TIKEHAU CAPITAL

EXPERT INSIGHT

# Agriculture: race to regenerate

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Over half (52%) of the globe's agricultural land is degraded. If we do nothing, by 2050 an additional 16 million km² (the size of South America) will be lost forever

UNITED NATIONS GLOBAL LAND OUTLOOK 2022





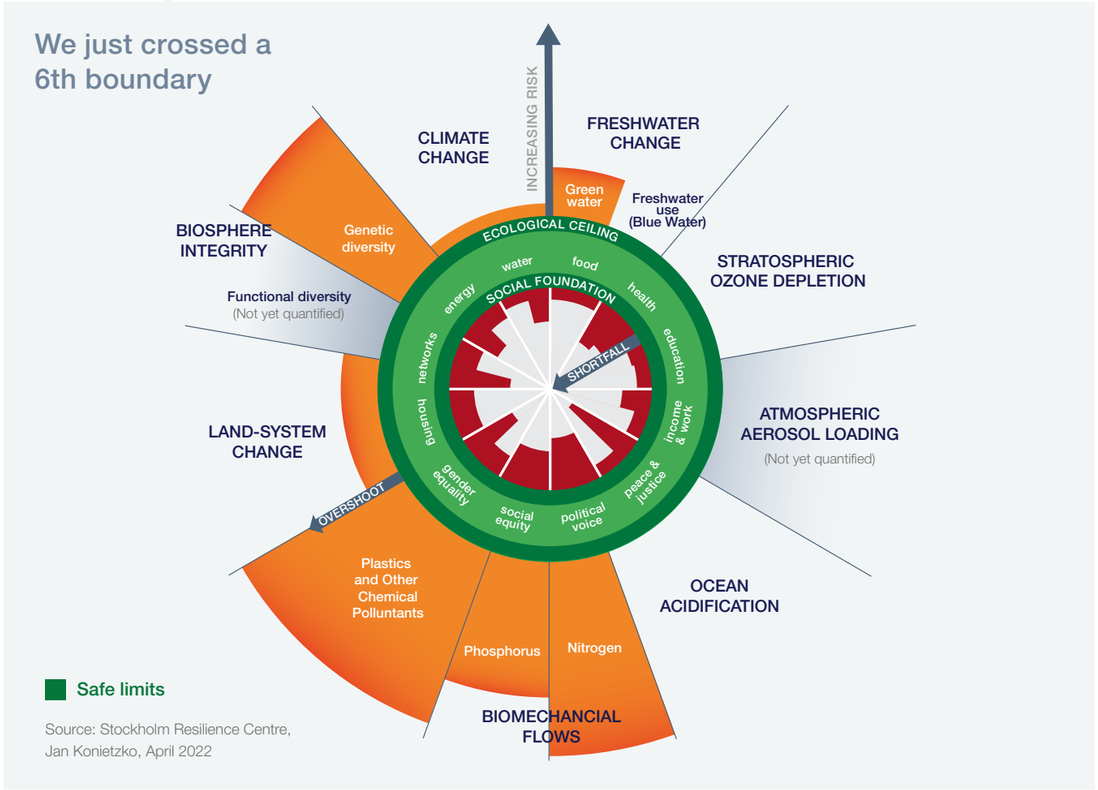
# AGRICULTURE: RACE TO REGENERATE

## 3000 days, 9 boundaries and 6 transgressions

The future of humanity appears precarious and global warming threatens our survival. If we do nothing, life on earth will become impossible. Scientists claim that we have less than 3,000 days to prevent a climate catastrophe, yet global emissions have increased by 16% since 2015 and show no sign of abating. 2021 was the largest ever year-on-year increase in energy-related CO2 emissions, according to the International Energy Agency (IEA).

With less than 3,000 days to act, we believe it is crucial to channel global savings into investments dedicated to accelerating the shift towards a more balanced and sustainable economic system respecting planetary boundaries.

The nine fundamental planetary boundaries, as defined by the Stockholm Resilience Centre, are crucially interdependent. Like a domino effect, this means if we transgress just one of these boundaries, the risk of abrupt and irreversible damage sharply increases. Evidence suggests six boundaries have been crossed as shown below:



## A clear road to carbon neutrality

COP26 forced global leaders to recognise the need to halve CO2 emissions by 2030. It also helped them to identify the main contributors of CO2 emissions as methane leakage and emissions from agriculture as well as deforestation. Pinpointing the exact source of the problem in this way has undoubtedly helped to drive progress in coming up with the appropriate solutions.

Despite a lack of clarity around the difference between long-term net-zero targets and short-term emission reduction commitments, thanks to the work of the IEA, we believe that the path to net-zero is now clearer than ever. The pathway relies on energy efficiency, end-use electrification, low carbon mobility, and the acceleration of renewables adoption. These are the four critical megatrends of the decade.

IEA figures tell us that we need to invest $4tn per year to mobilise these sectors. Harnessing the necessary capital requires partnership and collaboration between the public sector, policymakers, corporates, and the finance industry. The good news is this is happening now. Significant progress has been made in accelerating the three main contributors to net-zero, including agriculture. These are:

**1. Methane emission reductions in agriculture**

Methane leakage and emissions are the second largest contributor to global warming after CO2. Most methane emissions come from animal agriculture. Leaders at this year's COP renewed and pledged new commitments to reduce them.

**2. Reversal of deforestation**

Globally, 114 leaders are now committed to reversing deforestation and land degradation by 2030. It is the first time that the critical and interdependent roles of forests, biodiversity and sustainable land use have been emphasised to achieve a balance between greenhouse gas emission reduction and removal by natural sinks.

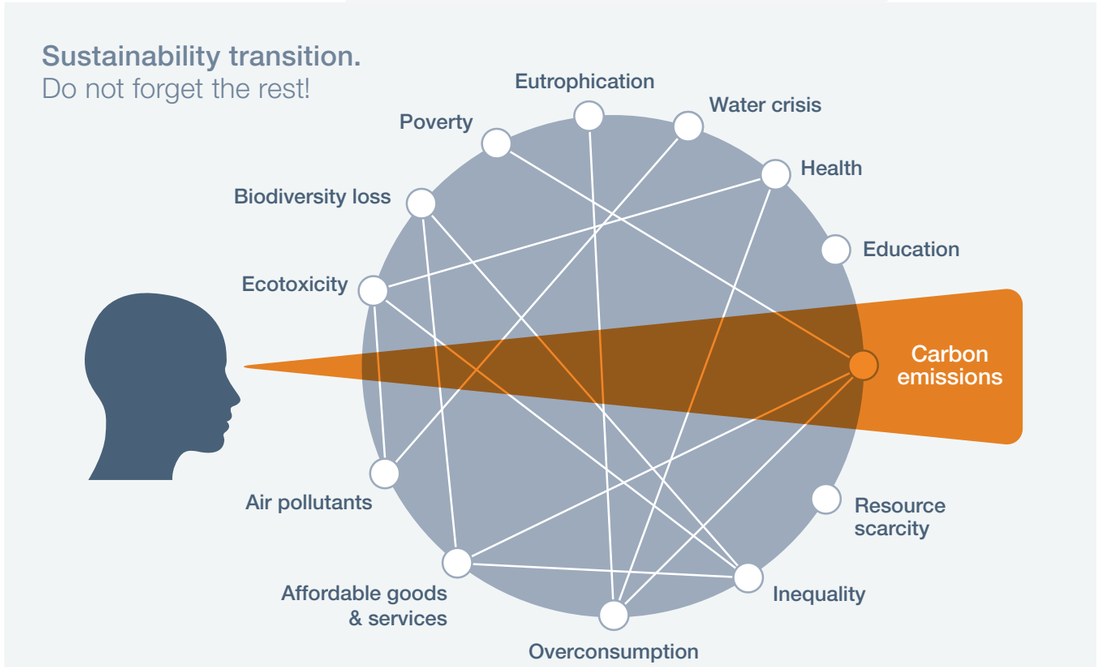
**3. Private sector investments**

We observe that companies from various sectors are now launching decarbonisation strategies. These strategies are interrelated in that momentum in one sector triggers growth in another. Early adopters will certainly be the winners of this emerging mega-trend and the example they set will inspire confidence in their supply chain.






## Carbon 'tunnel vision'




Source: Stockholm Resilience Centre, Jan Konietzko, April 2022

The road to carbon neutrality means reducing carbon emissions in the atmosphere and physically sequestrating the remainder through 'carbon sinks'. With the wheels of progress towards this goal finally in motion, we now need to shift from incremental progress to systemic change.

One of the biggest hurdles  to overcome is a matter of perception. When thinking of reducing carbon emissions, we tend to focus primarily on carbon in the atmosphere. However, what has not yet been widely discussed in our opinion is that, in order to achieve carbon neutrality by 2050, we must also sequester as much CO2 as we emit in our soil.[1]

Various schools of thought exist on the matter[2] but the general consensus among scientific experts is that soil is one of the biggest carbon sinks on the planet. It contains two to three times more carbon than the atmosphere. Each year, some of the CO2 emitted in the soil is recovered by plants through photosynthesis. When they decompose, soil organisms such as bacteria, fungi and earthworms, transform into organic matter. This is essential to agriculture because it retains water, nitrogen and phosphorus which are vital for plant growth. In other words, the agricultural ecosystem is an *essential ally* for the climate.

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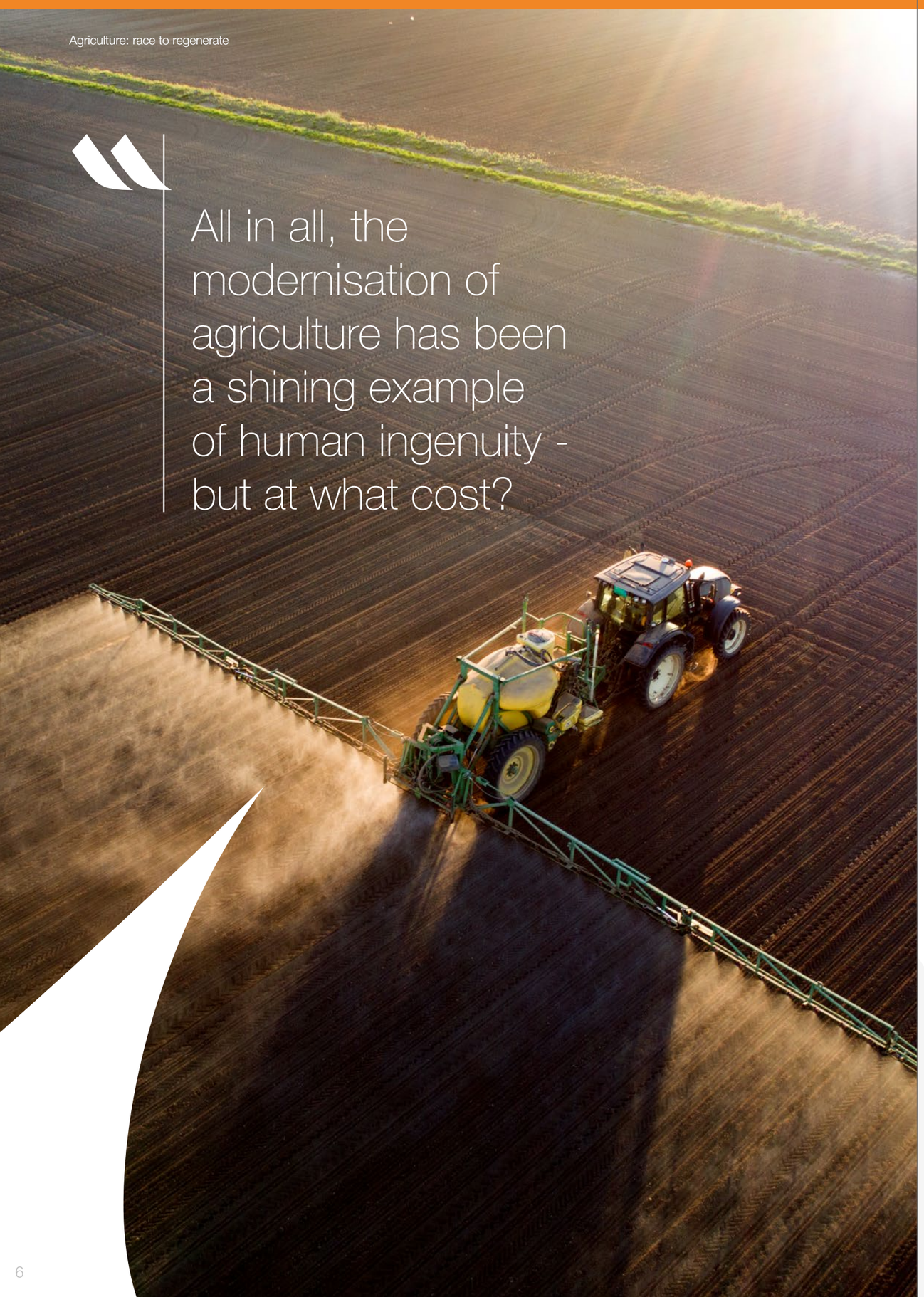
[1] Source : Ontl, T. A. & Schulte, L. A. (2012) Soil Carbon Storage. Nature Education Knowledge 3(10):35 2012
[2] Source: Stanford News, March 24, 2021



All in all, the modernisation of agriculture has been a shining example of human ingenuity - but at what cost?



## The true cost of heightened production

Agriculture is the second-largest emitter of GHG globally (c. 25%) the majority of which comes from methane emitted by livestock farming and the remainder through nitrous oxide from fertiliser use. Since the 1950s, modern agriculture has made it possible to increase production massively across the globe. Fertilisers have been created with nitrogen, phosphorus and potassium to boost productivity; herbicides and pesticides have been developed to eradicate insects and weeds. All in all, the modernisation of agriculture has been a shining example of human ingenuity - but at what cost?

The intensive use of ploughing has destroyed soil vitality, rendering it infertile. According to the UN, 40% of the world's soil is now degraded[3]. This makes it much harder for farmers to produce food from it and exacerbates the loss of vital plant and animal species which, in turn, limits the soil's ability to absorb carbon.

To compensate for this, fertiliser use has been increased, polluting water tables and increasing acidity levels in the soil. Hedges have been cut down, territory has been regrouped and large monocultures have been organised to optimise yields, making it necessary to use even more pesticides. With a 50% loss of living organisms since the 1980s, scientists warn that we have now triggered the sixth mass extinction.

### Soils Environmental Roles vs. Human Threats

| Soils are a key pillar of the environment | Yet threats to soils are multiplying – and Human Activity is always involved | | | | |
|---|---|---|---|---|---|
| | Artificialisation | Erosion | Biodiversity and organic material loss | Compaction | Pollution | Salinisation |
| 1,500 and 2,400 bn tons of $CO_2$ stocked in soils + important role in cooling urban areas | ~ | ~ | ~ | ~ | | |
| Biodiversity is paramount : a hidden treasure when it comes to bio-economy and agro-ecology | Erosion (medium) | Biodiversity and organic material loss (high) | Compaction (high) | Pollution (high) | | |
| 95% of food volume is directly or indirectly produced from soils | Erosion (medium) | Biodiversity and organic material loss (high) | ~ | ~ | Salinisation (medium) | |
| Important role in the continental water cycle (filtration and groundwater table filling) and preserves from floods | Erosion (medium) | ~ | Compaction (high) | Pollution (high) | | |
| Intrants for renewable energy (wood, biofuels and agricultural waste) | ~ | ~ | ~ | ~ | Salinisation (medium) | |

High Human impact · Medium Human impact

[3] Source: United Nations Global Land Outlook 2 report, 2022

## Could regenerative agriculture be the answer?

Regenerative agriculture is a nature-based solution which promotes land management practices that leverage the natural and ecosystemic photosynthesis in plants to close the carbon cycle, rebuild soil health, promote crop resilience, and encourage nutrient density. It improves soil fertility, primarily through practices that increase soil organic matter. Amongst other benefits, it can help reverse climate change by acting as a carbon sink and rebuilding degraded soil biodiversity – in turn resulting in carbon drawdown, improved water cycle and reduced use of chemical intrants.

## How do we make it happen?

Firstly, regenerative agriculture is facilitated through various 'enablers'. These include farming tools, equipment, machinery, fertilisers and agri-tech.

The second aspect requires a change in agricultural practices. For example, through improved training and recruitment as well as making more effective use of available technologies.

Finally, it is important that regenerative agriculture is perceived as a long term investment rather than a short term cost burden. It must be perceived as an investment into the positive transformation of existing practices that will improve soil fertility. The outcome of this transformation will be an agricultural industry that is equipped to produce more with less, i.e higher food production with less energy use, and less reliance on water and chemicals.

## Filling the financing gap

Regenerative agriculture practices seeking to reverse unsustainable production methods at scale require significant financing. To help fill this gap, Tikehau Capital has partnered with AXA and Unilever to collectively announce their ambition to launch a new private equity impact strategy[4] dedicated to investing in projects and companies supporting the scaling-up of the regenerative agriculture transition.

This new strategy will be the latest addition to Tikehau's growing impact platform. It aims to be the first large-scale strategy dedicated to sustainable agriculture and food systems to accelerate the paradigmatic shift towards a more resilient agri-food sector.

Its focus shall be on rebuilding soil organic matter and restoring degraded soil biodiversity, contributing to effective food monitoring and management as well as promoting local approaches coupled with innovative distribution and packaging solutions.

Designed to contribute to SDGs 13: climate change, 15: life on land and 3: good health and wellbeing, the aim of this strategy will be to promote regenerative agriculture by focusing on three core areas:

- Protecting soil health to enhance biodiversity
- Preserving water resource
- Helping to fight climate change by contributing to the future supply of regenerative ingredients. This objective aims to meet the needs of a growing global population and consumer demand for increasingly sustainable products

Additionally, the strategy should help unlock technological solutions that aim to accelerate the transition to regenerative agriculture. It should invest in new technologies and innovative practices but also in existing business models that have decided to transition their practices.

Its capital allocation should focus on three sectors including:

- Sustainable & regenerative farming / agri-business
- Agri-tech
- Alternative consumption

[4] The strategy hasn't been launched yet; its terms and conditions may evolve. Investing in private funds involves various risk factors including, but not limited to: the potential for total capital loss, liquidity constraints and lack of transparency.



The strategy should be classified under SFDR Article 9, and its investments will aim to be aligned with its purpose, which is to make the regenerative agriculture transition happen at scale. The impact thesis of each investment will be reviewed prior to any investment decision by an impact committee including representatives from Unilever, AXA Climate and Tikehau Capital.

Fundraising and new fund launches in agriculture have significantly increased and this strategy should be one of the largest impact agri strategies to enter the market with a target of €1 billion. To ensure its focus on impact delivery, 50% of Tikehau Investment Management's carried interest will be assessed against the achievement of the impact targets of the Strategy.

In terms of geographies, the strategy is anticipated to have a global mandate which encompasses the US, Latin America, Europe, Australia and Southeast Asia. Regarding prospective deals, the vehicle will aim to provide equity to farms making the transition by investing in Ag-tech. It will also aim to invest in 'alternative consumption,' which includes areas such as vertical farming.

> The outcome of this transformation will be an agricultural industry that is equipped to produce more with less



## A final word

Agriculture, land use, and deforestation represent the second-largest source of GHG emissions globally and the primary driver of biodiversity loss. We consider that regenerative agriculture practices can reverse this and play a crucial role in addressing both climate change and environmental challenges. Healthy soils can sequestrate carbon, support biodiversity, preserve water, and improve the resilience of agricultural yields, bringing healthy food while ensuring a sustainable source of income for agricultural workers and their supply chains.

The food and agriculture value chain is critical for our society: it links human health and the food we eat to the health of the soil. We believe a fast transition to regenerative practices that promote soil fertility is possible, but it requires careful selection of actors/businesses to deliver financial returns and generate meaningful impact.

With  the launch of this strategy, our goal is to pool resources, skills, and expertise to support the technological innovations and the changes of practices required to improve both soil and human health. In addition, the strategy will help us to implement our climate plan, through which we aim to have €5 billion of assets under management by 2025 solely dedicated to addressing the climate emergency.



## Disclaimer

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