



Welcome to the inaugural edition of

A Matter of Degrees

the student newsletter from Cambridge Zero
and the Sustainability Team.

Who are you and what are you doing in my inbox?

We're a group of student journalists working with Cambridge Zero and the Sustainability Team. Our aim is to deliver stories to your inbox from the experts, activists, and innovators shaping the sustainability ecosystem. With unrivalled access to some of the greatest minds in one of the world's greatest universities, we step back from the media cycle to help students engage meaningfully in our world of permacrisis and identify the touchpoints with work right here in Cambridge.

In our first issue, we take a deep dive into the landmark Global Biodiversity Framework, with an exclusive article from Dr Mike Maunder, executive director of the Cambridge Conservation Initiative. We also have insights on the growing 'One Health' movement with Cambridge epidemiologist Dr Charlotte Hammer and a deep dive into proposals for the Cambridge Sustainable Travel Zone.

We want to provide a regular platform for Cambridge students to engage with the environmental crises affecting our planet.

We're welcoming writers on both a repeat and one-off basis — just get in touch and we'll help you connect with experts ready to answer your questions.

Simply drop us a line at matterofdegrees@zero.cam.ac.uk

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The Global Biodiversity Framework – Preventing a COP out in 2023

Elliot Thornton

Better late than never. The end of 2022 finally produced a [global agreement](#) for tackling the nature crisis — albeit two years after it was originally meant to be signed. Dubbed 'The Paris Agreement for nature', the catchily named Kunming-Montreal Global Biodiversity Framework promises to halt losses of highly biodiverse areas, restore 30% of degraded habitats, and establish protected areas across 30% of the planet by 2030.

Negotiations between 196 governments delivered “more ambitious outcomes than we were expecting”, said Georgina Chandler, senior international policy officer for the Royal Society for the Protection of Birds, during a recent panel at the Cambridge Conservation Initiative.

Kunming-Montreal will have to reverse a worrying trend for nature treaties. [Not one goal](#) was met under its predecessor, the Aichi Biodiversity Targets.

The same risk is latent in the new agreement. The text calls liberally for measures that are ‘sustainable’ and ‘effective’ — terms with as many meanings as there are parties to the agreement. There are also limited mechanisms to hold countries to account beyond public pressure.

“International diplomacy alone is insufficient to the task at hand,” said Eliot Whittington, chief systems change officer at the Cambridge Institute for Sustainability Leadership. “Without high-level buy in and visible engagement of wider civil society, it will be harder to secure the pace of change required.”

To mobilise that engagement, we must spot early signs the agreement is heading off track.

By 2025, governments agreed to begin reducing the [USD 1.8 trillion of damaging subsidies](#) they pay out each year, while mobilising USD 20 billion to help developing countries.

More broadly, the agreement requires governments integrate biodiversity considerations at “all levels” of lawmaking. Nature should appear prominently as a consideration in policies for planning, agriculture, finance, and industry, and we should see policymakers engaging in difficult questions about how economic and environmental priorities are harmonised. If not, the human right to the environment affirmed under Kunming-Montreal could lend extra weight to the kind of lawsuits [already seen on climate issues](#).

The agreement also demands more consistent reporting by companies about their nature-related impacts. “There are growing numbers of businesses setting goals and targets to be nature positive,” Whittington said. “What we should expect and hope for is a mainstreaming of nature and environment — where major economic, financial, and business strategies are understood and discussed increasingly through the lens of their impact on the natural world.”

Reporting guidelines are already in development through the [Taskforce on Nature-related Financial Disclosures](#). These guidelines would unlock a wealth of new information for policymakers. An important question will be whether governments begin exploring the idea of making them mandatory.

Despite the delay and the certainty of at least some failures, Chandler argues for a form of engaged optimism: “If we take action as if we are going to achieve these targets, I think we can.”

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Want to know more about COP15 and the future of efforts to tackle the biodiversity crisis? We have an exclusive article from Dr Mike Maunder, Executive Director of the Cambridge Conservation Initiative, who gives his expert view on key takeaways from the COP, the opportunities it presents, and the challenges that remain.

Check it out [here](#)



Public proposal aims to provide sustainable transport for Cambridge students and residents alike

Tola Alake

The Greater Cambridge Partnership (GCP) has formed a proposal which aims to revitalise sustainable transport in the region, funded through the introduction of a congestion charge to Cambridge by 2027.

Conceptually, [sustainable transport measures](#) aim to ensure environmentally friendly travel links around a built environment, and further, facilitate the social and economic function of institutions, businesses, and homes in the long term. They seek to integrate practices which have a more positive environmental impact than those which currently exist and can continue to improve over time.

[Some have challenged the legitimacy of the term](#), which has been branded a misnomer or marketing term for businesses and institutions with predominantly financial ambitions. Proponents of sustainable transport state their advocacy for accessible, affordable, safe, and environmentally conscious travel for all.

In February 2020, [the Department for Transport committed £200 million to support funding of long-term travel initiatives](#), tackling issues such as harmful air quality and high fare prices. The GCP seeks to take advantage of this funding to improve sustainable transport in the county. Their schemes would also derive funding on a local level, by charging residents using private vehicles.

The GCP is composed of four entities, including the University of Cambridge. Under the GCP's proposal, funds are planned to be invested into regenerating Cambridge's travel networks, improving journeys for both those using public transport and those using private vehicles.

[The proposal](#) aims to accrue funding to invest in more sustainable travel schemes. These schemes include providing a bus network which “[offers] cheaper fares, new routes, and faster, more frequent and reliable services”, and “new sustainable travel schemes – such as better walking and cycling infrastructure.”

These plans were defined after [Stagecoach's withdrawal of 18 full services in Cambridgeshire in October 2022](#). In response to this withdrawal, the GCP seeks to increase accessibility to public transport and reduce congestion to enable safer walking and cycling in the county.

These implementations would be permitted by a Sustainable Travel Zone, in which vehicles would be charged for travel between 7 a.m. and 7 p.m. on weekdays. This measure aims to reduce traffic and emissions, improving health in the region. Public Health Data indicates that in 2020, [particulate air pollution was responsible for 48 deaths in Cambridge](#). The GCP maintains that the charge would be put in place only once improvements have been made to the bus network.

The long-term ambitions of the proposal may conflict with the preferences of vehicle owners, who will be required to pay for these changes through the congestion charge. Since the initial suggestion of the proposal in 2021, [residents have held protests at Parker's Piece](#) and other public areas of Cambridge, expressing frustration with their financial burden in the proposal.

In their proposal, the GCP argue that the scheme will be beneficial to all in the long term, as better public transport options mean that “car ownership becomes a genuine choice, not an imperative.” The proposal also includes congestion charge discounts for Blue Badge holders and those on low incomes.

Although NO₂ emissions in the city have been lower than their pre-COVID levels, the GCP notes in their proposal that transport remains responsible for 35% of all emissions in Cambridge, 2% above the national average. In late 2022, [YouGov](#) conducted a study to analyse reactions to the proposal. Of 388 Cambridgeshire adults interviewed, 73% said they were concerned about emissions from transport.

The GCP also proposes the expansion of zero-emission buses. There are currently two zero-emission bus vehicles in operation in Greater Cambridge, with the University U bus route planning to be a [fully electric service from July 2023](#). If local plans are met, the entire bus fleet of Cambridge would be electric by 2030, drastically reducing both carbon and nitrogen emissions.

The proposal began with a public consultation held in 2021 to determine levels of support. A further consultation was launched in October 2022 and held until December 2022. Public interest has risen as the possibility of the proposed changes increases.

In December 2022, the GCP consultation was circulated to the University of Cambridge, aiming to increase feedback from the city's student population.

The Making Connections consultation received over 24,000 responses. A full report from the GCP, including results from the consultation, is set to be published in June 2023.

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Globalisation and environmental change are supercharging disease outbreak risk. Could One Health help us unpick the problems and devise the solutions?

Jack Rich

There are multiple indirect consequences of globalisation and climate change. This article concerns one with which we all have first-hand experience – zoonotic disease outbreaks.

Zoonotic diseases are caused by pathogens – viral, bacterial, fungal, or parasitic – which jump from animals to humans during a spillover event. COVID-19, Ebola, Marburg, and rabies are all examples. A [seminal 2001 paper by Louise Taylor and colleagues](#) found the majority (75%) of emerging diseases globally are zoonotic. More detailed and up-to-date evaluation of the global burden of zoonotic disease risk is sorely needed in light of the COVID-19 pandemic.

In 2016, a severe anthrax outbreak in Siberia saw the deaths of thousands of reindeer and affected dozens of humans. Anthrax is a zoonotic disease caused by the bacterial pathogen *Bacillus anthracis*.

Some [researchers suggest](#) climate change-induced thawing of permafrost may have increased the anthrax risk due to exposure from disease-carrying thawing animal carcasses.

Deforestation has similarly [increased the risk of infection](#), by destroying the habitats of animals, some carrying disease, which then migrate into urban areas.

Health and ecology researchers also [describe the 'dilution' effect](#), the way increased biodiversity can decrease disease-outbreak risk. Predators help limit transmission, either by forcing a behaviour change in disease-exposed prey or by reducing their population density. As human activity erodes biodiverse ecosystems, we erode this dilution effect.

An interdisciplinary framework, One Health, aims to understand zoonotic disease risk factors and propose potential solutions by unifying the health risk assessment of humans, animals, and the environment.

“To me, the great attraction of One Health is that we do not have just that one lens,” Dr Charlotte Hammer, an applied infectious diseases epidemiologist in the Department of Veterinary Medicine and fellow at Downing College, tells *A Matter of Degrees*. “It allows for multiple perspectives, it allows for multiple methodologies – all the way from very traditional epidemiology going so far as to data science, machine learning, artificial intelligence. But on the other side also including very qualitative approaches such as ethnographic work, and everything in between. I think this gives it a richness that is academically very appealing.”

Increasingly, epidemiologists trying to understand zoonotic disease risk in humans are turning to the broader One Health perspective. As Hammer puts it, “if you are interested in zoonotic diseases within humans, it makes little sense to just look at the humans.”

“A lot of disease transmission is driven by how we as a society behave, what our values are, what we place importance on,” Hammer said. “And that is something that as people coming from the sciences, we are often struggling to understand. We need sociologists, economists, and anthropologists to weigh in on this. There are very few disciplines that are not applicable to One Health.”

In summary, globalisation and climate change have significantly contributed to zoonotic disease risk. Additionally, the One Health framework symbolises a paradigm shift in the way we approach the human-animal-environment interface. It recognises that instead of attempting to overcome nature with a one-problem, one-solution mindset, our survival necessitates that, looking forward, we must work with nature, together drawing upon our understanding of multiple disciplines, with a multi-problem, multi-solution mindset.

Interested in finding out more about One Health and environmental change? Check out Cambridge's [One Health Society](#).

You can find out more about Dr Charlotte Hammer's research on her [college profile](#) and on the Department of [Veterinary Medicine](#) and [Cambridge Infectious Diseases websites](#).

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