



HOUSE OF LORDS

Science and Technology Select Committee

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The Rt Hon Alok Sharma MP
COP26 President
(By e-mail)

15 October 2021

Dear Mr Sharma,

I am writing to you in your role as President of COP26, on behalf of the House of Lords Science and Technology Committee. The Committee has recently conducted inquiries that are relevant to the agenda at COP26. Our report into the role of batteries and fuel cells in achieving Net-zero, *Battery strategy goes flat: Net-zero target at risk*, was published in July.ⁱ We urge you to use the recommendations in that report to inform the Government's domestic policy and agenda at COP26.

This letter arises from our ongoing inquiry into nature-based solutions for climate change.ⁱⁱ COP26 is an opportunity to build on pledges such as the Leaders' Pledge For Nature, towards an international agreement where nature-based solutions form part of the answer to climate change and biodiversity loss.ⁱⁱⁱ In light of this opportunity, we wish to share some early findings from our inquiry.

Nature-based solutions are solutions to societal challenges that involve working with nature.^{iv} They can draw down greenhouse gases from the atmosphere, and prevent further emissions from the degradation of critical ecosystems, through protecting, restoring, managing or creating those natural systems.^v When implemented well, they offer a range of co-benefits in line with the UN's Sustainable Development Goals, such as biodiversity restoration, flood prevention, human health benefits, local cooling, and increased ecological and societal resilience to future climate change.^{vi} In the UK, an example is the restoration of degraded peatlands, which efficiently lock away carbon while hosting a unique array of biodiversity.

Well-run programmes of nature-based solutions can form part of the action we take to tackle climate change and biodiversity loss. The risk, seen too often historically, is that bold promises on restoring or conserving nature are not fulfilled.^{vii} Pledges and financing risk being misdirected towards scientifically uncertain, poorly planned initiatives which have few lasting impacts other than to greenwash the activities of polluters.^{viii}

Restoring nature is a more complex process than destroying it. Capturing the benefits of nature-based solutions while managing trade-offs in land use and avoiding potential pitfalls will not be straightforward. Each individual nation or territory contains different ecosystems which require different interventions to protect and support resilient, biodiverse ecosystems that can thrive in the climate of 2050 and beyond. Each location has a different political and social context to take into account and must contend with a different policy landscape.

However, in some cases, nature-based solutions can help achieve multiple goals, such as climate mitigation, adaptation, sustainable development, biodiversity, and enhanced food security in ways that less holistic approaches can miss. Furthermore, protection and adaptive management of nature under a changing climate is critical in order to prevent ecosystems that are currently greenhouse gas sinks from becoming sources due to environmental degradation. There is growing consensus around a number of high-level principles for the implementation of nature-based solutions, such as those outlined by the IUCN,^{ix} and the Nature-based Solutions Initiative (which form the basis of the first four principles we outline below),^x which can maximise the probability of their successful use:

- **Nature-based solutions are not a substitute for rapid decarbonisation of all sectors of the economy.**^{xi} Carbon accountancy for nature-based solutions must be realistic and rigorous. Separate targets for emissions reductions and greenhouse gas removal (through nature-based solutions or engineered sinks) can help to achieve this.^{xii} Decarbonisation plans should add up: any reliance on greenhouse gas removals should be limited, quantified and detailed so that it can be subject to rigorous scientific and feasibility scrutiny. The promise of greenhouse gas removals must not act as a deterrent to the main task: rapidly reducing emissions.
- **Nature-based solutions should involve a wide range of ecosystems on land and in the sea, not just tree-planting.** They should be planned carefully,^{xiii} localised to the specific site, and should aim to fulfil multiple objectives. For example, in agricultural areas, aiming to provide benefits for soil health and food security as well as climate adaptation and mitigation. A substantial fraction of the potential carbon benefits from nature-based solutions come from restorative management of existing working lands, such as agricultural and forestry land.^{xiv} Excessive focus on headline targets such as area of new trees planted can conceal ecologically sub-optimal or harmful activities, such as the historical drainage and tree-planting on peatland in the UK, which in some cases resulted in increased emissions.^{xv}
- **Nature-based solutions should be designed and implemented in partnership with local communities and stakeholders.** Indigenous and local populations often have the greatest knowledge, and the greatest stake, in the management of local ecosystems. Projects that provide local benefits are more likely to be resilient and maintained in the long term.^{xvi} Any financing for nature-based solutions must include the local communities and stakeholders who will be the drivers of change.
- **Nature-based solutions should provide measurable benefits to biodiversity.** They should be designed and managed according to the best scientific evidence base for the location. Biodiversity is often crucial for nature-based solutions to be effective; biodiverse ecosystems provide benefits for carbon capture, food production, and resilience to climate extremes.^{xvii} Support should include expertise and funding for research, and case studies where this is appropriate or required to shore up this evidence base.
- **Protection of existing ecosystems should be emphasised.** New or restored ecosystems can sequester carbon relatively rapidly, but they will still take decades to make up for the carbon stock that is lost when an existing system, such as a mature

forest, peatland, or marine sediment, is destroyed.^{xviii} Progress towards agreed global conservation targets, such as those in the New York Declaration on Forests^{xix} or the Aichi Biodiversity targets,^{xx} is still lacking. Pledges to restore nature are insufficient while existing ecosystems remain unprotected: stronger action on existing international commitments is required to ensure that successful nature-based solutions schemes in one territory do not simply displace environmental degradation to other areas. Private finance, seeking offsets, may be skewed towards carbon removal and ecosystem creation rather than ecosystem protection.

- **Resilience must be a key factor in design and implementation.** Irrespective of our actions now, climate extremes are highly likely to increase in prevalence and magnitude.^{xxi} Interventions should embed resilience to future climate change, to pests and diseases, and to changing socio-economic conditions. Encouraging biodiverse ecosystems, rather than, for example, monoculture plantations, is key to this: biodiverse ecosystems are more resilient to a range of threats.
- **Any carbon benefits that are claimed must be rigorous in their accounting.** Standards could follow the example of UK schemes like the Woodland Carbon Code, which insists that for carbon benefits to be counted towards Net-zero targets, or financed through carbon credit mechanisms, they should be “real, quantifiable, verifiable, and additional (i.e., would not have occurred otherwise.)”^{xxii} Internationally agreed-upon regulations, independent auditing, and long-term monitoring and verification should be in place to ensure the integrity of carbon sinks and to avoid fraud and double counting. Mechanisms should be designed to determine liability for carbon removals and credits if the nature-based solution fails to perform as predicted as a carbon store.^{xxiii}
- **Substantial financing and expertise should be provided by wealthy nations to poorer nations.** Part of this financing should be targeted to support the scale-up of nature-based solutions, following these guiding principles. The UN Environment Programme recommends a quadrupling of financing for nature-based solutions by 2050, and notes that funding for nature-based solutions only makes up a small fraction of climate financing.^{xxiv} Financing for nature-based solutions can form a part of the \$100bn annually, pledged by wealthy nations to developing nations in 2010.^{xxv} This could involve redirecting government subsidies that currently go to ecologically harmful activities, as in the UK’s proposed Environmental Land Management schemes, or suitably well-regulated market mechanisms to incentivise private sector investment.

We urge the Parties to acknowledge the role of nature-based solutions in climate change mitigation and adaptation in the COP26 decision text. We urge the Parties, including the UK, to enhance ambition and to include nature-based solutions in their Nationally Determined Contributions alongside increased targets on emissions reductions. This would involve evidence-based targets, leading to comprehensive plans, for improved protection, restoration and management of a range of ecosystems, in accordance with the principles outlined above. The UK’s domestic policies and negotiating stance can be an example to the world as we seek international action to restore and protect the home we share.

Yours sincerely,



The Lord Patel, KT
Chair, Science and Technology Select Committee

ⁱ Science and Technology Select Committee, [Battery strategy goes flat: Net-zero target at risk](#) (1st report, session 2021–22, HL Paper 53)

ⁱⁱ For updates on the ongoing inquiry, including published evidence and the final report, [see its homepage](#).

ⁱⁱⁱ The full text of the Leaders' Pledge for Nature, where nations pledged to reverse biodiversity loss by 2030, can be [read here](#).

^{iv} Adapted from the International Union for the Conservation of Nature (IUCN) [definition](#).

^v [A global atlas](#) outlining and mapping different types of nature-based solutions, alongside estimates for the greenhouse gas mitigation potential for each solution in different countries, has been compiled by Nature4Climate.

^{vi} A framework for understanding this is the concept of [Nature's Contributions to People](#) outlined by Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. There is an existing literature base assessing the links between nature's contributions to people and the Sustainable Development Goals for different regions.

^{vii} For example, the global New York Declaration on Forests, signed in 2014, aimed to halve deforestation by 2020, but by some measures [deforestation increased](#), and the [2020 progress report](#) found limited progress towards most of the ten goals that the declaration had set.

^{viii} These concerns have been raised, for example, by the [Nature-based Solutions Initiative](#).

^{ix} IUCN Global Standard for Nature-based Solutions ([iucn.org](#))

^x The four [guidelines for Nature-based Solutions](#) outlined by the Nature-based Solutions Initiative – these are described in greater detail by the accompanying paper, [Getting the message right on nature-based solutions to climate change](#).

^{xi} A range of literature exists which attempts to estimate the mitigation potential of nature-based solutions in different contexts, and there is still a wide range of estimates around the total drawdown potential of nature-based solutions. This depends both on scientific uncertainties and how widely the solutions are deployed. However, there is consensus that even in the most optimistic case with a robust, large-scale global deployment, nature-based solutions can only compensate for a fraction of humanity's current emissions, and therefore cannot be a substitute for rapid decarbonisation. For more, see the literature review by Seddon et al. (2020) [Understanding the value and limits of nature-based solutions to climate change and other global challenges | Philosophical Transactions of the Royal Society B: Biological Sciences \(royalsocietypublishing.org\)](#) or [the recent study by Girardin et al.](#), which estimated a potential upper limit of 10GtCO₂/yr of mitigation through Nature-based Solutions (compared to annual emissions of around 40GtCO₂/yr today) contributing 0.1-0.3C to the global temperature target (depending on mitigation trajectory).

^{xii} See ["Beyond "Net-Zero": A Case for Separate Targets for Emissions Reduction and Negative Emissions"](#) by McClaren et al., *Frontiers in Climate*, for more on the importance of separate targets for negative emissions.

^{xiii} For example, the IUCN Global Standard for Nature-based Solutions ([link](#)) provides a framework for the verification, design, and scaling of nature-based solutions to ensure co-benefits are realised. The UK is currently assessing 20 of its nature-based solutions projects against the standard.

^{xiv} One study (Jenkins et al. 2018, referenced here: [Nature-based solutions can help cool the planet — if we act now](#)) estimated that, in terms of greenhouse gas benefits, 40% of the benefits could come from protecting

intact ecosystems, 40% from better management of working lands, and just 20% from restoring native ecosystems.

^{xv} Research carried out by [Forest Research](#) suggests that, while the evidence base for the exact climate impacts of afforestation on drained peatlands is unclear, it is far from likely to be the most optimal location for tree-planting to secure net carbon benefits and may result in net greenhouse gas emissions. The current [UK Forestry Standard and Woodland Carbon Codes](#) do not support afforesting peaty soils as a climate option.

^{xvi} [The IUCN cited](#) one of the major reasons behind historical failed mangrove restoration efforts as a failure to adequately engage local communities in the restoration projects.

^{xvii} Recent studies which emphasise the links between biodiversity, productivity, and climate change in implementing nature-based solutions include [Biodiversity–productivity relationships are key to nature-based climate solutions | Nature Climate Change](#) and [Advancing nature-based approaches to address the biodiversity and climate emergency \(wiley.com\)](#)

^{xviii} The WWF [has determined](#) a “mitigation hierarchy” which prioritises conservation of existing ecosystems over planting new ones in most circumstances. In general, although new forests can sequester carbon more quickly than old, the destruction and release of carbon stocks from old forests will take many years of new forest growth to compensate.

^{xix} The five-year assessment report [Protecting and restoring Forests: 2019 NYDF Assessment report - Forest Declaration](#) noted the limited progress towards the targets that had been set in 2014.

^{xx} Only 6 out of the 20 Aichi biodiversity targets were “partially achieved”, while the remainder were not achieved in the recent stocktake, [which can be read here](#).

^{xxi} [Increasing probability of record-shattering climate extremes | Nature Climate Change](#)

^{xxii} For example, these are reminiscent of the [best-practice guidelines](#) of the International Carbon Reduction and Offset Alliance, which suggest that any carbon benefits sold must be “Real, Measurable, Unique, Independently verified, Permanent and Additional.”

^{xxiii} For example, the UK’s [Woodland Carbon Code](#) issues provisional carbon tokens which are verified only after storage has been confirmed for a decade and the project has matured.

^{xxiv} [State of Finance for Nature, 2021, Key Findings](#)

^{xxv} [Fulfilling this long-standing pledge, which has not yet been met, has been an emphasis in the run-up to COP26, including from the UN and the Prime Minister.](#)