating the clean energy transition, and offering stimulus programs for renewable energy and climate-friendly projects to create direct green jobs across the world. Estimates show that every \$1 million spent on renewable energy and exports creates 4.8 full-time jobs in renewable infrastructure, while \$1 million spent on fossil fuel projects would only create 1.7 full-time jobs. Scientists also examined recovery scenarios: if the recovery mirrors the investments made after the 2008 financial crisis – which included major support for fossil fuels – the global temperature will rise by more than 1.5 C by 2050, which will cause widespread damage across the world. However, a strong green

recovery that invests 1.2% of global GDP in low-carbon technologies and does not support bailouts for fossil fuel companies is likely to cut warming by 0.3 C.

The pandemic also impacted the climate diplomacy, and the 2020 Climate Change Conference of Parties (COP) was postponed to 2021 after its venue was converted into a field hospital. This COP was crucial as governments were scheduled to submit enhanced nationally determined contributions to the Paris Agreement, and the expectation is that they will not lower this priority during the pandemic and still make ambitious commitments, even without pressure from the COP. The danger is that the restarting of industries and transport following the lockdowns could contribute to increasing greenhouse gas emissions. The economy should not be rebuilt by building coal-fired power stations, not only because of the climate but also because of the economy itself, as there will be negative cash flows and stranded assets.

Plastics

Measures to curb the single-use of plastics and reduce their environmental damage were already in place before Covid-19: amendments were made to the UN Convention on the Law of the Sea and to the 2019 Basel Convention on Control of Transboundary Movements of Hazardous Waste. However, despite some recent progress in plastic management, Covid-19 brought a drawback. There has been a huge demand for Personal Protective Equipment (PPE), face masks and gloves, given their flexible non-porous nature and light weight, but because of the contagious character of the virus these are all meant for single use and need to be disposed of, resulting in a significant return of single-use plastics into the market (<https://earth.org/covid-19-surge-in-plastic-pollution/>). In addition, a considerable increase in plastic usage is related also to more packaging needed for various home deliveries, as these have skyrocketed during the Covid-19 pandemic. Collectively, the rise in plastic being used both in hospitals and households exacerbated the problem, and a huge amount of it is daily discarded in the environment, adding to the worldwide burden of plastic waste.

Sustainable Healthcare

The healthcare sector utilizes not only a lot of single-use plastics, but also causes a substantial share of the world's CO₂ emissions and air pollutants: 4.4% of greenhouse gases, 2.8% of harmful particulate matter (air particles), 3.4% of nitrogen oxides and 3.6% of sulphur dioxide (<https://www.thelancet.com/journals/lanplh/>

[article/PIIS2542-5196\(20\)30121-2/fulltext](https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(20)30121-2/fulltext)). Currently the healthcare sector causes environmental impacts that range between 1% and 5% of total global impacts, and contribute to more than 5% for some indicators at individual country level. Along with its contributions to greenhouse gases and air pollutants, healthcare uses 1.5% of the scarce water in the world. As part of broader economic systems, the healthcare sector can inadvertently harm nature through purchasing scarce resources, the use and waste of plastics, and air pollution. We cannot reduce the healthcare sector; in fact, we may need more of it. Therefore this sector needs to become sustainable and environment-friendly to protect and improve human health, and at the same time not inflict environmental damage. It is important that societies, including medical professionals, understand how their work relates to nature, and how environmental stressors are performing over time. There are good and bad examples: in South Korea healthcare-induced emissions of sulphur dioxide, nitrogen oxides and particulate matter decreased from between 27% to 60% from 2000 till 2015, while in China these emissions increased by between 91% and 173% in the same period. For some indicators, such as greenhouse gas emissions and particulate matter, the majority of damage is hidden in upstream supply chains and unravelling these will help us understand the hotspots of environmental impacts, such as pharmaceuticals and medical supplies.

The environmental impact of healthcare is both a practical and ethical issue for medical professionals. In 2015 more than 460,000 premature deaths globally were related to coal combustion. Why should any hospital purchase coal-fired energy when it produces toxic air pollution that harms health? Some medical professionals might be surprised at this additional responsibility, because they are busy providing life-saving treatments and don't have time to worry about the pollution they cause. Some might say a global pandemic is not the time to burden medical professionals with another responsibility. Actually, it is the opposite – there is no better time to raise this issue, when the eyes of the world are on the healthcare sector, and aim at achieving the change needed where the evidence is clear and a collective will is shared.

Healthcare organizations at every level – national, regional, hospital, primary care – should measure and track their environmental footprint over time, as they do for health outcomes and financial costs. Medical professionals – from doctors and nurses to managers and members of hospital boards – should understand the environmental footprint of their work and take steps to reduce it. The purchasing power of the healthcare sector should be harnessed to drive sustainability transitions in other sectors. For example, healthcare organizations purchase large amounts of food for

hospitalized patients and the managers responsible for the procurement should ensure that the food is healthy and produced in a sustainable way. Some healthcare organizations are already making progress and civil society organizations like “Global Green” and “Healthy Hospitals” are reporting best practices.

Sustainable Public Transport

The use of public transport in cities worldwide has fallen by 50-90% during the pandemic, with substantial revenue losses for various operators. The recovery – as with the other sectors above – is to make transport sustainable and carbon-free. The pandemic is the best time to move cities entirely into electric mobility and encourage cycling and walking. Many cities have already offered free bike renting, and organized and demarcated additional cycling and walking paths along the roads, and these need to be continued long-term. The support packages from governments as a result of the pandemic could be invested in a rapid growth in battery and hydrogen technology, to illustrate the vulnerability of fossil fuels to storage and distribution problems.

Other welcome developments are investments in heightened hygienic practices on public transport, facemasks, appropriate social distancing measures, and addressing various health concerns with public transport usage. By reforming the transport sector, the Covid-19 pandemic can trigger various effects, including behavior changes, more teleworking and teleconferencing, and other changes in business models – which could, in turn, translate into reductions of emissions and pollution from transport. One downside could be that the shift away from public transport because of Covid-19 may increase the reliance on single-occupancy cars, which will increase emissions. Therefore city planners have to create new cycle paths to address the challenge, and encourage electric mobility, bicycling and natural walks.

Sustainable Stimulus Packages

The pandemic triggered stimulus packages, and these should be designed to speed up opening green spaces, renewable energy transitions, reducing plastic waste, and investment in sustainable public transport as well as bicycling and walking facilities. However, with the spread of fears at the beginning of the pandemic, the focus on the European Green Deal diminished, and some suggested either a yearly pause or even a complete discontinuation of the Green Deal, arguing that the priority of the European Union’s current policymaking process should be the immediate, short-term crisis

rather than climate change. This would have been a mistake and fortunately, in May 2020, the EU adopted a “Next Generation EU”, seven-year €1 trillion budget proposal and €750 billion recovery plan, with the Green Deal being part of it. One of the package’s principles is “Do no harm”. Fossil fuels and nuclear power are excluded from the funding – the money should be spent only on projects that meet the green criteria. Some 25% of all funding will go to climate change mitigation projects.

Many organizations, think tanks, companies, businesses, political bodies and research institutes – among them the International Energy Agency, the Grantham Institute and the European Commission – have published analyses and recommendations for investments and related measures for sustainability-oriented socioeconomic recovery on global and national levels.

UN Secretary General Antonio Guterres recommended six broad sustainability-related principles for shaping the recovery. The Organisation for Economic Co-operation and Development recommended governments to continue to enforce existing air pollution regulations during Covid-19 and channel financial support measures to public transport providers to enhance capacity and quality with a focus on reducing crowding and promoting cleaner facilities. The next three years will determine the course of the next 30 years and beyond: if we do not take action we will surely see a rebound in emissions, and these will be very difficult to control in future. This is why urging governments to produce sustainable recovery packages is the task of all civil society organizations globally.

Conclusion

This article presented the impacts – both negative and positive – of Covid-19 on environment. But the argument is that even the negative effects of the pandemic may have made a catastrophic future seem less remote and action to prevent it more necessary. However, it may also have the opposite consequence of having minds focused on the more immediate threat of the pandemic rather than on longer negative impacts on natural ecosystems. The fifth test of Covid-19 – the human relationship with nature – therefore will take a longer time to assess and recover. **JS**

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