

# Multiple Overlapping Planetary Emergencies – A Human Inflection Point

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Climate change and biodiversity loss have introduced an era of pandemics and amplified human inequality. These planetary emergencies converge this decade as an inflection point in human behavior that will determine our future. Because of climate change, expanding agriculture and population centers, hunting, mining, and other disruptions, no more than 2.9% of the land surface remains faunally intact, [1] and only 40% of forests have high ecosystem integrity.[2] As critical ecosystems are destroyed, biodiversity sharply decreases.[3] Since 1970, vertebrate populations have declined on average 68%,[4] and one in four species are at risk of extinction.[5] Biodiversity loss translates directly to a rise in infectious disease. Roughly 60% of new pathogens and 75% of new or emerging infectious diseases are zoonotic (come from animals),[6] and roughly one-third of those are directly attributed to deforestation and habitat loss.[7] Vector-borne diseases[8] are increasing with expanding climate zones. Extreme weather events drive people and animals (and their diseases) together in typically unsanitary conditions,[9] and concentrated animal farming operations are breeding grounds for virulent pathogens.[10] These impacts fall disproportionately on communities that are least responsible and least resilient. Disease, environmental damage, climate change, and human inequality form an amplifying feedback. Disadvantaged groups suffer disproportionately, resulting in greater inequality. The ratio between the income of the richest and poorest 10% is 25% larger than it would be without global warming.[11] While wealthy nations may shield themselves from negative impacts, allowing the consequences to fall disproportionately on the most vulnerable will breed more conflict, resource insecurity, displacement, and disease — with severe implications for all. [12] As with the Covid-19 pandemic, we are globally as strong as our weakest member.

[1] Plumptre et al. (2021) DOI: 10.3389/ffgc.2021.626635

[2] Grantham et al. (2020) DOI: 10.1038/s41467-020-19493-3

[3] IPBES (2019) DOI: 10.5281/zenodo.3831673

[4] WWF (2020) Almond et al (Eds). WWF, Gland, Switzerland.

[5] NASEM (2022) DOI: 10.17226/26384.

[6] CDCP: <https://www.cdc.gov/onehealth/basics/zoonotic-diseases.html>

[7] Jones et al. (2008). DOI: 10.1038/nature06536

[8] Ryan et al. (2019) DOI: 10.1371/journal.pntd.0007213\

[9] Garten et al. (2018). DOI: 10.15585/mmwr.mm6722a4

[10] Guo et al. (2022) DOI: 10.3389/fmicb.2021.810142

[11] UN (2020)

<https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2020/01/World-Social-Report-2020->