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22ND ANNUAL GREEN ECONOMICS INSTITUTE CONFERENCE

SUBMITTED PAPERS

**Day 1: Blavatnik
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University of Oxford**

**Day 2: Friends Meeting
House**

**Economic, Social, and
Environmental Justice
Conference in Oxford,
UK**





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A Warm Welcome from the Editor

My name is Raghu Datt, and I am delighted to be the Editor of the 22nd Annual Green Economics Institute Oxford Conference Proceedings. The Conference will take place at the Blavatnik School of Government, part of Oxford University and the lovely ancient Friends Meeting House with its gorgeous walled flower garden in a sizzling week in July during the current extraordinary heatwave hitting much of the northern hemisphere of the world. It has never been more fitting to have a conference debating and planning a change in the philosophy of the future and searching to use new paradigms to alter the mess that humans appear to have made over the last 10,000 years!

We will explore the 6 mass extinction of species and our keynote speakers will talk about the Rights of Nature Bill, the new demographic shifts, what the future looks like now Gen Z is coming of age and out in the job market as well as the challenges of climate change, the destruction of oceans, wildlife, whole economies and the world order which was ostensibly based on the rule of law, as well as the role of corporations past present and future. And so much more, our diets, agriculture and morality.

This summer with the Green Economics Institute, I have had the wonderful opportunity to contribute to the organisation of this conference and to the production of this programme booklet and to meet other young people with similar ideas and aspirations. The booklet allows to learn more about the diverse experiences and ideas of the speakers taking part, whilst helping to bring their contributions together in one place.

My academic interests lie in sustainability, development economics and the ways economic systems can respond more effectively to social and environmental challenges. I am looking forward to meeting you all at the conference and seeing more of you over the summer this year.

This lovely event brings together different generations and perspectives to discuss the future of economics and sustainability. I hope this booklet helps you navigate and enjoy the conference, and that the conversations held here encourage reflection, collaboration and meaningful action to share together in making the world a better place and giving us the hope, inspiration and innovation to go and implement our ideas in our lives and futures around the world. I look forward to it with excitement and so does the whole conference team.

Have a lovely conference and we look forward to your continuing involvement in our lovely institute over the months and years to come. Thank you so much for coming and for your wonderful support.

Kind regards,

Raghu Datt
Editor 22nd Annual Green Economics Institute Conference Proceedings
July 2026
The Green Economics Institute Trustee
Kings College, University of London





Green Economics and Original Institutional Economics: Exploring Their Synergies in Building an Equitable and Sustainable Society

By Arturo Hermann

In the latest decades, there has been a growing awareness among citizens, researchers and policy makers of the pervasiveness of the environmental problems. This development has seen the flowering of many radical perspectives of ecological economics: among others, in alphabetic order, bioeconomics, deep ecology, degrowth, ecosocialism, ecoanarchism, ecofeminism, green economics, social ecological economics and steady state. The weak side of this dynamism lies in a certain lack of dialogue between these perspectives and also with important fields of heterodox economics – in particular, original institutional economics (OIE) and post-Keynesian theories. Also for this reason, whereas there is among radical ecologists and heterodox economists an ample consensus on the shortcomings of the neoclassical economics, there is little agreement on what alternative economic theories and economic systems – for instance, regulated capitalism, democratic socialism and centralized socialism, with their internal differences – are better suited for realizing an equitable and sustainable economy.

In our work, we aim to cast some light on these tangled aspects by focusing attention on some central issues of the complex transition towards an equitable and sustainable economy. For instance, what should be the role of public and private action in promoting the sustainability goals? In the analysis of these issues, a better collaboration between radical ecology and heterodox economics can help clarify important aspects. In this light, we address, in particular, from the side of radical ecology, some contributions of green economics, deep ecology and ecosocialism; and, from the side of heterodox economics, some contributions from Original Institutional Economics (OIE). On that account, a very interesting aspect of OIE is that, by departing from deductive and axiomatic “laws” and being based instead on an inductive methodology explicitly based on the “participant observation” of the economic and social phenomena, is inherently interdisciplinary in nature. In that perspective, we will focus attention on the notions of instrumental value, defined as “the continuity of human life and the non-invidious re-creation of community through the instrumental use of knowledge”. As can be seen, this concept nicely fits with the objectives of building an equitable and sustainable economy.

On that account, the notion of psychological soundness — namely, the extent to which persons are free from psychological disturbances in their individual and collective actions and are able to express their real needs and inclinations — can help better clarify the central distinction between the instrumental value principle and ceremonialism resting on invidious distinctions of wealth and status.



Malaysia's Forest Ecosystems: Natural Infrastructure for a Just and Resilient Future

By Norfaryanti Kamaruddin

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Malaysia's tropical forests are not merely areas of vegetation or sources of timber; they are living natural infrastructure supporting climate regulation, water security, biodiversity, disaster-risk reduction, livelihoods and cultural identity. Forests also influence water availability, regional climate and ecosystem resilience through interactions among vegetation, soils and the atmosphere (Ellison et al., 2017). Malaysia reports approximately 18.05 million hectares of forest, representing 54.58% of its total land area (NRES, 2024). Although this reflects the national commitment to maintain at least 50% forest and tree cover, forest extent alone does not adequately represent ecological integrity. Forest condition, connectivity, legal protection and management determine whether these ecosystems can continue delivering essential services.

Forests are particularly important to Malaysia's climate response. In 2021, forest land recorded net removals of approximately 248.8 million tonnes of carbon-dioxide equivalent. After emissions and removals from other land uses were incorporated, the overall land-use, land-use change and forestry sector remained a net sink of approximately 212.3 million tonnes of carbon-dioxide equivalent (Government of Malaysia, 2024). Nevertheless, a substantial forest carbon sink should not justify delaying emission reductions in the energy, transport and industrial sectors. Forest protection and economy-wide decarbonisation must be implemented simultaneously.

This need is becoming increasingly urgent. Malaysia's average annual temperature is projected to increase by between 1.7°C and 2.1°C by 2100. Flood-prone areas in Peninsular Malaysia could expand by more than 5%, while rainfall in northern regions could decline by as much as 22% by 2050 (Government of Malaysia, 2025). The floods of 2021 caused approximately RM6.1 billion in losses, equivalent to 0.4% of Malaysia's nominal gross domestic product (DOSM, 2022). These figures demonstrate that climate change and ecosystem degradation present immediate economic and social risks. Although forested catchments cannot prevent every flood, they contribute to regulating water flows, stabilising soil and reducing sedimentation.

Malaysia's forests also support exceptional biological diversity, including 306 mammal species, 742 bird species and approximately 15,000 flowering plant species (NRES, n.d.). However, biodiversity should not be treated simply as an inventory of species. It functions as an ecological operating system through pollination, seed dispersal, nutrient cycling, water purification and forest regeneration. Scientific evidence demonstrates that habitat fragmentation reduces biodiversity and disrupts essential ecosystem functions, while ecological corridors can support the long-term accumulation and persistence of plant diversity (Haddad et al., 2015; Damschen et al., 2019).

Forest governance is equally a matter of social justice. Malaysia's Orang Asli population was estimated at approximately 227,900 in 2025 (DOSM, 2025). This figure does not include the diverse Indigenous communities of Sabah and Sarawak and should not be interpreted as the total number of forest-dependent people. Nevertheless, forests remain closely connected to customary territories, knowledge systems, livelihoods and cultural identities. A just forest economy must recognise customary relationships with land, ensure meaningful participation and consent, and provide equitable access to conservation benefits and sustainable finance.



Malaysia therefore requires an integrated approach that protects intact forests, reconnects fragmented landscapes, finances community stewardship and values carbon, water and biodiversity together. Green economics must recognise forests as productive natural capital rather than unused land awaiting conversion. Protecting forest ecosystems is not a choice between economic development and environmental conservation; it is a long-term investment in climate resilience, environmental security, social justice and intergenerational well-being.

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Rethinking 'rational': Why relationships, not just numbers, should drive economic thinking

By Isadora Mill

Thesis- The assumption of the historically contingent 'isolated rational actor' underpinning most formalised economic theory may naturalise certain outcomes by defining the bounds of 'who counts' and 'how they behave'. Through over-formalisation of empirical heuristics, we have inadvertently created an ontological tradition that neither represents reality nor presupposes 'rational outcomes'. This critique is not new in the green economics literature: yet by using Actor Network Theory one may be able to tangibly disentangle how organisation is structured and reproduced; creating an economics that works for the long-term, people, and the planet.

1) Who Counts?

Traditional Economics regularly presents the private sector as answerable only to pure mathematical law in a 'free market'; when in fact its boundaries are set by what the state decides freedom means. Such interactions are predicated on the implicit government administration of markets: enforcing property rights, contractual obligations and industrial policy.

Yet economic activity inevitably reaches far beyond the boundaries of labour and capital incentives. Agency, in any real system, is distributed. Rivers, soil health, regulations, resource endowments actively shape and are shaped by the system within which purely 'economic' actors interact. Utilising Bruno Latour's Actor-Network Theory (2005) is able to provide a fresh perspective on 'who counts' and how they behave. A 'consumer' doesn't exist independently, they're a product of a network: prices, advertising, payment systems, income, logistics, habit.

Instead of asking 'who caused this', Actor Network Theory asks 'what network made this possible?'

What system decides what we should value, and who counts in making those decisions?

2) How we naturalised selfishness

Is 'rational self-interest' the primary motivation of social exchange and organisation. Would a change in the status quo be tantamount to denying the natural operation of human nature? This view gets mathematical backing from game theory.

This framework developed from its beginnings as a tool for finding optimum poker strategies, to be used by researchers at RAND (one of the first 'think tanks' in the modern sense) in finding an impenetrable nuclear strategy. The outcome of this was the formal doctrine of Mutually Assured Destruction, an 'equilibrium' we are still living under today.

S.M. Amadee (2016) argues that this internalised ontology crossed over into justifying broader neoliberal shifts in how we consider the economy and wider society: governments as inherently ineffective, markets as self-organised, individuals as self-interested maximisers, and perhaps most damagingly, collective action as inherently difficult.

By narrowly defining what counts as 'rational', it naturalised anti-social equilibria - and called it human nature.

3) Where this shows up in real policy

As a student of environmental economics, this mode of thinking has ironically pervaded much of the space where it is most detrimental. Take Coasean bargaining — the logic behind payment-for-ecosystem-services schemes and the EU's carbon market. Both do real go

What Counts as a Forest? Ecosystem Services, Indigenous Values and the Politics of Measurement

od. Yet assumptions of rational, self-interested agents necessarily imply that by changing incentives via the price-signal, "coordination failures" (characterised on a continuum of negative externalities to catastrophic collapse scenarios) can be resolved by simply tweaking the payoff matrix of economic agents. But convenience isn't the same as natural law. Just because we built our economics on these assumptions doesn't mean they're inevitable; that we're locked into an ant mill, a fatalistic continuation of an economic mode that cannot remain myopically 'rational' and abstracted from its wider networks if it is to avoid collapsing itself from the inside.



Environmental policy increasingly relies on indicators to make forest-based interventions measurable, comparable and fundable. However, this process can obscure cultural meanings, customary institutions and relationships to place that are difficult to express through instrumental and commensurable metrics. Drawing on documentary research into the World Bank's Ecosystem Services Improvement Project in Madhya Pradesh and Chhattisgarh, this presentation compares official project reports with the reality of the project's outcomes, utilising official complaint documents from affected communities. While official accounts foregrounded carbon sequestration, restoration, livelihood improvement and beneficiary numbers, complaints raised concerns about restricted forest access, sacred groves, caste and gender inequalities, weak consultation and limited community authority. The presentation argues that cultural ecosystem services provide an important opening for recognising these dimensions and avoiding future injustices, but do not by themselves resolve the problems of translation and power. It concludes by considering how local-first approaches could make environmental valuation more accountable, context-sensitive and just.

What Counts as a Forest? Ecosystem Services, Indigenous Values and the Politics of Measurement

By Rohail Millan

Environmental policy increasingly relies on indicators to make forest-based interventions measurable, comparable and fundable. However, this process can obscure cultural meanings, customary institutions and relationships to place that are difficult to express through instrumental and commensurable metrics. Drawing on documentary research into the World Bank's Ecosystem Services Improvement Project in Madhya Pradesh and Chhattisgarh, this presentation compares official project reports with the reality of the project's outcomes, utilising official complaint documents from affected communities. While official accounts foregrounded carbon sequestration, restoration, livelihood improvement and beneficiary numbers, complaints raised concerns about restricted forest access, sacred groves, caste and gender inequalities, weak consultation and limited community authority. The presentation argues that cultural ecosystem services provide an important opening for recognising these dimensions and avoiding future injustices, but do not by themselves resolve the problems of translation and power. It concludes by considering how local-first approaches could make environmental valuation more accountable, context-sensitive and just.

Moralomics: Musk, meritocracy and mobility – the derivational heterogeneity of extreme wealth and its moral limits

By Harry Cunningham

Moralomics is a portmanteau of my own coinage, joining morality and economics, essentially, the morality underpinning certain economic processes. In this instance it denotes the varied means by which extreme wealth is accumulated and the moral character of those origins (in particular whether such wealth is predicated upon the exploitation of ecosystems, societies or individuals). It also concerns the consequences of that wealth's mere existence for the wider world (political capture, the erosion of the social contract etc). From this ill attempt to evaluate whether a moral limit to extreme wealth can be justified.

Climate change is often discussed through numbers: emissions targets, carbon markets, renewable energy investments, or decarbonization pathways. Around the world, governments and companies are accelerating efforts to transition toward low-carbon economies, presenting green growth as both an environmental necessity and an economic opportunity. For instance, the perspective of countries such as Peru, the transition is far more complex than simply reducing emissions.

In Peru, climate action takes place within a context shaped by inequality, territorial fragmentation, informality, and a long history of dependence on extractive industries. These realities influence how sustainability policies are experienced locally. While international discussions frequently focus on technological innovation and clean energy infrastructure, communities on the ground often ask different questions: Who benefits from the transition? Who bears the costs? And how can sustainability be achieved without reproducing existing forms of exclusion?

Historically, Peru's economy has relied heavily on mining, hydrocarbons, and the extraction of natural resources. These sectors have contributed to economic growth, but they have also generated environmental degradation, social conflicts, and uneven territorial development. In many regions, local communities continue to face limited access to infrastructure, economic opportunities, and public services despite living in areas rich in natural resources.

For this reason, the transition toward a greener economy cannot be understood only as replacing fossil fuels with renewable technologies. It also requires rethinking development itself. A truly just transition should not only reduce emissions; it should also create opportunities for more inclusive, resilient, and territorially balanced economies.

One of the emerging challenges in this global transition is the growing demand for critical minerals, carbon projects, and other natural resources needed for decarbonization. In Latin America, and especially in biodiversity-rich countries such as Peru, this creates the risk of what many describe as "green extractivism." Under the discourse of sustainability, countries may continue exporting raw materials and natural capital without transforming the underlying economic structures that generate inequality.

This tension becomes especially visible in territories where local populations are directly affected by environmental decisions. Indigenous communities, small producers, and rural organizations are often responsible for protecting forests, managing ecosystems, and preserving local knowledge systems. Currently, their voices are frequently underrepresented in policy discussions and investment decisions. In my experience working on sustainability, environmental governance, and monitoring systems in Peru, I have seen how local realities are sometimes disconnected from broader climate narratives.

MEMBER SPOTLIGHT

International sustainability agendas may look coherent on paper, but implementation often becomes more complicated when projects interact with territorial conflicts, institutional limitations, or community concerns.

In fact, it is why governance matters so deeply in the energy transition. Climate policies cannot succeed if they are designed exclusively from the top down. Local participation, transparency, and access to information are essential for building legitimacy and long-term sustainability. Communities should not simply be viewed as beneficiaries of climate policy, but as active participants in shaping development pathways.

At the same time, technological and data-driven tools can play an important role in improving environmental governance. Spatial analysis, monitoring platforms, and grievance mapping systems can help identify environmental conflicts, improve transparency, and strengthen accountability processes. These systems may help bridge the gap between global sustainability goals and the territorial realities where climate transitions unfold.

In my point of view, this is one of the most important dimensions of sustainability: understanding that environmental transitions are not purely technical processes, but deeply social and political ones. A transition that only measures success through emissions reductions risks overlooking the human dimensions of development, inequality, and territorial justice.

Peru's experience demonstrates that sustainability must be understood as more than an environmental agenda. It is also a question of governance, inclusion, economic transformation, and social participation. The green transition represents a major opportunity, but only if it can create development models that are both environmentally sustainable and socially equitable. Ultimately, a just energy transition should not only ask how to decarbonize economies, but also how to build societies that are more inclusive, resilient, and connected to the realities of the people most affected by environmental change.



Two Days in Bonn as a Representative for the Green Economics Institute: Inside the UN's June Climate Talks

By Reuben Sass

I was there as a member of the Green Economics Institute delegation. In June, I spent two days at SB64, the UN's mid year climate talks in Bonn, as a member of the Green Economics Institute's delegation. Here's what stood out: SB64 is the halfway point in the UN climate calendar: two weeks of negotiations in Bonn between COP30 in Belém, Brazil and COP31, which meets in Antalya, Turkey this November. It rarely makes headlines, but it's where the groundwork for the next COP gets laid (or doesn't). For two days I collaborated with YOUNGO (the UNFCCC Children and Youth Constituency) to see how our demands measured up against what other NGOs and government representatives were pushing for.

GEI went to Bonn carrying nine demands: NDCs aligned with 1.5°C, and for global heating to be capped at this, loss and damage finally agreed and implemented, a real and complete fossil fuel phase out, climate justice treated as social justice, the Paris rulebook to be followed, agree a renewables clause, shift to sustainable agriculture, and corporations held to a polluter pays principle.

It was reassuring to find that these were close to the mainstream of what NGO groups were arguing for too. YOUNGO echoed GEI's demands for NDC alignment with 1.5°C, and with social justice in the form of a Just Transition. Climate Analytics agreed that a complete fossil fuel phase out is necessary, not just net zero.

Our first event was a morning coordination meeting with YOUNGO. Here, young NGO delegates from organisations around the world (like ourselves), discussed the process through which they could best deliver a meaningful closing intervention. This ultimately aligned closely with GEI's principles, with demands focussed around the tripling of climate finance and the implementation of a Just Transition Mechanism.

Over the two days, we sat in press conferences with organisations such as Greenpeace and Amnesty, watched SBI and SBSTA negotiations, and held conversations with other delegates.

One interaction that stood out was a negotiation for SBI11: Matters Relating to the Least Developed Countries. In the final session, the draft conclusion was blocked by the EU and the UK over a paragraph that stipulated that MDCs should fund 122 adaptation projects in LDCs. This we saw as contradicting GEI's demand for a polluter pays principle, we decided to ask the UK delegate about her decision. She told us that the objection was purely procedural, claiming that it was not an appropriate topic to be brought up in such a document. This said, she would not give a direct answer on what the UK's position on this clause would be, had it been brought up somewhere else.

Two things stayed with me on the plane home. The first is just how slow this all is. Two weeks of negotiation over a single paragraph, and it still fell apart (in the case of SBI 11).

The second is where the conversation keeps landing: session after session on implementation in the Pacific, Africa, Southeast Asia, South America. I observed no conversations specifically about implementation in Global North countries, despite these being the ones that overwhelmingly drive emissions. It's hard not to come away feeling that accountability is being quietly outsourced to the places least responsible for the problem.

For GEI, I think it was very beneficial to hold conversations with other organisations and find that we have many of the same goals. It has helped to build connections and opened the door to potential future collaboration.

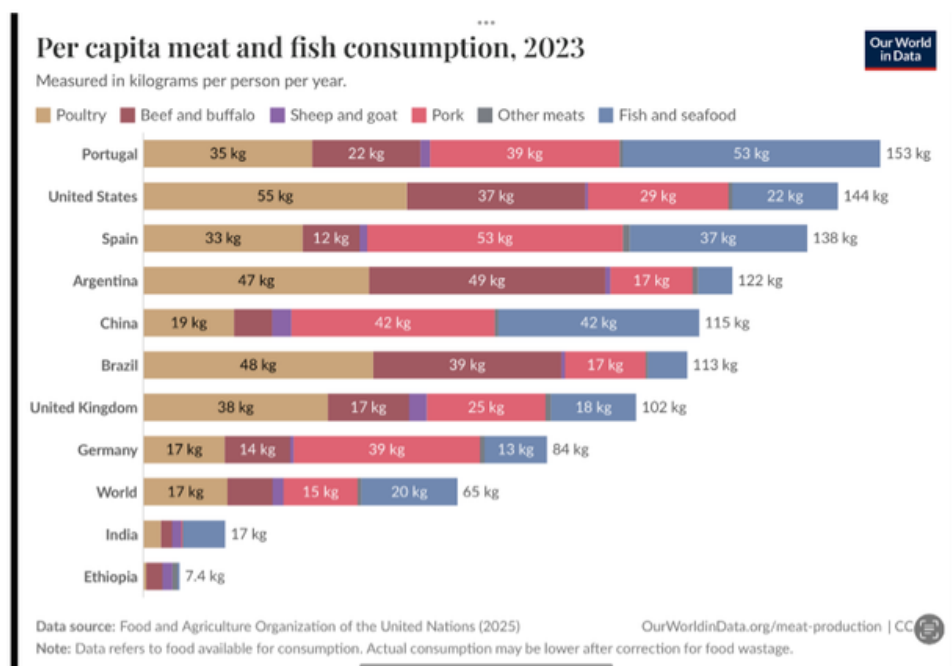


Degrowing the Meat System: An Analysis of the Trends, Harms, and Alternatives to Meat-Overconsumption

By Hannah Thornloe

Consumption

The UK is the third-highest consumer among G7 nations of meat. In 2023 the consumption of meat and fish was over the world average of 37kg (Our World in Data, 2025).



However, this consumption is not evenly distributed. Northern Ireland eats substantially more meat overall (180g/day) and more processed meat than England, Wales, or Scotland, while men eat significantly more than women even after adjusting for calorie intake, with nearly a third of men's meat intake being processed (Food Foundation, 2025). By type, poultry has grown to dominate the UK diet, now accounting for 42% of all meat eaten, while beef, pork, and sheep meat consumption have all declined since 2007 (Food Foundation, 2025).

Dietary identity data shows that flexitarianism, rather than vegetarianism or veganism, is the primary alternative to conventional meat-eating in the UK, with more people identifying as flexitarian than as vegan, vegetarian, and pescetarian combined. This helps explain why aggregate consumption has remained high even as public awareness of environmental and ethical concerns has grown.

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Production

UK meat production shows a mixed and species-dependent picture. Beef and veal production fell 3.4% in 2025 to 894,500 tonnes, with self-sufficiency at 80.5%, meaning the UK still imports around a fifth of its beef, largely from Ireland. Sheep meat production rose 2.3% to 272,300 tonnes, with self-sufficiency at 101.2%, making the UK a net exporter of lamb. Pork tells a different story: self-sufficiency was only 60.6% in 2025, meaning the majority of UK-consumed pork depends on imports, even as domestic pig meat production has been trending upward into 2026. Poultry, the most-consumed meat type, has also historically relied on substantial imports, with self-sufficiency in the low-to-mid 70% range in past years. Overall, the UK produces around 65% of the food it consumes (Level 3 Food Hygiene Certificate, 2026).

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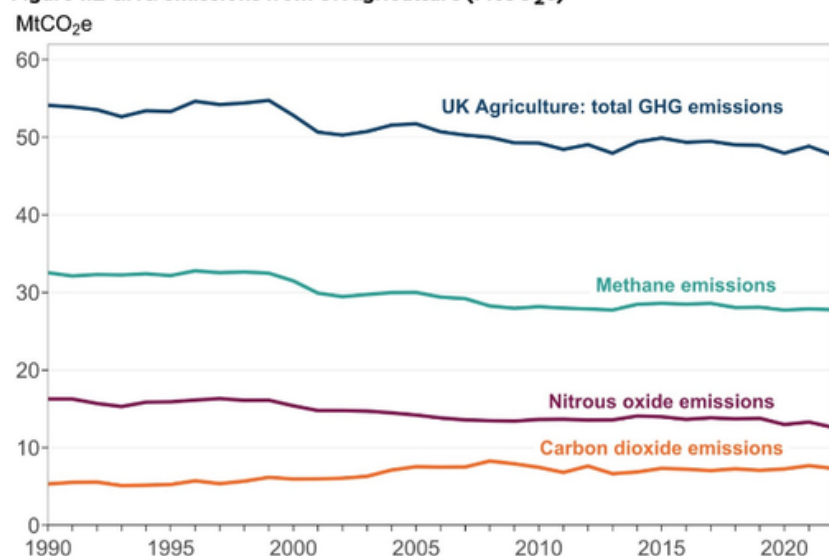
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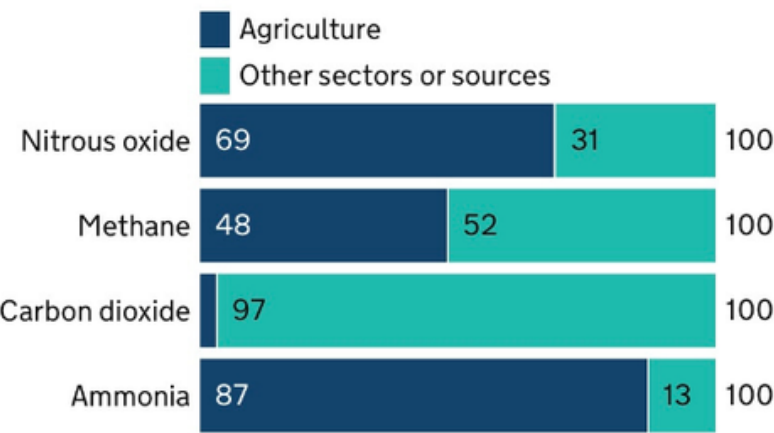
Greenhouse Gas Emissions

Agriculture accounted for an estimated 12% of total UK greenhouse gas emissions in 2022, a share that has stayed broadly stable in recent years. Within the agricultural sector, livestock is the dominant emissions source, responsible for roughly 62% of agricultural emissions, ahead of nutrient management (28%) and fuel use (10%). Agriculture is disproportionately responsible for the UK's non-CO₂ emissions specifically: it accounts for 70% of national nitrous oxide emissions and 49% of methane emissions, but only around 2.3% of carbon dioxide emissions. Most agricultural methane originates from enteric fermentation in ruminants (cattle and sheep) and manure management. There has been measurable progress in emissions intensity: between 1990 and 2022, UK agricultural GHG emissions fell 12% overall, while emissions per kilogram of meat produced fell 4% for cattle and 46% for pigs, and dairy emissions per litre of milk fell 22%. Sheep is the exception, with emissions intensity 5% higher in 2022 than in 1990. Despite these efficiency gains, absolute agricultural emissions have plateaued at 47–49 MtCO₂e annually since 2009, suggesting that productivity improvements alone have not been sufficient to drive further reductions.

Figure 1.2 GHG emissions from UK agriculture (MtCO₂e)



Source: <https://www.gov.uk/government/statistics/agri-climate-report-2024/agri-climate-report-2024>



Source: <https://www.gov.uk/government/statistics/agriculture-in-the-united-kingdom-2024/chapter-11-agri-environment>

Trade-offs and Complications

Our World in Data’s analysis of animal welfare and environmental trade-offs complicates simple dietary recommendations. Switching from beef to chicken cuts a meal’s carbon footprint by roughly 80%, but requires around 200 times more individual animals slaughtered for the same quantity of meat, since a chicken yields roughly 1.7kg of meat compared to a cow’s roughly 360kg. The same intensive farming practices that lower chicken and caged-egg carbon footprints tend to correlate with poorer welfare outcomes, while “grass-fed” beef, often assumed more sustainable, can generate 20–42% higher emissions than grain-fed beef once land-use opportunity costs are included. A UK pig-farming study cited in the same analysis found no reliable correlation between welfare-assurance labels (e.g., “Free Range”/“Organic”) and lower emissions, underscoring that reducing meat’s climate impact and improving animal welfare are not always aligned goals.

Source: <https://ourworldindata.org/what-are-the-trade-offs-between-animal-welfare-and-the-environmental-impact-of-meat>

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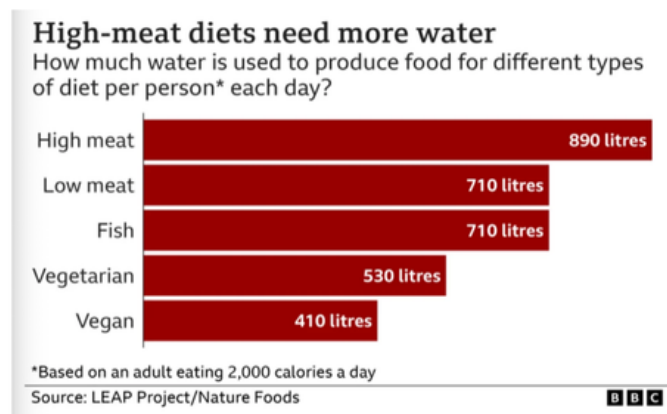
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Solutions to the meat crisis

An article by the BBC was titled: "Eating less meat 'like taking 8m cars off road'" in 2023 (Ghosh, 2023). Here, alongside many other research papers and articles (Sabaté & Soret, 2014), we are presented with a solution to the inefficient and unsustainable meat-based diets that many of us have.

As explained, the meat industry's impact on the environment is far-reaching. Not to mention the land and water used to sustain our meat-heavy diets in comparison to a plant-based lifestyle. For example, animal protein requires approximately 6-17 times more land than soy protein (Sabaté & Soret, 2014) and having a vegetarian diet can reduce water used in the food process by around 37% (Viroli et al., 2023). Thus, as is widely agreed within literature, we can see how a plant-based diet provides a generally more sustainable way of living than the traditional western diet.

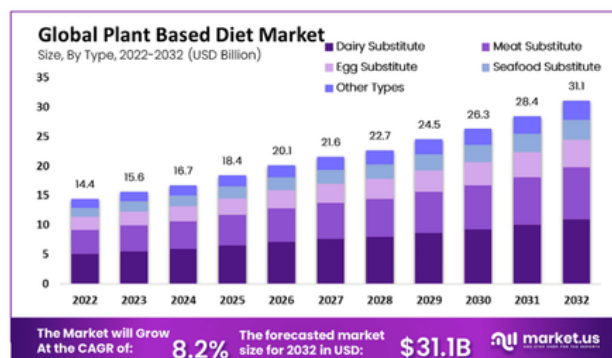


Source: <https://leap.web.ox.ac.uk/> found on: <https://www.bbc.co.uk/news/science-environment-66238584>

The current state of the plant-based industry

The alternative meat and dairy industry is already growing - the alternatives market (including meat and dairy) reached US\$14.1 billion in 2021 (Krupke, 2023) and in 2025 the meat alternative industry was valued at \$7.87 billion (Fortune Business Insights, 2026) while the dairy alternative industry is likely to be valued at \$16.7 billion in 2026 (Patil, 2026). This shows the alternatives industry more than doubling in size over the past 5 years.

While the growth of the plant-based market is promising, the development of plant-based consumption is not equal among all nations. Europe represents the largest market for plant-based meat products (Krupke, 2023) however nations such as India have a higher vegetarian population which consume mainly legumes over plant-based meat alternatives. Therefore, the growth of the 'fake-meat' industry in Europe is not representative of a diminishing meat market nor a group of countries which consume less meat products than other areas of the world.



Source: <https://media.market.us/veganism-statistics/>



Other benefits of plant based diets

While the environmental benefit of a plant-based diet is evident there are many other positive benefits. The rise of obesity and other non-communicable diseases can be greatly reduced through plant-based eating initiatives. Currently in many lower-income and middle-income countries citizens are increasingly undergoing a transition of moving from traditional diets to westernised ones, characterised by a high meat consumption, saturated fats and processed foods. This has contributed to diet being one of the leading global risk factors for disease, contributing to around 11 million deaths annually (Viroli, 2023). This food is produced cheaply and therefore is economically viable to those who do not have the budget or means to make healthier choices. Here we see diet and the meat industry exploiting the problems associated socio-economic development and uneven development which is leading to catastrophic health crises globally.

What would a more sustainable diet look like?

Whilst vegan and vegetarian diets produce the most noticeable changes for the climate this is not a viable solution for everybody. In low to middle income countries the switch to a planetary diet* (what is this) would be more expensive than in highly developed countries. Around 1.58 billion people would not be able to afford the transition in these lower income countries (Viroli, 2023). Therefore, a worldwide vegan/vegetarian transition would be almost impossible to achieve. However, those in the most developed countries, and who have the financial means to make the transition to a planetary diet or even somewhat reduce their meat and dairy intake, could make a difference to the current lack of sustainability in the western diet.

Example of the Planetary diet:



Source: Piedmont Internal Medicine <https://piedmontinternalmed.com/sustainable-eating-the-planetary-healthy-diet/>

How to achieve a widespread more plant-based diet

While having an idea of what a realistic sustainable diet looks like, it is important to look at the practicalities of how this would be achieved. Currently, the future of plant-based diets is somewhat threatened by the meat industry and their subtle yet targeted advertising which romanticises meat and dairy consumption.

The meat industry's marketing has linked meat consumption to values such as toxic masculinity (look for imagery with fire, knives, and muscular men) and the traditional housewife (women often depicted as preparing meat for their children or husbands) (Soccoccio, 2021). Furthermore, meat consumption has become a sign of patriotism. Images of countries' flags, or a sense of pride in eating 'home-reared' meat is pushed into the faces of consumers (ibid).

Instead of producing a space where plant-based eating is widely accepted and valued, advertising like this demonizes attempts to reduce meat consumption in western populations where stigmas surrounding plant-based eating are already high. So, to realise the goal of eating less meat, marketing and the meat industry's actions must change.



Alongside this, we must work on the acceptability of plant-based eating within the general population too. In some countries plant-based diets are seen as inconvenient, difficult to prepare and less satisfying (Viroli, 2023). To change this narrative, it is suggested that we improve people's cooking skills, nutritional knowledge and meal planning which would help them adhere to a more plant-based diet in the long term.

*planetary diet, as found in Viroli 2023, is defined as a diet which is primarily composed of fresh fruit and vegetables, legumes, whole grains, nuts, saturated fats, moderate or small amounts of fish and poultry with almost no red meat consumption.

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Could They Work? Carbon Markets in Developing Countries

By Mario Bellucci

I want to discuss a policy idea that has become increasingly popular: carbon markets. The idea is attractive. A government sets a limit on emissions and gives companies permits to pollute. These permits can be bought and sold. Companies that reduce emissions cheaply can sell unused permits, while others can buy additional ones.

In theory, this lets the market find the cheapest route to decarbonisation. Instead of telling every company what technology to use, governments create a carbon price and let businesses decide how to respond. But my question is not whether carbon markets are elegant in theory. It is whether they are the right instrument for developing countries.

Carbon markets require strong institutions. Governments need accurate emissions data, monitoring and credible enforcement. They must decide how many permits to issue.

If too many permits are distributed, their price remains low and companies have little reason to change. If the system becomes restrictive too quickly, industries may face higher costs before they can adapt. Kazakhstan offers a useful example. In 2013, it became the first Asian country to introduce a national

emissions trading system. In practice, the system struggled with low permit prices and generous free allocations. Companies therefore had limited incentives to invest in cleaner production. The lesson is simple: creating a carbon market is easier than creating one that changes behaviour. A country can establish a trading system while emissions-intensive industries continue operating much as before. Mexico followed a more gradual approach. Its pilot system, introduced in 2020, allowed regulators to learn before stronger limits were imposed. This was sensible, because the administrative machinery required for carbon trading cannot be built

overnight. Before trading permits, a government must know how much each company emits. Without reliable data, regulators cannot judge whether emissions are falling. Without monitoring, firms may underreport pollution. Without credible penalties, the rules may be ignored. Carbon markets can therefore become bureaucratic exercises rather than effective climate policies.

South Africa chose a different route. Instead of building a complete cap-and-trade system, it introduced a carbon tax in 2019. Under emissions trading, the government fixes the permitted quantity of emissions and the market determines the price. Under a carbon tax, the government sets the price directly. Companies know how much they must pay for each tonne they emit. South Africa's tax has been criticised because exemptions and allowances have kept the effective rate low. Even so, it raises an important question: might a simpler carbon tax be more suitable for many developing economies? A carbon tax can be easier to administer. It also gives companies a predictable price, helping them plan investments in cleaner technology.

Most importantly, it raises public revenue. That revenue can protect low-income households from higher energy costs. It can finance public transport, renewable energy and cleaner infrastructure. It can also support workers and regions that depend on carbon-intensive industries. This matters because climate policy is never only about emissions. It is also about development. A policy that cuts emissions but increases energy poverty will be difficult to sustain. A policy that raises industrial costs without helping companies modernise will face resistance. The key question is therefore not simply whether carbon has a price. It is who pays that price and how the money is used. Carbon pricing can support transformation if revenues protect vulnerable households, improve infrastructure and build green industries. But if people experience it only as an additional cost, political support will disappear. The broader concern is that carbon markets were largely designed in wealthy economies with strong institutions and advanced financial systems.

Many developing countries face different conditions. Their governments may have limited administrative resources. Large parts of the economy may be informal. Electricity may be expensive or unreliable. Employment and tax revenues may depend heavily on fossil fuels. Simply asking these countries to copy European models ignores those realities. The objective should not be to create the most sophisticated carbon market possible. It should be to reduce emissions while allowing countries to industrialise, create jobs and improve living standards. In some countries, emissions trading may eventually work. In others, a carbon tax may be more practical. Some may initially need regulation, public investment or support for cleaner technologies. That distinction matters because climate policies must work politically, administratively and economically in practice too.

So, could carbon markets work in developing countries? Perhaps. But they are not automatically the best starting point. Developing countries should be able to choose climate policies that fit their institutions, economies and development priorities. Ultimately, the goal is not to create carbon markets. It is to reduce emissions while preserving industrialisation and shared prosperity. The best climate policy is not necessarily the most elegant in theory. It is the one that governments can implement, citizens can accept and industries are encouraged to respond to.

I use the word “actually” deliberately. In principle, most of us support the transition towards renewable energy, electric transport and cleaner technologies. But supporting green industrial policy becomes more complicated when we consider the mining, factories, energy and pollution required to produce those technologies. To illustrate this contradiction, I want to begin with the story of nickel production on the Indonesian island of Sulawesi. This is Sulawesi, Indonesia’s fourth-largest island. Over the past decade, Sulawesi has become one of the main centres of the global nickel boom. Nickel is increasingly important because it is used in stainless steel and, more recently, in many high-energy electric-vehicle batteries. The numbers on this slide help us understand the scale of this transformation. Approximately 40 per cent of the world’s nickel is now extracted and processed in Sulawesi. In Morowali, one of the main nickel-producing areas, the population almost doubled between 2010 and 2024. This population growth reflects the arrival of workers, factories, infrastructure and investment. It is important to recognise that industrialisation can generate opportunities. It can create employment and economic activity in regions that previously had few alternatives. However, economic transformation on this scale also creates enormous pressure on housing, public services, land and the environment. The question is therefore not simply whether industrialisation creates growth, but who benefits from that growth and who bears its costs.

This slide shows the connection between raw nickel and the batteries used in electric vehicles. For consumers, the finished battery appears clean, technologically advanced and almost detached from nature. But the battery begins with the extraction and processing of a mineral. Here we move from the global industry to one particular community. Labota was traditionally a small fishing village. It now sits beside the Indonesia Morowali Industrial Park, one of the largest nickel-processing complexes in the world. In March 2025, a failure at a tailings facility sent red floodwater into the river and the village. This is visually dramatic, but it should not be treated simply as an isolated accident. It reflects a wider question about how quickly industrial expansion has taken place and whether environmental regulation has been able to keep pace with it. The figures on this slide indicate the seriousness of the environmental problems around the industrial area. Water samples found concentrations of some pollutants far above Indonesian standards. Government inspections also identified millions of tonnes of tailings that had been deposited improperly. Another important point is that much of the nickel processing is powered by captive coal-fired power plants. This creates a striking contradiction. Nickel is being processed partly to supply technologies intended to reduce carbon emissions, but the production process itself can be highly carbon-intensive.

Wealthy countries increasingly demand that developing countries follow strict environmental standards. At the same time, those wealthy countries remain among the principal consumers of the minerals, batteries and electric vehicles that make this pollution economically profitable. Driving an electric vehicle can make us feel that we have stopped polluting. But in some cases, pollution has not disappeared. It has been moved upstream—to mines, refineries and industrial communities such as Labota. This does not mean that electric vehicles are pointless, or that we should abandon green industrial policy.

It means that we need a more honest definition of what a green transition involves. Too often, wealthy countries measure progress through reductions in their own territorial emissions. If a factory closes in Europe and the same production moves to a country with weaker environmental protections, domestic emissions may decline, but the global environmental problem has not necessarily improved. There is also a historical imbalance. Today’s wealthy countries industrialised through coal, resource extraction and significant environmental destruction. Developing countries are now being asked to industrialise differently—and understandably so, because the climate crisis leaves us less room for pollution.

But it is not reasonable to demand cleaner industrialisation while refusing to finance it. Cleaner technologies, stronger regulation, safe waste management and proper compensation for communities all carry costs.

We therefore need to ask

what supporting green industrial policy really means:

Does it mean simply buying an electric vehicle?

Or does it mean accepting that responsibly produced batteries may be more expensive?

Does it mean celebrating lower emissions in Oxford or London?

Or does it also mean investing in cleaner processing technologies in Indonesia?

Does it mean asking developing countries to protect the environment?

Or does it mean giving them the finance, technology and policy space necessary to do so? Green industrial policy should not force developing countries to choose between economic development and environmental protection. But avoiding that choice requires international cooperation and a fairer distribution of costs.

Producer countries should also capture more value from their resources. Indonesia should not be expected simply to provide minerals and absorb pollution while companies and consumers elsewhere receive most of the technological and economic benefits. A credible green industrial strategy must combine three objectives: decarbonisation, development and justice.

Without decarbonisation, it is not green. Without development, it will not offer poorer countries a realistic path towards greater prosperity. And without justice, it will simply relocate environmental damage to communities with less economic and political power. Sulawesi is only one case. But it exposes a larger contradiction.

The question is therefore not whether we want a green transition. The question is what kind of transition we are willing to build—and who we are willing to ask to pay for it.



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