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Article title: Humanity's environmental problems can only be fixed by changing the system. The coronavirus offers a chance.

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COMMENT

Humanity's environmental problems can only be fixed by changing the system. The coronavirus offers a chance.[1]

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Abstract:

Societies need to introduce much more radical emissions reductions targets than those agreed in Paris if they are to successfully slow the pace of change. Covid-19 makes this possible. By forcing aviation and other transportation businesses to downsize emissions have started to fall. By paying people to stay at home governments have shown that they can support them during a transition. Societies should grasp this unique chance for radical social and economic reform.

Keywords: COVID-19 pandemic; alternative economic systems; climate change; population growth; reforming democracy.

Partly because of the chaotic response by so many governments, it is easy to imagine that the virus which is causing such widespread and prolonged misery around the world is rare, if not unique. Yet it is only the most recent example of a relatively new and worrying trend. While the economic and social impact has been greater this time, Coronavirus SARS-CoV-2 is just the latest in a series of

1 This article is based on *A Chicken Can't Lay a Duck Egg* by Graeme Maxton and Bernice Maxton-Lee (2021).

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zoonotic viruses to have passed from other species to humans in recent decades. Others include HIV, SARS, MERS, Zika and Ebola.

The reason these diseases are being transmitted to humans more frequently is simple: too many people are encroaching onto the territory of other species. In areas where natural systems have been badly degraded by human activity, the number of animals hosting such diseases, such as bats and rats, is 250% higher than before, while the proportion of animals carrying the pathogens which cause them is 70% greater (Gibb et al, 2019).

Without any change, the number of these diseases passing to humans will grow, as will their economic and social impact. Put simply, unless humans learn to respect nature more, they face a series of healthcare crises, some of which will be as serious as that caused by Covid-19.

Changing the way humans interact with nature is easier said than done, of course. It will not come about simply by encouraging people to treat the world around them with greater respect. The imperative to endlessly increase economic output makes that impossible, even before patterns of individual behaviour and the rising human population's need for more land are taken into account. To work, the change in human behaviour needs to be fundamental. This is doubly so because the consequences of humanity's damaging impact on nature are not restricted to the problem of zoonotic diseases. They are much more widespread.

Another consequence of human activity is accelerated species loss. According to the UN, millions of animals, plants, insects, fish and birds are dying every year because of habitat loss, pollution and climate change, with species die-off 10,000 times the natural rate (Gibb et al, 2019). It is also accelerating.

UN – SPECIES EXTINCTION RATES 'ACCELERATING'

- Three-quarters of the land-based environment and about 66% of the marine environment have been significantly altered by human actions.

- More than a third of the world's land surface and nearly 75% of freshwater resources are now devoted to crop or livestock production.

- The value of agricultural crop production has increased by about 300% since 1970, raw timber harvest has risen by 45% and approximately 60 billion tons of renewable and non-renewable resources are now extracted globally every year – having nearly doubled since 1980.

- Land degradation has reduced the productivity of 23% of the global land surface, up to US$577 billion in annual global crops are at risk from pollinator loss and 100-300 million people are at increased risk of floods and hurricanes because of loss of coastal habitats and protection.

- In 2015, 33% of marine fish stocks were being harvested at unsustainable levels; 60% were maximally sustainably fished, with just 7% harvested at levels lower than what can be sustainably fished.

- Urban areas have more than doubled since 1992.

SOURCE: UN (2019)

Another problem is water pollution. According to the same UN report, between 300 million and 400 million tons of heavy metals, solvents, toxic sludge and other waste from industrial facilities are being dumped into the world's waterways each year. Fertiliser run-off has created 400 'dead zones' in the world's oceans where nothing can survive. There are also vast quantities of untreated human waste flowing into many of the world's rivers, the radioactive water from Japan's Fukushima nuclear power plant is leaking into the Pacific Ocean, and hormone, narcotic and other pharmaceutical residues are being flushed away in cities around the world every day. As with species loss, water pollution is on a steadily upward trend. This is disrupting natural food-chains and reducing the volume of clean water available to all living things, as well as future generations.

The steady accumulation of micro- and nano-plastics is also creating a wide range of problems for many animals, birds and aquatic creatures, as well as damaging human immune systems, bringing the prospect of declining fertility and higher cancer rates. Though the impact of this plastic waste is not fully understood, it has been described as the 'number one threat' to humankind (Bluewater, 2019).

The world's rainforests are also being destroyed at an increasing rate, while efforts to cut air pollution have largely failed. Though the particles produced today are much smaller than they used to be, and so less visible, they are often more deadly. According to the World Health Organisation, '9 out of 10 people breathe polluted air ' today. It kills seven million people a year, with respiratory problems the third biggest cause of human mortality (WHO, 2018a, 2018b).

Humanity's environmental impact has become so serious largely because the population has grown so quickly. It has more than doubled in the last 60 years and is eight times greater than it was a century ago. Even after taking the deaths caused by Covid-19 into account, the number of people on the planet is growing by a billion every 12 years – a billion more needing food, water, housing, clothing and waste management. With the push for ever greater economic output requiring ever more energy, land and raw materials, as well as rising levels of urbanization, the accumulated environmental impact of humanity's activities has simply become overwhelming. This is especially so when it comes to climate change, which is by far the most serious environmental problem of all.

It's easy to get confused about climate change. The endless headlines can be as numbing as the endless inter-governmental reports. The problem is presented as urgent and yet people are also told that the most serious consequences are decades away. There is a great deal of misinformation out there too, with fossil fuel firms and others deliberately sowing seeds of doubt about the science or denying there is a serious problem.

The truth, unfortunately, is that everything that societies are currently doing in response to climate change is not working. All those investments in wind farms, solar energy, electric cars, and recycling are not having any meaningful effect. Though the annual volume of greenhouse gases fell slightly in 2020, thanks to the economic slowdown caused by the coronavirus, it was still much too great for nature to reabsorb. So the pace of global warming has continued to accelerate, with the surface of the planet now warmer than at any time in the last 3 million years.

If the concentration of greenhouse gases continues to grow at the current rate (and there is no reason to think otherwise right now) the world will reach a catastrophic tipping-point in the mid-2030s. If this is breached, a chain-reaction

will begin which will make further warming impossible to control. The polar ice will melt faster, reducing the planet's ability to reflect some of the sun's heat, accelerating the pace of warming. The permafrost in Siberia and northern Canada will also melt more extensively and many of the world's forests will gradually die. Both of these changes will release even more greenhouse gases, as will the rising number of wildfires, increasing the pace of warming even more. By the middle of the century the average temperature will have reached its highest level in 10 million years. By 2100, the Earth will be on track to become as hot as it was 45 million years ago.

If this happens, it will take many centuries for the temperature to return to how it was before the industrial revolution. Many parts of the planet will become uninhabitable in the second half of this century, with almost all of it uninhabitable long term, putting the survival of up to 95% of the human population at risk (Spratt and Dunlop, 2017)[3]. By 2050, more than 500 cities will have to be depopulated because of rising sea levels, while many countries around the Mediterranean, as well as much of Australia and large parts of the United States will be too hot and too dry for people to live. This is also what will happen if all of the conditions of the 2015 Paris Climate Accord are met, by the way. What has been agreed by governments so far will not avoid this catastrophe, nor delay it one second.

A large number of people are working to avoid this outcome, of course, and make societies more sustainable. Green groups around the world are also pushing governments and businesses to invest in renewable energy. Even so, none of these activities will achieve anything like the change needed in the time available. Even if *everyone* in America – all 330 million people – had some sort of green epiphany tomorrow and lived without generating any damaging gases for the next decade, it would only delay the start of the atmospheric chain-reaction by a couple of years. The US is responsible for only 15% of emissions, which is a lot, as it has just 4% of the global population, but if those responsible for the other 85% continue as now, America's efforts alone would not avert disaster.

3 Kevin Anderson, former Director of the Tyndall Centre for Climate Change Research, considers that "a 4°C future [relative to pre-industrial levels] is incompatible with an organised global community, is likely to be beyond 'adaptation' "If you have got a population of nine billion by 2050, and you hit 4°C, 5°C or 6°C, you might have half a billion people surviving" (Spratt and Dunlop, 2017).

The only way to avoid the chain-reaction is if almost everyone *reduces* their greenhouse gas emissions by at least 7% a year (UNEP, 2019). In practical terms, this means 20% fewer cars in three years, as well as 20% fewer planes, 20% fewer coal-fired powered stations, and 20% fewer ships. In the following three years there needs to be another 20% reduction. And the longer societies take to begin this process, the steeper the cuts will have to be. To work, emissions must be at least 60% lower in 2030 compared to today (Breakthrough, 2020). By 2040 they need to be zero - and not "net-zero" as some fossil fuel companies, airlines, and governments suggest is okay. Trying to offset emissions in some way, such as planting trees, which take decades to grow, will not have anything like enough impact on what is happening, just as taking exercise cannot offset the effects of a 20-a-day cigarette habit when someone has been diagnosed with lung cancer.

Societies also need to stop all deforestation and change the way they grow food. They will also need to build thousands of carbon capture and storage plants across the world and run them at full-blast for more than a century to bring the CO2 concentration in the atmosphere back to safer levels. Even then, having done all this, humanity's chance of avoiding that chain-reaction will be little better than 50:50.

It will also, unfortunately, take time before societies can be sure that their efforts have paid off, because what will happen to the temperature in the next 25 years is already largely locked-in (Breakthrough, 2020). Cutting emissions now, no matter how sharply, will take decades to show any visible impact.

Reducing emissions on the scale necessary requires a radical change in how humanity thinks about development and progress. Societies have to dismantle vast swathes of the current industrial system, regardless of the short-term cost, with almost everyone changing the way they live, whether they want to or not. The most polluting businesses - fossil fuel firms and cement companies - have to be closed quickly, most flights have to be permanently cancelled, and vehicle use has to be hugely curtailed.

Until recently, a change on this scale was thought to be impossible, because the economic disruption it would cause in the short term would be too great. Covid-19 has shown, however, that such radical change *is* actually possible.

The Coronavirus has shown societies that it *is* possible to cut emissions, downsize the aviation industry, reduce vehicle use, and support people financially during a crisis. When it comes to dealing with the climate problem, of course, the changes would have to be much larger and made permanent. It requires a structural transformation. Until Covid-19 however, there was a widespread belief that the changes needed to cut emissions had to be financially attractive. Covid-19 has shown that this is wrong.

Of course, the virus has brought enormous social upheaval, a deterioration in the mental health of many people and rising political tensions. Yet this also shows societies what they need to focus on if they are to slow the pace of climate change successfully. The difficulties have shown governments how hard it will be to close all the unnecessary, wasteful, and polluting industries, and support people financially.

Covid-19 has taught people how much they need to invest in the transition if they are to do what is necessary. Before, societies did not really understand what they were up against. They did not understand the consequences of cutting emissions sharply or know how hard those who want to maintain the status quo would fight back. Now they do. That is a huge step forward.

Thanks to the virus, societies have a unique opportunity to change. Rather than seeing the current economic crisis as a problem, they should look on it as the greatest chance for a radical transformation they have had in decades. Instead of bailing out polluting companies such as airlines and car manufacturers, as they presently are, governments should close them. Instead of trying to return economies to their past levels of output, societies should permanently downsize them. Instead of being wedded to the outdated goal of maximising economic growth, people should focus instead on building an entirely different development system, which can coexist with nature. Instead of expecting everyone to be financially independent, governments should pay a basic income to everyone during the transition, even if this is for many years. They should retrain people to work in the new economic sectors which will be needed, such as materials recovery, emissions capture, repairing, sharing, and recycling. To pay for the transition, governments can print money, just as they did after the 2008 financial crisis. While there is a risk that this could lead to currency crises or even

state bankruptcy, these problems will be much easier to handle than runaway climate change.

Covid-19 also gives countries a unique opportunity to come together and work cooperatively, to create a better and more sustainable future for everyone. Unlikely as this might seem, there is now the small chance (albeit a very small one) that governments will learn to work together for the benefit of all. It is, after all, the only way they will eradicate the virus and respond to climate change effectively.

Whatever societies do, there *will* be a transition to another system of human development within the next decade, because the many failures of the current economic system, the impact of climate change, and the planet's other many environmental troubles will come together and force change.

Covid-19 offers humanity the chance to choose the path we take.

Graeme Maxton's latest book, *A Chicken can't lay a duck egg: How Covid-19 can solve the climate crisis*, written with Dr Bernice Maxton-Lee, was published at the end of 2020.

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