

DOUBLE JEOPARDY

THE RISING THREAT TO FOOD
SOVEREIGNTY AND AGROECOLOGY
FROM FALSE CLIMATE SOLUTIONS



Mobilize resist transform



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Aerial view of eucalyptus forest, Sao Paulo, Brazil
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INTRODUCTION

To prevent runaway climate change and keep global temperature rise as far below 1.5 degrees as possible, we need immediate and deep emissions reductions.¹ These must be made first in the historically polluting developed nations and then everywhere, in line with justice. Yet, while weather extremes are already occurring with increasing frequency and ferocity,² emissions are still rising. At the current rate, we will have exhausted the carbon budget available for staying within 1.5°C in less than a decade.³ A rapid and just phase-out of fossil-fuel burning, a swift move away from the industrial food and farming system, and an end to deforestation are thus imperative. Yet corporations and many governments are planning for more fossil-fuelled, emissions-intensive growth for decades to come, behind a ‘net zero emissions’ smokescreen.⁴ But net zero is different from zero. It will perpetuate destructive industries, increasing emissions and pushing us even further towards climate chaos. The Friends of the Earth International reports ‘The Big Con’, ‘Fossil futures built on a house of cards’ and ‘Chasing Carbon Unicorns’ have explored the ‘net zero’ con in detail.⁵

Less thoroughly explored is the impact that these climate distractions will have on food sovereignty. Vast amounts of agricultural land, forests and other ecosystems will be needed to fulfil the demand for carbon offset credits built into net zero targets. This demand will lead to new enclosures and land grabbing. The false legitimacy that agribusiness can claim by promoting the new concept of “nature based solutions” will allow them to expand their operations and gain access to new revenue streams from carbon financing and data grabbing. Real solutions such as agroecology risk being co-opted by dangerous distractions like ‘nature based solutions’.



A small-scale farmer in Uruguay surveys his land
© Amelia Collins, Friends of the Earth International

This report provides a critical analysis of the impacts on food sovereignty from proposals that make up the net-zero package including ‘nature based solutions’, natural carbon removals and carbon offsets. It probes the rise of soil carbon sequestration, as a source of carbon credits, and shows why ‘nature based’ carbon offsetting poses a real threat to people’s livelihoods, territories and rights. These concepts are smokescreens. They are confusing and overlapping and their names and meanings keep changing. Because so much is at stake, it is crucial that the intentions, actors and motives behind them are well understood and discussed.

Thousands of net zero targets have been adopted by corporations and countries. There is expected to be a huge increase in demand for carbon offset credits from forests and lands, a proliferation of regulated and voluntary carbon market schemes and global policy to enable them. Together these are set to become major obstacles to achieving food sovereignty, land justice and peoples’ rights. It is crucial that the interrelations are well understood and discussed. This report is a first attempt to do so.

1 IPCC Sixth Assessment Report (2022) *Mitigation of Climate Change*.

2 Over the past 20 years there have been twice as many natural disasters as in the preceding 20. Droughts, large-scale flooding and cyclones have killed over 1.2 million people and caused more than US\$3 trillion worth of economic damage. Of the 20 warmest years ever recorded 19 have occurred since 2001, *ibid*.

3 ARC Center for Excellence (2021) Briefing note 16. *What is left in the global carbon budget?* <https://climateextremes.org.au/what-is-left-in-the-global-carbon-budget/>

4 The Friends of the Earth International report *Fossil futures built on a house of cards* (2022) exposes how the corporate sectors chiefly responsible for runaway climate change are seeking to expand the voluntary carbon market as part of a strategy to continue to profit from the fossil fuel economy. <https://www.foei.org/publication/fossil-futures-built-on-a-house-of-cards/>

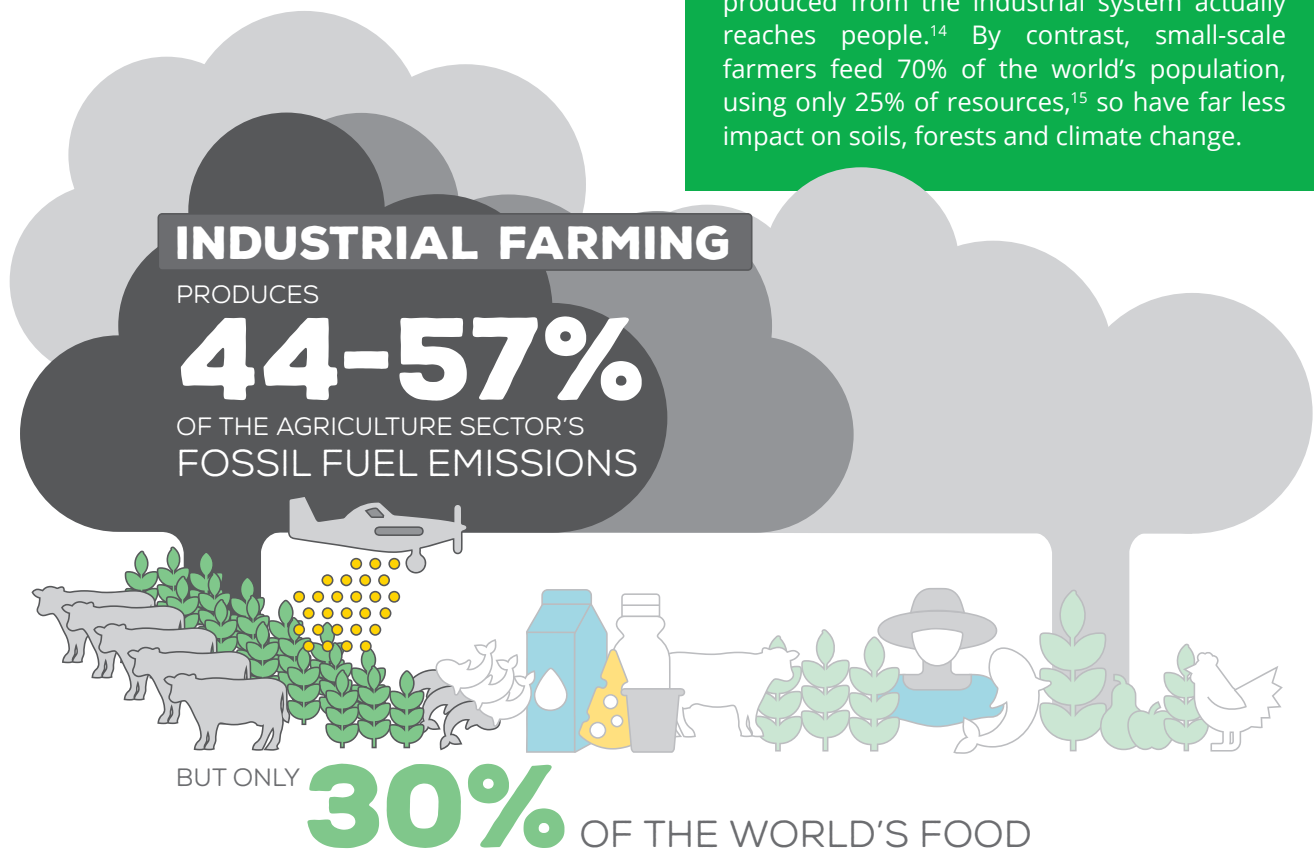
5 See, for example, Friends of the Earth International (2022) *Fossil futures built on a house of cards*. <https://www.foei.org/publication/fossil-futures-built-on-a-house-of-cards/>; Friends of the Earth International (2021) *Chasing Carbon Unicorns*. <https://www.foei.org/publication/chasing-unicorns-carbon-markets-net-zero/>; Friends of the Earth International et al. (2021) *The Big Con: How Big Polluters are advancing a “net zero” climate agenda to delay, deceive, and deny*. <https://www.foei.org/publication/net-zero-big-con-climate-report/>

CORPORATIONS CLING TO FOSSIL-BASED BUSINESS AS THE CLIMATE CRISIS DEEPENS

1

Fossil fuel extraction and burning and the agroindustrial food system are major causes of deforestation and create huge amounts of greenhouse gas emissions.⁶ Fossil fuel companies and agribusinesses — commodity producers such as Bunge Ltd, Cargill, Luis Dreyfus and Archer Daniels Midland, and meat and fertiliser producers such as JBS Holdings and Yara — are driving this climate breakdown. Like fossil fuel extraction and burning, today's industrial food system generates huge profits for a few global corporations and their shareholders, while driving rural poverty, displacement and inequality.⁷ It also releases huge amounts of the greenhouse gases — carbon dioxide, methane and nitrous oxide — while failing to feed the world.^{8,9}

Not all farming has the same impact on the climate. Recent estimates suggest the food system contributes one third of global emissions — mostly from land use change and agricultural production methods.¹⁰ Industrial farming plays a huge role in these emissions. Nitrogen fertilizer application is about 10% of direct emissions from the food system,¹¹ and a quarter of deforestation is for intensive commodity production.¹² Previous estimates suggests the industrial food system accounts for 44-57% of emissions.¹³ Yet their industrial energy, food and farming systems leave the basic food and energy needs of millions of people unfulfilled, particularly in rural areas. Only 24% of the food produced from the industrial system actually reaches people.¹⁴ By contrast, small-scale farmers feed 70% of the world's population, using only 25% of resources,¹⁵ so have far less impact on soils, forests and climate change.



6 Friends of the Earth et al (2021) *The Big Con*. <https://www.foei.org/net-zero-big-con-report/>
See also Tess Riley (2017) *Just 100 companies responsible for 70% of global emissions, study says*. The Guardian. 10 July. <https://www.theguardian.com/sustainable-business/2017/jul/10/100-fossil-fuel-companies-investors-responsible-71-global-emissions-cdp-study-climate-change>

7 IPES food (2017) *Too Big to Feed*. https://www.ipes-food.org/_img/upload/files/Concentration_FullReport.pdf

8 GRAIN and the Institute for Agriculture and Trade Policy (IATP) (2018) *Emissions impossible: How big meat and dairy are heating up the planet*. <https://www.grain.org/en/article/5976-emissions-impossible-how-big-meat-and-dairy-are-heating-up-the-planet>

There is mounting evidence of the industrial food and farming system's massive contribution to climate breakdown. In 2018, GRAIN and the Institute for Agriculture and Trade Policy calculated that just five meat-and-milk giants, JBS, Tyson, Cargill, Dairy Farmers of America and Fonterra, produce more combined emissions per year than major oil players like Exxon, Shell or BP. Taken together, 20 livestock firms are responsible for more greenhouse gas emissions than Germany, Britain or France.¹⁶ Yet the sector keeps expanding, and emissions from forest destruction, nitrogen fertiliser use, processing and transport continue to rise.¹⁷ Those of JBS Holdings, the world's largest meat processor, grew by at least 55% between 2016 and 2021.¹⁸ Production of industrial commodities is responsible for around a quarter of global deforestation.¹⁹

To achieve climate justice, we must transition away from fossil fuel burning and also move away from corporate-controlled, emissions-intensive industrial food production, distribution and consumption. We need models of food production, distribution and consumption that are just, controlled by peoples, in harmony with nature, built on agroecology and food sovereignty.

However, this is not on the agenda of the corporations and polluting country governments that are promoting net zero emissions pledges.

Rather, under growing public pressure, companies are searching for ways to safeguard their profits while being seen to be taking action to reduce emissions. They are doing this by hiding behind a series of false solutions.



Preparing seedlings for an agroecological urban farm in Malaysia
© Amelia Collins/Friends of the Earth International

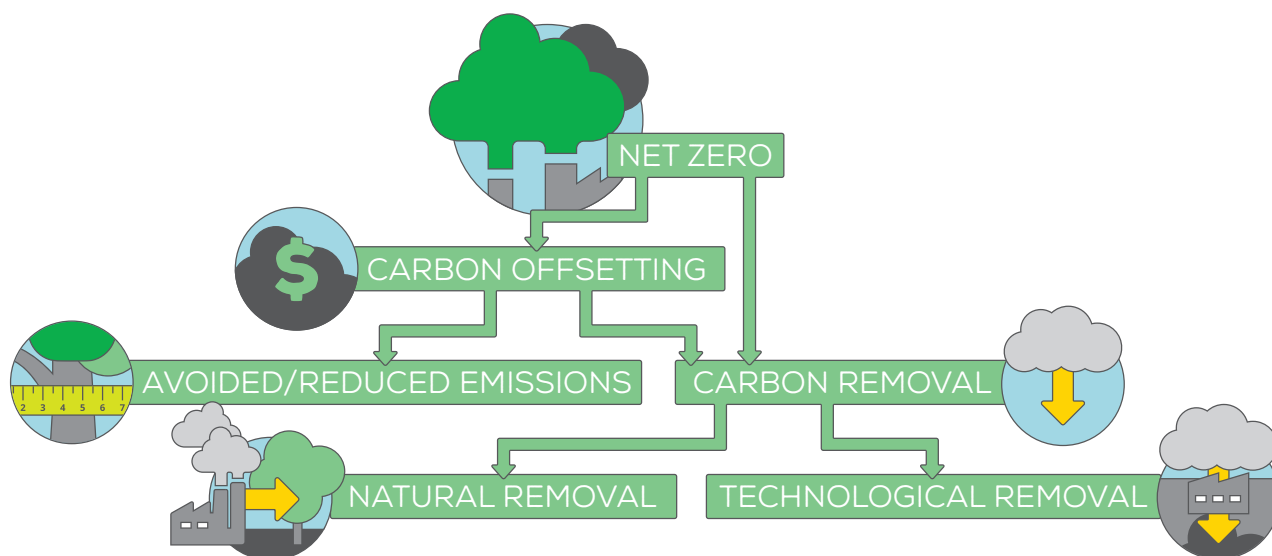


Aerial view of deforestation in Brazil
© iStock

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- 9 UNCTAD (2013) Trade and Environment review. https://unctad.org/system/files/official-document/ditcted2012d3_en.pdf
- 10 Crippa, M., Solazzo, E., Guizzardi, D. et al. *Food systems are responsible for a third of global anthropogenic GHG emissions*. *Nat Food* 2, 198–209 (2021). <https://doi.org/10.1038/s43016-021-00225-9>
- 11 IATP (2021) *Magical thinking on fertilizer and climate change*. <https://www.iatp.org/magical-thinking-fertilizer-and-climate-change>
- 12 Curtis et al (2018) *Classifying drivers of global forest loss*. <https://www.etcgroup.org/content/who-will-feed-us-industrial-food-chain-vs-peasant-food-web>
- 13 GRAIN (2011) *Food and Climate Change the forgotten link*. <https://grain.org/article/entries/4357-food-and-climate-change-the-forgotten-link>
- 14 ETC Group (2017) *Who Will Feed Us? The Peasant Food Web vs. the Industrial Food Chain*. 3rd edition. <http://www.db.zs-intern.de/uploads/1508178667-2017ETCWhowillfeedus.pdf>
- 15 *ibid.*
- 16 IATP, GRAIN & Heinrich Böll Foundation (2017) *Big Meat and Dairy's Supersized Climate Footprint*. <https://bit.ly/3qsfq1z>
- 17 GRAIN (2017) *Grabbing the bull by the horns: it's time to cut industrial meat and dairy to save the climate*. <https://grain.org/article/entries/5639-grabbing-the-bull-by-the-horns-it-s-time-to-cut-industrial-meat-and-dairy-to-save-the-climate>
- 18 GRAIN, IATP (2018) *Emissions impossible: How big meat and dairy are heating up the planet*. <https://grain.org/en/article/5976-emissions-impossible-how-big-meat-and-dairy-are-heating-up-the-planet>
- 19 Curtis et al. (2018) *op cit*

'NET ZERO' EMISSIONS, 'NATURE BASED SOLUTIONS' AND 'CARBON OFFSETTING': A DANGEROUSLY DECEPTIVE MIX

1.1



Many companies and countries have made net zero emissions pledges where they commit publicly to cancelling out their emissions by a certain time in future, typically 2030 or 2050. **The key word in these pledges is 'net'.**

Commitments to achieve net zero emissions differ from commitments to reduce emissions to real zero in that they allow companies to continue polluting while claiming to balance out their emissions with supposed emission savings elsewhere or, increasingly, by promising to remove carbon from the atmosphere. The concept of balancing out business as usual emissions with supposed savings or removing carbon from the atmosphere is known as **'carbon offsetting'**. Carbon offsetting does not stop emissions, and will even increase them by allowing expansion of polluting activities. It is riddled with loopholes and negative impacts on peoples and territories (see BOX 2: CARBON OFFSETTING DOES NOT WORK).

When offsetting, a company looking to balance out its emissions pays someone else to forego planned damage to the climate. The carbon emissions calculated to have been saved by this operation are sold as credits or offsets to the company seeking to balance out its own emissions. One **carbon credit** represents savings equivalent to 1 tonne of carbon dioxide (CO₂).

These supposed carbon savings can be generated in two main ways: through projects that **prevent, avoid or reduce** emissions; and through projects designed to **remove** CO₂ from the atmosphere.

Most current offset projects are not of the type that removes CO₂ from the atmosphere: the vast majority of current offset credits are generated from projects claiming to avoid or reduce emissions.²⁰

Taking carbon out of the atmosphere is also being increasingly referred to as 'carbon removals'. Carbon removals are also highly problematic and cannot compensate for continued emissions, as recognised by the Intergovernmental Panel on Climate Change²¹ (see SECTION 5: NATURAL CARBON REMOVAL CANNOT SAVE THE DAY).

Carbon offsets and removals can take place through either natural or technical processes. **Many of the natural methods are known as 'nature based solutions'** or sometimes **'natural climate solutions'**. For example, a company can pay to avoid the destruction of a forest that was allegedly at risk of being cut down and in that way balance out some of its emissions. This would count as an 'avoided emissions' carbon offset. As another example, a company can pay someone to plant some extra trees which will take up carbon from the atmosphere as they grow.

20 Carbon Direct (2022) *Assessing the state of the voluntary carbon market in 2022*. <https://carbon-direct.com/2022/05/assessing-the-state-of-the-voluntary-carbon-market-in-2022/>

21 IPCC. 2022. *Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [P.R. Shukla, et al.(eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA. doi: 10.1017/9781009157926. Chapter 12, page 38.

Or it can request that farmers pursue methods that increase the amount of carbon stored in the soil. These two activities are increasingly being referred to as either ‘nature based solutions’ or ‘**natural carbon removals**’ and would count as a removal offset.²² Offsets from avoided/reduced emissions and removals are obviously not the same. But part of the strategy of corporations is to conflate the two (see BOX 3: CONFLATING CATEGORIES).

Not all carbon removal has to be for offsetting. It is absolutely necessary to stop deforestation, regenerate forest cover, improve soils and restore the Earth’s capacity to sequester carbon and build resilience to climate change. However as this report shows, even when not used as a way to balance out continued emissions, there can be dangers from carbon removal programmes such as land grabbing, dispossession and undermining of food sovereignty.

Significant problems with carbon offsetting are well documented and recognised — even by the offsetting industry itself (see BOX 2: CARBON OFFSETTING DOES NOT WORK). Recently, therefore, the emphasis has turned to carbon removals. This is making ‘nature based solutions’ even more important since the most plausible and available methods for carbon removal are trees and soils. Options that are not nature-based — such as capturing carbon and storing it underground or solar engineering — are extremely risky. Such techno-fixes may alter the climate in unforeseeable and uncontrollable ways; they currently exist mostly as ideas rather than real projects at scale. Where pilot projects do exist, they are proving highly energy-intensive, causing many negative impacts, and the carbon credits they generate are expensive. Technical carbon removals are not the subject of this report but have been written about extensively elsewhere.²⁶

Sun Biofuels jatropha plantation, Mozambique

© Nilza Matavel



BOX 1 WHAT PASSES AS A ‘NATURE BASED SOLUTION’ IS EXTREMELY VAGUE

It includes anything from planting trees, to restoring and protecting mangroves (‘blue carbon’), wetlands and peatlands, to increasing carbon storage in agricultural soils and closing off forests as above-ground carbon stores.²³ The concept of nature-based solutions²⁴ emerged around a decade ago from the international conservation sector, initially as a means to fund protected area programmes of large conservation organisations. The comforting wording (‘nature’ and ‘solution’) disguises a thoroughly technical and financial vision of nature as ‘natural capital’ that turns interconnected ecological functions into ecosystem ‘services’. The term ‘services’ itself taps into the capitalist principle that use of a service ‘naturally’ requires a financial payment to the provider of the service. US-based conservation groups, and The Nature Conservancy especially, use ‘nature-based solutions’ to market their REDD projects and of conservation initiatives as carbon offsets.²⁵

- 22 So-called “nature based solutions”, specifically “natural carbon removals”, differ from engineered solutions which are based on technology that remove carbon from the atmosphere, such as bioenergy with carbon capture and storage (BECCS) and direct air capture with carbon storage (DACCS). See *A Leap in the Dark: The Dangers of Bioenergy with Carbon Capture and Storage*, by Friends of the Earth International (2021). <https://www.foei.org/publication/bioenergy-carbon-capture-storage-beccs-report/>
- 23 REDD stands for ‘Reducing Emissions from Deforestation and the Degradation of Forests’. For more information see among others, World Rainforest Movement (2022) *15 years of REDD: A mechanism rotten at the core*. <https://www.wrm.org.uy/publications/15-years-of-redd-a-mechanism-rotten-at-the-core>
- 24 Friends of the Earth International (2021) *Nature based solutions: A Wolf in Sheep’s Clothing*. Position paper. <https://www.foei.org/publication/nature-based-solutions-a-wolf-in-sheeps-clothing/>
- 25 See, for example, The Nature Conservancy (undated): *Maya Forest Natural Climate Solutions. Mexico REDD+ Alliance*. <https://www.nature.org/en-us/about-us/where-we-work/latin-america/mexico/maya-forest/mexico-maya-forest-natural-climate-solutions/>; The Nature Conservancy (undated). *Perspectives Natural Climate Solutions. Case Studies*. https://www.nature.org/en-us/what-we-do/our-insights/perspectives/natural-climate-solutions/?tab_q=tab_container-tab_element_2108746048
- 26 See, for example, ETC Group & Heinrich Boell Foundation (2017) *The big bad fix. The case against climate geoengineering*. <https://www.boell.de/the-big-bad-fix> and web-portal Geoengineering-Monitor. <https://www.geoengineeringmonitor.org/>

BOX 2 CARBON OFFSETTING DOES NOT WORK

To achieve net zero emissions pledges companies heavily rely on offsetting. Yet offsetting has long been discredited.²⁷ Many studies have revealed how carbon offset projects exaggerate their emissions savings. This has to do with how they calculate avoided, reduced or removed CO₂ emissions.

Offset projects claiming to avoid deforestation are particularly prone to exaggerating emissions savings.²⁸ Working out how many emissions the project has allegedly prevented from being released into the atmosphere involves trying to predict how much deforestation would have taken place if the offset project had not existed. Most avoided emissions offset projects use deforestation rates in another area, a so-called reference region, to come up with this estimate. One way to inflate the alleged volume of avoided emissions is by choosing a reference region with far greater deforestation than is plausible for their own project area.²⁹ A project that thus inflates the hypothetical destruction in a world without the carbon project will claim to have prevented emissions that in reality would probably not have been released. The credits that the project sells will thus not represent an actual emissions avoidance. Yet a company buying such carbon credits can claim to be selling carbon neutral products and advertise itself as a net zero emissions business — based on such fake carbon credits.

The CEO of a US timber company recently admitted that his company had earned millions of dollars from selling carbon credits that did not represent any real emission reduction. The credits were based on the story that the company had reduced

the cutting down of trees on its property; what made the carbon credits worthless from a climate perspective is that the law prohibited the cutting of those trees anyway.³⁰ News agency Bloomberg Green and others have documented many more cases like this. One article describes how the conservation groups The Nature Conservancy and National Audubon Society have sold credits for protecting trees that were not in danger of being cut down, leading to misleading carbon neutrality claims by Walt Disney Company, JPMorgan Chase, and other companies.³¹ Another article describes how the largest carbon reforestation project in the US, GreenTrees, sold credits for trees that had already been planted through government programmes, sometimes more than a decade earlier. While the project developers claim that their carbon projects have been certified to adhere to carbon offset standards, a media article reports on “the distinct possibility that a great deal of existing carbon offsets are effectively fake”.³²

Another study assessed the likelihood that carbon credits from different types of projects that had been certified under the Clean Development Mechanism (CDM) represented actual emission reductions. The CDM is the carbon offset mechanism which came out of the 1997 UN Kyoto Protocol. The researchers estimated that approximately 75% of CDM offset credits sold into the EU carbon trading market were most probably ‘non-additional’, the technical term for saying that the emissions saving probably did not happen as claimed.³³ Research on conservation tillage practices (a popular carbon offset category on agricultural land) in the US found that only

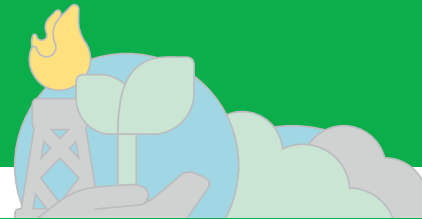
-
- 27 Videos mocking the idea have shown how ludicrous it is. See for example, *Carbon Offsets: Last Week Tonight with John Oliver (HBO)*. <https://youtu.be/6p8zAbFKpW0>; *Cheat neutral* https://www.youtube.com/watch?v=f3_CyDyDDpk and *Murder offsets* <https://www.youtube.com/watch?v=PQbYk1p2cn8>
- 28 Scientist Dr Elias Ayrey identifies 21 ways that forest carbon and tree planting offset projects can be used to cheat in this 16-minute video: <https://www.youtube.com/watch?v=bfj6EkyO77I>. See also World Rainforest Movement’s *10 things communities should know about REDD*: <https://www.wrm.org.uy/publications/10-things-communities-should-know-about-redd>
- 29 See for example, Carbon Plan (2021) *Systematic over-crediting of forest offsets*. <https://carbonplan.org/research/forest-offsets-explainer>; Song, L. (2019) *An even more inconvenient truth. Why carbon credits for forest preservation may be worse than nothing*. <https://features.propublica.org/brazil-carbon-offsets/inconvenient-truth-carbon-credits-dont-work-deforestation-redd-acre-cambodia/>
- 30 Elgin, B. (2022) *This timber company sold millions of dollars of useless carbon offsets*. Bloomberg UK. 20 March. <https://www.bloomberg.com/news/articles/2022-03-17/timber-ceo-wants-to-reform-flawed-carbon-offset-market>
- 31 Elgin, B. (2020) *These trees are not what they seem. How The Nature Conservancy, the world’s biggest environmental group, became a dealer of meaningless carbon offsets*. Bloomberg Green. For more information on the Audubon Society offset project, see: <https://www.propublica.org/article/a-nonprofit-promised-to-preserve-wildlife-then-it-made-millions-claiming-it-could-cut-down-trees>
- 32 Elgin, B. (2022) *Op cit*.
- 33 SEI (2015) *Has Joint Implementation reduced GHG emissions? Lessons learned for the design of carbon market mechanisms*. <https://www.sei.org/publications/has-joint-implementation-reduced-ghg-emissions-lessons-learned-for-the-design-of-carbon-market-mechanisms/>; and Oeko-Institute (2016). *How additional is the Clean Development Mechanism?* https://ec.europa.eu/clima/system/files/2017-04/clean_dev_mechanism_en.pdf

BOX 2 CARBON OFFSETTING DOES NOT WORK CONTINUED

about 50% of the credits were likely to be based on additional emission savings.³⁴ A study on forest carbon projects linked to the carbon market in California found that 82% of the carbon credits from projects the researchers analysed “likely do not represent true emissions reductions”.³⁵ They estimated that buyers of carbon credits from these projects could release an additional 80 million tonnes of CO₂ into the atmosphere because the credits were sold to companies with a legal limit on their greenhouse gas emissions. The carbon credits allow these companies to exceed that legal limit. Forest carbon projects in the Amazon region of Peru were also found to be selling “phantom credits”.³⁶ One report looking into 10 forest carbon projects in the Brazilian Amazon notes that the projects they analysed cannot prove that they have produced enough carbon savings to justify the bold claims made by the companies that bought the carbon credits.³⁷

The reports cited above³⁸ underscore why ‘high-quality forest offsets’ is an oxymoron: at the heart of each carbon credit lies the ultimately unverifiable story that the carbon project has avoided, reduced or removed emissions that, in a world without the carbon project, would have been accumulating in the atmosphere.

Forest carbon offset projects are not only a risk to the climate. They have also created countless conflicts where food sovereignty is being threatened when peasant and Indigenous Peoples’ use of their territories is restricted with the (false) claim that their use is putting the carbon stored in the forests at risk (see BOX 8: REDD STANDS FOR CONFLICTS).

**BOX 3 CONFLATING CATEGORIES**

Carbon credits that result from projects claiming to avoid or reduce the release of yet more emissions into the atmosphere are obviously not the same as offset credits that are derived from projects claiming to remove carbon dioxide from the atmosphere. There is a perceptible effort, however, by parts of the carbon offsetting industry and conservation NGOs to treat avoided emissions and natural carbon removal offsets as one category. This move comes at a time where, even among corporate carbon credit buyers, avoided emissions credits are being seen as posing a particular reputational risk as a result of widely reported exaggerated claims made about avoided emissions. Beyond the differences, however, as offsets, both categories share the inherent flaw of

offsetting: the calculation of the greenhouse gas emissions that will allegedly not interfere with the climate as a result of the offset project, is based on counter-factuals. Whether the allegedly saved or removed emissions would not also have been saved or removed in the absence of the carbon offset project, is thus ultimately an unverifiable claim of lesser or greater plausibility (see BOX 2: CARBON OFFSETTING DOES NOT WORK).

It is also important to note that, differences notwithstanding, all three approaches are a dangerous distraction because they are used by corporations to justify even more fossil fuel burning and deforestation.

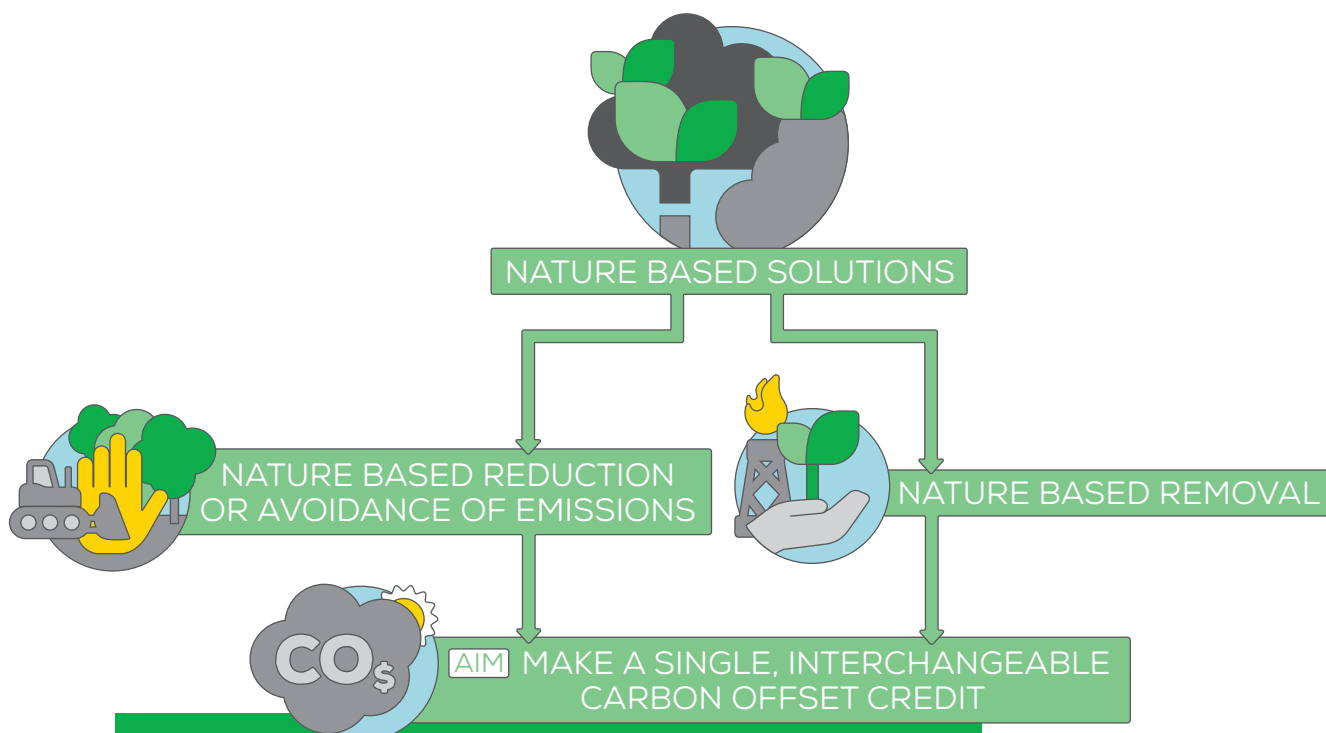
34 https://www.ers.usda.gov/webdocs/publications/45244/48525_err170.pdf

35 https://gspp.berkeley.edu/assets/uploads/research/pdf/Policy_Brief-US_Forest_Projects-Leakage-Haya_2.pdf. See also Song, L. and Temple, J. (2021) *The Climate solution actually adding millions of tons of CO₂ into the atmosphere*. ProPublica and MIT Technology Review. <https://www.propublica.org/article/the-climate-solution-actually-adding-millions-of-tons-of-co2-into-the-atmosphere>

36 <https://redd-monitor.org/2021/11/22/verified-hot-air-how-a-popular-carbon-offset-project-in-peru-has-taken-tens-of-millions-of-dollars-from-hundreds-of-companies-and-individuals-but-done-nothing-to-prevent-climate-change/>

37 <https://unearthed.greenpeace.org/2021/05/04/carbon-offsetting-british-airways-easyjet-verra/>

38 The reports cited here are but a small selection of those documenting contradictions and dubious assumptions that routinely lead to the alleged carbon savings of offset projects being exaggerated. The web portal REDD-Monitor provides a vast archive of such reports: www.redd-monitor.org



BOX 4 WHAT DOES A CARBON CREDIT LOOK LIKE?

If a company wants to market its products as carbon neutral or present itself as a net zero emissions company, even though it is still using fossil fuels or destroying forests, it can pay someone claiming to be avoiding the planned release of emissions or removing carbon from the atmosphere. The project also has to demonstrate that the extra payment from the sale of carbon credits is what made the offset project possible, that without this extra income from carbon credit sales, the offset project would not have happened.

The project calculates how many emissions are avoided or how much carbon is removed from the atmosphere as a result of the offset project and, based on this calculation, issues carbon credits. Each **carbon credit** or **carbon offset** represents 1 tonne of CO₂ equivalent³⁹ that has not been emitted or has been removed from the atmosphere. The company buys the amount of carbon credits required to cancel out — or 'offset' — its emissions and receives a list of serial numbers that it can use to market its product or services as **carbon neutral** or claim to be operating a **net zero emissions business**.

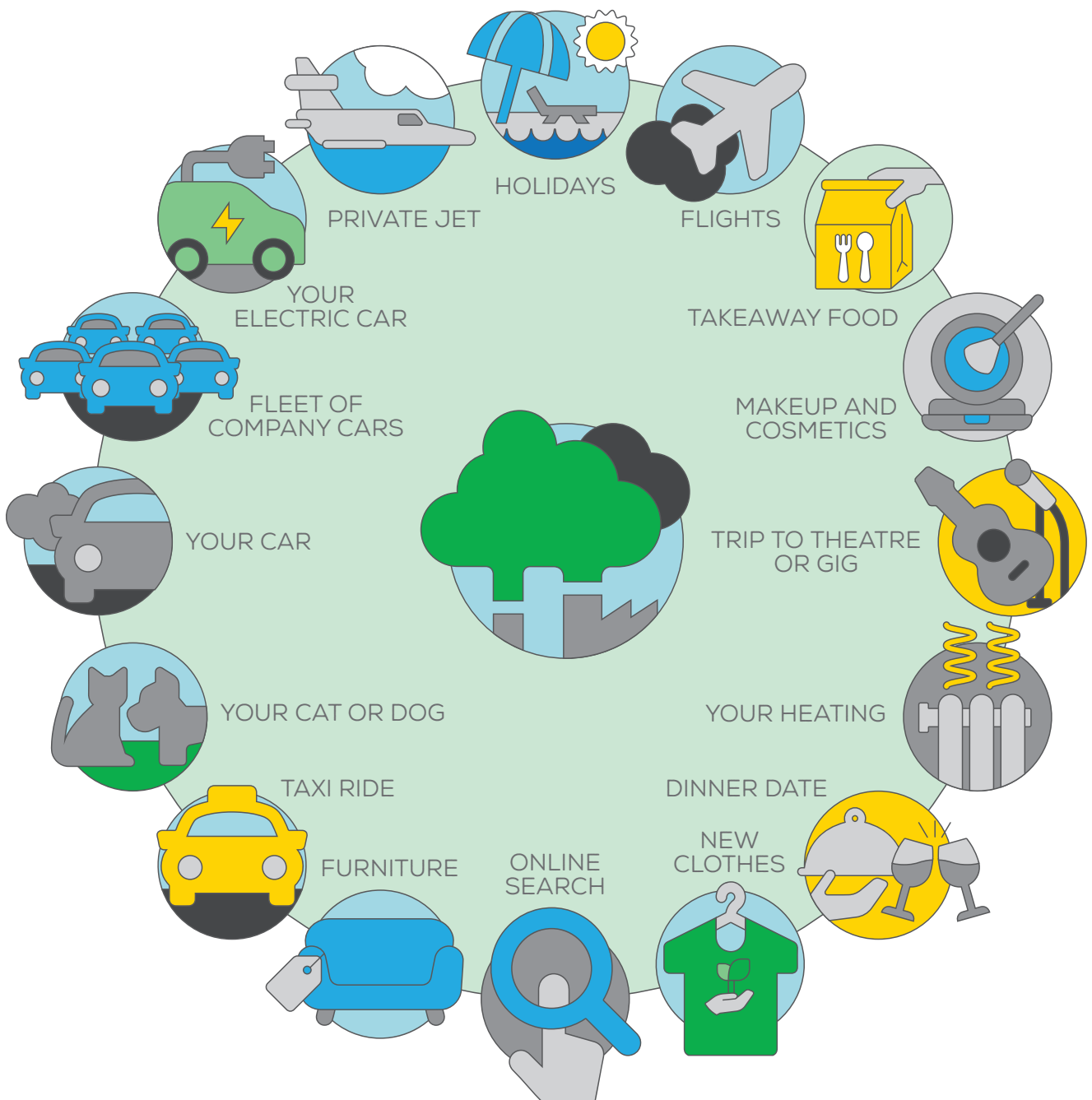
39 Equivalent because the Intergovernmental Panel on Climate Change has approved a set of calculations that enables comparison between the widely differing impact that different greenhouse gases have on the climate. The greenhouse gases that have been rendered equivalent this way are carbon dioxide, methane, nitrous oxide and some artificial fluorinated gases. The basis for comparison is the climate impact of the most common greenhouse gas, carbon dioxide (CO₂) over 100 years, hence the expression carbon dioxide equivalent or CO₂e. Methane, for example, has been calculated to have a global warming potential 21 times higher than carbon dioxide. This means that a company can offset its methane emissions by buying 21 carbon offsets for each tonne of methane emitted. For a critique of these equivalences, see among others Lohmann, L. (2009) *Neoliberalism and the calculable world. The rise of carbon trading*. EN and ES. <http://www.thecornerhouse.org.uk/resource/neoliberalism-and-calculable-world>

AN ARRAY OF COMPANIES ARE NOW CLAIMING THAT YOU CAN MAKE YOUR ACTIVITIES 'CARBON NEUTRAL'

THIS MAKES IT SEEM LIKE WE CAN CARRY ON EMISSIONS-HEAVY ACTIVITIES
AS USUAL, BY MAKING UP FOR IT WITH OFFSETS AND REMOVALS

HERE ARE JUST SOME PRODUCTS FOR WHICH YOU CAN BE OFFERED OFFSETS

WHERE ARE ALL THE OFFSETS COMING FROM?



CORPORATE NET ZERO PLEDGES HIDE FOSSIL FUEL EXPANSION AND THE AGROINDUSTRY'S GROWING CLIMATE FOOTPRINT

2

With a net zero emissions pledge, a company can go on burning fossil fuels, destroy forests to expand soy or oil palm plantations, or produce vast amounts of methane emissions⁴⁰ from intensive animal farming and claim that, on balance, it is not damaging the climate. Net zero emission pledges are thus, above all, designed to protect business as usual — company profits.⁴¹

But the danger from net zero emissions pledges goes beyond the fact that they divert attention from the need to drastically and rapidly reduce actual corporate emissions (not just cancel them out on paper). These pledges make the politics, violence, social and ecological destruction of fossil fuel burning and industrial farming invisible. They do so by reducing all that damage to numbers representing carbon dioxide molecules.

EXAMPLES OF CORPORATE 'NET ZERO' PLEDGES

2.1

More than 1,500 corporations have made net zero emissions commitments in recent years.⁴² They include fossil fuel corporations BP, Shell and Total, tech giants Microsoft and Apple, retailers Amazon and Walmart, banks and investors HSBC, Bank of America and BlackRock, airlines KLM and Delta and industrial food corporations JBS, Nestlé and Cargill. None of these corporations has pledged to stop burning fossil fuels or change their core business model.

Oil and gas company Eni, for example, promotes its commitment to “protecting and conserving forests” prominently on its website. The company emphasizes the importance of forests as carbon stores. Yet Eni has not made a similar commitment to protect and conserve the underground fossil carbon stores under its direct control. The company will continue to destroy those as it plans to still use fossil gas for 90% of its energy production by 2050.⁴³



Irrigation of celery crop monoculture in California © iStock

- 40 See footnote 26 for how the IPCC definition of equivalences between different greenhouse gases allows companies to offset methane emissions from industrial farming with carbon credits from offset projects claiming to avoid deforestation or plant extra trees to remove carbon from the atmosphere. The definition of equivalences between different greenhouse gases also means companies can generate 21 carbon credits for each tonne of methane they claim to have prevented from going into the atmosphere, for example by capturing the methane from slurry ponds in a biodigester that turns the methane into gas that can be used for cooking or heating. See for example, Byrne, J. (2021) *Climate neutrality is in reach for the US beef and dairy sectors*. <https://www.feednavigator.com/Article/2021/07/28/Climate-neutrality-is-within-reach-for-the-US-beef-and-dairy-sectors>
- 41 ETC Group (2021) *No to Nature-based Solutions!* <https://www.etcgroup.org/content/no-nature-based-solutions>. Videos of the press conference where the statement was launched are available at <https://www.wrm.org.uy/multimedia/watch-the-press-conference-no-to-nature-based-solutions>
- 42 See Table A few examples of the many flaws of Big Polluter “net zero” climate plans in the 2021 report *The Big Con* by Friends of the Earth International, Corporate Accountability, Corporate Europe Observatory and Global Forest Coalition. https://www.foei.org/wp-content/uploads/2021/06/The-Big-Con_EN.pdf
- 43 Eni (2022) Eni for 2021. *Carbon Neutrality in 2050*. <https://www.eni.com/assets/documents/eng/just-transition/2021/eni-for-2021-carbon-neutrality-2050-eng.pdf>

Total, Shell and BP also continue to invest massively in destroying underground fossil carbon stores. In June 2022, Total announced that it had acquired 49% of the shares in the Gabonese logging company Compagnie des Bois du Gabon (CBG), with the explicit intention to generate carbon credits from the logging operation.⁴⁴ The fossil fuel industry short term plans

include 195 gigantic oil and gas projects that would each result in at least a billion tonnes of CO₂ emissions over their lifetimes.⁴⁵ Shell, for example, writes on its website that “[n]ature-based solutions can make a big contribution” to the company’s ambition to “be a net-zero emissions energy business by 2050, or sooner”.⁴⁶

MORE THAN 1500 CORPORATIONS HAVE MADE 'NET ZERO' EMISSIONS COMMITMENTS IN RECENT YEARS

MANY OF THE SAME CORPORATIONS ALSO COMMIT TO USING
'NATURE BASED SOLUTIONS' TO ACHIEVE THIS GOAL



44 TotalEnergies (2022) *Gabon: TotalEnergies and Compagnie des Bois du Gabon Join Forces to Develop a New Forest Management Model Combining Wood Production and Carbon Sinks*. <https://totalenergies.com/media/news/press-releases/gabon-totalenergies-and-compagnie-des-bois-du-gabon-join-forces-develop>

45 Guardian (2022) *Revealed: the 'carbon bombs' set to trigger catastrophic climate breakdown*. <https://www.theguardian.com/environment/ng-interactive/2022/may/11/fossil-fuel-carbon-bombs-climate-breakdown-oil-gas>

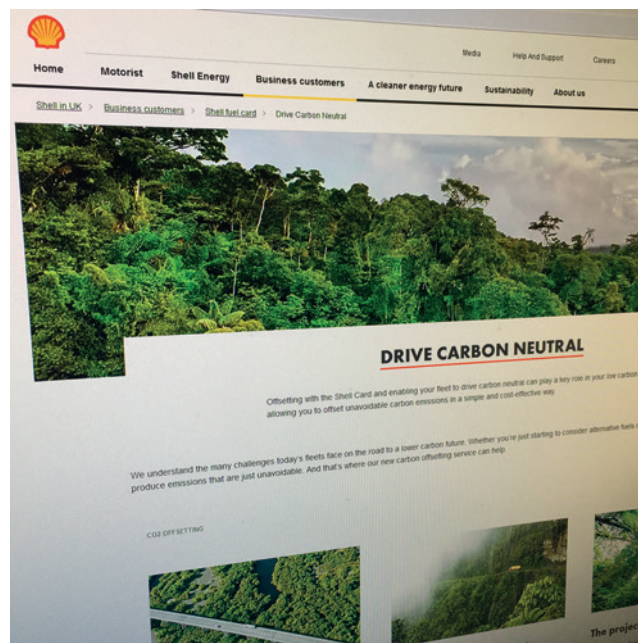
46 Shell. Nature-based solutions webpage. <https://www.shell.com/energy-and-innovation/new-energies/nature-based-solutions.html#iframe=L3dIYmFwcHMvRVBUQi1OQIMtR2xvYmUv>

BOX 5 FOSSIL FUEL INDUSTRY LAUNCHES OIL AND GAS CLIMATE INITIATIVE AT CLIMATE COP26

Just ahead of the UN COP26 climate conference in Glasgow in October 2021, fossil fuel corporations including Shell, Chevron, Eni and BP launched the *Oil and Gas Climate Initiative*. Describing itself as “a CEO-led initiative that aims to accelerate the industry response to climate change” and representing around 30% of global oil and gas production, the initiative announced its commitment to net zero fossil fuel emissions.⁴⁷ Because net zero is not zero, the pledge will allow the members of the initiative to continue to destroy fossil carbon stores underground as long as they can present a balance sheet where fossil carbon emissions are cancelled out by an equivalent volume of carbon credits.

Like the fossil fuel producers, big fossil fuel users such as airlines and IT companies also used the UN climate conference in Glasgow to market their net zero climate pledges. Microsoft, named a principal partner of COP26 by the UK government, is claiming to become ‘carbon negative’ by 2030 (promising to remove more carbon from the atmosphere than its operations emit). At the same time, the company’s energy footprint grows as it expands data collection and storage in gigantic server stations and sells software that helps fossil fuel companies locate and extract oil and fossil gas.⁴⁸

Yara, the world’s largest producer of synthetic fertiliser, used the Glasgow COP to downplay the climate impact of nitrogen fertilisers, a key source of the potent greenhouse gas nitrous oxide (N₂O).⁴⁹ A scientific article published just ahead of COP26 had highlighted the growing climate impact of nitrous oxide emissions linked to the application of nitrogen



An example of carbon offsetting on Shell's website

fertiliser.⁵⁰ Nitrous oxide emissions have increased by 30% over the past four decades, with nitrogen fertiliser believed to be the source of around 10% of direct greenhouse gas emissions worldwide.⁵¹ Earlier in 2021, Yara had set up the Agoro Carbon Alliance which, according to its website, is “taking action on a global scale to reverse the effects of climate change by decarbonising farming and restoring carbon to the world’s soil.” Through the initiative, Yara also enrolls farmers in a programme in India that generates carbon credits (see CHAPTER 6.3).⁵²

Net zero emissions pledges by the financial industry include the Glasgow Financial Alliance for Net Zero, a coalition of 450 financial companies such as J.P. Morgan, Goldman Sachs, and Santander. They are committing to global net zero emissions from their investments by 2050. Yet, they all continue to fund fossil fuel extraction on a massive scale. Between 2016 and 2019 JP Morgan alone provided

47 OGCI (2022) *All OGCI member companies have announced net zero ambitions*. <https://www.ogci.com/all-ogci-member-companies-have-announced-net-zero-ambitions/>

48 Deutsche Welle (2021) *Corporate CO₂ targets: Greenwashing or genuine climate action?* [https://www.dw.com/en/corporate-CO₂-targets-greenwashing-or-genuine-climate-action/a-59861619](https://www.dw.com/en/corporate-CO2-targets-greenwashing-or-genuine-climate-action/a-59861619)

49 Yara (2021) *28 companies pledge to accelerate use of decarbonized hydrogen at COP26*. November. Archive URL: <https://archive.ph/wip/pNabZ>. See also, Yara (2017) *Ammonia emissions: Clean air, strong crops*. November. <https://www.yara.com/globalassets/pure-nutrient--ammonia/reducing-ammonia-emissions-from-agriculture.pdf>

50 Tian, H. et al (2020) *A comprehensive quantification of global nitrous oxide sources and sinks*. *Nature*, Vol 586, pp 248–256. <https://www.nature.com/articles/s41586-020-2780-0>

51 IATP (2021) *Magical thinking on fertilizer and climate change*. <https://www.iatp.org/magical-thinking-fertilizer-and-climate-change>

52 DeSmog magazine (undated) *Yara*. <https://www.desmog.com/agribusiness-database-yara/>

US\$102 billion in financing to oil and gas companies that are *expanding production*, and over US\$268 billion to fossil fuel companies overall.⁵³

The food corporation Nestlé has developed a “Net Zero Roadmap”. In this, it hides the emissions that will result from projected growth of 68% in its sourcing both of dairy and animal products and of commodity crops between 2020 and 2030.⁵⁴ While the Roadmap highlights emission reductions of 50% by 2030, the company will rely heavily on carbon offsetting to achieve ‘net zero’ operations by 2050. Nestlé estimates that it will need to offset 13 million tonnes of greenhouse gas emissions

per year by 2050 to fulfil its Roadmap, roughly the total annual emissions for a small country like Latvia.⁵⁵

Many industry associations and governments also used COP26 to announce or update their net zero emissions pledges. The EU pledged to reduce net greenhouse gas emissions by at least 55% by the year 2030; the US government committed to cut *net emissions* by 50% by the same year. The government of India announced that the country would become carbon neutral by 2070 and the government of China committed to carbon neutrality by 2060.

BOX 6 ‘NET ZERO DEFORESTATION’

Many agribusinesses with net zero emissions pledges are also committing to ‘net zero deforestation’ in their supply chains, with seemingly little intention to end the forest destruction for which they are responsible. In fact, many companies now committing to net zero deforestation had already signed up to the New York Forest Declaration which promised to “cut natural forest loss in half by 2020, and strive to end it by 2030”. It spectacularly failed.⁵⁶

JBS Holdings is one of the companies that has reneged on grand pledges before. The world’s largest meat processor openly admits in its climate pledge to 2040 that it contributes to illegal deforestation as part of its current operations. The company promises to eliminate illegal deforestation in its supply chain by 2025. In other words, the company plans to condone illegal deforestation for another three years. It is not the first time JBS has made that promise. The company failed to deliver on a similar commitment made in 2009. Their new pledge reveals that the company plans to continue operations which drive deforestation around the

world for a further 14 years, promising to end deforestation only in 2035. A recent investigation showed that JBS and other meat processing companies purchased cattle linked to the 2020 fires in the Pantanal region of Brazil, the world’s largest contiguous wetland.⁵⁷

While global food corporations such as Unilever, Nestlé, Cargill, Marfrig and JBS make new promises and claim that ‘nature based solutions’ are important to tackle climate change, they continue to sell products linked to deforestation.⁵⁸ Their business model has been driving large-scale deforestation for decades, turning forests into soy plantations, oil palm monocultures and cattle pastures. A substantial part of the 12.2 million hectares of forest destroyed in 2020 was connected to the expansion of export commodity crop frontiers.⁵⁹ Add to these deforestation emissions the industrial food sector’s massive releases of methane and nitrous oxide, and the need for a systemic change in the way we produce, distribute and consume food becomes even more evident.

53 Rainforest Action Network (2022) *Banking on Climate Chaos 2020 report*. https://www.ran.org/wp-content/uploads/2020/03/Banking_on_Climate_Change__2020_vF.pdf

54 GRAIN (2021) *Corporate greenwashing: “net zero” and “nature-based solutions” are a deadly fraud*. <https://grain.org/en/article/6634-corporate-greenwashing-net-zero-and-nature-based-solutions-are-a-deadly-fraud#sdfootnote18sym>

55 Ibid.

56 REDD Monitor (2019) *Hate to say I told you so, but the New York Forest Declaration has utterly failed to stop deforestation*. <https://redd-monitor.org/2019/09/19/hate-to-say-i-told-you-so-but-the-new-york-forest-declaration-has-utterly-failed-to-stop-deforestation/>

57 IATP (2021) *Behind the curtain of the JBS net zero pledge*. <https://www.iatp.org/documents/behind-curtain-jbs-net-zero-pledge> incl. footnotes 23,24,25.

58 See case studies about the flaws of net zero emissions plans presented by JBS, Shell and Total in the 2021 report *The Big Con* by Friends of the Earth International, Corporate Accountability, Corporate Europe Observatory and Global Forest Coalition. https://www.foei.org/wp-content/uploads/2021/06/The-Big-Con_EN.pdf

59 <https://www.wri.org/insights/pledges-action-whats-next-cop26-corporate-commitments>

NET ZERO PLEDGES ARE BOOSTING FAILING CARBON OFFSET MARKETS

Since 2019 net zero emissions pledges have given a boost to the carbon offset market. As emissions continue to rise with continued corporate growth, demand for carbon credits to satisfy an increasing number of net zero emissions pledges has been rising rapidly.

Despite the systemic and well-documented failure of carbon offsetting to help end rising greenhouse gas emissions, the financial industry and corporate leaders have been pushing various initiatives with the aim of ensuring that carbon markets will be able to meet this growing corporate demand for carbon credits.

In the run-up to COP26 the UK government supported the creation of a Taskforce on Scaling Voluntary Carbon Markets, headed by the former head of the Bank of England, Mark Carney. Members of the taskforce working groups include BP, Shell, Total and EasyJet as well as carbon traders and carbon market standard developers such as South Pole, Natural Capital Partners, Verra, First Climate, EcoAct, ClimateCare and food companies including Unilever, Nestlé and Bunge.⁶⁰ The taskforce set out to “**significantly scale up voluntary carbon markets**”, arguing that voluntary carbon markets needed to grow more than 15-fold by 2030 to meet corporate demand for carbon credits arising from carbon-neutral and net-zero emissions commitments.⁶¹

Reflecting growing recognition of what proponents of offsetting describe as a fundamental lack of high-quality offsets, the taskforce’s ambition was significantly scaled back following COP26, and its focus has shifted to deliberations on the quality rather than quantity of carbon offsets.⁶² By then, however, the taskforce had served its purpose of **diverting attention at one more COP away from debate about binding and time-bound action plans to end fossil fuel burning**. The taskforce was used by the presiding UK government to lend legitimacy to voluntary corporate and government net zero emissions pledges that dominated the news and diverted attention away from governments’ failure to commit to real climate action and fossil fuel phase-out.

Another initiative, The REDD+ Environmental Excellence Standard (ART-TREES), is developing proposals to repackage and expand the use of REDD+ credits. It is being used by the Lowering Emissions by Accelerating Forest (LEAF) finance coalition which includes fossil governments (US, UK, and Norway) and corporations interested in carbon finance for, and offsetting from, tropical forests.



Protesting REDD+ at the COP21 in Paris

© Victor Barro/Friends of the Earth Spain

60 Cooke, P (2021) *Industry-Backed Taskforce Recommendations on Carbon Markets Could be 'Dangerous Distraction'*. <https://www.desmog.com/2020/11/12/voluntary-carbon-market-taskforce-could-prove-dangerous-distraction-crucial-climate-targets-green-groups-claim/>

61 <https://redd-monitor.org/2020/11/27/redd-monitors-incredibly-important-perspective-on-the-taskforce-on-scaling-voluntary-carbon-markets-the-taskforce-is-madness/>

62 For more information, see *Fossil futures built on a house of cards*, by Friends of the Earth International. June 2022.

'NATURE BASED SOLUTIONS' AND NATURAL CARBON REMOVALS – A RISING THREAT OF LAND GRABBING

3

Many net zero pledges are probably best understood as **political tactics**. The pledges are made to delay time-bound regulation to tackle the ecological crisis rather than commitments made with the intent to fulfil them. Even so, because of their heavy reliance on carbon credits generated through projects branded as 'nature based solutions', the pledges are already triggering a new rush for land. According to the influential UN Principles for Responsible Investment (PRI) initiative, the new financial value that net zero emissions pledges put on land could provide much-needed growth in the finance sector: "The total [nature-based solutions] market value potential is estimated to be US\$7.7 trillion... This opens up enormous new opportunities for both project developers and investors."⁶³

Corporate net zero emissions initiatives that refer explicitly to 'natural climate solutions' include those

of BP, Chevron, Equinor, Total, Shell, Eni, BHP, Dow Chemical Company, Bayer, Boeing, Microsoft, Novartis, Procter and Gamble, HSBC, Woodside Energy, International Paper, Olam, Coca-Cola, Danone, Unilever, Mars, the World Business Council on Sustainable Development and the World Economic Forum. The list shows a significant overlap with 33 corporations with which the US-based conservation group The Nature Conservancy has partnerships to "invest in nature" (Shell, Amazon, Coca Cola, Nestlé, Cargill, Syngenta, BHP Billiton, among others).⁶⁴

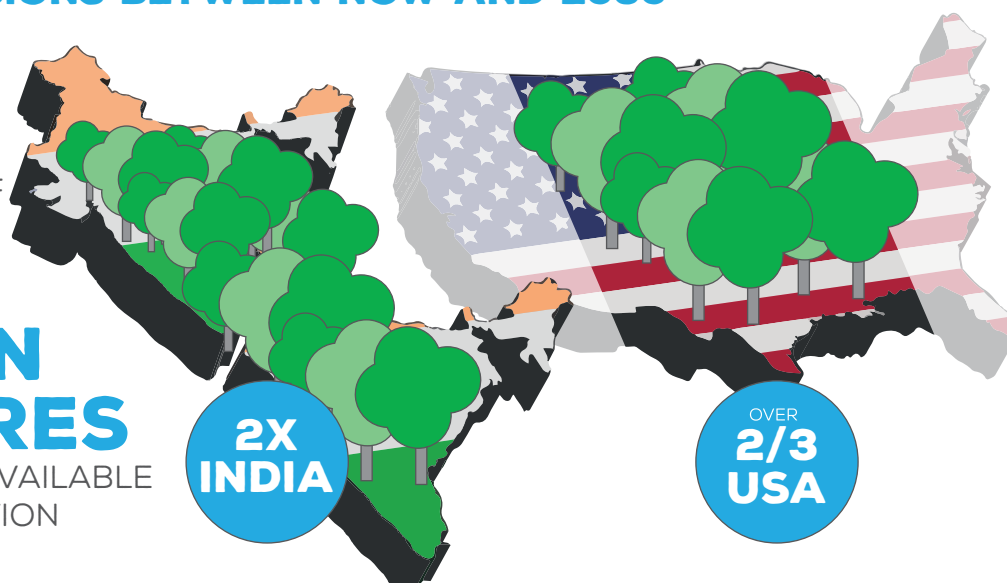
In 2017, a paper on 'natural climate solutions'⁶⁵ led by authors associated with The Nature Conservancy advanced the claim that 'nature based solutions'⁶⁶ could help mitigate up to 37% of greenhouse gas emissions by 2030. The calculations in the paper are based on a range of assumptions which, on closer inspection,

A PAPER ON NATURAL CLIMATE SOLUTIONS ADVANCED THE CLAIM THAT THEY COULD HELP MITIGATE UP TO 37% OF EMISSIONS BETWEEN NOW AND 2030

IT SUGGESTS THAT AN AREA OF

678 MILLION HECTARES

IS POTENTIALLY AVAILABLE FOR REFORESTATION



63 UN PRI (2020) *The inevitable forest finance response: investor opportunities*. <https://www.unpri.org/inevitable-policy-response/the-inevitable-forest-finance-response-investor-opportunities/5906.article>

64 Schmidlehner, M. (2022) *Nature-based Solutions: miraculous weapon to save the climate or "final solution" for forests and their peoples?* <https://www.wrm.org.uy/NBS-miraculous-weapon-save-climate-or-final-solution-forests>

65 Griscom et al (2017) *Natural climate solutions*. PNAS. Vol. 114. no. 44. 11645–11650.

66 The Nature Conservancy calls them "Natural Climate Solutions".

appear to be technically problematic, implausible, and politically unrealistic.⁶⁷ For example, it suggests that an area of 678 million hectares is potentially available for reforestation. This is twice the area of India, or more than two-thirds that of the United States. The paper also proposes approximately 14 million hectares of additional tree plantations mainly in the tropics, to ensure reforestation is commercially viable. Despite such incredible claims, the paper continues to be referred to as *the* scientific source showing the potential of 'nature based solutions' in tackling climate change, and is cited in UN reports.⁶⁸

In 2021 an area of Scotland equivalent to two-thirds the size of the city of Glasgow changed hands when investment funds and companies bought a total of 16,700 hectares with the intention to use it for carbon storage.⁶⁹ In total there are around 790 carbon credit projects involving land in Scotland, covering an area of 63,453 hectares, nearly 1% of its land area.⁷⁰ In Wales, farmers report being cold-called by property investors seeking to buy land for tree planting to offset greenhouse gas emissions.⁷¹ Farmland price increases are pushing land beyond the financial means of communities with longstanding ties to the

land, and threaten local employment where families gain only a modest income from farming.⁷²

On the other side of the world in Malaysia, the State Attorney General of Sabah declared as invalid a nature conservation agreement which the state's deputy chief minister had signed with a private Singapore-based company. The agreement had been negotiated in secret in October 2021 and covered all the state's remaining forests — 4.9 million acres, for 100 years. Communities living in Sabah, including the states, many indigenous peoples, knew nothing about the deal till it was reported by the news website Mongabay. It included a carbon offset deal that could have seen the private company pocketing up to US\$80 billion from carbon sales over the 50 years of the agreement.^{73 74}

Some oil companies have already become direct participants or shareholders of REDD projects (Eni) or logging companies (Total) as a way to secure the supply of 'nature based solutions' credits. Eni joined the management of the Luangwa Community Forests Carbon Project in Zambia which describes itself as the largest REDD project on the African continent.⁷⁵ In June 2022, TotalEnergies said it had taken a 49% stake



STATED AMBITION

OFFSET THE EQUIVALENT OF
13 MILLION TONNES
 OF CARBON DIOXIDE EMISSIONS EACH YEAR
 WITH 'NATURE BASED SOLUTIONS'

COULD REQUIRE

PLANTING TREES ON AT LEAST
4.4 MILLION HECTARES*
 OF LAND
EVERY YEAR *44000 KM²



- 67 REDD-Monitor (2019) *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/>
- 68 UN News (2019) *Nature 'one of most effective ways' of combatting climate change*. 19 September. <https://news.un.org/en/story/2019/09/1046752>
- 69 Financial Times (2022) *Carbon capture pitches smallholders against big business*. <https://www.ft.com/content/2ae63752-cefd-45b9-9282-a97584cc2cb2>
- 70 The Ferret (2022) *Mapping the green rush: Scotland's carbon credit sites*. <https://theferret.scot/mapping-the-green-rush-scotland-carbon-credit-sites/>
- 71 Catrin Haf Jones (2022) *Climate change: Cold callers shock farmers with tree-plant plea*. BBC News. <https://www.bbc.com/news/uk-wales-60125398>
- 72 Financial Times (2022) *Carbon capture pitches smallholders against big business*. <https://www.ft.com/content/2ae63752-cefd-45b9-9282-a97584cc2cb2>
- 73 <https://www.sarawakreport.org/2022/02/state-ag-has-pulled-the-plug-on-sabahs-80-billion-carbon-credit-debacle-so-where-does-that-leave-the-copy-cat-plan-by-abang-jo/>
- 74 Al Jazeera (2022) *'Very hush-hush': Borneo's \$80bn carbon deal stokes controversy*. <https://www.aljazeera.com/economy/2022/2/2/very-hush-hush-borneos-80bn-carbon-deal-stokes-controversy>
- 75 See for example, Greenpeace Italy (2021) *The Luangwa Community Forests Project (LCFP) in Zambia. A review of the biggest REDD+ project in Africa financed by the Italian oil and gas company ENI*. 2021. https://www.greenpeace.org/static/planet4-italy-stateless/2021/06/719f406b-gp-lcfp_scientific-report_english-version-1.pdf

in the Gabonese logging company Compagnie des Bois du Gabon (CBG). The press release announcing the deal specifically refers to the generation of carbon credits: "The forest management model applied by the partners will make it possible to develop a new balance between, on the one hand, the harvesting and local processing of sustainable wood combined with carbon storage and, on the other, the production of related carbon credits thanks to the reduced impact of forest operations, reforestation, agroforestry and conservation of natural forests."⁷⁶

Even if only a fraction of the corporate pledges are pursued through 'nature based solutions', it will significantly deepen and expand corporate control over land used for family and peasant farming and will drive a huge land and soil grab because of the sheer scale of emissions released by corporations.

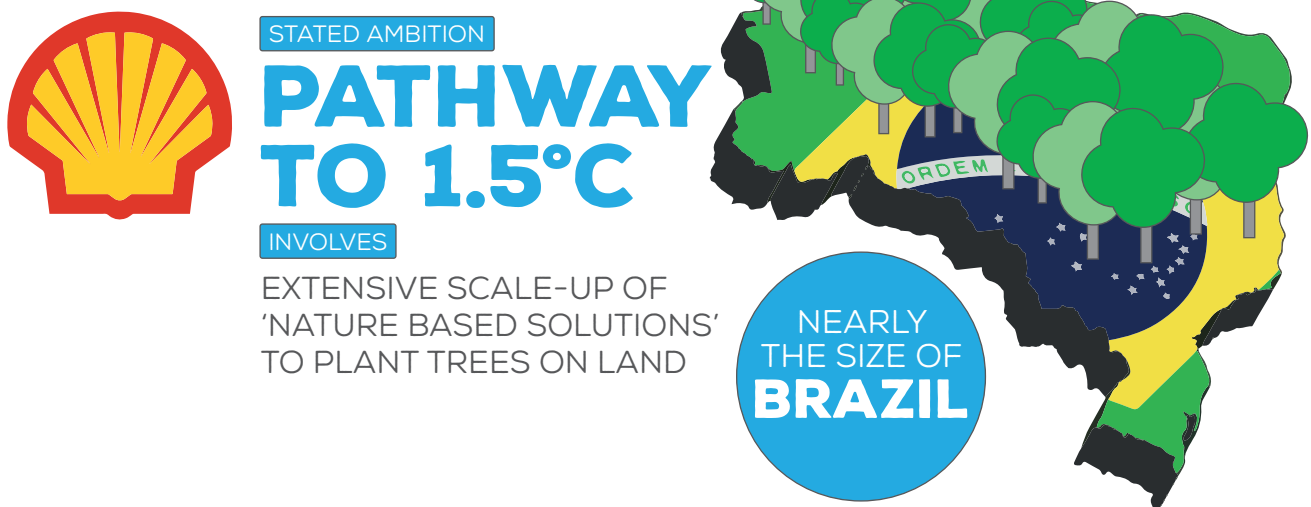
It has been estimated that only Nestlé meeting its stated ambition to offset the equivalent of 13 million tonnes CO₂ emissions each year with 'nature based solutions' could require planting trees on at least 4.4 million hectares of lands every year.⁷⁷

Shell estimates that it will need to offset 120 million tonnes CO₂ per year by 2030, stating that it expects many of these to come from 'nature based solutions' offset projects. In July 2022 the company invested US\$38 million in the Brazilian carbon offset developer Carbonext, securing preferential access to Carbonext carbon credits.⁷⁸ An analysis of Shell's pathway to 1.5 degrees shows that it is essentially the same as its 2 degree pathway, but with an added plan to "extensive scale-up of nature-based solutions", specifically planting trees over an "area approaching that of Brazil".⁷⁹

As climate chaos deepens, 'nature based solutions' stand to threaten food sovereignty: the drive to use land for carbon storage at the scale required will trigger a new wave of dispossession among small-scale food producers including indigenous peoples, forest communities, fisherfolks and many others. Experience with carbon markets over the past two decades shows that offset projects now promoted as 'nature based solutions' will likely increase external control over land-use decisions, as even more land will have to be managed in line with corporate net-zero priorities.

Promoters of 'nature based solutions' claim that we will need to intensify food production on existing land and in doing so, free up land for 'nature based solutions' and carbon sequestration. This argument, known as 'land sparing', has been used by the agribusiness industry for years to provide legitimacy for 'sustainable intensification' approaches such as expanding the use of genetically modified crops, continued use of fertilisers and pesticides or intensifying animal production. Yet, such an approach would drive up emissions from the industrial food sector and worsen other negative impacts.

On the other hand, agroecology — a real solution to transform food systems away from the industrial model towards food sovereignty — is increasingly being co-opted into the concept of 'nature based solutions'.



76 TotalEnergies (2022) *Gabon: TotalEnergies and Compagnie des Bois du Gabon Join Forces to Develop a New Forest Management Model Combining Wood Production and Carbon Sinks*. <https://totalenergies.com/media/news/press-releases/gabon-totalenergies-and-compagnie-des-bois-du-gabon-join-forces-develop>

BOX 7 'NATURE BASED SOLUTIONS': REBRANDING AND EXPANDING THE DISCREDITED REDD CONCEPT

REDD is the abbreviation in English for Reducing Emissions from Deforestation and Degradation of forests. It started from the assumption that offering financial rewards will convince those responsible for destroying forests to drop their plans. REDD would make trees worth more standing than cut down and so provide a rapid and cheap way of reducing greenhouse gas emissions.

But corporations and institutions that pocket billions from destroying forests were not interested in REDD — some because they could earn much more if they continued to destroy forests to set up soy or oil palm plantations; others because their deforestation was illegal. Or they engaged in deforestation mainly as a way of claiming ownership to land, in which case the promise of REDD payments was of little interest because their primary motivation to clear land was not immediate financial profit.

The concept was introduced into the UN climate negotiations in 2005 with the promise that it would lead to rapid and cheap reduction of emissions from tropical forest destruction. It has failed to drive down global deforestation levels.

REDD has also created conflict and increased corporate control over land cultivated by forest peoples and peasant communities. The story that “slash-and-burn” agriculture is destroying the forest, that peasant and family farming is causing deforestation and that forest peoples’ cultivation practices need to be ‘modernised’ is — despite being false — even more widely accepted today than it was 15 years ago. REDD has thus had devastating consequences where forest peoples and peasant communities have seen techniques such as shifting cultivation and the use of controlled burns restricted or

prohibited because it is claimed, falsely, that these traditional practices drive deforestation. And because almost all REDD activities focus on changing how peasants and forest peoples use forests, not on large-scale deforestation, REDD has made corporate destruction less visible. As a result, large-scale deforestation driven by industrial land users has continued unhindered by REDD. Unsurprisingly, deforestation rates have been rising, particularly where the ill-suited REDD approach has replaced proven approaches to curbing forest loss, such as demarcation of indigenous territories and law enforcement.

Activities pioneered for the past 15 years under the discredited REDD / REDD+ approach have recently been rebranded as ‘nature based solutions’. An initiative called LEAF is a central part of this rebranding. LEAF is the acronym in English for Lowering Emissions by Accelerating Forest finance. It was launched by the US, UK and Norway at the US government’s Leaders’ Summit on Climate on Earth Day 2021. LEAF set out to “become one of the largest ever public-private efforts to protect tropical forests”. Its focus is to enable the sale of carbon credits from ‘nature based solutions’. Emergent, a company set up by the US NGO Environmental Defense in 2019, coordinates LEAF, whose corporate members include Amazon, GlaxoSmithKline, Bayer, E-on, PwC, Delta Airlines, Unilever, Salesforce, McKinsey, Nestlé, Airbnb, WalMart and Boston Consulting Group. The threat of LEAF triggering a global land grab and violation of forest peoples’ rights is palpable. “The nub of the issue is that LEAF further incentivises governments to assert state ownership over carbon rights [and] capture the benefits of the trade”, the Rights and Resources Initiative warns.⁸⁰

- 77 GRAIN (2021) *Corporate greenwashing: “net zero” and “nature-based solutions” are a deadly fraud*: <https://grain.org/en/article/6634-corporate-greenwashing-net-zero-and-nature-based-solutions-are-a-deadly-fraud#sdfootnote30sym> Calculation by GRAIN based on estimate of 678 million hectares required to sequester 2 Gt CO₂ through ecosystem restoration. See FOEI, *Chasing Carbon Unicorns: The deception of carbon markets and “net zero”*: February 2021: <https://www.foei.org/publication/chasing-unicorns-carbon-markets-net-zero/> which cites M. Allen et al. 2020, *The Oxford Principles for Net Zero Aligned Carbon Offsetting*, September 2020: <https://www.smithschool.ox.ac.uk/publications/reports/Oxford-Offsetting-Principles-2020.pdf>
- 78 ESG Telegraph (2022) *Shell Invests \$38 Million in Forest Preservation Carbon Credit Project Developer Carbonext*. 12 July. <https://esgtelegraph.com/companies/shell-invests-38-million-in-forest-preservation-carbon-credit-project-developer-carbonext/>
- 79 Carbon Brief (2021) *Analysis: Shell says new ‘Brazil-sized’ forest would be needed to meet 1.5C climate goal*. <https://www.carbonbrief.org/analysis-shell-says-new-brazil-sized-forest-would-be-needed-to-meet-1-5c-climate-goal/>
- 80 Pearce, F. (2021) *A Big New Forest Initiative Sparks Concerns of a ‘Carbon Heist’*. Yale Environment 360. <https://e360.yale.edu/features/a-big-new-forest-initiative-sparks-concerns-of-a-carbon-heist>

BOX 8 REDD CONFLICTS: EXAMPLES FROM INDONESIA, UGANDA, COLOMBIA AND BRAZIL

REDD COMMODIFIES COMMUNITY REPRODUCTION IN INDONESIA

The Katingan Peatland Restoration and Conservation project covers 150,000 hectares of land in Indonesia's Central Kalimantan province. Several publications suggest that many of the project's carbon credits may not be backed by additional emissions savings. One report estimates that it "has issued credits up to three times more than the amount of carbon dioxide it is likely to absorb".⁸¹ Another article highlights the socio-economic impact of the project and explains how changes imposed by the project commodify community reproduction, change the community's internal organisation and prohibit traditional farming practices.⁸² The carbon credits are calculated based on a story of alleged deforestation threats from industrial plantation concessions, community cultivation rights and forest encroachment by the community. In 2019-20 burning bushes became a contested issue in a village affected by the restoration project. The use of fire is prohibited: starting a fire carries the threat of 25 years' imprisonment and a fine of 2 billion Indonesian rupiahs (around US\$14,000). In consequence, farmers increasingly tend to be switching to using herbicides to remove grass or, in some cases, secretly burn patches, abandoning farming techniques developed over generations.

EVICIONS FOR CARBON CREDITS IN UGANDA

In early 2020 the Swedish Energy Agency finally cancelled a contract to buy carbon credits from an industrial pine plantation project in Uganda. The plantation is operated by the Norwegian company Green Resources. Over two decades, report after report had documented the violence against communities as a result of the project whose industrial pine plantations are certified by the Forest Stewardship Council (FSC).⁸³ "Villagers were deprived of vital resources and experienced threats and violence," one report notes, adding that ownership of the land in question is disputed.⁸⁴ Another publication included images of eviction notices issued to farmers in Kachung. The authors note that the "protracted misery inflicted on Kachung's communities can only be rightfully addressed with the immediate end of this devastating project, so that they can reclaim their land and livelihoods".⁸⁵ While the project seems to no longer be selling carbon credits, the violent impact of the industrial tree plantations continues to cripple community life and villagers' livelihoods.



Fiona from Uganda lost her land to another plantation back in 2011

© Jason Taylor/Friends of the Earth International

- 81 <https://redd-monitor.org/2022/02/24/the-katingan-redd-project-how-offsetting-enables-the-fossil-fuel-sociopaths-to-destroy-the-planet/>
- 82 Agrarian Resources Center Jakarta (2022) *The Katingan REDD+ Project in Indonesia: The Commodification of Nature, Labour and Communities' Reproduction*. In *WRM 15 years of REDD*. <https://www.wrm.org.uy/15-years-of-redd-the-Katingan-REDD-Project-in-Indonesia>
- 83 REDD-Monitor (2020) *The Swedish Energy Agency has stopped buying carbon credits from Green Resources' destructive plantations in Uganda*. <https://redd-monitor.org/2020/03/11/the-swedish-energy-agency-has-stopped-buying-carbon-credits-from-green-resources-destructive-plantations-in-uganda/>
- 84 Development Today (2020) *Sweden drops Uganda forest carbon deal with Green Resources due to unresolved land disputes*. <https://www.development-today.com/archive/dt-2020/dt-2--2020/sweden-drops-uganda-forest-carbon-deal-with-green-resources-due-to-unresolved-land-disputes>
- 85 Oakland Institute (2019) *Setting the record straight on Green Resources' project in Uganda*. <https://www.oaklandinstitute.org/setting-record-straight-green-resources-uganda>



El Cerrejón coalmine in La Guajira, Colombia
© Wikimedia

REDD GREENWASHING MINING DESTRUCTION IN COLOMBIA

The BioREDD+ project is located on the Pacific coast of Colombia where Afro-Colombians have land rights to more than 5 million of the 10 million hectares of tropical forest. Glencore's Colombian coal mining subsidiary, Prodeco, and oil company Chevron were among the first buyers of carbon credits in Colombia. A mining company representative explained to a researcher how the involvement of NGOs as mediator was essential in the community assembly approving the sale of carbon credits to the mining company. Initially, they had rejected the sale, saying they would not be involved with a coal corporation. According to Prodeco's representative, it was the NGO Fondo Acción who argued on behalf of the company: "Fondo Acción said, 'They are not just any mining company, it is a responsible company, ta ta tal ta tan tan [blah, blah, blah].' And we left with the commitment and we made the agreement." With the purchase of REDD credits, the company is able to reduce its carbon tax payments in Colombia by an estimated half to two-thirds.⁸⁶

THE FAILURE OF THE JURISDICTIONAL REDD+ EXPERIENCE IN ACRE, BRAZIL

The jurisdictional REDD+ programme in the state of Acre in the Brazilian Amazon has been upheld as a model of successful implementation. However, Indigenous Peoples and rubber tapper communities in Acre strongly oppose the REDD+ programme. Community benefits, where they existed, were short-lived and mainly funding for one-off cultural initiatives, poorly implemented 'alternative income generation' activities such as fish ponds or salary payments for indigenous guards tasked with monitoring deforestation within their peoples' territory.⁸⁷ After more than 15 years of REDD+ in Acre, deforestation is on the rise, just as it is throughout the Brazilian Amazon. More large-scale infrastructure, agribusiness and extractive industries are in the pipeline. Meanwhile, Indigenous Peoples face a severe attack on their territorial rights, and other violations.



Aerial view of deforestation in Brazil
© iStock

86 Gilbertson, T. (2022) *Blood Coal for Blood Carbon in Colombia: Expansion of Carbon Taxes with REDD+ underscores the Failure of Carbon Pricing*. <https://www.wrm.org.uy/15-years-of-redd-Blood-Coal-for-Blood-Carbon-in-Colombia>

87 See, among others, *Golpe Verde: falsas soluções para o desastre climático*. Publication by Conselho Indigenista Missionário (Cimi) Amazônia Oriental, Amigos da Terra Brasil e World Rainforest Movement (WRM) 2022. <http://www.amigosdaterrabrasil.org.br/2022/04/13/golpe-verde-falsas-solucoes-para-o-desastre-climatico/>

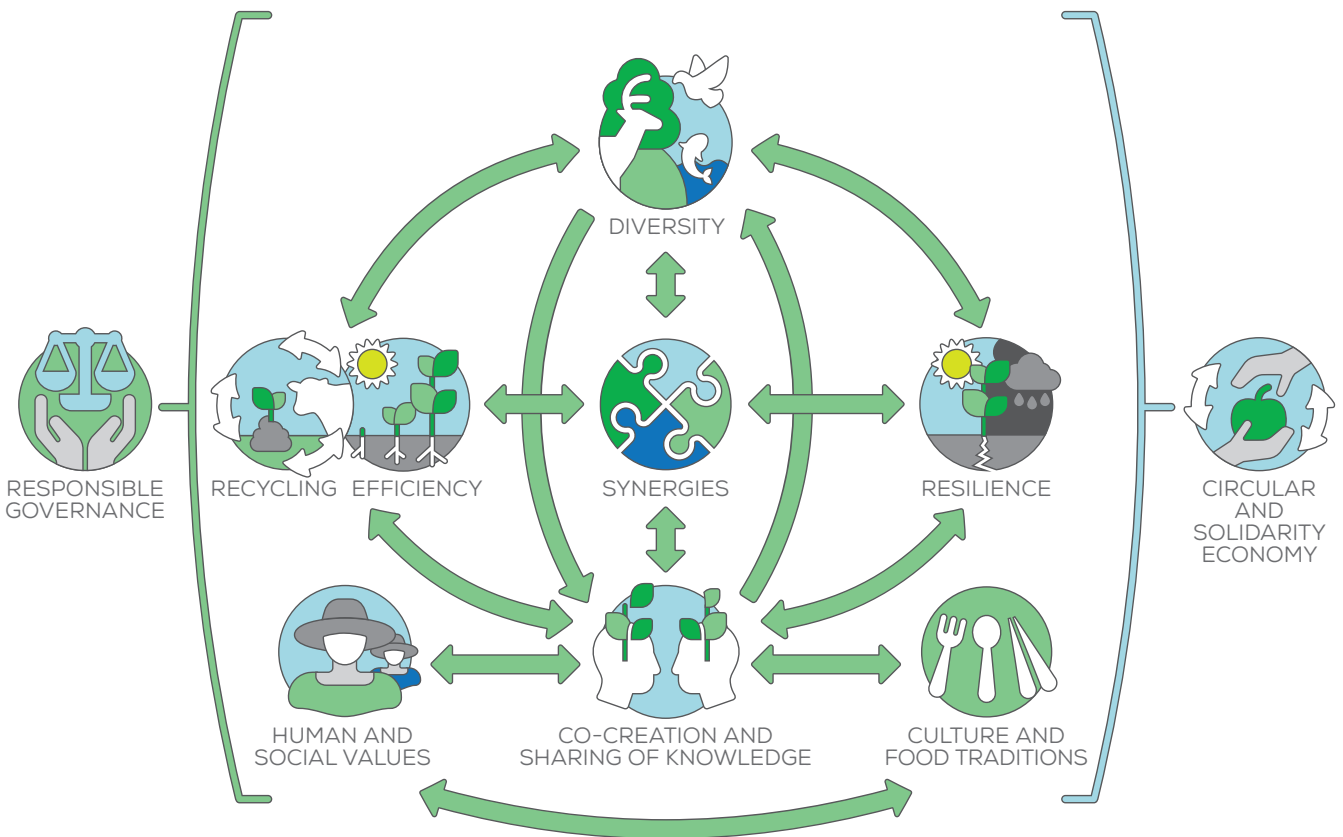
4

A STIFLING EMBRACE: 'NATURE BASED SOLUTIONS' COURTING AGROECOLOGY

Agroecology is a way of producing food, a way of life, a science and a movement to transform food systems towards ecological, social, gender, economic, racial and intergenerational justice. Agroecology has been developed from the practices, knowledges, innovation and research of peasant, family farmers, Indigenous Peoples, fisherfolks, pastoralists and many other small-scale producers, and has emerged as one of the main demands from the food sovereignty movements for a path away from the industrial food system and towards food sovereignty. This has been articulated in the 2015 social movements' Nyéléni agroecology deceleration⁸⁸ and since then, by a wide range of academic, UN and expert analysis.

The UN food and agriculture organisation (FAO) ran a four-year global and regional process to understand agroecology as practiced by grassroots food producers, and in 2018 defined the 10 elements of agroecology: **diversity; sharing and co-creation of knowledge; synergies; efficiency; recycling; resilience; human and social values; culture and food traditions; good governance; circular and solidarity economy.** In 2019 the High Level Panel of Experts of the United Nations Committee on World Food Security recognised the integrated and transformative potential of agroecology as defined by its 13 principles. In 2020 agroecology also received attention from the IPCC for its potential contribution to climate change mitigation and adaptation.

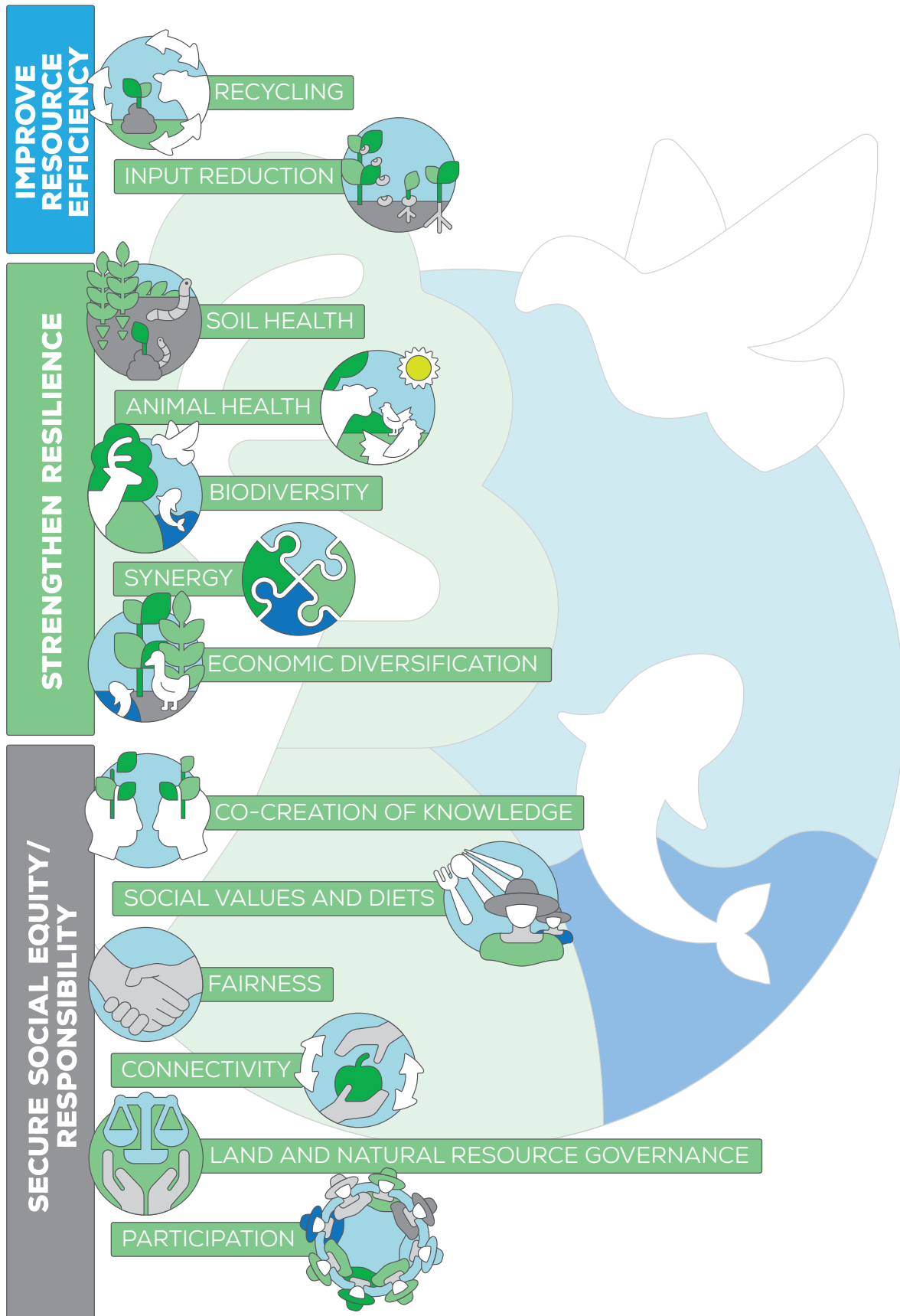
THE 10 ELEMENTS OF AGROECOLOGY



Adapted from the Food and Agriculture Organization of the United Nations report, *The 10 elements of agroecology guiding the transition to sustainable food and agricultural systems*. <https://www.fao.org/3/i9037en/i9037en.pdf>

88 International Planning Committee for Food Sovereignty (2015) Declaration of the International Forum for Agroecology <http://www.foodsovereignty.org/forum-agroecology-nyeleni-2015-2/>

AGROECOLOGICAL PRINCIPLES



Adapted from HLPE. (2019) *Agroecological and other innovative approaches for sustainable agriculture and food systems that enhance food security and nutrition*. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome.

The transformative potential of agroecology is achieved through the integrated application of its principles. These encompass ecological, social, economic, cultural and political values rather than a set of technologies or technical practices divorced from eco-systemic, socio-economic or political realities. Agroecology's potential also lies in the vision of transformation — the change of power structures and dynamics, its view of food production, nature and land as a Peoples' right, set in community and eco-system relationships rather than as commodities for profit or a financial asset.

Importantly, agroecology is spread and practiced by small-scale food producers including peasants,

fishers, Indigenous Peoples, pastoralists, and urban gardeners. As its protagonists, they take back their power as feeders of the majority of people on the planet and keepers of biodiversity and nature.

The agroecology movement has been demanding policy and political support for small-scale food producers. But for decades these demands have been ignored by governments and undermined by the industrial food and farming industry. And despite recent recognition of the importance of agroecology, public policy support and funding remain minimal. In fact, support for agroecological research, development and practice is always under pressure from governments looking for budget cuts.

FUNDING SOIL RESEARCH

La Via Campesina and many others, including Friends of the Earth International, have long pointed to the need to invest in agroecological research and build back carbon into the soil to address the climate crisis. An overwhelming majority of governments, however, still pursue agriculture policies that have driven degradation and loss of fertile soils. They provide only a fraction of funding for agroecology that they do for industrial farming. Public investment in agroecological approaches is estimated to be as low as 1-1.5% of total agricultural and aid budgets. In the UK, such support represents less than 5% of agricultural aid, while in the US, research and development related to agroecological systems amounts to less than 2% of public agricultural research funding. The UN Food and Agriculture Organisation estimates that 8% of their 2018–19 work supported agroecological transition.⁸⁹



Small-scale farmers cultivating with agroecological practices in Malaysia (left) and Mozambique (above)

© Amelia Collins/Friends of the Earth International

Instead, since 2020, there has been a growing tendency to present agroecology as compatible with or an extension of the ‘nature based solutions’ concept. In some cases, agroecology is presented as a subset of ‘nature based solutions’. The 2021 UN Food Systems Summit, for example, considered agroecology as one possible category of ‘nature based solutions’ in the food and farming sector. This framing put agroecology alongside controversial and contradictory approaches that promote corporate concentration and industrial farming such as AIMS for Climate — an initiative of the US and UAE to address climate change and hunger with agribusiness strategies such as digital surveillance and use of pesticides;⁹⁰ or alongside initiatives that promote carbon offsets in agriculture such as the “global soil hub” which promotes soil carbon sequestration as a carbon offset.⁹¹

In other places, there seems to be an attempt to replace agroecology with ‘nature based solutions’ as the main pathway to food systems sustainability. An example is the FAO’s Agriculture ‘nature based solutions’ (NBS) workstream, launched in 2021 in partnership with The Nature Conservancy. It focuses on the carbon reduction or sequestration potential of agriculture as a nature based solution rather than the integrated view of agroecology as defined by its 13 principles. It promotes regenerative agriculture — focusing on carbon sequestration while ignoring the wider social, economic and justice elements of agroecology, and conservation agriculture including no-till — widely used by the pesticide and biotech industry to promote their products. The UN FAO markets agriculture as a nature based solution to financial investors who are keen on taking control of ‘natural capital’ and physical assets such as land and forests to shore up their green credentials.⁹² The IUCN, meanwhile, presents agroecology as a part of its ‘nature based solutions’ agenda.⁹³

Such attempts to lump agroecology in with the ‘nature based solutions’ concept should be seen as part of the larger strategy by agribusiness to co-opt agroecology in order to greenwash their destructive practices.⁹⁴

This conflating of the two approaches sits uncomfortably with the history of ‘nature based solutions’ as a tool for funding protected areas run by the global conservation industry; a history with significant evidence of displacement and conflict with local communities, at odds with the call for agrarian reform and land redistribution that are core to many agroecological movements especially in the global South. The incompatibilities have become even more pronounced as ‘nature based solutions’ becomes a tool to provide carbon credits for fossil fuel corporations, agribusinesses and governments that prefer the distractions of net zero over real zero emissions targets.

The principles of agroecology and the history and drivers behind ‘nature based solutions’ are incompatible. The ‘nature based solutions’ concept hides the realities of inequality, corporate concentration of power and the fact that vested interests heavily promoting ‘nature based solutions’ seek to maintain the environmentally destructive status quo. In this respect, the concept of ‘nature based solutions’ resembles the discredited REDD and REDD+ forest carbon schemes of the past 15 years (see BOX 7: ‘NATURE BASED SOLUTIONS’: REBRANDING AND EXPANDING THE DISCREDITED REDD CONCEPT and BOX 8: REDD CONFLICTS: EXAMPLES FROM INDONESIA, UGANDA, COLOMBIA AND BRAZIL).

The concept of ‘nature based solutions’ taps into positive ideas of nature as diverse, healthy, versatile and resilient. But it instrumentalises these associations to delay real solutions that could prevent uncontrollable climate breakdown. A look at the political ecology of the ‘nature based solutions’ shows that despite nice imagery, **in reality it will integrate the carbon storage capacity of nature into corporate profit chains, and turn nature and carbon into financial assets.**

90 <https://www.aimforclimate.org/>

91 <https://foodsystems.community/solution/global-soil-hub/>

92 Food and Agriculture Organisation, The Nature Conservancy (2021) *Nature-based solutions in agriculture. Project design for securing investment.* <https://www.fao.org/3/cb3144en/CB3144EN.pdf>



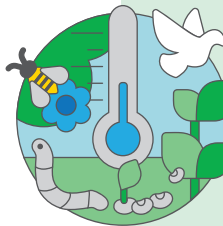
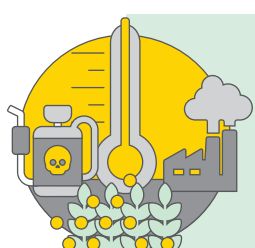
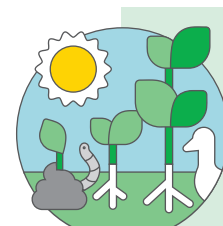
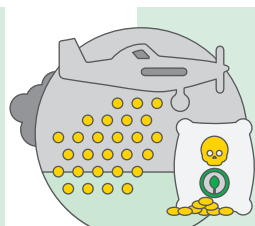


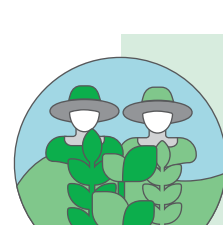
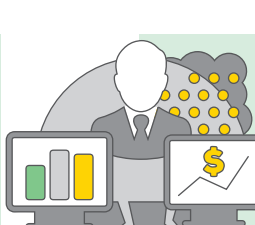

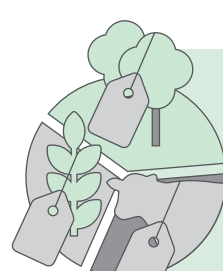
93 IUCN congress (2020) Developing agroecological practices as nature-based solutions <https://www.iucncongress2020.org/motion/008>

94 Friends of the Earth International (2020) *Junk Agroecology* <https://www.foei.org/publication/junk-agroecology/>

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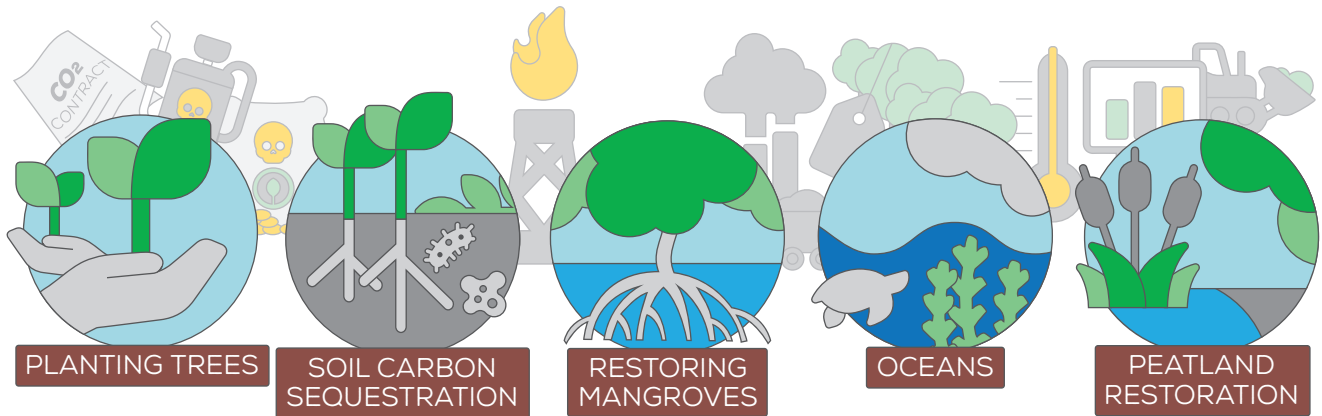
AGROECOLOGY	'NATURE BASED SOLUTIONS' CONCEPT <small>NATURAL CARBON REMOVALS / SOIL CARBON OFFSETS</small>
<p>Cools the planet by taking care of the soil.</p> <p>Uses accumulated knowledge and diversity of crops, animals and practices of peasant, Indigenous Peoples and family/small-scale producers to farm productively with far less fossil fuels.</p> <p>Reduces food miles and provides fresh, healthy and affordable food.</p> <p>Puts land back in the hands of small-scale producers who produce food far more efficiently, creating far fewer greenhouse gas emissions than large monoculture crop plantations and factory farming.</p>	<p>Heats the planet because the concept is designed to provide carbon credits for net zero pledges that allow corporations to keep polluting.</p>
<p>Guided by a holistic approach that sees land, soil and nature as ecosystems whose health must be maintained and, where needed, restored.</p>	<p>Guided by a narrow focus on carbon storage as an ecosystem service, framing nature as capital.</p>
<p>Contributes to food sovereignty by putting the land back in the hands of small-scale food producers.</p>	<p>Undermines food sovereignty by concentrating power in the hands of a few food (and technology) corporations that control the digital data platforms used to monitor and market soil carbon credits.</p>
<p>Opposes the corporate-controlled industrial food and farming system.</p>	<p>Operates within the corporate-controlled industrial food and farming system — and strengthens it.</p> <p>Provides the smokescreen for polluting to go on and for the corporate-controlled industrial food and farming system to expand and deepen its stranglehold over family and peasant farming.</p>
<p>Low-energy input and no use of synthetic fertilisers and pesticides.</p>	<p>Allows continuation of high-input dependent farming, in terms of energy, synthetic fertilisers and pesticides.</p>
<p>Uses agricultural practices that aim to keep people in rural areas and provide decent work.</p>	<p>Chases a particular model of efficiency that drives down the labour: output ratio, including through digital data, promoting corporate productivity gains and profits.</p>
<p>Opposes seed patenting and genetic engineering of crops.</p> <p>Reclaims seeds as “The heritage of the people, at the service of humanity”.</p>	<p>Promotes genetically-engineered crops as part of sustainable intensification and potentially, future afforestation with genetically-engineered trees.</p> <p>Provides a central place for corporations to drive seed patenting.</p>
<p>Understands soil as a living organism that requires monitoring programmes which start from this holistic understanding.</p>	<p>Understands soil as storage space for carbon that can be maximised through targeted collection of data relevant.</p> <p>Uses soil carbon monitoring as a pretext to harvest soil data from land belonging to peasants and family farmers.</p> <p>Uses data to strengthen control over farm land, e.g. by prescribing corporate seed/fertiliser packages that maximise carbon storage, which data collectors can market as carbon credits.</p>
<p>Promotes resilience through diversity of seeds, food crop varieties, practices. Agroecological seeds networks contribute to the rescue and reproduction of diversity in situ which is an essential resilience strategy to deal with unpredictable changes in the climate.</p>	<p>Promotes ‘green revolution 4.0’ technologies and intensification of industrial farming focused on a limited number of seed varieties, thus accelerating loss of seed diversity.</p>
<p>Sees nature as part of the territory, as life space inseparable from cultures, food systems and livelihoods of communities.</p>	<p>Sees nature as an asset, and ‘nature based solutions’ as a way to increase the value of nature capital — by tapping into climate finance for new revenue streams from selling the carbon storage capacity of the land and territories of peasant and family farmers, Indigenous Peoples and other small-scale producers.</p>
<p>Focuses on local food sovereignty and regional food markets, and gives producers the freedom to choose who to sell to.</p>	<p>Locks farmers into long-term exclusive contracts with conditions on what and when farming practices can and cannot be pursued dictated by corporations that control processing and marketing.</p>

AGROECOLOGY VS 'NATURE BASED SOLUTIONS'

<p>ROLE OF CORPORATIONS</p>	 <p>OPPOSES THE CORPORATE-CONTROLLED INDUSTRIAL FOOD AND FARMING SYSTEM</p>	 <p>OPERATES WITHIN AND STRENGTHENS THE CORPORATE-CONTROLLED INDUSTRIAL FOOD AND FARMING SYSTEM</p>
<p>CLIMATE</p>	 <p>COOLS THE PLANET BY TAKING CARE OF THE SOIL AND ECOSYSTEMS</p>	 <p>HEATS THE PLANET AS IT PROLONGS FOSSIL FUELS BURNING AND INDUSTRIAL FOOD PRODUCTION</p>
<p>INPUTS</p>	 <p>LOW INPUT: DRASTICALLY REDUCES FOSSIL FUELS, USES NO SYNTHETIC FERTILISERS OR PESTICIDES</p>	 <p>HIGH INPUT: ALLOWS CONTINUATION OF FOSSIL FUELS, SYNTHETIC FERTILISERS AND PESTICIDES</p>
<p>WORK</p>	 <p>USES AGRICULTURAL PRACTICES THAT AIM TO KEEP PEOPLE IN RURAL AREAS AND PROVIDE DECENT WORK</p>	 <p>MAINTAINS A PRECARIOUS LABOUR MODEL AND FORCES FARMERS INTO CARBON FARMING CONTRACTS</p>
<p>RIGHTS</p>	 <p>PUTS CONTROL OF LAND IN THE HANDS OF SMALL-SCALE FOOD PRODUCERS</p>	 <p>PUTS CONTROL OF LAND IN THE HANDS OF A FEW FOOD AND I.T. CORPORATIONS, WHICH CULTIVATE FOR PROFIT REGARDLESS OF ENVIRONMENTAL IMPACT</p>
<p>VISION OF NATURE</p>	 <p>HOLISTIC, EMANCIPATORY VISION OF NATURE AS INTERLINKED WITH CULTURE FOOD SYSTEMS AND LIVELIHOODS</p>	 <p>NARROW VISION OF NATURE AS 'CAPITAL', PROVIDING ECOSYSTEM SERVICES AND AN OPPORTUNITY FOR REVENUE</p>

‘NATURAL CARBON REMOVAL’ CANNOT SAVE THE DAY

5



Tree planting projects and, to a lesser extent, projects that restore soils and wetlands, have been peddling carbon credits in the Clean Development Mechanism (CDM) for nearly two decades. Carbon credit sales from these projects never took off, however. One reason was that the CDM recognised it was impossible to guarantee carbon storage in trees over the time spans required to compensate for the damage caused by fossil carbon emissions; and so the CDM limited the validity of carbon credits from tree planting projects. Buyers of these credits must, after a certain period, replace them with carbon credits considered to provide permanent emission reductions — from a wind park or industrial energy efficiency offset project, for example. This limited validity of carbon credits derived from tree planting stifled the appeal of such credits in the CDM.

Private sector standard developers, which dominate the voluntary, unregulated carbon market, omitted this limited validity restriction on carbon credits originating from tree planting offsets. Yet, even without this restriction, carbon credits from tree planting offsets only make up a small share of the carbon credits traded in the voluntary carbon market: the vast majority of carbon credits sold to companies and individuals in this voluntary offset market are generated by forest carbon projects claiming to avoid or reduce emissions (rather than remove carbon dioxide from the atmosphere).

Meanwhile, the reputation of carbon credits from avoided deforestation projects suffered as a growing

body of research exposed systematic over-crediting of emissions savings. This happened just at the point when demand for carbon credits was exploding as a result of corporations making net zero emissions pledges.

The old labels were becoming unattractive to corporate carbon credit buyers. A rebranding of both tree planting and forest carbon offsets was needed. **Tree planting offsets are now being marketed as ‘natural carbon removals’, lumped together with carbon credits from avoided deforestation (REDD) projects as ‘nature based solutions’.** The rebranding allowed proponents to repackage old approaches as new solutions.

The appeal of natural carbon removals is connected to two factors: the surge of corporate net zero emissions pledges; and the fact that in 26 years of UN climate conferences, governments have failed to agree on a time-bound action plan to stop greenhouse gases destabilising the climate. “We are no longer in a situation where reducing our emissions through preventing parts is enough. We must additionally start removing the excess CO₂ and clean the atmosphere back to healthier levels,” Microsoft — a company with a rapidly growing carbon footprint and energy demand — writes on its website.⁹⁵ A firm offering carbon removal projects writes that “[w]hen we invest in avoidance projects, we have to make up the math, but when we invest in removal projects, the math is clear — we remove a ton of carbon for every ton that we emit.”⁹⁶ Yet 15 years of experience with natural carbon removals — under their old name, tree plantation

95 <https://query.prod.cms.rt.microsoft.com/cms/api/am/binary/RWGw3f>

offsets — has shown us this: that calculating carbon removals is no less murky a mathematical problem than calculating old-style carbon credits from avoided emissions (REDD) offset projects.

The focus on removal hides the inconvenient truth that the climate benefit of that removal is lost when natural carbon removals are used as carbon offsets. This is because an offset justifies additional dumping of fossil carbon into the atmosphere. Directing attention to the removal side of the equation gives a false assurance that action is taken to avoid climate breakdown. In reality, natural carbon removal offsets do nothing to

end the flow of fossil carbon into the atmosphere. None of the net zero emissions companies promoting natural carbon removals has committed to charting a time-bound path towards real zero. Pursuing net zero emissions targets through offsetting is nothing more than greenwashing, no matter the specific label stuck on the carbon credit.

It is imperative to protect and restore lands, forests and ecosystems for their intrinsic value, for the livelihoods and rights of Indigenous Peoples and peasants and for carbon sequestration. But this cannot compensate for stopping emissions in the first place.

NOT ALL CARBON IS EQUAL

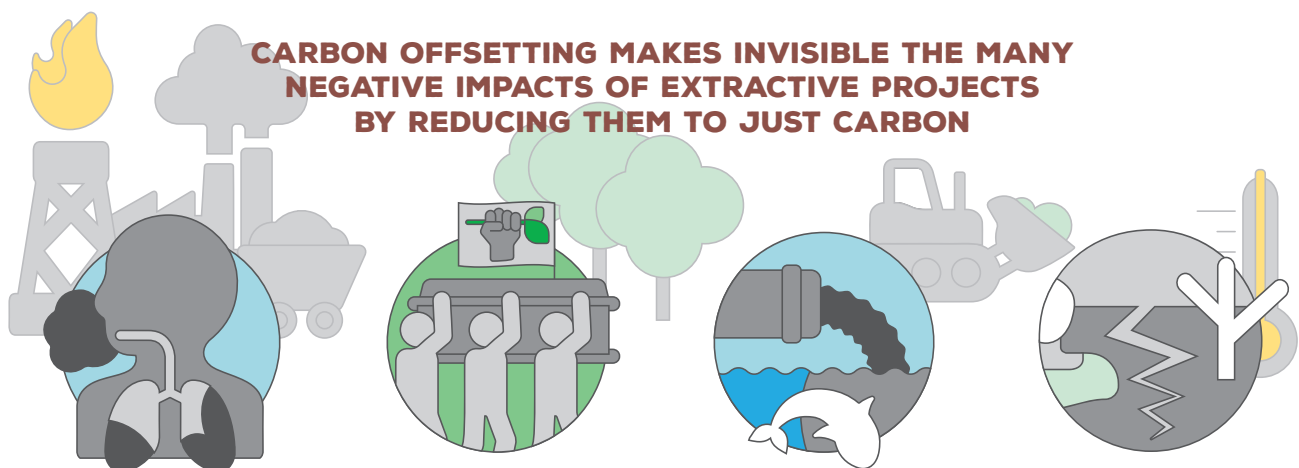
5.1

Chemically, the carbon stored in underground fossil carbon deposits is the same as the carbon that forms the invisible greenhouse gas carbon dioxide (CO₂) in the atmosphere. Chemically, it is also the same as the carbon in the plants that use the natural process of photosynthesis to take in (remove) CO₂ from the atmosphere, turn it into the sugars they need to grow and store some of the remaining carbon in their roots, branches and tree trunks as well as in the soil. This natural process, which plants on land, in the soils and oceans perform, has removed about one-third of the fossil carbon that has been piling up in the atmosphere as a result of fossil fuel burning. Had plants not removed this carbon from the atmosphere and stored it in vegetation, soils and oceans, we would already be experiencing even more severe climate breakdown.

Those promoting 'nature based solutions' and natural carbon removals have used the fact that chemically,

all carbon is equal to claim that the climate impact of CO₂ emissions must also be considered equal regardless of their source. Carbon = carbon, in other words.⁹⁷ For carbon offsetting to take place, this claim of equivalence is essential: emit 1 tonne of CO₂ in one place and assume that the climate damage can be undone by paying someone elsewhere to avoid 1 tonne of CO₂ emissions or remove 1 tonne of CO₂ already in the atmosphere. **Ask any community living next to a coal mine, the gas flaring towers along oil and gas fields, an oil refinery or an industrial tree plantation and they will tell you about the violence, pollution, economic and socio-ecological damage and health impacts that this 'carbon is carbon' assumption makes invisible.**

The assumption of equivalence is also feeding a carbon time bomb because it ignores two fundamental **issues of scale** that make carbon offsetting (and natural carbon removal credits) a dangerous deception.



96 <https://www.recapturecarbon.com/carbon-removal-vs-offsetting>

97 For a more detailed discussion of the far-reaching consequences of this decision and how it helped prevent UN climate conferences debating an end to fossil fuel burning, see Larry Lohmann (2006) *Carbon Trading. A Critical Conversation on Climate Change, Privatisation and Power*. <http://www.thecornerhouse.org.uk/resource/carbon-trading-0>

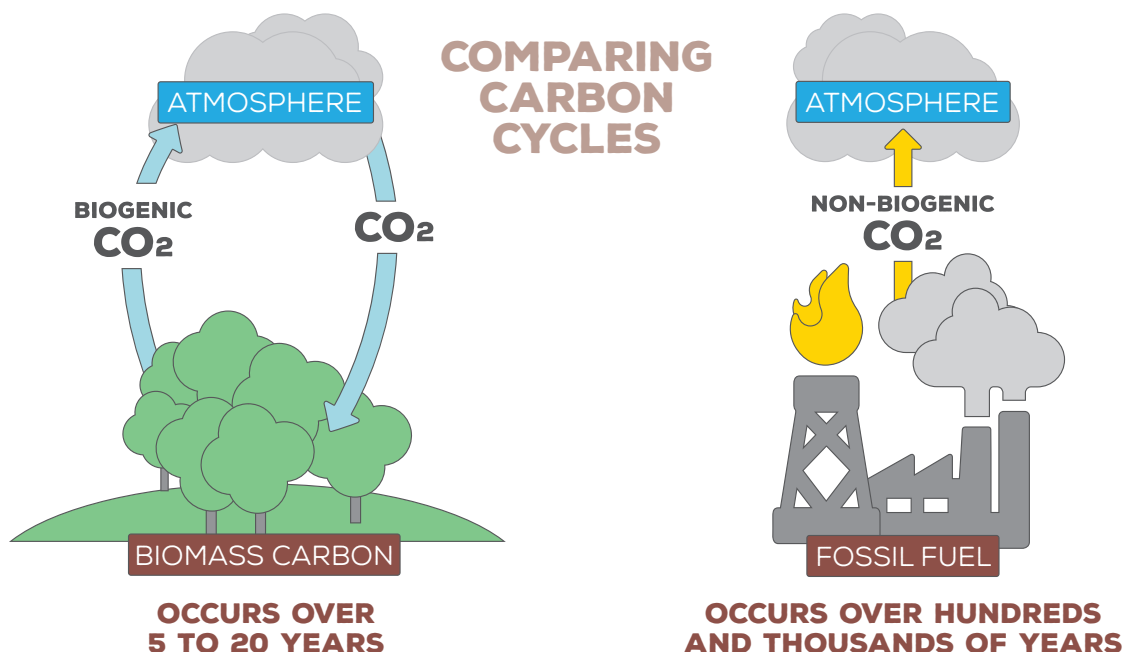
INCOMPATIBLE TIME SCALES

The carbon in underground deposits has been locked away from interference with the climate system for millions of years — until companies started to destroy those deposits to extract the carbon and process it into fossil fuels, which are burned to produce electricity, run factories and machinery, or to process them into petrochemical products like fertilisers or plastics. Once released, fossil carbon will interfere with the climate system for thousands of years, at least, before it is stored again in underground fossil carbon deposits. Until it is stored in that way, some of it might be taken up and stored in plants for a time, but it can be readily released back into the atmosphere when the plant dies and decomposes. **Compared with a human lifetime, burning fossil carbon is a cycle so slow that we do not perceive it as a cycle. Burning fossil carbon is a one-way road to increasing atmospheric carbon dioxide concentrations for millions of years.**

By contrast, carbon stored in trees, plants and soils is part of a much faster carbon cycle which includes the carbon in the atmosphere. When a tree burns or the soils heat up, part of the carbon is released into the atmosphere where it stays as carbon dioxide until it is soaked up again — removed — by a plant or in soils and oceans. In this fast cycle, carbon may be stored for as little as a few hours or days and at most some thousand years, if it's soaked by a tree that will grow very, very old. **Carbon storage in plants and soils is thus volatile and temporary in a way that carbon storage in underground fossil carbon deposits is not.**

Releasing fossil carbon from underground deposits increases the overall amount of carbon in the faster carbon cycle. Even if some of this additional fossil carbon is being temporarily stored in vegetation, soils and oceans, **the total amount of carbon in the aboveground carbon cycle — the cycle that shapes the climate system — still increases with each tonne of fossil carbon burned.** Carbon offsetting ignores this fundamentally different impact of fossil carbon on the climate system. By doing so, justifies the addition of fossil carbon to the fast carbon cycle, and therefore to the atmosphere.

The fact that fossil carbon, once released, will interfere with the climate for millennia generates an unresolvable dilemma for carbon offset contracts: they are far too short to justify compensation claims. Many projects that generate carbon credits have a lifetime of between 40 and 99 years — most are on the shorter end of the spectrum. Soil carbon offset programmes run from between five to 20 years. For peasant and family farmers, that is a very long time, particularly when carbon payments are front-loaded to lure farmers into signing up to the programme and the obligation to maintain certain farming practices or trees planted is mentioned only in the small-print of the contract. For the climate, however, promises of carbon storage in trees and soil for just a few decades cannot cancel out the climate damage of fossil carbon released into the atmosphere where it will interfere with the climate for hundreds or thousands of years. Yet that is what companies promise when they advertise carbon neutral products and services or claim to be a net zero emissions company.



FOSSIL FUELS ARE HIGHLY CONCENTRATED CARBON PACKS

The second issue of scale is related to the vast amount of fossil carbon that is burned to drive the capitalist economy. Coal, oil and fossil gas are packed with carbon. The fossil fuels burned every year release the equivalent of 400 years’ worth of plant growth.⁹⁸ If we assume that a tree can absorb around 21 kilograms of CO₂ per year, that tree would absorb around 1 tonne of carbon dioxide over a lifetime of 100 years. To offset the roughly 40 billion tonnes of CO₂ emissions released each year worldwide, 40 billion trees would need to be planted annually. It is obvious that using natural carbon removal credits to offset even a portion of the emissions that companies seek to become ‘net zero’ will trigger a massive land grab; and even then, the land will quickly be used up.

Italy’s Eni alone would need all the carbon soaked up annually by all the forests growing in Italy to claim it had netted out the emissions from its annual fossil fuel burning.⁹⁹

In the absence of very drastic reductions in fossil carbon burning **first**, natural carbon removal as a strategy to achieve corporate net zero emissions targets is a dangerous distraction. There simply is not enough land and soil that can be used as corporate natural offset removal.¹⁰⁰ Pursuing a net zero emissions strategy that relies on natural carbon removals will inevitably trigger a massive corporate land and soil grab, above all in the global South.

CAN CARBON REMOVAL PROJECTS OFFSET EMISSIONS FROM DEFORESTATION AND INDUSTRIAL AGRICULTURE?

5.2

It is clear that the mismatch of scales between the fossil and biological carbon cycle are an issue when forest or tree planting carbon credits are used to offset fossil carbon emissions. But what about when emissions from forest destruction or loss of carbon from soils are offset by natural carbon removals? Does tree planting work as an offset when a palm oil company is destroying forests? Can emissions from factory farming be offset by tree planting? Or can net zero deforestation pledges be fulfilled through offsetting deforestation in one place by planting enough trees elsewhere?

These lines of argument have several flaws, even before considering aspects such as the wider ecological damage and social cost of factory farming and commodity crop production. Usually, only carbon dioxide emissions are considered, and the huge methane and nitrous oxide emissions that are also created in the industrial food and farming system are ignored. Because the climate impact of methane and nitrous oxide over a 100-year timespan is so much higher than for carbon dioxide (21x for methane,

273x for nitrous oxide) enough trees to capture 21 tonnes of carbon dioxide would have to be planted for each tonne of methane released; in the case of nitrous oxide, the number of trees would be more than 10 times bigger. Given that offsetting corporate fossil carbon releases through tree planting would already trigger a massive land grab in the global South, attempting to offset industrial farming-related methane and nitrous oxide emissions through natural carbon removals would possibly require tree planting on additional planets. Even where natural carbon removal offsets involve regeneration of forests or reforestation rather than setting up fast-growing monoculture tree plantations, the demand on land will be massive because destroying a forest will release all the carbon that has accumulated over decades and centuries in the forest that is being destroyed. The area needed to offset this release through restoration or reforestation will be much bigger than the area of forest that has been destroyed because per hectare, old forests will store vastly more carbon than a monoculture tree plantation or an area of land under restoration or reforestation.

⁹⁸ In 2003, the biologist Jeffrey Dukes calculated that the fossil fuels we burn in one year were made from organic matter “containing 44 x 10 to the 18 grams of carbon, which is more than 400 times the net primary productivity of the planet’s current biota.” Jeffrey S. Dukes (2003) *Burning Buried Sunshine: Human Consumption of Ancient Solar Energy*. *Climatic Change* 61: 31-44.

⁹⁹ Calculation based on the figures in Eni’s 2019 annual report and Italy’s national forest inventory submitted to the EU for inclusion into the EU submission to the UNFCCC.

¹⁰⁰ For an excellent discussion, see the National Farmers’ Union of Canada’s *Submission to the Public Comment Period for the Federal Government’s Draft Greenhouse Gas Offset Credit System Regulations*. May 2021. <https://www.nfu.ca/wp-content/uploads/2021/05/Fedl-Regulations-for-Offset-Protocols-NFU-submission-May-2021-Final.pdf>

When the argument is used to justify continued deforestation while claiming ‘net zero deforestation’, it is based on another false assumption: that planting enough trees is all it takes to replace a forest that has been destroyed. Calling rows of planted trees a forest is akin to calling a swimming pool a natural lake. Net zero cannot be used to justify a corporation that is factory farming, destroys forests to grow genetically modified feeds for its animals then plants trees on the land no longer needed as cattle pasture and sells ‘carbon neutral’, ‘net zero’ emissions cattle.

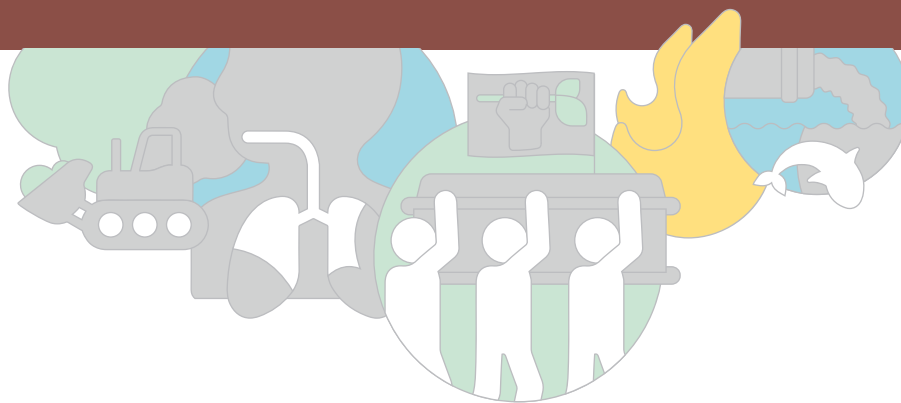
In addition, attempting to meet corporate net zero emissions and net zero deforestation pledges would most likely require vast quantities of fast-growing trees because the carbon removal that can be achieved with small-scale, community-led restoration and forest regeneration initiatives is negligible in

comparison to the massive corporate demand for removal credits. Yet PR materials on ‘nature based solutions’ and natural carbon removal initiatives rarely advertise industrial monoculture tree plantations of fast-growing tree species like eucalyptus. Instead, they tend to display community-led initiatives and participative approaches, emphasising their potential for scaling up.

Of course, restoration of forests, soils and other habitats is urgently needed. But the same issue arises as with net zero versus real zero emissions: restoration of land and soils and regeneration of forests, mangroves and peatlands are needed in addition to, not instead of, ending their destruction and halting the expansion of industrial agriculture and commodity crop expansion.

BOX 9 PLANTATION GREENWASH ALERT

Conscious of the negative PR and opposition that industrial monoculture tree plantations tend to generate, The REDD+ Environmental Excellence Standards (TREES) initiative is hiding its support for **expanding industrial tree plantations** as a nature based solution behind the **euphemism “areas of new commercial planting”**.¹⁰¹



- 101 ART (2021) *Executive Summary. The REDD+ Environmental Excellence Standard (TREES)*. Version 2.0. <https://www.artredd.org/wp-content/uploads/2021/12/TREES-2.0-August-2021-Executive-summary.pdf>. ART was set up by an interim steering committee that included the Norwegian International Climate and Forest Initiative and the US group Environmental Defense Fund. With significant backing from one of the strongest proponents of REDD, the government of Norway, the initiative's standards and marketing (through a company called Emergent) are facilitating the sale of carbon credits from the controversial REDD initiatives. Several of the conservation groups involved in the standard development are themselves managing such REDD projects. They claim that by integrating individual REDD projects into jurisdictional REDD programmes, REDD offset flaws can be overcome. In reality, the initiative's label will make large volumes of dodgy and controversial carbon credits marketable.
- 102 EJOLT (2012) *An overview of industrial tree plantations in the global South: conflicts, trends, and resistance struggles*. EJOLT report no. 03. <https://www.wrm.org.uy/wp-content/uploads/2013/01/EJOLTplantations.pdf>
- 103 World Rainforest Movement (2022) *Industrial Tree Plantations Company Suzano's agenda at the UN Climate COP26: Expansion, GE Trees and FSC Certification*. *WRM Bulletin* 259. <https://www.wrm.org.uy/bulletin-articles/industrial-tree-plantations-company-suzanos-agenda-at-the-un-climate-cop26-expansion-ge-trees-and-fsc>
- 104 For a critique of the bioenergy with carbon capture and storage (BECCS) techno-fix, see Friends of the Earth International (2021) *A Leap in the Dark: The Dangers of Bioenergy with Carbon Capture and Storage*. <https://www.foei.org/publication/bioenergy-carbon-capture-storage-beccs-report/>
- 105 <https://twitter.com/LaurenGifford/status/1457639752316948481>
- 106 Open Letter Denouncing Suzano Papel e Celulose's glyphosate-resistant Genetically Engineered (GE) Eucalyptus. 2022. <https://www.wrm.org.uy/bulletin-articles/open-letter-denouncing-suzano-papel-e-celuloses-glyphosate-resistant-genetically-engineered-ge-eucalyptus>

BOX 10 WORLD'S LARGEST PULP PLANTATION COMPANY HIGHLIGHTS CARBON REMOVAL TO HIDE ECOLOGICAL AND SOCIAL DAMAGE OF ITS EUCALYPTUS MONOCULTURES

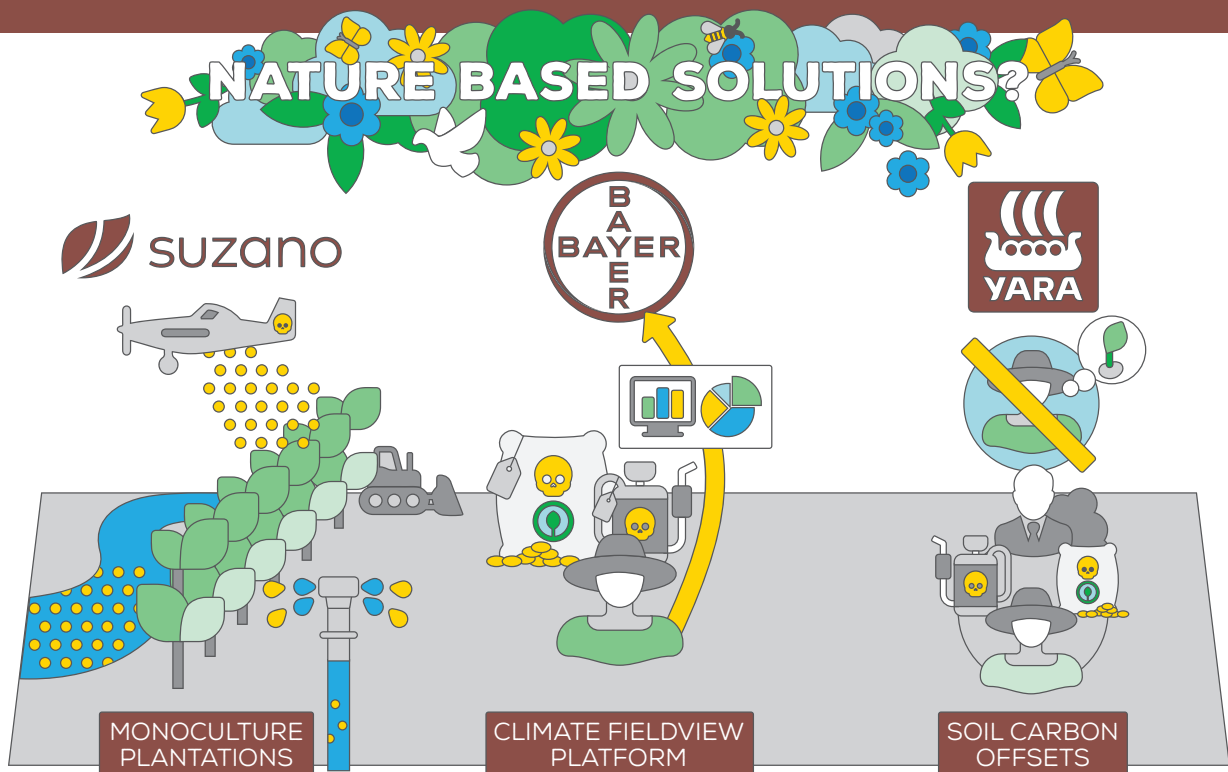
The Brazilian company Suzano is the world's largest producer of eucalyptus pulp. It controls a total of 2.4 million hectares of land, of which around 1.5 million hectares are covered with eucalyptus monocultures. These plantations provide the raw material for an annual production of 11 million tonnes of pulp and 1.4 million tonnes of paper, earning the company some US\$5.4 billion annually from pulp and paper exports.

Needless to say, planting fast-growing water-intensive monocultures on such a vast scale has a devastating impact on the availability and quality of water. Many streams and watercourses have dried up in regions where the company's industrial plantations dominate the landscape.¹⁰² Amassing such gigantic land holdings also involved violent land grabs, including of lands of Afro-Brazilian communities and territories of the Tupinikim, Guarani and Pataxó Peoples.¹⁰³

The company is hoping to continue expanding its industrial monocultures under the guise of 'nature based solutions' and 'carbon removal'. On its website, Suzano states that it is "looking into possibilities of generating carbon credits by forestry (eucalyptus and native) and engineering projects". In other words: making even more

money from socially and ecologically devastating fast-growing tree monocultures; closing off even more rigorously the 1 million hectares of land the company controls in addition to the areas covered with plantations; and investing in risky, largely unproven techno-fixes to remove carbon from the atmosphere.¹⁰⁴

A glossy advertisement told COP26 participants arriving at Glasgow train station that Suzano would aim to achieve "a net removal of 40 million tons of carbon from the atmosphere" by 2025.¹⁰⁵ While the company was boasting about the "climate benefits" of its plantations in Glasgow, it was requesting approval from authorities in Brazil to use genetically engineered eucalyptus seedlings that are glyphosate resistant. The application was approved while COP26 took place. Suzano CEO Walter Schalka made no mention of this at his talk to the Business for Nature coalition at the UN climate talks. Soils, water, biodiversity, workers, and communities already suffer the contamination from the application of agrotoxics. Glyphosate-resistant GE eucalyptus trees will lead to an increase in health-harming herbicide use in Suzano's monocultures while the company will keep boasting about the supposed climate benefits of its glyphosate-resistant eucalyptus monocultures.¹⁰⁶



SOIL CARBON FARMING: DATA HARVEST DISGUISED AS CLIMATE ACTION

6

Over half of the organic matter in the world's agricultural soils has already been lost, with over 2 billion hectares of land badly affected. This mining of agriculture soils has been driven by decades of extractive industrial farming practices dictated by the industrial food industry and neoliberal government policies in the agriculture sector. **As soil depletion reaches levels that jeopardise yields, corporations are looking to the new public subsidies available through soil carbon farming programmes.** Because carbon is the largest component of soil organic matter, the depletion of soil organic matter has also released huge amounts of carbon dioxide into the atmosphere.¹⁰⁷ These factors, combined with the surging corporate demand for carbon credits, and 'natural carbon removal' offsets in particular, are making soil carbon farming an attractive — 'natural carbon removal' offset option.

Obviously, there is a great need to restore soils that have been heavily depleted by decades of aggressive agroindustrial use. There are, however, several reasons to be cautious about pursuing the restoration of soils as a natural carbon removal offset because it will fuel runaway climate change:

- As carbon offset activity, it justifies more fossil carbon releases that will interfere with the climate for millennia while carbon storage in soils cannot be guaranteed over those periods of time — as we have witnessed with the rapid depletion of soil carbon as a result of the expansion of industrial farming in the past decades.
- Carbon offsetting needs definitive numbers: a certain number of tonnes of carbon dioxide removed from the atmosphere. But the carbon content of soils naturally fluctuates significantly, even over the course of a single day. Attempting to establishing a definitive number for the amount of carbon contained in a particular hectare of land ignores this natural dynamic of complex soil carbon processes.



An agroecological farm in El Salvador

© CESTA/Friends of the Earth El Salvador

- The natural variability of soils at very small scale, and the complex processes that determine soil carbon cycles, make measuring soil carbon with the objective of establishing one definitive number for carbon stored in a hectare of soil if not impossible then fraught with potential for that number to be manipulated in such a way that it maximises the generation of carbon credits.

The World Bank set up a controversial and elusive soil carbon offset pilot programme in 2009 in Kenya.¹⁰⁸ The experience is a timely reminder of the challenges and contradictions of claiming to meet peasant and family farming needs and implement a carbon credit scheme in the same programme. Carbon storage in soils is simply too diverse, complex and variable over time and space.

Yet the sector is booming. Several countries — United States, Australia, European Union and India are developing legislation for carbon markets to include soil carbon credits. There are also dozens of corporate soil carbon offset initiatives already in place.

¹⁰⁷ Carbon Brief (2017) *World's soils have lost 133bn tonnes of carbon since the dawn of agriculture*. <https://www.carbonbrief.org/worlds-soils-have-lost-133bn-tonnes-of-carbon-since-the-dawn-of-agriculture/>

¹⁰⁸ IATP (2012) *An Update on the World Bank's Experimentation with Soil Carbon. Promise of Kenya Agricultural Carbon Project Remains Elusive*. <https://www.iatp.org/documents/update-world-banks-experimentation-soil-carbon>

I.T. COMPANIES AND AGRIBUSINESSES ON AGRICULTURE SOIL DATA BONANZA

6.1

Yara, one of the world's largest fertiliser companies, and large emitter of greenhouse gases, recently created an alliance to pursue "a new solution to our carbon challenge that's grounded in the soil".¹⁰⁹ Global commodity trader Cargill says "Soil health is a win-win" and has started new initiatives to support what it calls "regenerative agriculture".¹¹⁰ **Since 2019, many of the biggest agribusinesses have launched or joined initiatives to restore carbon in agricultural soils, often together with IT corporations like Microsoft and IBM.**

IT corporations and agribusinesses hope to tap into the possibility of enrolling family farmers and peasants into programmes linked to digital soil data platforms. This is a danger to peasant and family farming and food sovereignty. A recent publication identified nine soil carbon credit programmes, several of them tied to digital data collection platforms and remote verification systems (drones and satellites) controlled by Yara, Bayer, Microsoft or IBM.¹¹¹ Some of the companies involved in the digital platforms are also big buyers of carbon credits (Microsoft) or are trading the carbon credits generated by these projects for a profit (Rabobank's Acorn and Rabo Carbon Bank programmes).

In 2021 Yara Growth Ventures and Chevron Technology Ventures put US\$4 million into the Boomitra soil carbon farming programme (see below), which is now marketed as an Agora Carbon Alliance initiative. Bayer and Cargill are operating similar programmes, under the names of CarbonProgramme, CarbonInitiative and Carbon+ (Bayer) and RegenConnect (Cargill). Many of these corporate soil carbon farming programmes require farmers to sign up to the apps of the companies managing the service. **These digital data platforms and remote verification systems provide data, harvested from the participating farms, which companies can use: they can identify the best agricultural land and target farmers with customized seed and fertiliser packages.** Through agronomic advice packages that farmers may have to

sign up to when they enter the programme, the digital platforms will also allow agribusinesses to dictate how farmers use their land.¹¹² Companies such as Yara and Bayer also see these digital platforms as a one-stop shop for carbon credits, seeds, pesticides, and fertilisers that allow them to dictate how farmers use the land. For instance, Bayer's Carbon Initiative will pay farmers for carbon sequestration on the condition that farmers use their proprietary seeds and chemicals and hand over valuable farm data.¹¹³ Other companies such as Indigo Ag have similar models.

Agribusiness are also increasingly partnering with IT corporations such as Microsoft or Amazon. They have set up digital platforms which provide real-time data on the growth of crops, the situation with pests and diseases and weather changes. Microsoft, for instance, has been building up a digital farming platform called Azure FarmBeats that operates through the company's global cloud technology, Azure.¹¹⁴ Soil carbon farming initiatives allow those IT giants to integrate soil carbon data into their platforms, harvest information from even more farmers and combine it with the data they already have.

Even when these soil data gathering and soil carbon measurement initiatives fail to generate many merchantable carbon credits at the end of the day, the programmes will have provided corporations such as Microsoft, IBM, Yara, Chevron and Bayer with massive amounts of data about soil fertility and farming practices on vast areas of land farmed by small-scale farmers. They will have tied peasant and family farmers into contracts that commit participants to continue the prescribed farming practices and soil carbon monitoring for anywhere from a few years to a few decades, often even after carbon offset payments have stopped. For the farmers this is too long and for the climate it's too short because the carbon from fossil fuel burning or destruction of an ancient forest that a soil carbon credit was meant to cancel out, is still impacting the climate system (see CHAPTER 5.1 NOT ALL CARBON IS EQUAL).

109 Agora Carbon Alliance homepage. <https://www.yara.com/agoro/>

110 For an excellent discussion of the regenerative agriculture discourse and the corporate players involved in this debate, see <https://agrowingculture.substack.com/p/can-we-talk-about-regenerative-agriculture>

111 <https://grain.org/en/article/6804-from-land-grab-to-soil-grab-the-new-business-of-carbon-farming>

112 Ibid.

113 Friends of the Earth United States (2020) *Following \$10 billion Roundup settlement, Bayer uses climate program as front to lock in control of farmer data and sell more Roundup*. <https://foe.org/blog/bayer-climate-program-to-control-data/>

114 GRAIN (2021) *Digital control: how Big Tech moves into food and farming (and what it means)*. <https://grain.org/e/6595%2523sdfootnote4sym>

In short, soil carbon offset schemes and the associated soil data harvesting applications will enrich larger producers while locking smaller-scale farmers into carbon contracts that provide little benefit to the farmer. A handful of large agrichemical and seed giants stand to profit from soil carbon market schemes regardless of how financially successful the soil carbon offset markets are. Companies such as Bayer

and Syngenta are poised to further entrench their market dominance by offering technical assistance and technologies to track and market the soil carbon in soils on farmers' lands while perpetuating chemical-intensive agriculture and control of our food system. These companies will increase sales and receive permanent access to data (long) before and after farmers see a penny in carbon payments.¹¹⁵

SOIL CARBON MEASURING FOR OFFSETS: HIGH COST AND LITTLE VALUE FOR SMALL-SCALE FARMERS, GOOD BUSINESS FOR CONSULTANTS

6.2

The carbon offset market has nurtured an industry of carbon measurement, sustainability and safeguards consultants who profit from producing data that is of little use to peasant and family farming. It is, however, essential to turning soil carbon into carbon credits that can generate profits for those who control the carbon marketing. The volume of carbon stored in soil needs to be quantified and monitored, for example. Regular soil testing and field visits are expensive. The OECD estimates that these costs, combined with financial fees, can add up to 85% of the total value of the carbon credits.¹¹⁶ The EU's LifeCarbonFarming scheme estimates costs to each farm for validation, verification, and market registration of €110,000-240,000 over the first five years.¹¹⁷ To reduce the monitoring costs, corporate soil carbon farming schemes like Boomitra (see below) are using remote verification systems that combine satellite, drone and aeroplane monitoring with historical soil records that feed models used to estimate the carbon that is taken up by the soil.

It's worth noting that, despite their expense, testing and monitoring programmes are unlikely to capture the complex fluctuations in soil carbon content; and that measurements can be manipulated to maximise carbon credit volumes.

Data quality does indeed fall short of the requirements of the carbon accounting methodologies. **Researchers analysed the carbon calculations of a large-scale pasture farm in Australia where remote verification was used to generate carbon credits that were sold, among others, to Microsoft. They found that carbon uptake had been greatly overestimated.**¹¹⁸ Many soil carbon offset programmes may thus not sell many carbon credits at the end of the day.



Protesting industrial plantations and forest destruction in Africa
© Friends of the Earth Africa

115 Friends of the Earth US blog at <https://foodtank.com/news/2022/02/agricultural-carbon-markets-are-not-a-climate-solution/>

116 OECD (2022) *Soil carbon sequestration by agriculture: Policy options*. <https://www.oecd.org/fr/publications/soil-carbon-sequestration-by-agriculture-63ef3841-en.htm>

117 McDonald, H. et al (2021) *Carbon farming: Making agriculture fit for 2030*. Study for the European Parliament's ENVI Committee. [https://www.europarl.europa.eu/RegData/etudes/STUD/2021/695482/IPOLE_STU\(2021\)695482_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2021/695482/IPOLE_STU(2021)695482_EN.pdf)

118 Simmons, A. et al (2021) *A US scheme used by Australian farmers reveals the dangers of trading soil carbon to tackle climate change*. The Conversation. <https://theconversation.com/us-scheme-used-by-australian-farmers-reveals-the-dangers-of-trading-soil-carbon-to-tackle-climate-change-161358>

BOOMITRA CARBON CREDIT PROGRAMME: YARA'S DASH FOR SOIL CARBON DATA IN INDIA

6.3

In May 2021 Yara launched the Agoro Carbon Alliance (ACA). According to the company the ACA was created to support “decarbonizing the global food value chain by allowing farmers to sequester carbon emissions at their farms”, and sell these sequestered emissions as carbon credits to generate additional income.¹¹⁹ Through ACA, Yara is collaborating with companies such as SpaceTime Labs, Sentera and Cloud Agronomics to create what it calls a “Farm Carbon Credit value chain”. With oil company Chevron’s subsidiary Chevron Technology Ventures, Yara invested US\$4 million in the soil carbon offset programme Boomitra, which enrolls farmers in India in soil carbon farming with the aim of generating carbon credits.¹²⁰ Farmers signing up have to follow practices that are supposed to draw carbon

into their soils, such as planting cover crops, doing less or no-tillage and adjusting their nitrogen fertiliser use. Other soil carbon farming schemes include integrating trees or applying fertilisers more efficiently. Unlike other soil carbon offset programmes, Boomitra does not use soil testing, but relies only on remote verification technology to calculate soil carbon uptake. From this remote sensing data, Agoro calculates the alleged additional carbon storage in the soil and converts this into the volume of carbon credits that the project can sell. Significantly, the programme only seems to be monitoring carbon fluxes, ignoring methane emissions that tend to be significant when rainy seasons extend into the Indian winter. Farmers have to maintain the practices for 10 years.

GOVERNMENTS PROMOTING SOIL CARBON OFFSETTING

6.4

The few government programmes supporting agroecology appear to be increasingly restructured into or replaced by research and support that focus on soil carbon measurement and monitoring. Key industrial farming methods are being greenwashed as climate-smart: ‘precision farming’, ‘sustainable intensification’ and ‘regenerative agriculture’.

Currently, soil carbon farming programmes seem to be advancing particularly fast in industrialised countries, with soil carbon credit programmes already in operation in the USA, Canada and Australia. The European Union (EU) is advancing initiatives that would provide the regulatory framework for the marketing of soil carbon through carbon removal credit schemes. US initiatives include global programmes to be advanced through USAID.

UNITED STATES

The US government is allocating up to US\$1 billion for a new Partnerships for Climate-Smart Commodities programme. This will fund pilot projects that develop markets for ‘climate-smart commodities’, including development of methodologies to measure soil carbon. The pilots will lay the groundwork for expanding farmer participation in carbon markets. Many of the global initiatives included in an October 2021 document released by the White House titled *Plan to Conserve Global Forests: Critical Carbon Sinks*, are carbon removal initiatives that include carbon credit generation.¹²¹ Legislative initiatives are also being put forward, including the Growing Climate Solutions Act and a proposal to establish a new International Terrestrial Carbon Sequestration Program with a US\$9 billion dollar trust fund. Under this programme USAID would provide assistance to participate in carbon markets.¹²²

119 Yara Announces the Commercial Launch of Agoro Carbon Alliance, enabling global farm decarbonization. For more information, see also: <https://www.desmog.com/agribusiness-database-yara/>

120 See a short description of the project from minute 8-23 in the video here: <https://www.youtube.com/watch?v=smvZOcAQFKc>

121 https://www.whitehouse.gov/wp-content/uploads/2021/11/Plan_to_Conserve_Global_Forests_final.pdf

122 <https://www.congress.gov/bill/117th-congress/senate-bill/1251>

EUROPEAN UNION

The EU aims to reduce net greenhouse gas emissions by at least 55% by the year 2030. Several parallel regulatory initiatives are underway related to carbon sequestration in farmlands and forests of the European Union. One is the Land Use, Land Use Change and Forestry (LULUCF) Regulation which sets targets and requires soil carbon measuring at national level by EU countries. One proposal in this context is for a single carbon neutral land target, in which emissions from fertilisers and manure would be cancelled out by carbon uptake in trees and agriculture soils. Doing so would obscure the large non-CO₂ emissions from the EU's industrial farming sector and hide the lack of action to reduce these emissions.

The European Commission (EC) is also developing a comprehensive strategy to incentivise natural and engineered removals and storage of carbon. Its Restoring Sustainable Carbon Cycles initiative includes a 'carbon farming' element that would provide funds to increase carbon storage on agriculture lands and in forests.¹²³ The strategy will be linked to another EC process to define a 'carbon removal certificate'. The intention is to provide the regulatory framework for the certification of carbon removals and their possible integration after 2030 into the EU carbon trading scheme and the sale of soil carbon removal credits to corporations demanding such credits to fulfil net zero emissions pledges. While the framework is said to relate to EU farm and food policy only, a government-certified carbon removal certificate would clearly add legitimacy to carbon credits from projects linked to the framework.

AUSTRALIA

Australia established a national Carbon Farming Initiative in 2011 to generate carbon credits to meet its national emissions reduction targets. So far the government has been by far the largest buyer of carbon credits generated under the initiative.¹²⁴ Some of the corporations participating in projects include Shell through its subsidiary Select Carbon, and TotalEnergies through a partnership with the Australian carbon farming company Agriprove.

Because the Initiative has had difficulty generating enough carbon credits to meet demand from Australia's big emitters, the government has opted to drive down standards for carbon credits, for example reducing from 100 years to 25 the so-called permanence period that carbon farming projects are obliged to ensure. Recent reports highlight the risk of opening up farmland to another commodity that can significantly increase revenue from the land in a way that requires very little labour and produces no food. With the price of carbon credits increasing, financial investors are rushing to buy up productive farmland, in much the same way as was reported in Scotland and Wales (see CHAPTER 3). In early 2022 the Australian government put forward legislation to give it a veto on carbon farming projects of over 15 hectares to stop financial companies from buying up productive farmland and converting it to tree plantations for carbon credits.¹²⁵

123 European Commission (2020) *Sustainable Carbon Cycles. Communication from the Commission to the European Parliament and the Council*. 15 December.

124 GRAIN (2022) *From land grab to soil grab- the new business of carbon farming*. <https://grain.org/en/article/6804-from-land-grab-to-soil-grab-the-new-business-of-carbon-farming>

125 Greber, J. (2022) *More time to debate carbon credit farm veto plan*. Australian Financial Review. <https://www.afr.com/policy/energy-and-climate/more-time-to-debate-carbon-credit-farm-veto-plan-20220128-p59rzh>

CONCLUSIONS: THE DANGERS OF 'NATURE BASED SOLUTIONS' AND SOIL CARBON OFFSETTING FOR FOOD SOVEREIGNTY AND AGROECOLOGY

7



Productive reforestation through the implementation of agroforestry systems in Brazil © Luisaazara/Shutterstock.com

Communities deeply connected to their territories, including Indigenous Peoples, peasants, fishers and pastoralists have always been in the front line of struggles against extractive projects and the impacts of climate change. These communities, and especially women within them, are the defenders and guardians of the world's remaining biodiversity, yet they face the most repression and violations of their human and collective rights. They are also the ones who feed the world.¹²⁶ Their practices, diverse knowledge and worldviews can provide decentralised solutions to the climate crisis, based on ecological, and autonomous governance of their own land and territories. Agroecology for food sovereignty and Community Forest Management are examples of these real solutions and strengthening them is crucial to achieving both climate justice and food sovereignty.

Community Forest Management (CFM) blends appropriate technology, ancestral knowledge and community practices relating to resource use to preserve and manage forests. However, CFM is not just a technical approach, it is also a major opportunity for communities to exercise political control of their territories and resources. CFM is an effective and viable solution to biodiversity loss and climate emissions from deforestation and land use change.

Agroecology, in the framework of food sovereignty, encompasses a political approach for small-scale food producers to produce food in an ecological manner. This drastically reduces emissions, protects biodiversity and ensures their collective rights and access to and control over their commons.

Strengthening agroecology in the web of food production, distribution and consumption is the only realistic way to ensure that the world will have access to food in the face of climate breakdown. Using agroecological practices, peasant, indigenous and family agriculture will consistently produce more, at less risk to people and the planet. With the right policies, land, seeds, water and rights, agroecology as defined in the Nyéléni Declaration 2015 could tackle hunger while cutting agriculture's greenhouse gas emissions dramatically.¹²⁷

Agroecological production has been shown to use nine times less energy than the industrial food and farming system to produce the same 1 kg of rice, and three times less for maize. Overall, the industrial food and farming system requires 10 kcal of energy to produce 1 kcal of food energy while agroecological production spends 4 kcal energy to produce 1 kcal of food energy.¹²⁸

¹²⁶ See, for example, HLPE (2013) *Investing in smallholder agriculture for food security*. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome. http://www.fao.org/fileadmin/user_upload/hlpe/hlpe_documents/HLPE_Reports/HLPE-Report-6_Investing_in_smallholder_agriculture.pdf

¹²⁷ <https://www.etcgroup.org/whowillfeedus>

Programmes that help peasant and family farming communities maintain and restore healthy soils as part of an agroecological system are necessary and should be publicly supported.

Soil carbon farming programmes now promoted as ‘nature based solutions’ by corporations and governments will not provide that support. In fact, they stand to undermine peasant farming and food sovereignty because they are driven by a corporate desire to secure carbon credits for their net zero emissions pledges.

Slashing greenhouse gas emissions from the industrial food system requires a rapid phase-out of nitrogen fertilisers and other chemical inputs, and deep cuts in methane emissions. It means a widespread shift to agroecological farming. It implies support for territorial food systems that can bring these foods to nearby consumers. It requires actions that ensure small-scale food producers have access to lands and water. It means a revitalisation of farmers’ seed systems, focussed on developing varieties adapted to local contexts and not dependent on chemical inputs. It involves policies to eliminate the surplus production and consumption of high-emissions agrocommodities from the industrial system, and the wasteful and unhealthy ultra-processed foods that big food corporations heavily promote.

‘Nature based solutions’ and natural carbon removal initiatives are not designed to achieve this. They have been engineered to benefit industrial food and farming corporations. These initiatives will undermine agroecology and food sovereignty because:

- They are designed as carbon offset schemes; as such, they will accelerate climate breakdown because they justify continued emissions.
- To meet the massive demand for carbon credits, ‘nature based solutions’ are likely to provide incentives for expansion of industrial tree plantations or large-scale tree planting schemes. Such projects may provide easier and quicker carbon storage than agroecology, but they will ramp up the pressure for intensification of agriculture to free up land for ‘nature based solutions’. This will trigger land grabbing and conflict, especially in the global South.
- High costs for soil carbon measurement and monitoring, and soil carbon farming schemes risk discriminating against peasant, indigenous and family farmer communities whilst favouring big farmers and, above all, agribusinesses with industrial-scale farm holdings. These businesses will likely be able to capture the soil carbon market to become ‘carbon farmers’.
- Agroecology is a complex, integrated approach to living with the land that is incompatible with changing land use to maximise one single parameter: carbon stored in soils and vegetation. If support and subsidies are tied to soil carbon farming, they risk undermining agroecology by driving farming to maximise carbon storage and away from food sovereignty and feeding people.
- Soil carbon farming schemes that generate carbon credits often require farmers to sign contracts with the companies operating the programme and marketing the carbon credits; or farmers are faced with yet more obligations to agribusiness corporations. With soil carbon farming credit programmes, farmers risk becoming contract ‘carbon farmers’ on their own land. They would have to use farming practices dictated by the corporations that operate the digital soil data platforms through which the carbon credits are marketed. In some carbon farming programmes such contracts last for up to two decades.
- Indigenous peoples and other communities live with complex sets of tenure rights and relationships with their territories and each other. Nature itself is an inherently dynamic interaction of human and non-human relationships. For rights to these ecosystem services (carbon removal, carbon cycles) to be traded on markets, this dynamic nature needs to be broken down into quantifiable units that are assumed to exist in isolation from other ecosystem service units or social, cultural or spiritual links.

The 'nature based solutions' framework that sees land as a space for carbon removals and offsets will not stop climate change and is a threat to the transformation of food systems towards agroecology in the framework of food sovereignty. Instead of pursuing these false solutions we demand:

- 1 A move away from a neoliberal, corporate-controlled industrial food system, towards a system based on the principles of food sovereignty, food as a human right, and peoples' control over seeds, land, water and other commons.
- 2 Support for agroecology, artisanal fishing, and all the small-scale food producers who still feed 70-80% of the people on our planet. This must prioritize and boost public investment in peasant, indigenous and family farming innovation and adaptation, according to their particular needs, cultures and traditions.
- 3 That the inherent rights and sovereignty of Indigenous Peoples, and human and collective rights of peasants and local communities are granted and implemented, so that the traditional knowledge and practices of Community Forest Management (CFM) can be fully implemented to help halt climate change and biodiversity loss, and forests should be kept out of carbon markets, offsets and other such schemes.
- 4 That governments must urgently begin to cooperate on a coordinated phase-out of fossil fuel production and consumption, with equity at the core.
- 5 Acceleration of the transformation towards a climate-just world by transforming our energy system, based on principles such as energy sufficiency for all, energy sovereignty, energy democracy, energy as a common good, 100% renewable energy for all, community-owned, low-impact renewable energy.
- 6 A new economics for people and planet, with the care system and the reproduction of life at its core, and which recognises our interdependence as human beings, and re-organises care and domestic work to be shared between men, women and the state. This transformation is essential to building our resilience against health and environmental crises.
- 7 Reclaiming of the public sphere and political arena from the perspective of economic, social, gender and environmental justice, and ensure peoples' rights. Public services can be used to guarantee peoples' access to water, health, energy, education, communication, transport and food. To pay for these public services we need fair, transparent and redistributive tax systems.
- 8 Binding rules on big business, allowing us to rein back the power of transnational corporations and provide victims with access to justice, compensation and restoring of their livelihoods wherever corporate crimes occur.
- 9 A climate and socially just world that is free from patriarchy, white supremacy, and all systems of oppression, domination and inequality.



HELPFUL RESOURCES

ETC Group (2017) *Who will feed us? The Industrial Food Chain vs. The Peasant Food Web*. 3rd edition.
<https://www.etcgroup.org/content/who-will-feed-us-industrial-food-chain-vs-peasant-food-web>

ETC Group (undated). *Interactive disruptive technologies illustration*.
<https://assess.technology/disruptive-technologies-asia-pacific-interactive-image/>

Friends of the Earth International et al (2020) *Junk Agroecology: The corporate capture of agroecology for a partial ecological transition without social justice*. <https://www.foei.org/publication/junk-agroecology/>

Friends of the Earth International (2021) *'Nature Based Solutions': A Wolf in Sheep's Clothing*. Position paper.
https://www.foei.org/wp-content/uploads/2021/11/Nature-based-solutions_a-wolf-in-sheeps-clothing.pdf

Friends of the Earth International (2018) *Agroecology: innovating for sustainable food systems and agriculture*.
<https://www.foei.org/publication/agroecology-innovating-for-sustainable-food-systems-and-agriculture/>

Friends of the Earth International et al (2021) *The Big Con. How big polluters are advancing a "net zero" climate agenda to delay, deceive, and deny*.
https://www.corporateaccountability.org/wp-content/uploads/2021/06/The-Big-Con_EN.pdf

Friends of the Earth International (2022) *Fossil futures built on a house of cards*.
https://www.foei.org/wp-content/uploads/2022/06/Fossil-futures-built-on-a-house-of-cards_report-2022.pdf

GRAIN (2021) *Corporate greenwashing: "net zero" and "nature-based solutions" are a deadly fraud*.
<https://grain.org/en/article/6634-corporate-greenwashing-net-zero-and-nature-based-solutions-are-a-deadly-fraud>

GRAIN (2022) *From land grab to soil grab — the new business of carbon farming*.
<https://grain.org/en/article/6804-from-land-grab-to-soil-grab-the-new-business-of-carbon-farming>

Indigenous Environmental Network et al (2021). *Hoodwinked in the Hothouse*. 3rd Edition.
https://climatefalsesolutions.org/wp-content/uploads/HOODWINKED_ThirdEdition_On-Screen_version.pdf

World Rainforest Movement (2022). *15 years of REDD: A mechanism rotten at the core*.
<https://www.wrm.org.uy/publications/15-years-of-redd-a-mechanism-rotten-at-the-core>

GLOSSARY

AGROECOLOGY

The Nyéléni 2015 Declaration defines agroecology as way of producing food, a way of life, a science and a movement to transform food systems towards ecological, social, gender, economic, racial and intergenerational justice.¹²⁹ The definition underscores that agroecology as understood in the Nyéléni Declaration is incompatible with the industrial food system — a system which the agroecology movement seeks to transform.

AVOIDED EMISSIONS CREDITS

Most carbon offset projects are selling carbon credits that are based on avoided emissions: in theory a project will have caused a planned human activity to be changed so as to produce lower or no greenhouse gas emissions; emissions that are thus prevented can be sold as a credit. The buyer of the credit can claim to be carbon neutral because their own emissions have been cancelled out by the avoidance of a planned emission. Preventing planned deforestation is one possible way of generating avoided emissions carbon credits. They are controversial because it is not possible to know if the claimed risk of deforestation really existed or at the scale claimed by the offset project. Many avoided emissions offset projects have exaggerated the volume of emissions they prevented.

CARBON CREDIT / CARBON OFFSET

Polluters, individuals and states can purchase offsets, supposedly to compensate for emissions they produce. Offset credits are generated from projects that claim to reduce emissions.

The IPCC defines a **carbon offset** as a unit of CO₂-equivalent emissions that is reduced, avoided, or sequestered to compensate for emissions occurring elsewhere. Entities that are responsible for carbon emissions will buy offset credits, assuming that their emissions are somehow being cancelled out by emissions being avoided or sequestered elsewhere. Sometimes the word “offset” is used as a verb, in its more general sense (in English) of “compensate for.”¹³⁰

Carbon offsetting has gained momentum because it allows the continuation of an economic model under the pretence that damage to nature in one place can be compensated through extra activities to restore nature elsewhere. To protect their profits tied to the

availability of cheap fossil fuels as long as possible, companies have lobbied particularly hard for carbon offsetting as an alternative to government intervention that could speed up the end of fossil fuel burning. Many offset projects have harmed local communities. For an explanation of contradictions that plague carbon offsets and that make them a dangerous distraction to avoiding climate breakdown, see *Hoodwinked in the Hot House*, Indigenous Environmental Network.¹³¹

CARBON REMOVAL CREDITS

The IPCC defines anthropogenic **removals** as “the withdrawal of greenhouse gases from the atmosphere as a result of deliberate human activities”. In other words, carbon dioxide is taken out of the atmosphere and (temporarily) stored in some other place. Planting trees that take in carbon as they grow and store some of that carbon in roots and branches, is a form of natural carbon removal. Soil carbon farming practices such as growing cover crops or no-/low-till are also often described as natural carbon removal as they help organisms in the soil take more carbon out of the atmosphere than they release and (temporarily) store the carbon as organic soil matter. In soil carbon credit schemes, the amount of carbon taken out of the atmosphere by the tree or the soil organisms is calculated and sold as carbon credit.

CARBON SEQUESTRATION

Another term for the process of living matter taking in carbon. Young trees sequester carbon fast as they grow. Sometimes, the fast sequestration is used to advance the baseless claim that tree plantations are better for the climate than protecting old forests. The focus on carbon sequestration in this context hides the fact that very low volumes of carbon are stored in plantation trees, compared to old trees that have been accumulating carbon in their trunk, branches and roots over hundreds of years.

FOOD SOVEREIGNTY

“Food Sovereignty is the right of peoples to healthy and culturally appropriate food produced through socially just, ecologically sound and sustainable methods, and their collective right to define their own policies, strategies and systems for food production, distribution and consumption.” — Nyéléni 2007 Declaration.

129 <https://www.foodsovereignty.org/forum-agroecology-nyeleni-2015-2/>

130 CLARA “net zero” files. <https://www.clara.earth/netzero>

131 Indigenous Environmental Network et al (2021). *Hoodwinked in the Hothouse*. 3rd Edition. https://climatefalsesolutions.org/wp-content/uploads/HOODWINKED_ThirdEdition_On-Screen_version.pdf

PRECISION FARMING

Agribusinesses have been marketing precision farming as a strategy to allow farmers to keep growing crops in an increasingly uncertain world. Agribusinesses promote and offer digital platforms that provide real-time information about weather, diseases etc. that the farmer then uses to calibrate fertiliser use, decide on the time of planting etc. They rely heavily on digital data platforms and apps that farmers must download and new equipment they must use. Companies provide the platforms as part of a package with seeds and fertiliser and in turn use these to dictate how farmers plant, fertilise and harvest.¹³²

REGENERATIVE AGRICULTURE

Regenerative agriculture practices emphasise soil health. Farms using regenerative agriculture techniques might sow cover crops, use no-till and use crop rotations to keep soil healthy. These practices can have environmental benefits. However, industrial food and farming companies have been marketing a form of regenerative agriculture that could keep farms reliant on pesticides and other chemicals. For example, farmers may use chemicals rather than tilling to kill off crops at the end of a season. While this may prevent loss of soil organic matter and therefore carbon emissions, the chemicals can damage the integrity of the soil¹³³ in other ways — so perpetuating other environmental problems. There is also a limited understanding of the long-term impacts of some of the strategies promoted as regenerative agriculture. For example, the majority of farmers in the USA who practice no-till also plough their soils at least every few years, undoing (much of) the carbon storage benefit.¹³⁴

SUSTAINABLE INTENSIFICATION

Widely considered an oxymoron, promoted by the industrial food and farming industry to justify continued growth of food and feed commodities. Proponents promise an increase in agricultural yields without adverse environmental impact and without the conversion of additional non-agricultural land. Increased use of synthetic fertilizer is just one of the contentious components of the concept.

TERRITORY

The social construction of a **territory** usually includes the following characteristics:

- a relationship of care of one's own body, with respect to labour, sexual or other forms of exploitation, discrimination and disrespect. The body-space is the first territorial construct, the first space for social construction, starting with care of the self — in opposition to commodification — and thus a space of resistance;
- relationships based on spirituality, ancestry and/or tradition with the spaces in which peoples have developed their cultures;
- a constant, dynamic relationship between political subjects and their spaces of social construction;
- people-based management and control of collective resources and commons that permit group survival;
- the democratic definition of women and men's participation in relation to the stewardship of collective resources and the social division of labour.¹³⁵

132 Desmog has a good file on critical information. <https://www.desmog.com/2020/09/11/digital-and-precision-agriculture-criticisms-and-concerns/>

133 https://foe.org/wp-content/uploads/2019/08/PesticidesSoilHealth_Final-1.pdf

134 <https://www.desmog.com/2020/09/11/regenerative-agriculture-criticisms-and-concerns/>

135 Friends of the Earth International *Conceptual Framework: In Defense of Peoples' Collective Rights and Defenders of Territories*. <https://www.foei.org/publication/our-environment-our-rights/>

DOUBLE JEOPARDY

THE RISING THREAT TO FOOD
SOVEREIGNTY AND AGROECOLOGY
FROM FALSE CLIMATE SOLUTIONS



Mobilise resist transform.

FRIENDS OF THE EARTH GROUPS AROUND THE WORLD



Africa

Cameroon
Ghana
Liberia
Mali
Mozambique
Nigeria
Sierra Leone
South Africa
Tanzania
Togo
Uganda

Asia Pacific

Australia
Bangladesh
East Timor
India
Indonesia
Japan
Malaysia
Nepal
Palestine
Papua New Guinea
Philippines
Russia
South Korea
Sri Lanka

Europe

Albania
Austria
Belgium (*Flanders & Brussels*)
Belgium (*Wallonia & Brussels*)
Bosnia and Herzegovina
Bulgaria
Croatia
Cyprus
Czech Republic
Denmark
England, Wales and Northern Ireland
Estonia
Finland
France
Georgia
Germany

Hungary
Ireland
Latvia
Lithuania
Luxembourg
Malta
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Canada
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