TO SEE THE WORLD IN A SOYBEAN

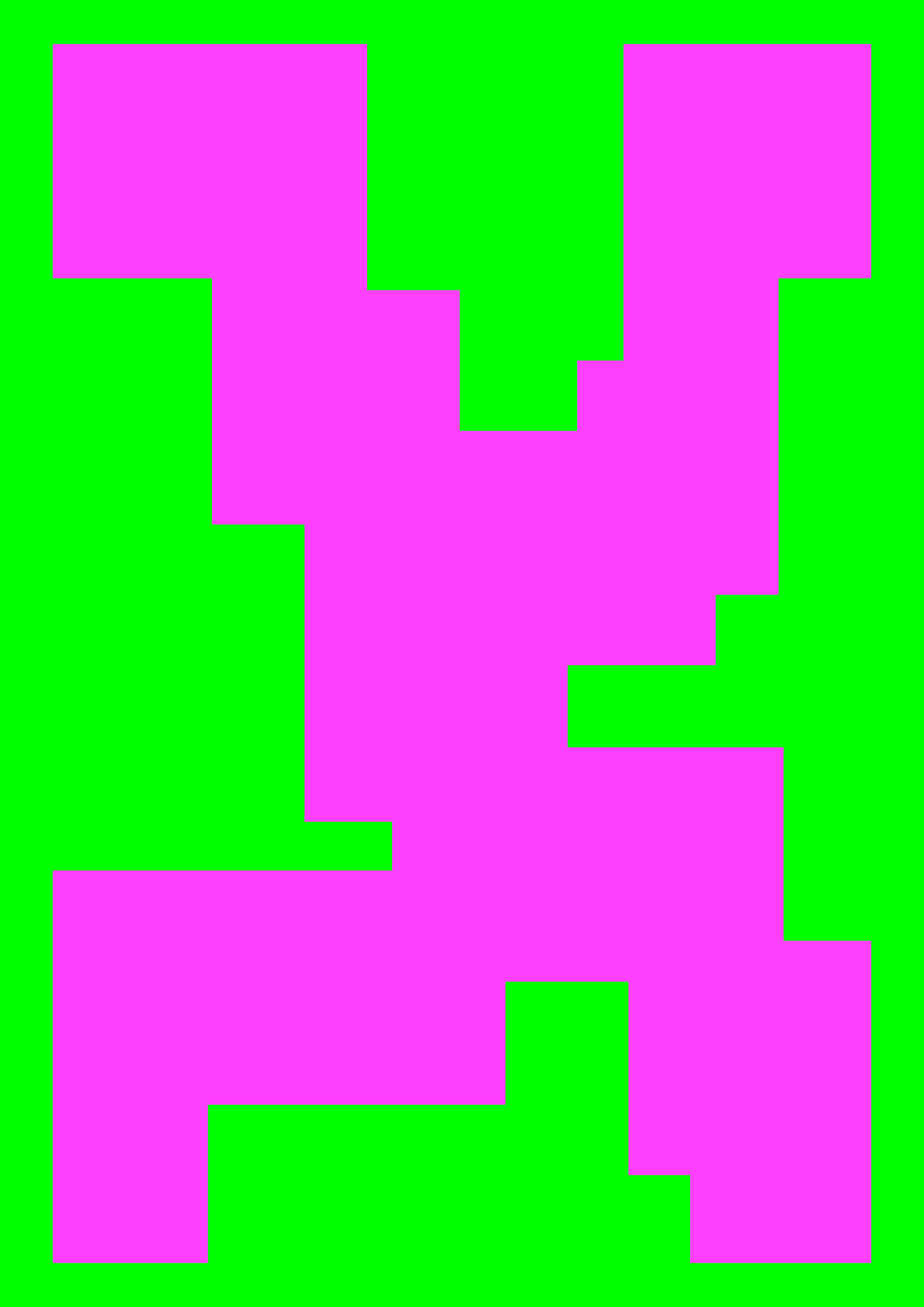
ANTHRO
POCENE

STUDIO BOOKLET

16 & 17
+ 23 & 24
MAY 2025

INDEPENDENT
SCHOOL
FOR THE CITY

WITH
HERMAN
KOSSMANN
& DIRK
SIJMONS



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ABOUT THE INDEPENDENT SCHOOL FOR THE CITY

The Independent School for the City is an international 'Playground' for urban thinkers, do-ers and designers, based in Rotterdam, the Netherlands. The School was initiated by Crimson Historians & Urbanists and ZUS (Zones Urbaines Sensibles) in 2018 and is rooted in their practices of combining a critical and activist approach to the city with effecting real change through architectural and planning projects. The Independent School for the City is not a design education, but a school for 'urbanism' in the broadest sense. It believes that strategies for the city- architectural and economic, spatial and social- should be based on real, first-hand, empirical research, because the reality of the city offers interesting conflicts and unpredictable synergies to learn from and build upon.

The Independent School for the City works from the belief that urban challenges that are often viewed separately and from different disciplinary perspectives (climate change, migration, affordable housing and inequality) have become inextricably linked in recent years. We believe that our cities must not only be redesigned, but also reinvented. We can no longer afford to separate the conceptual from the practical, the political from the technical, form from content when dealing with today's city. Exchange between different disciplines is therefore crucial to meet the contemporary reality of cities and achieve a new type of urban development, both in terms of research and practice.

Through a diverse range of activities, the Independent School brings together different perspectives, skills and thoughts that help to understand and improve the city. It aims to

be a learning community, open to everyone who is involved with the city. Participants of the school are already qualified and/or have a track record in one of the relevant disciplines, such as such as sociology, economics, history, anthropology, as well as urban planning and architecture.

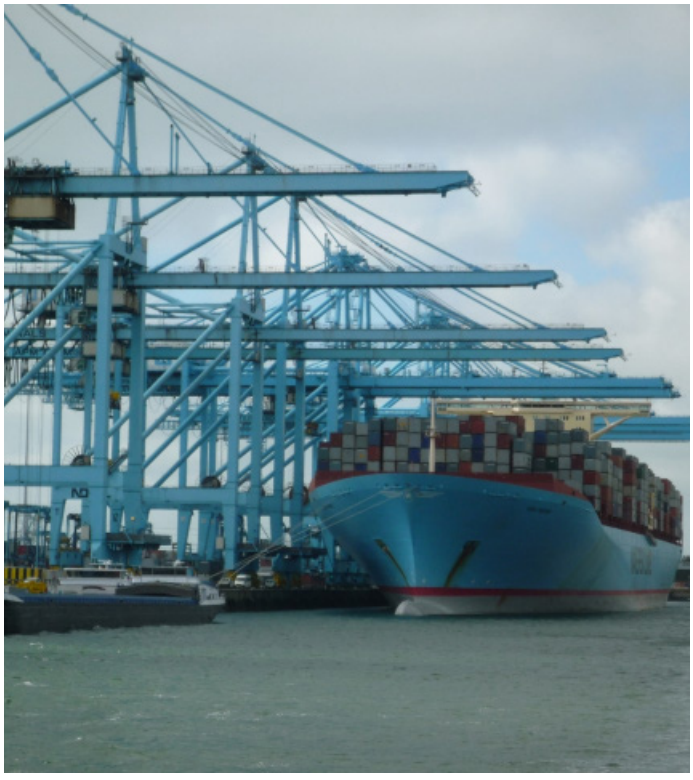
Being based in Rotterdam, the school sees this city as a test case for major cities all around the world. It is the perfect place to explore the spatial challenges that cities face. The perfect place to analyse and learn to understand them and subsequently formulate ideas to make cities better. To think about the spatial, cultural and social aspects of migration, the necessary adaptation to climate change, the reinvention of democracy, and the consequences of economic growth and/or recession.

The Independent School for the City aims to be just as complex, useful, and unique as the city of Rotterdam in which it originated. The School does not defend professional, commercial or political interests and does not engage in city marketing. The School is autonomous and from that position it can be more critical, experiment more, and reach a different audience than the established institutions and courses. Ultimately, the Independent School is in favour of approaching the challenges the city faces with an open mind, without playing nice.

ABOUT THE WORKSHOP

As one of the largest harbours in the world, the Port of Rotterdam plays a pivotal role in the global trade of containers, fossil fuels and raw materials. Around 450 million tonnes of goods go through Rotterdam on a yearly basis, amongst which the transhipment and storage of agricultural products, such as corn, grains, soybeans and oilseeds. But while this position as a global trading hub is an important driver of the economy in North-Western Europe, it also has a major negative impact on societies and ecosystems worldwide.

In this workshop we will explore the global impact of the Rotterdam port on societies and the environment worldwide. An impact that is not only produced by the port itself, but also by those parties and productions that it's indirectly responsible for up and down its value chain. To really understand how our local economy is entangled with the world, we will focus on one specific product – the soybean – and see how Rotterdam's harbour and its affiliated network of businesses are directly tied to the destruction of rainforests, the industrial scale production of cheap meat, and the exploitation of human and natural capital all over the world. We will highlight stories that expose the often-hidden impact of this trade, from the transshipment of goods to their consumption, and the resulting effects on communities and the environment.



TUTORS

Dirk Sijmons
Dirk Sijmons is one of the founders of H+N+S Landscape Architects, has been National Landscape Advisor to the Dutch government and Professor of Landscape Architecture at Delft University of Technology. During his career he has been awarded the Rotterdam-Maaskant Prize in 2002, received the prestigious Edgar Doncker prize in the category 'True Dutch Culture' and the Sir Geoffrey Jellicoe Award. Dirk sees the landscape as a mirror of society and as a living coproduction between man and nature. He is interested in the question how social processes can be used as positive forces in the landscape, while simultaneously wondering how natural processes can be employed in solutions for human needs.

Herman Kossmann
Herman Kossmann graduated as an architect from Delft University of Technology. He began his career as a teacher at the Royal Academy of Art in The Hague and carried out a number of mayor renovation projects in Rotterdam as an independent architect. In the beginning of the 90' he was asked to design and manage some large exhibitions, which became a new direction in his work. In 1998 he set up an interdisciplinary design office, based in Amsterdam with fellow student Mark de Jong: Kossmann.dejong. The office became an international operating design studio specialised in exhibition design and interior architecture.

Mike Emmerik
Mike Emmerik is the director of the Independent School for the City and partner at Crimson Historians & Urbanists. He is educated as an urban designer at the Delft University of Technology and subsequently worked in the Faculty of Architecture as a teacher and researcher within the Chair of Design as Politics. Mike took part in various research and design projects at the intersection of urban development and policymaking and is since 2012 affiliated with the Dutch Board of Government advisors from which he advises the Dutch central government and local authorities about issues relatedto urbanisation and mobility. He has been involved in various international teaching and design projects amongst others in Lebanon, Germany, Ghana and Cuba.

Michelle Provoost
Michelle Provoost is part of the Independent School for the City's Deans Team, co-founder

of Crimson Historians and Urbanists, and director of the International New Town Institute. She is an architectural historian specialised in urban planning history, postwar architecture and contemporary urban development. Michelle teaches at various universities in the Netherlands and abroad and continues to be in great demand as a public speaker. She lectures regularly throughout Europe, Asia, Africa and the United States, and has been involved in many municipal, national and private committees and juries.

Wouter Vanstiphout
Wouter Vanstiphout is an architectural historian and researcher who has written extensively on urbanism and spatial politics. He is part of the Deans Team of Independent School for the City and partner of Crimson Historians & Urbanists. He has directed the renewal of the Dutch industrial satellite town of Rotterdam: Hoogvliet and advises municipalities, the national government, housing corporations and project developers on matters relating to urban renewal, cultural heritage and spatial and urban politics. From 2008 – 2010, Wouter held the chair Design & Politics at the TU Delft, which was exploring, researching and defining the boundaries,

SCHEDULE*

** The schedule is tentative and subject to changes.*

FRIDAY 16 MAY 2025

10:00 – 10:30	Welcome and Introduction
10:30 – 12:00	Lecture on the port of Rotterdam and its role in global soy trade by Wouter Vanstiphout + conversation
12:00 – 13:00	Bus trip to the Port of Rotterdam
13:00 – 14:45	Visiting Portlantis, guided by Herman Kossmann
15:00 – 16:00	lecture on the Anthropocene and planetary boundaries by Dirk Sijmons
16:00 – 17:00	Conversation and reflection
17:00 – 18:00	Return to the Independent School by Bus

SATURDAY 17 MAY 2025

10:00 – 15:00	Mapping assignment: global network of Soy in the Rotterdam port.
15:00 – 15:45	Lecture on Soy Stories in The Netherlands and Brazil by Caroline Krysel (VU, online from Brazil)
15:45 – 17:30	Conversation and exercise with Sjamme van de Voort (VU)

TUESDAY 20 MAY 2025
PUBLIC EVENT: VEGANLAND – FOOD FOR THOUGHT

19:00 – 21:00	A public evening about the food industry and possible alternatives with Berno Strootman and Kadir van Lohuizen (see P20–25 for more info)

FRIDAY 23 MAY 2025

10:00 – 14:00	Field trip to a pig farming area
14:00 – 15:00	Lecture by Patrick Timmermans about Welvaartsplan Noord-Brabant and the historical development of the food industry.
15:00 – 17:00	Visiting a Tofu Factory
17:00 – 17:30	Return to the Independent School by Bus

SATURDAY 24 MAY 2025

10:00 – 11:30	Lecture by Dirk Sijmons on Agriculture in four ways
11:30 – 15:30	Participants work on short assignment
15:30 – 17:00	Conversation on findings and position

READS

WAKING UP IN THE ANTHROPOCENE

By Dirk Sijmons

In 2000 climate scientists Paul Crutzen and Eugene Stoermer made the observation that humankind had become a global force[1]. The far-reaching influence of humans had been recognized earlier[2] but, in an original contribution, Crutzen and Stoermer observed that human impact on the Earth—understood as a total functioning single integrated system[3], or Earth System—had reached the level of system-wide disruption. We not only influence the climate, but also disrupt geochemical cycles: the sediment flows of rivers dammed for electricity production, the changing acidity of the oceans, landcover dramatically altered by reclamation for agriculture and urbanization. We are eroding biodiversity to such an extent that specialists are talking about the sixth mass extinction. This represents a rupture with earlier views in which the growing influence was seen as gradual and thought to be restricted to ecosystems or landscape scales. Crutzen and Stoermer suggested that the time had come to recognize the emergence of the 'Anthropocene' as a new geological era, a split from the Holocene, generally recognized until then as the current geological epoch and as having begun after the last glacial period approximately 12,000 years ago. Mixed reception to that new term engendered fierce debates, providing a glimpse of the far-reaching practical and philosophical implications of proclaiming this 'Age of Mankind'. Reactions ranged from how an 'age of mankind' would be the summit of hubris, to it just being another metaphor for the environmentalists to raise the level of alarm. It is true of course that the environmental movement has a track record when it comes to attempts to reach the public at large to make them aware of the state of the

A project by Olafur Eliasson and Minik Rosing, on the occasion of COP 21 – United Nations Conference on Climate Change. Photo: Martin Argyroglo

environment with gripping titles, evocative infographics and metaphors like 'planetary boundaries', 'limits to growth', and 'sixth mass extinction wave', etcetera.
So, what did change with proclaiming the Anthropocene? What didn't change? Let's start with a book that for many people for the first time took environmentalism to a global scale: Man's Role in Changing the Face of the Earth. It contains the proceedings of an international conference at Princeton University in 1955. Some 150 scientists like urban sociologist Lewis Mumford and theologists like Teilhard de Chardin made contributions. If we look at the table of contents, one observes that all the present-day themes were already there in the mid-fifties. Chapter headings read, The age of fossil fuels, The climate of towns, and Man as maker of new plants and plant communities, etcetera. What has changed in the decades that followed?

First of all, in the seventies new instruments brought the epistemological change that linked all these different elements together in conceptual models. The bold modelling of Jay Forrester and Donella and Dennis Meadows for the Club of Rome report Limits to Growth is perhaps the best-known example.[4] Some years later system ecologists like H.T. Odum expanded this by modelling both material and energy flows. He attempted to connect the human economy and the natural world, describing them in one ecosystem model, suggesting that we can predict the whole system's performance.[5] This could be a promise for ever; even quantum computers and big data won't allow real modelling here as we lack theoretical understanding and are unaware of much of the cause and effect relationship, as well as the sheer complexity of the whole. Some even claim that these hyper complexity makes predicting fundamentally impossible.

Big data can be very helpful though, in producing evocative pictures like NASA's well-known YouTube hit A Year in the life of Earth's CO2. A humongous amount of data was aggregated to animate a year in the CO2 cycle of our living planet, making clear that the real rupture in thinking in our age is the belief that we do not just influence on the scale of an ecosystem, not just on the scale of a landscape but our influence reached a global level. We are disrupting some of the Earth's systems. This is where Earth System Sciences come in EES sets itself apart from geology or ecology by taking a systems view.[6] The Earth systems drastically altered are the geochemical cycles, the sediment flows now that big rivers are dammed for energy production, ocean acidification, the changing land use fuelled by reclamation for agriculture and urbanization, biodiversity erosion, and finally, the human-disrupted climate. 'Man, as a global force' was the main reason Crutzen and Stoermer coined the term 'the Anthropocene'.

The idea is being seriously studied by the International Commission on Stratigraphy. The focus of their debate is when this Anthropocene is supposed to have started, with three clashing lines of reasoning. Firstly, the 'old school' proposes two options; it either traces the influence of humans on Earth systems back to the out-of-Africa migration (beginning the hunt to extinction of large vertebrates and predators on every continent across the globe) thereby almost leapfrogging the Holocene completely or to the somewhat more recent start of agriculture, around 10,000 years ago. The second, more pragmatic, line asserts that the era began in 1769 when James Watt was granted a patent for the steam engine, initiating the use of fossil fuels on a massive scale. Gaining ascendance is the third school of thought, tracing the logical beginning of the Anthropocene to the mid-20th century. This claim is based on thousands of near-synchronous geological signatures in stratigraphic records during the post- World War Two period that marked a global increase in population, industrial activity, energy use, greenhouse gas emission, and, as a golden spike, the radioactive isotopes of the atomic bomb detonations as a geologic marker.

This post-war period is also known as the great acceleration. Looking at all the dials on the dashboard of planet Earth, one sees that in this period of somewhat more than half a

century all the meaningful indicators in socio-economic trends and Earth system trends show similar patterns. Population growth, use of natural resources, energy use, depletion of fish stocks, greenhouse gas production, paper use, reclamation of woodland, and fresh water use, etcetera, show an almost exponential growth in that period. The ever-steeper graphs are almost through the roof.[7]

There are rather different ways of looking at these climbing lines. Some see it as the proud rendering of economic success, some as an orderly way of identifying all the separate environmental problems we face. The French philosopher Bruno Latour takes a radically different position, considering it the representation of the apocalypse with humankind in the middle.[8] Not the four horsemen, but our explosions of wealth are the heralds of doom.

It does not much matter if the International Commission on Stratigraphy agrees on an officially-formalized Geological Anthropocene. The concept has already made its way into many scientific publications as well as the minds of the general public fed by the popular press. Without doubt, humankind must be reckoned with as a geologic force. Influences are measurable (and at times disruptive) on many fronts: ocean acidification; the erosion of biodiversity; reduction of sediment flows in most river systems; most of the world's geochemical cycles; and—important for the subject of this book—large-scale land use changes caused by reclamation for agriculture and urbanization.

Once the Anthropocene idea of humankind as a geological force sinks in, it will not let go. The insight that human and planetary histories are interconnected proves groundbreaking. It requires acknowledgement that human history and Earth history have converged[9], and the domains of free will and of necessity have more to do with each other than once presumed[10]. Seeing human intervention as a force of nature that affects earth systems undermines the pseudo-opposition between nature and humankind. This opposition—like that of body and mind—has for centuries dominated thinking and hampered focus on real problems. We humans thought that we existed outside nature, and nature outside us. Nature was either made sacrosanct and remote or seen as "other", the domain where we could withdraw unlimited resources and upon which we could dump waste forever. The Anthropocene postulates human and natural processes as linked together in a complex new whole, with no imaginary 'natural equilibrium' to fall upon.

For members of the design and planning fields, waking up in the Anthropocene unsettles previous thinking about relations between humankind and the sites and planet they inhabit. The Anthropocene must spur a new search for professional attitudes, responsibilities, and even a new look at the ethics of the design disciplines. Since reflecting on perspectives for action on the environmental conundrum of today demands a more distant view, a good theory provides assistance.

1. Crutzen, P.J. & E.F. Stoermer The “Anthropocene” in: Global Change newsletters No 41, 2000, pp 17 and also Crutzen, Paul J. (2002) Geology of Mankind Nature 415, 23.

2. The influence of mankind on a global scale (as distinct from the Earth system) was recognized earlier: See for instance Fairfield Osborne (1948), Our Plundered Planet, Faber and Faber, London or the impressive proceedings of the world conference in Princeton in 1955, William L. Thomas, Jr. ed, (1956) Man’s Role in changing the face of the Earth University of Chicago Press, Chicago and for a more elaborate deep historical dissection of the history of environmentalism: Christophe Bonneuil and Jean- Baptiste Fressoz (2016) The Shock of the Anthropocene Verso, London.

3. Hamilton Clive & Jaques Grinevald (2015) Was the Anthropocene anticipated? The Anthropocene Review 2, no.1: 59-72.

4.Donella H. Meadows, Dennis L. Meadows, Jørgen Randers & William Behrens III (1972) Limits to Growth, report to the Club of Rome (Modelling done by Jay Forrester) Universe Books,

5. Howard T. Odum, Elizaberh C. Odum (1981) Energy Basis for Man and Nature McGraw-Hill Books, New York

6. Wikipedia: ESS considers interactions and ‘feedbacks’, through material and energy fluxes, between the Earth’s sub-systems’ cycles, processes and “spheres”—atmosphere, hydrosphere, cryosphere, geosphere, pedosphere, lithosphere, biosphere, and even the magnetosphere—as well as the impact of human societies on these components.

7. Will Steffen, et al, The Trajectory of the Anthropocene: The Great Acceleration Anthropocene Review, January 2015 (updated from 2004)

8. Bruno Latour during the presentation of the Dutch translation of his book Face à Gaia. Huit conferences sur le Nouveau Régime Climatiques in November 2017 in the Aula of the University of Amsterdam.

9. Chakrabarty, Dipesh (2009) The Climate of History: Four Theses. Critical Inquiry 35: 197–222 and an elegant overview by the same author on the difference between a name and a geological concept stating that we should allow ourselves to zoom in on a historical time-scale where colonialism and capitalism matter and zoom out to the geological time scale to see mankind in the deep history perspective, see: Dipesh Chakrabarty (2016) The Human Significance of the Anthropocene In: Bruno Latour & Christophe Leclercq Reset Modernity! ZKM | Centre for Art and Media, Karlsruhe/ MIT Press London.

10. Hamilton, Clive (2010) Requiem for a Species, Why We Resist the Truth About Climate Change Earth Scan, London.

Erzberg, Eisenerz, Austria Photo by Sebastian Pichler on unsplash

THE IMPACT OF DUTCH IMPORTS ON NATURE LOSS WORLDWIDE

By Steve Jennings (Alauda Consulting)
Commissioned by: WWF Netherlands
**Extracted parts*

INTRODUCTION

Up to eighty per cent of all deforestation and land conversion is caused by commercial agriculture and forestry1 , in order to produce commodities that are either consumed directly, used in the manufacture of products, or fed to livestock which form part of our diets. This includes commodities such as cocoa, palm oil, soy and timber that are imported into the EU in huge volumes despite being directly implicated in deforestation and conversion. The loss of forests and other critical natural ecosystems results in significant environmental, climatic, economic and social impacts. Loss of these habitats has an immediate and direct impact on the species that live within them and the ecosystem services that these habitats provide. It also affects the two billion people that depend, directly or indirectly, on forests and other ecosystems to fulfil their needs for food, fibre and shelter. Deforestation and conversion also have impacts beyond the immediate area that has been converted. Agriculture, forestry and other land activities contribute to nearly a quarter of global man-made GHG emissions. Put simply, if we are to overcome the twin challenges of biodiversity loss and climate change, agriculture and forestry has to become decoupled from deforestation and conversion. This imperative has been recognised – at least on paper. Building the New York Declaration on Forests6 and the UNFCCC Paris Agreement, major consumer country governments, including the Netherlands, signed the Amsterdam Declaration on Deforestation in 2015, which signalled their continued commitments to preserve forests and other critical ecosystems through responsible supply chains. More recently, political leaders committed to end deforestation at the UNFCCC CoP in Glasgow and, on 17 November 2021, the European Commission presented a "proposal for a regulation on deforestation-free products" requiring companies to conduct due diligence to ensure that certain products placed on the EU market are not driving deforestation. The European Commission's proposal for a regulation on deforestation-free products, will, if adopted, require companies to conduct due diligence to ensure that certain products placed on the EU market are not driving deforestation. This is an important and welcome step in eliminating some of the worst environmental impacts from supply chains. However, the proposed regulation is likely to be insufficient in their current form: it only refers to deforestation rather than covering deforestation and conversion of all natural ecosystems. This loophole will allow the ongoing destruction and degradation of some of the most threatened, biodiverse and carbon rich habitats on earth. Secondly, the proposals currently relate only to soy, cattle, cocoa, coffee, palm oil and timber, and some products that contain or have been fed with these commodities. This means that commodities such as coconut can continue to be imported even if they are responsible for deforestation. It is difficult to see how the EU's environmental aspirations- to have a neutral or positive environmental impact and to become carbon neutral by 2050 - could be achieved if non-forest ecosystems and the full suite of commodities and products are excluded from the regulations. Many companies have also made commitments and efforts to remove deforestation from their agricultural and forestry commodity supply chains. For example, a decade ago, the Consumer Goods Forum, which includes some of the largest companies in the world, adopted a resolution to achieve zero net deforestation across all commodity supply

chains by 2020. Despite such pledges, there has been relatively little progress towards turning deforestation and conversion free supply chain commitments into a reality. As the periodic investigations of commodities that have been produced through deforestation getting into the supply chains of major companies show, the complexity and lack of transparency in supply chains hinders even the most well-meaning company. In fact, rates of deforestation and conversion remain high: the world lost 24.2 million hectares of tree cover in 2019, of which around 3.8 million hectares occurred within humid tropical primary forests (a 3% increase compared to 2018). Global estimates of the conversion of nonforest ecosystems are not available, however, specific biomes show that conversion of ecosystems has been rapid in many parts of the world. For example, more than half of Brazil's Cerrado was converted between 1985 and 2017 and more than 9% of the great plains grassland in the USA has been converted in the decade between 2009 and 2019. Irrespective of the precise formulation of the forthcoming EU legislation, reversing the climate and biodiversity crises will require a scaling up of efforts by companies to exclude all deforestation and conversion from their operations and supply chains for all commodities and for their suppliers todo the same.

Global production and use The Americas dominate the production of soy, with Brazil expected to surpass the USA as the world's largest producer of soy in the coming years. Meanwhile, in terms of consumption, China and Indonesia currently import the largest quantities of soy globally. The Netherlands is the third largest importer globally, re-exporting a significant proportion to other EU countries and beyond. The main uses of soy are: Soy meal (or 'cake'): This is the material remaining from oil extraction, which can contain up to 49% protein. The meal is 'toasted' (steam treated) and ground and then is almost entirely used in livestock feed. Soy oil: Soybeans contain approximately 18% oil, which is refined and used as vegetable oil for cooking, in a wide variety of processed foods, and also in the production of biofuels. Direct human consumption: Soy is used directly in a range of food – especially in China, Japan and Indonesia – including soy sauce, tempeh, tofu, soy flour, soymilk, textured vegetable protein, and edamame.

NETHERLANDS IMPORTS, EXPORTS, CONSUMPTION

From 2017 to 2021, the Netherlands imported on average 8.1 million tonnes of soy per year, as soybeans, meal, oil and embedded within meat (especially poultry and pigs) and livestock products (e.g. milk and eggs). Eighty-five percent of this was re-exported. The Netherlands adds value to these exports by processing soybeans into meal: an average of 4.2 million tonnes of beans, 2.3 million tonnes of soy meal and 0.15 million tonnes of soy oil are imported, whereas an average of 2.3 million tonnes of beans, 4.2 million tonnes of soy meal and just under 1 million tonnes of oil are exported. Further value is added through significant exports of biodiesel and poultry, which have an estimated 0.84 and 0.27 million tonnes of embedded soy per year respectively. Both imports and exports have remained fairly stable over the period. The world's land footprint for soy averaged 124 million hectares between 2017 and 2020 or roughly one-third of the size of the European Union. The Netherland's imports account for about 2.2% of this land footprint. Between 2017 and 2020, the land required to produce the volume of soy imported was on average 2.7 million hectares, an area nearly two-thirds the size of the Netherlands. The GHG emissions from land-use change resulting from the Netherlands' soy imports are an estimated 21.9 million tonnes CO2 e per year between 2017 and 2021 – equal to around 12% of the Netherlands' domestic emissions from all sources23. Most of the soy imported to the Netherlands comes from Brazil (47%), the USA (31%) and Argentina (6%). These countries account for 42%, 28% and 6% of the land footprint of the Netherlands' imports of soy respectively (Figure 1).

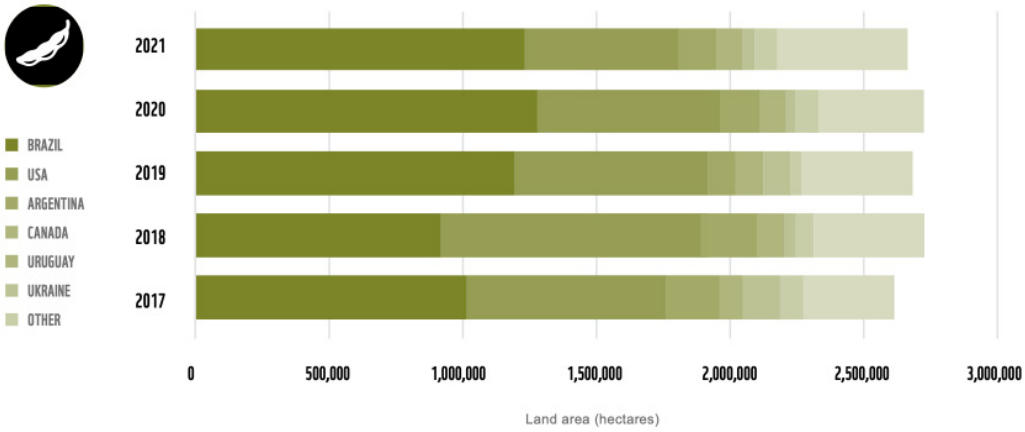


Figure 1. Estimated external land footprint required to supply the netherlands' soy demand, by country (2017–21)

Our analysis of risk assigned Brazil and Argentina to very high and high risk scores due to high deforestation and conversion rates and poor social indicators, meaning that a total of 48% of the land footprint of the Netherlands' imports come from high or very-high risk sources (Figure 2).

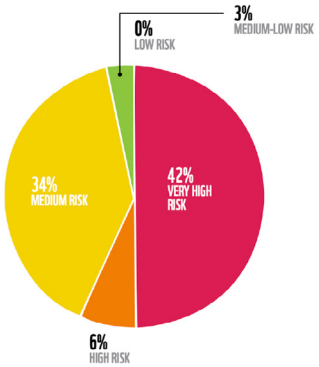


Figure 2: Risk profile of the land footprint of the Netherlands' soy imports
(Note that soy of unknown provenance has not been assigned a risk)

It should be noted that the expansion of soy production from the Great Plains in the USA is one of the main drivers of ecosystem conversion there, alongside maize and wheat The overwhelming use of the soy imported – and consumed – by the Netherlands is as animal feed. Soybean contains around 38% protein (double that of pork and treble that of eggs), a wide range of essential amino acids, a high proportion of unsaturated fat, and produces more protein per hectare than any other major crop. This high protein content has resulted in soy being a major animal feed ingredient: it is estimated that at least 88% of the combined volume of soybeans, meal and oil consumed in the Netherlands is used to feed livestock. It is principally used to feed monogastric species including poultry and pigs, but also in aquaculture and in intensive beef and dairy production systems.
The Netherlands' imports are dominated by soybeans (52%) and soy meal (28%), with 14% embedded in meat and livestock products (Figure 3). Exports paint a different picture: here, soymeal dominates (39%) and the soy embedded in exports is twice that of imports (28%), demonstrating the processing of imported beans into meal and oil, and the subsequent export of meal, oil and livestock products that have been fed on meal. Soybean exports are less than a quarter of imports and would be expected to be predominantly converted into meal and oil in other countries. The picture is clear: the overwhelming demand driver for the soy imported, consumed, and exported by the Netherlands is animal feed. Seventy-five percent of all exports are to the EU, predominantly Germany (41%), Belgium (19%) and France (4%), with a further 9% exported to the United Kingdom.

SUSTAINABILITY

The expansion of soy production in South America has been strongly associated with deforestation and other natural habitat destruction. Soybeans and derived products were estimated to be responsible for 4.4 million hectares of the 9 million hectares of

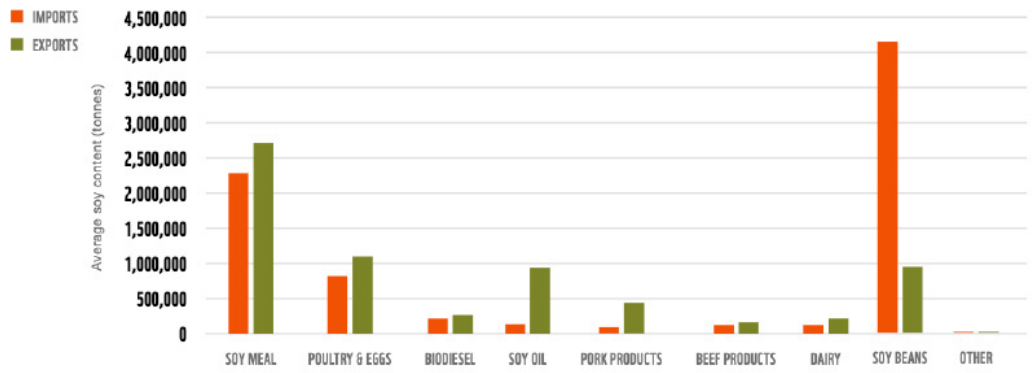


Figure 3: Soy content of imports and exports, by product type (average 2017–21)

deforestation embodied in crop and livestock products imported into the EU between 1990 and 2008. Soy can also act as an indirect driver of deforestation, displacing cattle ranching towards the forest frontier and driving up the price of converted land. The expansion of soy cultivation has led to land rights issues with local communities and indigenous groups, sometimes escalating into violent conflict. Soybean expansion has been associated with poor labour conditions and violations of human rights in Brazil and Paraguay. The fertilisers and pesticides used in soy cultivation can pose health risks to people living near soy farms.
Certification schemes have proliferated within the soy sector. Perhaps the most prominent scheme is the Roundtable on Responsible Soy (RTRS). The scheme includes a standard with independent thirdparty verification, and chain of custody arrangements that include segregation, mass balance or a credit system. Since 2009, the RTRS standard precluded the conversion of any natural vegetation from June 2016 onwards. Approximately 1% of global soy production is certified by RTRS.
A second certification scheme, the ProTerra Certification Program, was created in 2006. The requirements of the standard are broadly similar to that of RTRS, other than that it excludes genetically modified soy (RTRS has an optional non-GMO module). About 95% of the volume of certified ProTerra soy is from Brazil. The area of ProTerra certified soy production was 1.2 million hectares in 2017. In addition to these soy-specific multi-stakeholder standards, there are numerous proprietary standards which include third party verification (e.g., ADM's Responsible Soy Standard, Cargill's 'Triple S' standard, the Certified Responsible Soya (CRS) standard owned by Cefetra), the European Feed Manufacturers' Federation guidelines (which benchmarks standards), and the Feed Materials Assurance Scheme which is in essence a food quality benchmark with an add-on responsible soy module). Proprietary standards typically focus on legal compliance, good agricultural practice, and legal treatment of workers. Their provisions regarding deforestation and social issues are typically weaker than those of RTRS and ProTerra. For example, FEFAC compliant standards need only exclude illegal deforestation, thus allowing legal deforestation, and the ADM and Triple S standards do not demand that workers have freedom of association and collective bargaining. Proprietary standards also tend to be significantly less transparent than RTRS and ProTerra, with no publicly available copies of audit reports, and in some cases the standard not being readily available (e.g. CRS). The European Soy Monitor claims that all of the soybean meal available for domestic consumption in the Netherlands is certified deforestation free. However, this claim does not include other forms of soy, refers only to soy consumed for animal feed (not traded soy), and is based largely on 'credits' that provide no physical link between the soy used and deforestation free production. The evidence provided here shows that the soy traded in the Netherlands is far from being free from the risk of deforestation and conversion.

NEDERLAND VEGANLAND

By Strootman Landschapsarchitecten
Extracted parts

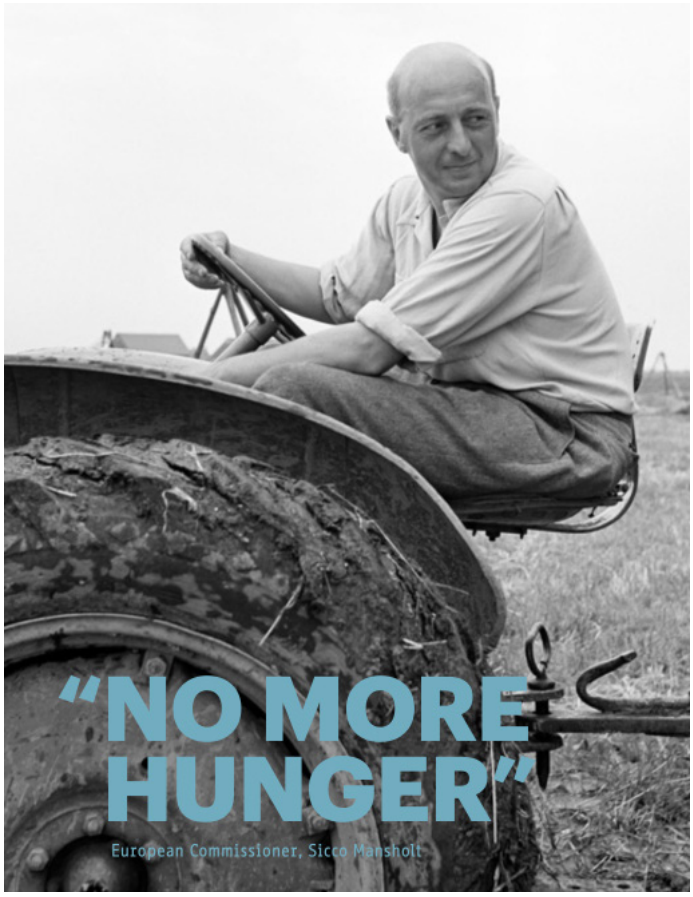
The Netherlands is one of the countries with the highest livestock density in the world. The decision to produce as much animal food as possible may be justifiable when it comes to feeding people or the Dutch economy, but the question is whether it is also justifiable for the animals that are kept, the nature that is heavily polluted, the climate that is changed or the farmers who only derive limited returns from the system.

After all, one of the major problems in the Netherlands is the limited space. There is a demand for more space for housing, nature, recreation, agriculture, sustainable energy production and water catchment. Because the country lacks that space, or rather, because of the choices that have been made, all those social desires and ambitions are often kept in cold storage for a long time. How can the Netherlands equitably design the climate transition in its social environment?

THE PRESENT FOOD PRODUCTION SYSTEM IS AN EDIFICE THAT WAS PRIMARILY SET UP AFTER THE SECOND WORLD WAR...

The Dutch government played a leading part in directing this process, especially in the first decades. Nevertheless, the agricultural policy has deeper roots. The Dutch government has conducted policy to promote the production and export of agricultural products ever since 1840. It acted in the spirit of a strong commercial mentality and by promoting the triad of research, information and education.

It was particularly after the Second World War that this policy proved to be a success. This was partly due to the European Commissioner. Sicco Mansholt, who deployed the European policy to modernise agriculture. Innovation, availability of artificial fertilizer, increase of scale and mechanisation were important stimuli to raise production and productivity. Almost all the small, extensive, mixed enterprises of 1950 were replaced by today's larger, intensive and specialised enterprises. The number of agrarian enterprises has fallen from 500,000 in 1950 to 50,000 today. The largest part of the land surface of the Netherlands is used by agriculture.



THE PRESENT SYSTEM IN STATISTICS

62% of the land in the Netherlands is used for agriculture and market gardening, 20% for nature and water, and 18% for buildings and roads. No less than 72% of that 62% is used for the reduction of meat and dairy products. Only 44% of the agricultural land is used for domestic food consumption. Outside the Netherlands, the country uses 3 times

as much as its own surface area of agrcultural land (equivalent to roughly 18 times the land surface area of Flevoland) for domestic food consumption. For example, the Netherlands imports 450 kilotons of

soya from Brazil and other countries every year. Most of that also supplies the production of meat and dairy products. The Netherlands is not unique in this respect: 80% of agrcultural land all over the world is used for the meat and dairy industry, which satisfies only 17% of the world demand for calories. One-third of that land is also suitable for arable farming for human consumption.

STRIVING FOR LIFE WITHIN PLANETARY BOUNDARIES

Planetary limits
The Netherlands has an enormous concentration of livestock, by comparison with the rest of Europe. The present food production system in the Netherlands is on the borderline, and regularly crosses it. The intensive food production has a considerable downside: bad smells, air pollution, eutrophication, greenhouse gases, subsidence, soil degradation, animal welfare problems, health (infectious diseases transmitted from animals to humans, etc.), water contamination, reduction in the quality of the landscape, nature and water, biodiversity, etc.

The impact of the present agricultural production system on biodiversity, in combination with urbanisation, is enormous all over the world. Only 4% of the biomass of all mammals on earth consists of wild animals, and only 30% of the total biomass of birds is wild; the rest are poultry. The agricultural livestock consists of only a handful of similar breeds and makes no contribution to biodiversity.

The negative impact on the environment and climate leads to injustice towards vulnerable groups, the generations after us, and nature and animals themselves. Those with a low income are relatively often the victims because they are less able to protect themselves against the consequences of climate change and a decline in environmental quality.

Paradoxically, those who contribute the most to climate change and the loss of biodiversity are the most able to withstand the financial consequences. For example, the total greenhouse gas emissions of the richest 1% (approx. 70 million people) are the same as those of the lowest 66% incomes.12 On the other hand, those who contribute relatively little to overstepping the planetary boundaries often live in vulnerable areas. Around 3.3 to 3.6 billion people live in areas that are particularly susceptible to climate change.

The unequal distribution of both the causes and the consequences of overstepping the planetary boundaries makes the achievement and maintenance of these boundaries a question of both biophysics and justice. This is why Raworth has added a new social boundary to the concept of planetary boundaries. This shows that the attempt to meet the planetary boundaries must proceed hand in hand with striving for just boundaries.

In short, the current food production system is not very just – reason enough to explore whether 'Nederland, Veganland?' could offer an attractive alternative.

JUST SUPPOSE THAT THE WHOLE OF THE NETHERLANDS WOULD BECOME COMPLETELY VEGAN, WHAT WOULD THAT MEAN FOR CLIMATE JUSTICE AND THE MAJOR CHALLENGES FACING THE COUNTRY?

Important factors in the transformation of the food production system are: optimisation of plant-based (protein) production, the achievement of a climate-resistant and biodiverse production, of an environment neutral or even environment-positive production, of a more equitable food distribution, and shifting to healthier, local consumption. This chapter outlines a spatial

profile of the Netherlands in which these factors are integrated.

In the previous chapters we have shown that the current food production system is in certain respects unjust and inefficient. Might a fully vegan system do a better job? In order to find out, we have formulated premises, made calculations, and drawn and analysed maps.

PREMISES

We have adopted the following premises:

- We anticipate a Dutch population growth from 18.5 to 20 million.
- The entire Dutch population has a completely vegan diet. There is no livestock, so no animal feed is produced or imported either.
- The Dutch population eats food produced in the Netherlands as much as possible.
- The import of some products that are difficult to produce in the Netherlands continues: coffee, tea, chocolate, tropical fruit, etc.
- There is no longer any commercial fishing or fish farming.
- The Dutch eat no more than is necessary and healthy.
- Food waste is limited (our calculations assume a triple reduction for the entire chain of production.

REQUIRED AGRICULTURAL LAND PER CAPITA

From our calculations we arrive at a use of space of 720 m2 per capita. This compares favourably with the current situation of 1,800 m2 for the Netherlands and other countries combined. We have calculated that 59% of the current agricultural land is sufficient for this, meaning that 41% of the current agricultural land is ‘surplus’ and could be used to meet the challenges facing the country.

IT FITS!

The entire Dutch population can be fed with an integral nutritional diet according to the Wheel for Life within the national borders. That is not all: we can also achieve the entire list of social demands, with all those aspects for which there is not enough room in the present situation. In fact, not even all of the available agricultural land is needed to achieve that goal. Some areas in the Netherlands have a fairly low productive potential for arable crops. You could envisage extensive forms of arable farming there, but it probably makes more sense to think in terms of different crops such as agroforestry, woodlands, energy-yielding crops and water storage. The peat meadows can become natural grasslands that supply the hay plant fertilizer for the arable lands.

CLIMATE JUSTICE

One of the main questions of the EFL Foundation concerned the justness of the climate transition. In ‘Nederland, Veganland?’ there is more respect for the values of people, animals and plants, who all have the right to exist on our planet within an ecological and evolutionary system. Food will become slightly less expensive in the Netherlands, making it easier for those with a low income to purchase healthy food. People with relatively low incomes suffer relatively more disadvantages from the present system. If those disadvantages disappear, it will be to their benefit and will make the Netherlands a more equitable country. The burdens will be better distributed, but whether that is also true of the benefits is questionable, because that requires specific policy that is independent of the food issue itself. The vegan diet will also have consequences internationally. First of all, the Netherlands would be a splendid example for others, but even more important is the fact that it would ease the pressure on countries like Brazil, where tracts of the Amazon are being deforested for the production of soya that is imported as animal feed for poultry, pigs, and dairy cows.

Climate justice also requires the involvement of citizens and other interested parties in a transparent and honest decision-making. That applies not only to people but also to plants, animals and ecosystems. We have not developed that aspect here. It involves taking into account the interests of everyone and preventing the passing on of accountability to others as much as possible. 'Nederland, Veganland?' contributes to restorative justice by no longer keeping animals and restoring biodiversity. If 'Nederland, Veganland?' were to be copied elsewhere in the world, the contribution to climate justice would be even further enhanced.

COSTS AND BENEFITS

Is it economically viable to take such a big step? What would it mean for the Dutch economy? Aren't the agricultural sector and the meat and dairy processing industry very important for the Dutch world of industry and commerce? To answer that question we invited Max van der Sleen to carry out a Social Cost-Benefit Analysis with particular attention for General Welfare. In short, the conclusions are:

'Nederland, Veganland?' has the potential to bolster and transform the Dutch economy over a period of 20-25 years in such a way that the General Welfare in the Netherlands increases. The Gross Domestic Product (GDP), an important indicator of General Welfare, grows in 'Nederland, Veganland?' more than in the Business as Usual (BAU) scenario. In 'Nederland, Veganland?' the scaling down of livestock farming by 100% is accompanied by the building up of market gardening and arable farming by 200%. This entails a more limited drop in the GDP than in the BAU scenario, because the Added Value per hectare of market gardening and arable farming is larger than with livestock farming.

The Internal Rate of Return of the social investment in 'Nederland, Veganland?' of € 117 billion over 20 years amounts to 13% as against the BAU scenario with a total investment of € 58 billion. An Internal Rate of Return of 13% is high by comparison with the 2 to 4% that the Ministry of Finance applies standard to large-scale national projects in infrastructure and climate. The two other result indicators – the Net Present Value and the Cost-Benefit ratio – are also positive for 'Nederland, Veganland?

IS 'NEDERLAND, VEGANLAND?' REALISTIC?

Certainly not in the short term. But it is a thought exercise, not a plan. People are attached to their piece of meat or cheese and to the yoghurt they have for breakfast. Livestock farmers will not be keen on the switch and their interest organisations will exert their influence to oppose such a development. The meat and dairy processing industrial lobby is powerful. Nor is it our purpose to force everyone to become a vegan in the short term. You could never impose that anyway.

But what we do find interesting is that it would bring so many benefits to the Netherlands: the promotion of animal welfare, the achievement of the agricultural climate targets, the greater availability of space, the improvement in the water quality, the provision of more space for nature, the benefits for biodiversity, the solution of the nitrogen problem, the promotion of health, and the use of less land internationally, which leads to a more equitable system. In short, a more relaxed Netherlands. The environmental damage due to the emission of polluting materials in the air by livestock farming, calculated at € 8.3 billion for 2021,36 disappears. An en masse switch to a vegan diet has nothing but advantages.

'Nederland, Veganland?' hopes to contribute to raising awareness of the influence of the choices that we make and helps to form a picture of how the Netherlands might look if we radically change our present diet. Extreme ideas are sometimes helpful to arrive at new insights, because they broaden our gaze and enable us to consider the present state of affairs and the future in a different light.

FOOD FOR THOUGHT INVESTIGATING THE ENTIRE FOOD SYSTEM ACROSS CONTINENTS[1]

Project by Kadir van Lohuizen
**Extracted parts*

Be ready to discover the world behind our food. Where is our food produced? And how is it distributed around our world? Like a fly on the wall, photographer and filmmaker Kadir Van Lohuizen follows the entire process in this book, in Kenya, the USA, Saudi Arabia, the United Arab Emirates, China and the Netherlands, his home country. The large scale and efficiency of most food companies evoke as much respect as questions: what are the effects of these production and consumption chains on the planet? And how future-proof are they? Food for thought, indeed.

In this new project, photographer and filmmaker Kadir van Lohuizen follows the entire process in Kenya, the USA, Saudi Arabia, the United Arab Emirates, China and the Netherlands, his home country. The large scale and efficiency of most food companies evoke as much respect as they raise questions: what are the effects of these production and consumption chains on the planet? And how future-proof are they? Food for thought, indeed.

Food Production is responsible for at least 25% of global greenhouse emissions, putting increasing pressure on the world's food supplies. Desertification, droughts, wildfires, floods and rising seas are leading to loss of land and decreased yields.

The climate crisis is not the sole disruptor of our food supply chain: the outbreak of Covid-19 showed that pandemics are very much related to what we eat and how we eat it and It has brought food uncertainty to the West's doorstep, as much as the war in Ukraine and disruptions to the Suez Canal have more recently highlighted how global food distribution truly is.

The questions that van Lohuzien had in mind were simple: what are we doing to build more resilient and agile food systems that can adapt to a changing environment and respond to disruptions? Can we produce locally? Where will the next decade lead us? More mega-farms? Vertical farms in cities? Or even an animal free food production? Starting from his home country the Netherlands, which is the second agricultural exporter in the world, van Lohuizen investigates the impact our food consumption has on the environment, public health and economy.

"We can feed this planet if we want to, even if there will soon be 11 billion of us, which is encouraging. But with a climate crisis in full swing, causing agricultural areas to dry up or be flooded, the system needs a major overhaul. I have become convinced that the way we're doing things in many places won't be sustainable in the longer or even the shorter term. The good news is that we can change it if we want to, and governments can also take the lead, particularly by providing farmers with alternative perspectives."
— Kadir van Lohuizen

FROM CHEESE TO KNOW-HOW

The Netherlands might be tiny in size, but it has become the world's second-largest exporter of agricultural products by value,

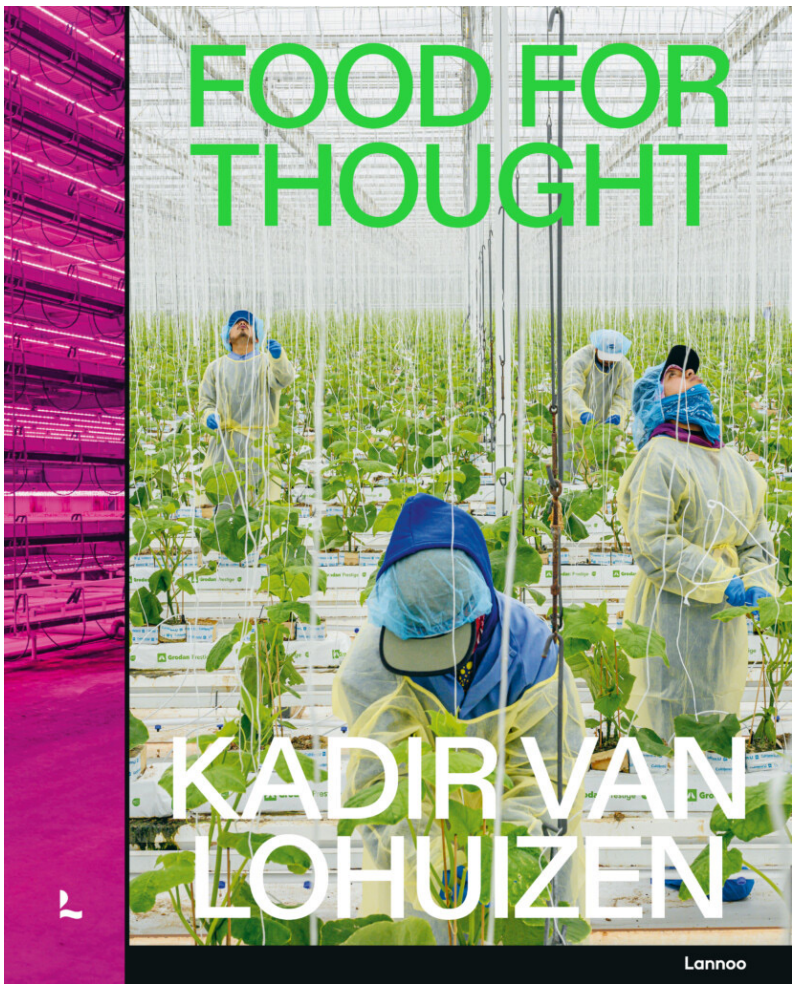
behind the United States. This is all the more amazing considering the scarcity of agricultural land and the rainy climate. Factored into the export numbers are transshipments – the Netherlands is a major hub for many products, with the ports of Rotterdam and Amsterdam and Schiphol Airport. Rotterdam is the largest port in Europe and ranks amongst the biggest ports in the world. Amsterdam is the largest soy port in Europe. Soy comes in from Brazil and the United States for the Dutch market and is transshipped to other destinations in Europe, mainly to be processed into animal feed.[2]

Being one of the smallest countries in the world and at the same time the second agricultural exporter in the world seems to be a paradox. Food production in the Netherlands per acre is among the highest in the world thanks to innovative techniques to grow crops in greenhouses and the intensive use of farmland.

Next to that, indoor farming in cities like Amsterdam, is developing very fast and seems to be a promising solution. 70% of vegetable seeds in the world find their origins in the Netherlands. The Netherlands is one of the biggest tomato producing countries in the world, mostly for export. Piglets are mainly exported to China and on average 90% of the onions are exported to Asia and Latin America. Paradoxically the Netherlands import onions back. Most soy is imported from Brazil and the US to feed Dutch livestock.

1. See https://www.noorimages.com/food-for-thought for photos accompanying the article.

2. Source: van Lohuizen, Kadir. Food for Thought. Illustrated edition. Lannoo, 2024, p.44. https://npo.nl/start/serie/food-for-thought



Kadir van Lohuizen,
Food For Thought,
Lannoo Publishers, 2024

SETTING A NEW BAR FOR DEFORESTATION AND CONVER-SION-FREE SOY IN EUROPE

By Pavel Boev, Jan Willem van Gelder
**Extracted parts*

INTRODUCTION. SETTING A NEW BAR: WHY?

Soy is often overlooked by end consumers as well as downstream food producers of animal products, as it is used as a feed ingredient for livestock. Soy is therefore often present in animal products such as chicken, pork, beef, and farmed fish, as well as in eggs, milk, cheese, and yoghurt, even though it is not on the ingredients list. Due to its high protein content, soy has become a key component of animal feed. A total of 75% of the world's soy production is used as animal feed. All of 388 million tonnes of soybeans are grown on approximately 130 million hectares worldwide (FAOSTAT 2021, European Soy Monitor 2021)[1]. Compared to the approximately 20 million hectares of palm oil and its presence in the sustainability debate among companies and politicians, the footprint of soy has so far been less prominently featured. As the world population is estimated to grow to ten billion by 2050, soy production is expected to continue to increase to meet the demand for animal-based foods, especially in the large emerging economies. Although soy can be produced sustainably, global demand for low-cost feed for intensive livestock production has contributed (alongside cattle rearing and other factors) to the rapid loss of some of the world's most essential and biodiverse ecosystems. After the Amazon, more recently affected biomes have included the Cerrado, Atlantic Rainforest, Gran Chaco and Chiquitania in South America, and the Great Plains in North America. The African savannahs and native grasslands in Central Asia are also increasingly affected by soy expansion.

The large-scale conversion of natural vegetation also affects soy harvests themselves over time by altering climatic conditions, and thus threatening the long-term resilience of agricultural production. Furthermore, the general production model of soy includes an intense use of chemicals which, if not well managed, can lead to soil and water pollution.

Deforestation and conversion-free (DCF) sustainable soy production is not "recommended" but is a "major must" for ecological, economic and social reasons. The word is out that we need a better balance between animal and plant-based protein from a climate and resource efficiency point of view. However, soy will continue to be used for part of the animal feed and the question is for soy – as feed and for direct human food consumption – can it be produced sustainably? Without deforestation and ecosystem conversion, with respect for land and labour rights, while applying responsible practices such as in its management of chemicals? Large-scale, landscape-, and biome-wide measures as well as clean supplier solutions to combat deforestation and conversion urgently need to be applied, in addition to farm level sustainability solutions. The question is how to combine tools in a constructive manner and in different contexts. We believe that soy sustainability standards will continue to have an important role to play in supply chains as well as landscape programmes, and that they can make an important contribution in the new European legislative context and in deforestation and conversion-free company strategies. When IUCN NL commissioned the former

Profundo soy standard benchmark study (published in 2019), it was meant to provide clarity to the market about the differences between the many standards that had passed the test of the FEFAC soy sourcing guidelines (SSG). Only 7 out of 17 could be called deforestation-free for example. The deforestation requirement was also important distinguishing information within the European Soy Monitor that IUCN NL started off together with IDH The Sustainable Trade Initiative in the same year. Benchmarking can help as a heads-up. FEFAC has improved its guidelines in 2021. For example, its SSG 2021 require the public availability of standard documents, it aligned its definitions with AFi, and several desired criteria became essential. FEFAC also started to provide clarity if a standard had a deforestation and conversion-free requirement and about cut-off dates. Almost all standards have improved their deforestation and conversion-free criteria. Yet, there still are significant differences among the – now 20 – FEFAC SSG approved standards, especially on other aspects than deforestation and conversion which we seek to obtain and provide insights on with this new publication. This report should inform our own advice to companies, financial institutions, governments, and NGOs, and we hope it is a useful source of information for everyone.

The recently adopted EUDR that will have to be applied by 2024/25, requires traders/ operators to provide traceability to plot level and a due diligence statement about legal compliance in the country of origin and production without deforestation. The EUDR thus far applies to 7 commodities including soy. A major achievement in order to create a level playing field in the EU, but in the battle for its establishment as a mandatory tool – existing successful verification tools to deliver the law were not recognized or even downplayed. In addition, achievements in establishing more extensive sustainability criteria for soy were not acknowledged. Certification in the regulation text is recognized as a source of due diligence information, but robust, third-party verification of legality and deforestation free production for example is not mentioned as an important requirement to be a trustworthy source of information.

WE THINK IT IS TIME FOR THE RE-EVALUATION AND REVALUATION OF THE IMPORTANT AND MULTIPLE CONTRIBUTIONS THAT ROBUST SOY STANDARDS CAN MAKE AS A VERIFICATION TOOL OF SUSTAINABILITY WITHIN THE NEW MANDATORY SETTING IN THE EU AND BEYOND.

Companies placing products on the EU market according to the EUDR now have the responsibility of ensuring legal, deforestation-free products that are traceable to plot level. The EU also adds a layer of government control of the due diligence statements through samples from competent authorities in its Member States. Enforcement of the regulation and its impacts on forests and ecosystems in producing countries will depend essentially on the perseverance of these national control authorities. But who controls deforestation and ecosystem conversion, or the many (also social) aspects that legality implies? As companies now focus primarily on implementation of the EUDR, many other sustainability impacts are in danger of being overlooked, such as responsible management and scaling down of chemicals, responsible labour and community relations, good agricultural practices in terms of soil and water management. Even if deforestation and ecosystem conversion is a major driver of biodiversity loss and its emissions contribute to climate change, so is pollution, soil erosion and water scarcity: What is done on a farm to manage these aspects? Robust standard systems can provide an important service in the toolbox for compliance with the EUDR but also – and more importantly – with the requirements of a broader due diligence agenda.

In our daily conversations we often discuss the value of different CoC models. To enable EUDR compliance, for example on traceability,

various standards are still adapting, also in the year to come. We hope to be able to add a short update next year on what's new on the market as tools for EUDR compliance, in relation to the standards discussed.

Now that we have a level playing field in the EU, we can and should strive for EUDR Compliance Plus. Either through physical supply chains that are fully certified according to integrated environmental and social criteria, or partly so, blending in a certain – realistic yet ambitious – percentage of fully certified soy within verified EU compliant soy over time. Furthermore, we can add value in risk landscape programmes such as in Cerrado and Chaco, by promoting and rewarding responsible producers, for example with credits for each tonne of their certified production, primarily to value conversion-free sustainable agricultural practices, but also to enable the blending – over time – of this fully certified production into the physical value chains in all directions, not just the EU. According to FEFAC SSG, 40% of the European soy footprint is already certified, applying different CoC models. Under the standards that verify deforestation-free soy, 24% are certified by standards that were identified by the former Profundo benchmark in 2019 (European Soy Monitor, 2021).
Why take a step back on other criteria while moving forward on traceability? Why not try to combine the best of the mandatory and voluntary world? This can be done now. DCF sustainable production should become the norm in all global trade, and standards can help verify this – as tools in the toolbox of responsible companies and governments.

AVOIDING DEFORESTATION AND CONVERSION

Agricultural expansion for pasture and cropland to produce soy remains among the key drivers of deforestation and land conversion in South America. The Amazon Soy Moratorium, which was first agreed in 2006, enabled a significant reduction of soy-driven deforestation in Brazil.[2] However, with global demand continuously increasing, the soy frontier shifted to other biomes, driving land conversion in the Cerrado savannah, Chaco forests, Atlantic Forests, and increasingly Pantanal wetlands, posing new threats to biodiversity, the global climate, and local communities. According to WWF, over half of the Cerrado's 100 million hectares of native landscape has been lost already, largely caused by livestock and soybean farming.

The EU plus the United Kingdom forms the second-largest importer of soy globally after China, with 14.6% and 40.1% in 2020, respectively. At the same time, while China is a larger importer than the EU, Trase data show that the EU's relative deforestation impact linked to soy from Brazil was greater than China's. Over the period 2009 to 2018, EU imports of Brazilian soy on average led to 1.5 hectares of deforestation and conversion per 1,000 tonnes, compared to 0.75 hectares linked to Chinese imports from the country. This is due to the fact that EU imports more often are sourced from frontiers of deforestation, for instance the Cerrado. A similar pattern has been observed for imports of Argentinian soy.[4]

Thus, it is important that the EU market eliminates soy-related deforestation and conversion from its imports and consumption. Increasingly more companies are making zero-deforestation and zero-conversion commitments and claims, but often the credibility of such claims remains uncertain. According to zu Ermgassen et al (2020), ero deforestation commitments are voluntary initiatives where companies or countries pledge to eliminate deforestation from their supply chains. These commitments offer much promise for sustainable commodity production, but are undermined by a lack of transparency about their coverage and impacts".

1. See: https://www.fao.org/faostat/en/#home. and European Soy Monitor Insights on European uptake of certified, responsible, deforestation and conversion-free soy in 2021

2. Heilmayr, R., Rausch, L.L., Munger, J. et al. (2020), "Brazil's Amazon Soy Moratorium reduced deforestation", Nat Food , 1: 801–810.

4. Trase (2020, July), Trase Yearbook 2020 – The State of Forest-Risk Supply Chains, p. 5.

THE RAISED BOG UNDERNEATH THE FARM: WALKING INTO THE PAST AND THE PRESENT

By Caroline Kreysel

"These are no roots, but dead plant material," said Peter as he pointed at a cushion of sphagnum moss that, indeed, resembled a fine web of roots.[1]He carefully plucked a part of it. "Squeeze it," he said, "it will release its water."[2] Sphagnum moss is the main building block of an intact peatland; it holds water and forms the cushions that create the raised bog landscape.[3]Peter has been fighting for the restoration of the Peel, a largely drained peatland in the Southeastern Netherlands, since the late 1970s. High livestock density, animal farms, and grasslands largely buried the peatland underneath them, except for a few patches with protected status.[4]The Peel therefore exhibits harsh contrasts; intensive animal farms exist next to peatlands sensitive to nutrients, thousands of livestock animals are crammed into stables while migratory birds pass above them, the thousands of years that the Earth took to form a layer of peat were scraped off within several decades to produce turf.

I encountered the Peel as part of my PhD research. [5]I wanted to understand how animal farming practices relying on imported feed material such as soybeans have changed the landscapes surroundings these farms and what alternative visions of the landscape existed. I could have researched the history of imported feed material in the Peel through textual sources as a history of scientific innovations, globalized markets and human ingenuity. However, this would have obscured the situated multiple temporal scales at which change occurred in the Peel due to human ways of using the land.[6]

The "main character" of a raised bog, sphagnum moss. (Image by the author)
Image description: A hand is holding bright green sphagnum moss.

The proposition of the Anthropocene as a new geological epoch has sparked reflection on time among humanities scholars.[7]Laurent Olivier and Marek Tamm argued that overcoming a "modern" notion of time, which implies linearity and a rigid separation between past and present, was crucial to developing more nuanced theories of change over time, thereby conceptualizing time as a human construct.[8]Anna Tsing advocated following the temporal expressions of nonhuman agents in landscapes to understand the trajectories of the Anthropocene alongside humans.[9]Reflecting on these critiques, I

realized that my research practices, such as archival research and life story interviews, implicitly reinforced the linear notion of time that these authors criticized. To question this tendency, I decided to perceive my research as a "time making activity," and follow Tsing's proposition of tracing nonhuman temporalities to understand more-than-human interactions in the Anthropocene. I combine archival enquiry and walking oral history to become attuned to the multiple temporalities and nonhuman agents of the Peel and to investigate what new perspectives this approach would yield.

I asked my interviewees to pick a place to walk in the Peel while having a conversation with them, drawing on methods from sensory ethnography, oral environmental history and heritage studies.[10]This led to walking interviews in different conserved peatlands of the Peel, places in which previous land use practices such as turf cutting left their mark, but also included walks on pig farms to talk about the histories embedded in farming practices.

Throughout the past 150 years, the Peel underwent drastic changes due to drainage projects, turf-cutting, and animal farming. The new materialities these uses produced can make one almost forget that this used to be a peatland. However, Jeroen, an ornithologist, remarked upon the black waters surrounding grassland areas in the Peel. He argued that in these nutrient poor pools, the peatland was "peeking through" the fabric of the present-day landscape.[11]The multiple pasts of the Peel were still present in the landscape's materialities. To him, the black water indicated the region's past as a peatland. In the Peel's conserved peatland area, a local ranger highlighted the shapes of small turf pits in which subsistence turf cutters had cut the turf in a non-industrial manner. As the pits hold still water, they provide the preconditions for the regeneration of peat moss.[12]These excerpts show how the narrators projected cultural memories
onto the landscape and weaved together knowledge of past and present fuelled by their situated experiences of them. This shed light on the invisible histories we were entering while walking the material worlds of the present. Walking oral histories foregrounded that the peatland continued to haunt the Peel even though it largely disappeared materially.

Underneath the grasslands, there might still be some peat left. (Image by the author)
Image description: A wide, flat field covered in rows of green grass. The sky above is a bit cloudy with patches of sunlight breaking through. In the background, tall, leafless trees line the horizon, and some farm buildings and houses partially obscured by the trees.

Walking in the Peel created multiple encounters with the nonhuman environment that the interviewees incorporated into their stories. Recurrent bird sounds, for example, permeated Jeroen's accounts. During a discussion of what trees were planted in a specific place after drainage, he remarked upon the sound of a dunnock, which redirected his attention to our immediate surroundings and changed the storyline.[13]In another instant, Jeroen described geese flying over us as "flying cows" because they were searching for the "greenest grass to feed on".[14]Various converging temporalities, such as the migratory rhythms of birds, the seasonal rhythms and the pace of walking therefore informed the walking interviews producing non-linear accounts in which the entanglement of multiple temporalities became visible. To access them, I, as the interviewer, had to let go of being the main time-making agent, deciding where and how long we could spend. Instead, I learned from

the interviewee as an interlocutor between me and the nonhuman environment.[15] This shifted my interpretation of the Peel towards a place that multiple agents made sense of such as the geese who adapted to the grasslands of animal farming.

As the effects of agricultural intensification on the peatlands of the Peel became more apparent, foresters and environmental activists advocated for the regeneration of the peatland and the consequent limitation of animal farming. These pleas have been met by fervid resistance from many animal farmers who often perceive the peatland as a relic from the past when the Peel's population was poor and marked by scarcities. In these debates, various human groups have mobilized temporal aspects of the Peel. A farmer emphasized the slow pace at which sphagnum moss grows. He argued that by conserving it, environmentalists made the peatland fall outside "the test of time," implying a linear perception from peatland to animal farming.[16] By contrast, in defence of the regeneration of peatlands, Peter referred to the soil of the Peel as "four thousand year old plant material" since the layers on top of it had been scraped off. He mobilized the rapid change humans inflicted on the peatland as opposed to its longstanding previous existence to argue for its restoration. Including or excluding certain temporalities in their oral histories was therefore a means for the interviewees to envision different pasts and futures of the Peel.

As a researcher, I inserted myself into this landscape with my practice and presence and was able to glimpse the many temporal arrangements that produced the multiplicity of material forms in the Peel. Walking the landscape allowed me to question the temporal order I imposed in oral histories, the validity of perceiving a human life story as neatly delineated from its material surroundings and, finally, to understand humans as products of multiple environments that we co-create together with those we call non-humans. In the present, one form of land use dominates the Peel, animal farming. However, the practice of walking oral history weaved together materialities with visible and invisible pasts, destabilizing the seeming dominance of animal farming as the main use of the peatland in favour of multiple visions of existing in, on, and with raised bogs in the Peel.

1 This study is based on fieldwork in the Peel, the Netherlands, on the use and associated landscape changes of the import of feed material for animal farms. I conducted semi structured interviews with farmers, environmentalists, a retired veterinarian, a former employee of the feed industry and former local politicians active in the Peel. The interviews sought to integrate the resource stream of feed material into wider experiences of agricultural and environmental change in the Peel. The interviewees described their experiences of change in the Peel in relation to animal farming, the preservation of the peatland and the use of imported resources. Whenever possible these interviews took place in a walking manner. These interactions were documented by taking notes, photos and voice recordings. The interviews were recorded and transcribed and the interviewees are here referred to by pseudonyms.

2. Interview, 13:14, "Dit zijn geen wortels maar afgestorven plantmateriaal en die groeien weer door. Neem het maar in de hand en knijp er maar in want dan komt er water uit."

3. Hans Joosten and Donal Clarke, Wise Use of Mires and Peatlands—Background and Principles Including a Framework for Decision-Making (Totnes, Devon: International Mire Conservation Group and International Peat Society, 2002), 24.

4. Emmelien Stavast and Sabine Grootendorst, "Waar Wonen de 11.456.831* Varkens in Nederland?" NRC Handelsblad, 23 September 2022.

5. Caroline Kreysel, https://research.vu.nl/en/persons/caroline-kreysel.

6. Kate Brown, "Learning to Read the Great Chernobyl Acceleration: Literacy in the More-than-Human Landscapes," Current Anthropology 60, no. Supplement 20 (2019): S198–208.

7. Dipesh Chakrabarty, "Anthropocene Time," History and Theory 57, no. 1 (2018): 5–32; Courtney Fullilove, "Debate: Seeds as Deep Time Technologies," Technology and Culture 65, no. 1 (January 2024): 7–38; Bronislaw Szerszynski, "The Anthropocene Monument: On Relating Geological and Human Time," European Journal of Social Theory 20, no. 1 (2016): 111–31.

8. Marek Tamm and Laurent Olivier, "Introduction: Rethinking Historical Time," in Rethinking Historical Time: New Approaches to Presentism, ed. Marek Tamm and Laurent Olivier (London and New York: Bloomsbury, 2019), 4.

9. Anna Lowenhaupt Tsing, "A Multispecies Ontological Turn?" in The Routledge International Handbook of More-than-Human Studies, ed. Adrian Franklin (Abingdon, Oxon ; New York, NY: Routledge, 2024), 122.

10. Stephen M. Sloan and Mark Cave, eds., Oral History and the Environment (Oxford: Oxford University Press, 2022); Sarah Pink, Doing Sensory Ethnography (London: Sage, 2015); Torgeir Rinke Bangstad, "Interstitial Heritage: Industrienatur and Ecologies of Memory," in Heritage Ecologies, ed. Torgeir Rinke Bangstad and Þóra Pétursdóttir (London and New York: Routledge, 2022), 222–45.

11. Interview with an ecologist, 39:09-39:22, "(...) en dan zie je eigenlijk dat de Peel er nog doorheen schijnt."

12. Interview with a ranger, 12:26 – 12:39, "de grens die loopt zo hier doorheen, dit zijn allemaal nog van die oude turfputjes en die zijn eigenlijk aan de grootschalige vervening, daar zijn ze nooit aantoe gekomen."

13. Interview with an ecologist, 9:31, Interviewer: "En de dennen waren voor de bosbouw, voor het hou?" Interviewee: "Ja precies. Dat is een heggenmusje wat je daar hoort zingen. Nou hier hebben ze dus op de alleroudste gronden (...)."

14. Interview with an ecologist, 1:27:09, "En hier heb je meer dan genoeg te eten. Dat is goed gekeurd door de Vereniging van Ganzen. 01:27:33 – 01:27:40 Nee, die moeten het niet altijd. Maar dan zeggen ze, wow, het zijn er veel te veel. Maar weet je, als je kijkt naar de landbouw, dan zie je dat het heel erg goed is. 01:27:45 – 01:27:53 Het zijn eigenlijk vliegende koeien, die vliegen hier overheen en die zoeken dus de plekken met het meest groene gras."

15. Michelle Bastian et al., eds., Participatory Research in More-than-Human Worlds (London and New York: Routledge, 2017), 11.

16. Interview with a farmer, 01:09:59 – 01:10:11,"Maar dan krijg je, ik vraag me af van hoezo? Wie zijn wij om te zeggen, die Peel hoeft de tand der tijd niet te doorstaan. Wij gaan het anders doen?"

EUROPEAN SOY MONITOR

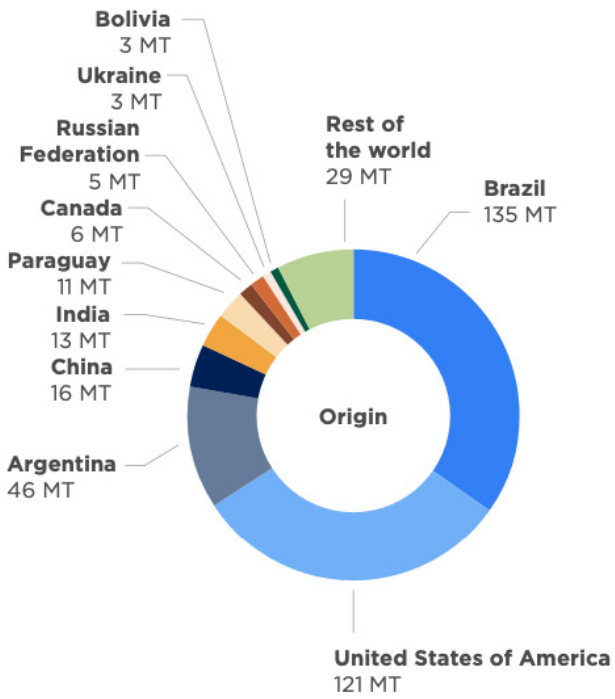
By Schuttelaar & Partners

The European Soy Monitor, made by Schuttelaar & Partners, and financed by a coalition of seven partners (IDH, IUCN NL, RTRS, ProTerra Foundation, Donau Soja, FEFAC and FEDIOL), provides an insight into the key trends and developments in the soy supply chain, including the percentage of certified soy. Since 2018, they have developed and refined the methodology to assess the percentage of sustainable, deforestation-free, and conversion-free soy. For the fourth consecutive year, they gathered and analyzed data from various databases, standards, and feed associations. Additionally, they conducted market trend analysis, which informed the content of the report. Our designers created a visually appealing report with informative infographics. Through close collaboration with relevant parties and country initiatives, they have developed a robust and insightful report.

According to the report, Brazil and the United States continue to be the world's biggest producers and China by far the biggest soy consuming country. European soy production remains rather constant over time. Conversion of natural ecosystems in soy production countries also remains high. It becomes more apparent that multiple solutions in supply chains and landscapes are needed to secure sustainable soy production and protect important ecosystems such as the Cerrado and Gran Chaco.

Global soy production grew in 2021 to 388 million tonnes. The area used for soy production grew from 127 million hectares in 2020 to 129.5 million hectares in 2021.

Brazil continued to be the world's biggest soy producer, followed by the United States and Argentina. China is a relatively big producer, but its soy consumption far exceeds its production. Russia and Ukraine are the main soy producers on the European continent. Countries in the European Union play a modest role in worlds soy production. The soy enters in large vessels in European ports to be further distributed between countries in the EU. Some European countries have their own soy production. In addition, embedded soy is imported via meat, dairy and eggs.

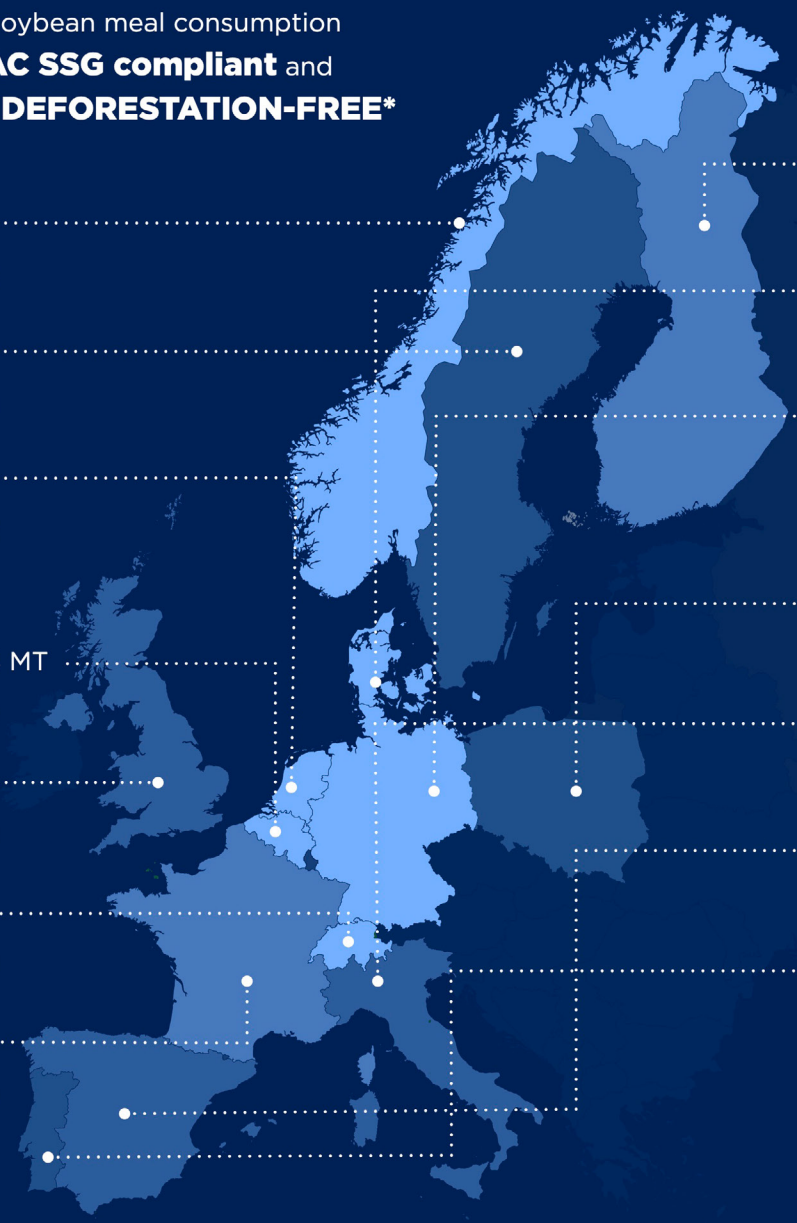


World soybean production in tonnes in 2021

Read the full report here: https://www.schuttelaar-partners.com/project/european-soy-monitor-insight-into-european-consumption-of-sustainable-deforestation-and-conversion-free-soy/2907

European consumption of certified responsible and deforestation-free soy in 2021

40% of EU27+ soybean meal consumption is certified **FEFAC SSG compliant** and **24%** is certified **DEFORESTATION-FREE***



Norway MT
>100% >100%

Sweden MT
87% 87%

Netherlands MT
>100% >100%

Belgium 358,864 MT
>100% >100%

UK MMT
29% 22%

Switzerland MT
75% 70%

France 3.6 MMT
55% 9%

Finland 148,834 MT
52% 52%

Denmark 1.6 MMT
86% 51%

Germany MMT
89% 63%

Poland MMT
0% 0%

Italy MMT
30% 0%

Spain MMT
33% 1%

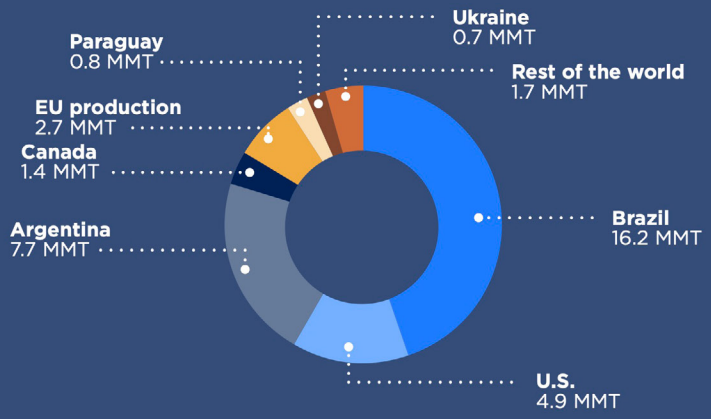
Portugal MMT
18% 0%

% FEFAC SSG compliant **% Certified Deforestation-free**

*For the calculation of deforestation-free we only took into account the volumes under the schemes which have been benchmarked by Profundo (2019) as deforestation-free (RTRS, ProTerra, ISCC+, Danube / Europe Soy, CRS and SFAP- Non Conversion). **Net import of soybeans in soybean meal equivalents 11.94 MMT + net import of soybean meal 17.9 MMT + 2.18 MMT own soy production in soybean meal equivalents. *** Average of the 14 countries in this report.

EUROPE OVERVIEW

Origins of EU27+ soy products



33.5 MMT in imports + 2.7 MMT EU27+ Production

Source: Eurostat, Comtrade & SwissImpex

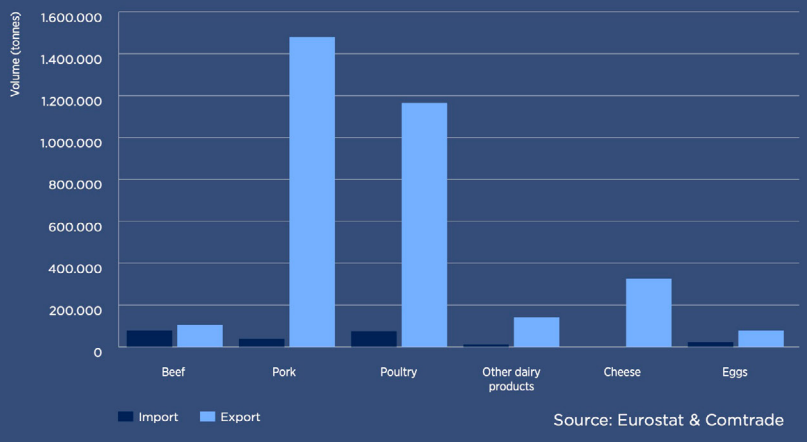
31.91 MMT
Soybean meal available**

3.18 MMT
EU27+ net export embedded soy

28.73 MMT
EU27+ soybean meal consumption

Import and export of embedded soy in EU27+

Total Import of embedded soy: 0.26 MMT | Total Export of embedded soy: 3.1 MMT



Source: Eurostat & Comtrade

FEFAC estimated that 93.9% of EU27+ soy imports are from low deforestation risk areas and 42% of soy used in feed was FEFAC SSG compliant***.

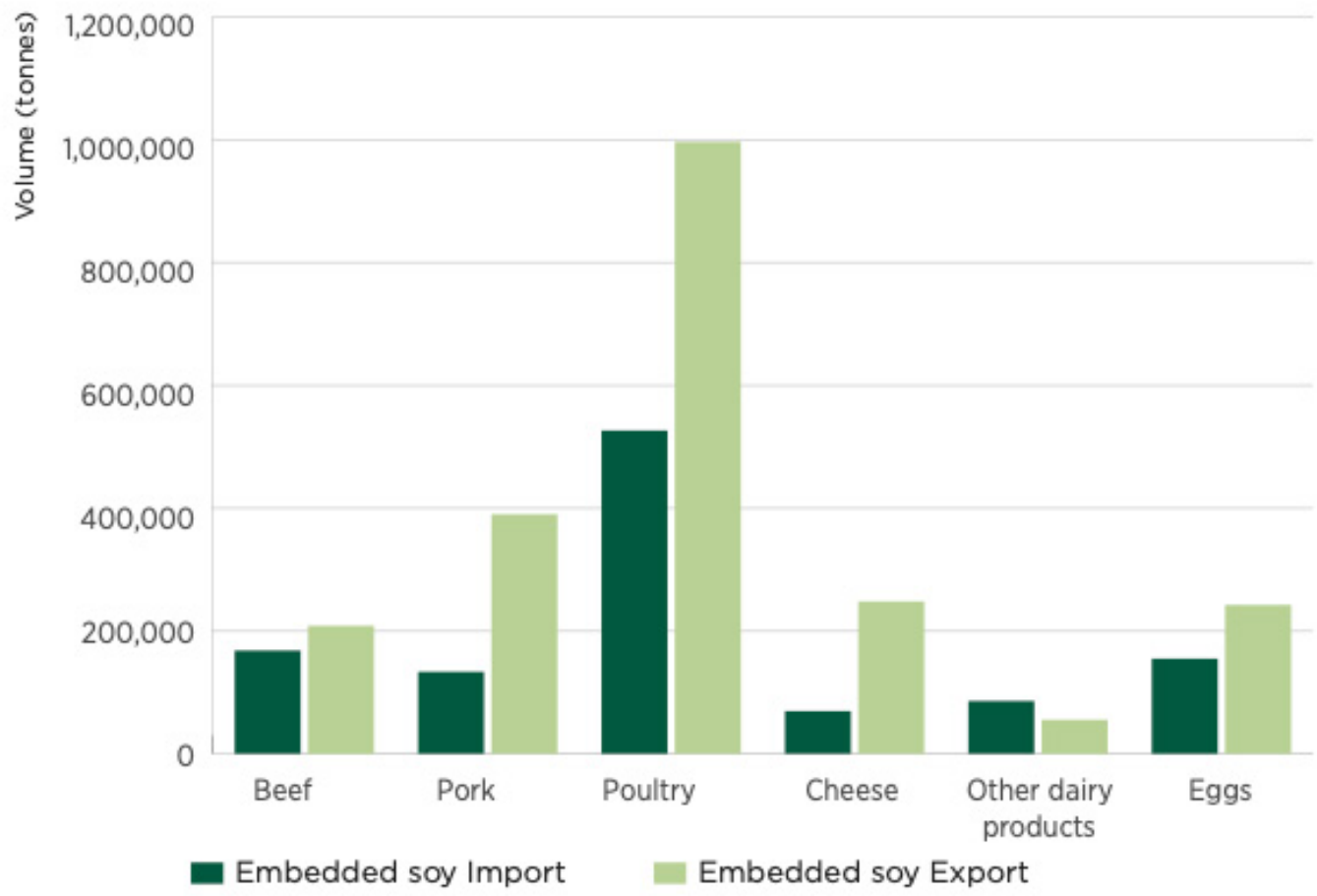
FEDIOL estimated that 42% of soybeans bought and processedby EU crushers were FEFAC SSG compliant

GLOBAL OVERVIEW

338 MMT [1]
global soy production in 2021

11.5 MMT
is FEFAC SSG compliant soy

129.5 Million [2]
hectares total production



Dutch import and export of embedded soy in 2021

Table 13 Soybean meal available for the Dutch livestock sector

in tonnes	Import	Export	Net available
Soybean meal	2,461,643	2,847,772	-386,128
Soybeans x0.8	3,329,851	790,904	2,538,948
Net availability	5,791,495	3,638,676	**2,152,819**

Table 13. Soybean meal available for the Dutch livestock sector

CALCULATION SOYBEAN MEAL CONSUMPTION IN A SPECIFIC COUNTRY

ALL VOLUMES ARE IN TONNES

In addition to the overall analysis of responsible soy in the EU, the European Soy Monitor looks at specific countries. For each of these countries, the domestic soybean meal consumption is calculated, by looking at the import and export of direct and embedded soy.