

HOW NATURAL ARE NATURAL CLIMATE SOLUTIONS?

It is widely acknowledged that reducing greenhouse gas emissions will not be enough to prevent climate change. Whilst a fully decarbonised energy system is achievable, emissions cannot be reduced to zero in some sectors.¹ As a result, it is necessary to absorb part of the greenhouse gases already from the atmosphere. This can be performed through ‘carbon capture and storage’ in trees and soils or in geological formations, amongst other techniques.

In this context, a new proposal has recently emerged: called ‘*natural climate solutions*’, it refers to the ‘restoration and creation of carbon-storing environments such as forests, mangrove swamps, peat bog, salt marsh and seagrass beds.’² *While the name is new, storing carbon in soils and trees is not*, the idea having been around since the 70s and implemented mostly unsuccessfully for more than a decade.³

Protecting natural forests and planting trees to absorb CO₂ in itself is a good thing – provided it’s not monoculture tree plantation⁴. There are however in our view *5 major issues with natural climate solutions*:

a. There is considerable evidence that **storing carbon in soils and trees is not permanent and highly uncertain**.⁵ Not only are we unable to measure accurately the impact of related projects due to the incredibly high scientific uncertainty, but there is also the very real possibility that stored carbon will be released again after only a short time when trees are cut or burn, leading to an increase of cumulative atmospheric GHG within a relatively short time frame.

Calculating the impact of carbon capture and storage projects would require being able to determine with reasonable certainty a hypothetical world without the project and then assign a single number to the

¹Anderson K, Brief response to the UK Government’s “net-zero” proposal <https://kevinanderson.info/blog/brief-response-to-the-uk-governments-net-zero-proposal/>

² Natural Climate Solutions <https://www.naturalclimate.solutions/the-science>

³ Song L, Propublica, An even more inconvenient truth: Why Carbon Credits For Forest Preservation May Be Worse Than Nothing, 22 May 2019 <https://features.propublica.org/brazil-carbon-offsets/inconvenient-truth-carbon-credits-dont-work-deforestation-redd-acre-cambodia/>

Kill J, Heinrich Böell Stiftung, REDD+: A lost decade for international forest conservation, <https://www.boell.de/en/2019/01/11/redd-lost-decade-international-forest-conservation-0>

Hache, 50 shades of green: part I carbon, March 2019 <https://greenfinanceobservatory.org/wp-content/uploads/2019/03/50-shades-carbon-final.pdf>

⁴ ‘Plantations are the most popular restoration plan: 45% of all commitments involve planting vast monocultures of trees as profitable enterprises. (...) Our research demonstrates that (...) land put aside for natural forests to return holds 40 times more carbon than plantations and 6 times more than agroforestry.’

The Conversation, the scandal of calling plantations ‘forest restoration’ is putting climate targets at risk, April 2019 https://theconversation.com/the-scandal-of-calling-plantations-forest-restoration-is-putting-climate-targets-at-risk-114858?utm_medium=ampfacebook&utm_source=facebook&fbclid=IwAR376kyRwGuSPZYdXdhaOKLH9DdXG9NI4iZZY214KKF9DIhXlpU-48-bG0

⁵ Carbon Market Watch, NOT SMART: climate smart agriculture in carbon markets, November 2014. Online. Available at: <https://carbonmarketwatch.org/2014/11/25/promoting-climate-smart-agriculture-with-carbon-markets-would-not-be-a-smart-move/>

FERN, Misleading numbers – the case for separating land and fossil-based carbon emissions, January 2014, https://fern.org/sites/default/files/news-pdf/misleadingnumbers_full%20report.pdf

Hache, 50 shades of Green part II: the fallacy of environmental markets. Online. Available at <https://greenfinanceobservatory.org/wp-content/uploads/2019/05/50-shades-biodiversity-final.pdf>

China’s Reforestation Programs: Big Success or Just an Illusion? <https://e360.yale.edu/features/chinas-reforestation-programs-big-success-or-just-an-illusion>

The Verge, If forests go up in smoke, so can carbon offsets, online, available at: https://www.theverge.com/2019/9/13/20859156/forests-fires-carbon-offsets-amazon-california?fbclid=IwAR2pYfTbJTQAAV4qAC7VAlAZTxQBEN3QIfQWf2G4GmkoC_SuyXexq3hUxd8

greenhouse gas emissions associated with that world over the next 100 years – the approximate residence time of carbon dioxide in the atmosphere. To put in perspective the staggering level of uncertainty involved, *'if you can imagine Marconi and the Wright brothers getting together to discuss whether in 2009, EasyJet and the internet would be facilitating each other through internet booking, that's the level of ... certainty you'd have to have over that period. You cannot have that.'*⁶

In fact, the United States General Accounting Office stated in an assessment of the Kyoto CDM carbon offset program that *'it is impossible to know with certainty whether any given project is additional'*,⁷ i.e. has an impact. More recently, a San Diego court rejected for the third time a climate action plan relying on carbon offsets, ruling that using carbon credits was not acceptable, calling the mitigation unverifiable.⁸

This is also the reason why forest conservation was excluded from the UN Clean Development Mechanism, and the EU decided to ban offset credits from forestry and land use change activities in the European cap and trade market.⁹ And for very good reasons: there is an inherent high risk that forests do not represent real emission reductions due to the impermanence of forest carbon, inflated baselines, problematic additionality testing and difficult monitoring reporting and verification. A 2017 study published by the European Commission confirmed this risk, finding that 85% of the carbon offset projects used by the EU under the UN's Clean Development Mechanism had failed to reduce emissions.

This means that carbon sequestration in soils and trees is not comparable to reducing fossil fuel emissions.

b. Natural climate solutions will in practice likely come INSTEAD OF and not IN ADDITION TO reductions in avoidable fossil fuel emissions.

Some claim that carbon sequestration will enable to greatly increase our climate ambitions, however nothing currently guarantees that this will be the case. In addition, while in theory carbon sequestration is not supposed to be used as a substitute for emission reductions, in practice it can, and already is.

Many countries are planning to set or have already set net zero emission targets, to be reached by or before 2050.¹⁰ These Net zero emissions national targets are based on the idea that *'if it proved impossible to reduce CO₂ emissions to zero, it would be necessary, in order to halt climate change, to absorb an amount of greenhouse gases from the atmosphere each year equivalent to those emissions that remained. This would bring the world to 'net zero' CO₂ emissions.'*¹¹

The issue is that *Net Zero targets combine in one metric emission reductions and carbon capture and storage, creating a strong risk that carbon capture and storage will come instead of and not in addition to avoidable emission reductions*, if the former is cheaper and despite the many documented issues associated with it.

Evidence of this risk can already be seen:

- As a prominent academic recently noted, the British Committee on Climate Change's *'latest report is relying on approximately 40% higher negative emission technologies by 2050 than in their previous analysis. As we fail on mitigation, we simply turn up the negative emission technologies' dial.*¹²

- A number of major oil¹³ and aviation¹⁴ companies have expressed a strong interest in planting trees to offset emissions, while expanding their activities.

⁶ Lohman L, Uncertainty Markets and Carbon Markets: Variations on Polanyian Themes, New Political Economy, <http://www.thecornerhouse.org.uk/sites/thecornerhouse.org.uk/files/NPE2high.pdf>

⁷ United States General Accounting Office, 'International Climate Change Programs: Lessons Learned from the European Union's Emissions Trading Scheme and the Kyoto Protocol's Clean Development Mechanism', GAO Report GAO-09-151 (November 2008), p. 39, <https://www.gao.gov/new.items/d09151.pdf>

⁸ KPBS, Anderson E, Court Rejects San Diego County's Climate Action Plan Again, 26 December 2018, <https://www.kpbs.org/news/2018/dec/26/court-rejects-san-diego-countys-climate-action-pla/>

⁹ Carbon Market Watch, REDD, April 2013. Online. Available at: <https://carbonmarketwatch.org/2013/04/09/redd/>

¹⁰ Energy and climate intelligence unit, supra

¹¹ Energy and climate intelligence unit, Countdown to zero https://ca1-eci.edcdn.com/reports/ECIU_Countdown_to_Net_Zero.pdf

¹² Prof Kevin Anderson, <https://twitter.com/KevinClimate/status/1171852678403645442>

¹³ *'By planting trees, which absorb CO₂ from the atmosphere, companies like Eni are looking to offset the pollution that their traditional operations create, while still looking to expand production of fossil fuels like oil and gas — arguing they need to meet growing demand in the developing world.'*

Financial Times, Sheppard D, Hook L, Eni to plant vast forest in push to cut greenhouse gas emissions, 15 March 2019

- The recent Nature-Based Solutions for Climate Manifesto¹⁵ developed for the UN climate action summit 2019 pushes to scale up exponentially nature-based solutions in Nationally Determined Contributions.¹⁶ This would mean further increasing the ability of governments to meet their international climate commitments with carbon capture and storage instead of reductions in avoidable fossil fuel emissions.

In fact, the list of contributions¹⁷ received under this initiative *already includes projects promoting REDD and REDD+ carbon offset credits¹⁸ and calling for the inclusion of Nature-Based Solutions in carbon markets and Countries' Nationally Determined Contributions.¹⁹ While it is stated that such proposals should be used only to compensate for emissions that are unavoidable and must address the concerns associated with carbon credits, nothing guarantees that this will be the case.*

c. Carbon capture and storage is typically financed by the granting of tradable offset credits wrongly equating temporary sequestration with permanent fossil fuel emissions.²⁰ These credits can then be sold to fossil fuel emitters to 'offset' their own emissions. Yet there is a fundamental difference between capturing carbon in trees and soils where it is stored for a few decades at best and emissions from fossil fuels which stay in the atmosphere for approximately 100 years.

The appalling track record of carbon offsets has been amply documented,²¹ having led to an increase of emissions: it was found that *'in the EU alone, emissions increased by over 650 million tonnes of CO₂ as a result of the use of CDM credits in the EU Emissions Trading System. This is because an overwhelming majority of CDM projects essentially issue 'junk' credits that do not lead to real-world emission reductions.'*²²

For natural climate solutions to really come in addition to emission reductions and not be offsets, they need to be severally capped within Nationally Determined Contributions and Net Zero emissions targets, where they could compensate for lower ambitions in reducing avoidable fossil fuel emissions, and excluded from any carbon market where they would be used to offset fossil fuel emissions.

The issue in doing so, however, is that hardly anyone would likely be interested in financing them anymore, as their political appeal resides precisely in their cost-effectiveness compared to emission reductions. There is therefore in our view a strong risk that natural climate solutions will be used as carbon offsets, despite the major well-known issues associated with them.

<https://www.ft.com/content/7c4d944e-470d-11e9-b168-96a37d002cd3>

Reuters, Shell starts to offset some drivers' carbon with new trees, 08 April 2019

<https://www.euronews.com/2019/04/08/shell-starts-to-offset-some-drivers-carbon-with-new-trees>

¹⁴ 'The Carbon Offset Reduction Scheme for International Aviation aspires to the "carbon neutral emissions growth" of the global aviation industry, relying primarily on so called "alternative aviation fuels" (mostly biofuels) and carbon offsets, with a large proportion expected to come from forests and tree plantations' Biofuelwatch, CORSIA: A FALSE SOLUTION TO THE VERY REAL THREAT OF EMISSIONS FROM AVIATION, <https://www.biofuelwatch.org.uk/2019/corsia-briefing/>

¹⁵ 'Nature-based Solutions (Nbs) are defined by IUCN as "actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits'. IUCN, Nature-Based Solutions <https://www.iucn.org/commissions/commission-ecosystem-management/our-work/nature-based-solutions>

The Nature-Based Solutions for Climate Manifesto, developed for the UN Climate Action Summit 2019, 14 August 2019

<http://wedocs.unep.org/xmlui/bitstream/handle/20.500.11822/29705/190825NBSManifesto.pdf?sequence=1&isAllowed=y>

¹⁶ Nationally Determined Contributions are the efforts by each country to reduce national emissions and adapt to the impacts of climate change in the context of the Paris Agreement.

¹⁷ UN Environment, NBS contribution platform, <https://www.unenvironment.org/nbs-contributions-platform>

¹⁸ The REDD+ Acceleration Facility (RAF): Scaling Finance for Tropical Forest Protection (EDF)

https://wedocs.unep.org/bitstream/handle/20.500.11822/28872/REDD_Acceleration.pdf?sequence=1&isAllowed=y

UN-REDD: Supporting countries with complex policy and institutional reforms to scale up climate actions and ambitions on sustainable land and forest management, conservation and restoration.

https://wedocs.unep.org/bitstream/handle/20.500.11822/28792/UNREDD_climate.pdf?sequence=1&isAllowed=y

The Architecture for REDD+ Transactions (ART): Attracting New Investment to Protect and Restore Forests

https://wedocs.unep.org/bitstream/handle/20.500.11822/28932/Architecture_REDD%2b.pdf?sequence=1&isAllowed=y

¹⁹ Natural Climate Solutions Alliance (convened by WEF, WBCSD, N4C)

<https://wedocs.unep.org/bitstream/handle/20.500.11822/29770/NCSA.pdf?sequence=1&isAllowed=y>

²⁰ France 3 Bretagne, L'élevage va recevoir un label pour vendre ses crédits carbone

<https://france3-regions.francetvinfo.fr/bretagne/elevage-va-recevoir-label-vendre-ses-credits-carbone-1721381.html>

²¹ Hache, 50 shades of green: part I carbon, *ibid*

²² Carbon Market Watch, Open letter to ICAO council representatives & national delegates on ending the Clean Development Mechanism, 29 October 2018, <https://carbonmarketwatch.org/publications/open-letter-to-icaocouncil-representatives-national-delegates-on-ending-the-clean-development-mechanism/>

In this respect, we welcome the statement that *'the age of offsets is over'*²³ and the call to finance NCS with additional government spending instead of offset markets. We note, however, that *this statement is already contradicted by early project contributions calling to include NCS in carbon markets*²⁴ in order to develop them at scale. We are also concerned by contributions calling to include NCS in countries' Nationally Determined Contributions without explicit requirements that they come in addition to emission reductions objectives. Finally, we hope that *stretched public finances will not be used as an excuse to ultimately finance NCS with new offset market mechanisms*.

d. A devastating social impact? many carbon offset projects have been documented to result in land ownership conflicts, land grabs and human rights violations against indigenous communities.²⁵ Documented issues include a private company blocking access to land vital for the livelihoods of local communities in Uganda in order to claim credits for planting forests.

In this respect, the statement in the research study underlying natural climate solutions that *'the majority of potential reforestation area is located in the tropics'*²⁶ and not in the global north is a cause for concern. So is the suggestion that NCS should be implemented in priority on land whose agricultural yields are low, as such land is typically owned by the more vulnerable communities.

Thus, we cautiously welcome the statement that *'NCS projects must work with the free, prior and informed consent of indigenous people and other local communities'*²⁷ but find that to be credible it will require related binding rules for project contributions, including deterring penalties and adequate resources dedicated to enforcement.

e. Large-scale forest carbon sequestration could cause food prices to skyrocket

A recent study published in the journal Environmental and Resource Economics²⁸ found that *'meeting half the Paris Agreement's goal for atmospheric carbon reduction would send food prices soaring, especially in developing economies. In some places, food prices would get so high that it would never happen (...) Significant forest carbon sequestration leads to reductions in food supply at the same time we're expecting population increases. This is a simple supply and demand problem.'*²⁹ As forest carbon sequestration competes with cropland and affects disproportionately the poor, it can at best only be a small piece of the puzzle. As one of the authors of the study put it, *'if we want to be serious about climate change, there is no way around reducing emissions.'*³⁰

²³ Monbiot G, Natural Climate Solutions, Averting Climate Breakdown by Restoring Ecosystems A call to action <https://www.naturalclimate.solutions/full-rationale>

²⁴ Natural Climate Solutions Alliance (convened by WEF, WBCSD, N4C) <https://wedocs.unep.org/bitstream/handle/20.500.11822/29770/NCSA.pdf?sequence=1&isAllowed=y>

²⁵ Carbon Market Watch, The Clean Development Mechanism: Local Impacts of a Global System, 29 October 2018, <https://carbonmarketwatch.org/publications/the-clean-development-mechanism-local-impacts-of-a-global-system/>
Bachram H, Climate Fraud and Carbon Colonialism: The New Trade in Greenhouse Gases, Capitalism, Nature, Socialism Vol 15, December 2004, <http://www.carbonradewatch.org/pubs/cns.pdf>

Carbon Market Watch, Open letter to ICAO council representatives & national delegates on ending the Clean Development Mechanism, 29 October 2018, <https://carbonmarketwatch.org/publications/open-letter-to-icao-council-representatives-national-delegates-on-ending-the-clean-development-mechanism/>

Friends of the Earth, New report on human rights violations linked to REDD in Acre, Brazil, 8 December 2014, <https://foe.org/news/2014-12-new-report-on-human-rights-violations-linked-to-redd/>

The Oakland Institute, Carbon Colonialism: Failure of Green Resources' Carbon Offset Project in Uganda, 2017, <https://www.oaklandinstitute.org/carbon-colonialism-failure-green-resources-carbon-offset-project-uganda>

Motherboard, Ahmed N, Carbon Colonialism: How the Fight Against Climate Change Is Displacing Africans, 1 December 2014, https://motherboard.vice.com/en_us/article/kbzn9w/carbon-colonialism-the-new-scramble-for-africa

²⁶ *'Our analysis indicates that the majority of potential reforestation area is located in the tropics (70%), where growth rates are higher, thereby representing an even greater proportion of the mitigation potential (79%).'*

PNAS, Supporting Information Appendix Natural climate solutions <https://www.cbd.int/financial/2017docs/pnas-naturalappen2017.pdf>

Lang C (REDD-Monitor), Counsell S (Rainforest Foundation UK), Offsetting fossil fuel emissions with tree planting and 'natural climate solutions': science, magical thinking, or pure PR? <https://redd-monitor.org/2019/07/04/offsetting-fossil-fuel-emissions-with-tree-planting-and-natural-climate-solutions-science-magical-thinking-or-pure-pr/>

²⁷ Monbiot G, supra

²⁸ Peña-Lévano L.M., Taheripour F., Tyner W.E., Climate Change Interactions with Agriculture, Forestry Sequestration, and Food Security, Environmental and Resource Economics, October 2019, Volume 74, Issue 2, pp 653–675 <https://link.springer.com/article/10.1007%2Fs10640-019-00339-6>

²⁹ Wallheimer B, Large-scale forest carbon sequestration could cause food prices to skyrocket, Phys.org, 23 April 2019 <https://phys.org/news/2019-04-large-scale-forest-carbon-sequestration-food.html>

³⁰ Wallheimer B, supra

In this respect, we cautiously welcome the statement that it is 'essential to ensure that NCS does not compete with the need to feed a growing global population' and 'should not remove highly productive agricultural land from food growing'³¹ but wonder how to reconcile it with meaningfully scaling up NCS.

Last but not least, we support the statement that NCS do not require putting a price on ecosystems nor rebranding nature as natural capital, as these approaches and related biodiversity offset markets have been shown to be unable to meet their environmental objectives.³² We note, however, that *this statement is already contradicted by contributions including projects aimed at 'mainstreaming natural capital accounting,'³³ projects preparing investment opportunities in 'natural capital projects'³⁴ and projects calling to put a price on NCS and trade them in international markets.*³⁵

Conclusion:

Natural Climate Solutions offer a number of well-meaning but non-binding promises, while already exhibiting major contradictions between the promises and some of the related project contributions.

While there is no evidence that the promises will be fulfilled, some project contributions contradicting these promises are early evidence to the contrary. This strongly suggests in our view that NCS is only the latest rebranding of failed carbon offsets and doomed natural capital approaches.

Don't get us wrong. *Protecting natural forests is a GOOD thing.* And negative emissions are necessary. They simply must not come instead of ambitious fossil fuel emission reductions, nor foster doomed offsets and natural capital.

Ensuring the environmental and social integrity of Natural Climate Solutions would require that:

- Natural climate solutions and Nature-based Solutions for Climate be severely capped within Nationally Determined Contributions and Net Zero emissions targets, to ensure that they don't exceed emissions that are demonstrably unavoidable.
Failing that, at the very least we must define and disclose separate sub-objectives for emission reductions and negative emissions within Net Zero emission targets and Nationally Determined Contributions. This would provide far more transparency and accountability, reduce the risk that we reduce one while increasing the other and remove the illusion that both are equivalent;
- Natural climate solution projects are not financed through the granting of tradable offset credits that can be sold on carbon markets to offset fossil fuel emissions, as both are not comparable;
- Projects fostering the monetary valuation and/or trading of ecosystem services and biodiversity destruction are excluded from contributions;
- Binding rules are developed to prevent predatory behaviour with local indigenous communities, together with deterring penalties and adequate enforcement resources.

Only by meeting these criteria can we ensure that Natural Climate Solutions are not used to reorientate the climate debate away from reducing avoidable fossil fuel emissions, and can fulfil their (limited) potential to contribute to addressing climate change.

Unless such criteria are included, contradictions are resolved and controversial projects removed, Natural Climate Solutions will only be the latest rebranding of failed carbon offsets.

³¹ Monbiot G, *ibid*

³² Hache F, 50 shades of green part II: the fallacy of environmental markets, May 2019

<https://greenfinanceobservatory.org/wp-content/uploads/2019/05/50-shades-biodiversity-final.pdf>

³³ United Nations Committee of Experts on Environmental-Economic Accounting, Mainstreaming Natural Capital Accounting for Climate Change Policy https://wedocs.unep.org/bitstream/handle/20.500.11822/28788/NBS_UN.pdf?sequence=1&isAllowed=y

³⁴ IUCN, Supporting bankable deals for climate mitigation and adaptation through investments in nature https://wedocs.unep.org/bitstream/handle/20.500.11822/28912/Climate_Mitigation.pdf?sequence=1&isAllowed=y

³⁵ Natural Climate Solutions Alliance, Our vision <https://wedocs.unep.org/bitstream/handle/20.500.11822/29770/NCSA.pdf?sequence=1&isAllowed=y>