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Grantham Research Institute on Climate Change and the Environment

Submission to the UK Department for Environment, Food & Rural Affairs

Response to the Land Use in England open consultation

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About this submission

This report consists of a submission by the Grantham Research Institute on Climate Change and the Environment at the London School of Economics and Political Science in response to the open consultation by the UK Department for Environment, Food & Rural Affairs, on design of a future Land Use Framework for England.

See details of the consultation here: https://consult.defra.gov.uk/land-use-framework/land-use-consultation/

This submission integrates insights from across the research expertise at the Grantham Research Institute. The response to the consultation was submitted on 25 April 2025. The version presented here has been lightly edited since submission.

About the authors

All authors are affiliated with the Grantham Research Institute on Climate Change and the Environment, London School of Economics and Political Science. Leo Mercer led the preparation and consolidation of inputs for this submission. Contributions are listed below according to the chapter or sub-chapter of the consultation to which they relate.

Policy considerations and principles guiding land use change and the scale thereof: Leo Mercer (Policy Fellow), Katarzyna Mikołajczak (Post Doctoral Research Officer)

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Context

This submission responds to an open consultation by the UK Department for Environment, Food & Rural Affairs (Defra), on land use in England to support design of a future Land Use Framework (LUF) for England. It integrates insights from across the research expertise at the Grantham Research Institute on Climate Change and the Environment. It responds to Questions 1–5, 8, 14 and 23–24 in the consultation.

England's land mass is under increasing pressure to deliver on multiple social demands. The urgency of responding to the twin climate and nature crises necessitates a fundamental rethink of how we incentivise and support land managers to deliver an array of public goods. How this is achieved is intrinsically linked to the future prosperity of the UK.

For centuries, farmers have been incentivised to maximise productivity and outputs. However, this approach to land management in this process has contributed to the global stock of CO_2 in the atmosphere, which necessitates multilateral cooperation to mitigate. Domestically, this has also resulted in severe declines in indicators of ecosystem and biodiversity health. The delicate balance between food production and the natural systems that sustain this process is wavering due to reliance on high levels of external inputs such as synthetic fertilisers, pesticides, herbicides and imported feed, which maintain profits and supply of goods while degrading the capacity of farming systems to resist external shocks — whether from geopolitical instability, tipping points, environmental degradation or commodity price fluctuations. As a result, a damaging feedback loop has been set in motion. The degradation of ecosystem services underpinning agricultural systems necessitates ever more costly, environmentally deleterious and toxic inputs to maintain productivity (Dasgupta, 2021).

This feedback loop will hasten in the absence of strategic policymaking to clearly signal what the UK Government requires of landowners to meet various targets across nature, climate and food. For these reasons, the Grantham Research Institute welcomes publication of the 'Land Use in England' consultation as a first step to mediate between these objectives and provide strategic oversight and direction to land use in England through a spatially explicit LUF. Given the focus of the Grantham Research Institute on climate and environmental policy, these topics will be borne out more in this consultation response.

Land use is a substantial contributor to greenhouse gas emissions in England and the UK. In England, at an aggregate level, agriculture is responsible for 8.5% or 28.1 $MtCO_2e$ (million tonnes of carbon dioxide equivalent) of total emissions. Carbon sequestration provided by the land use, land use change and forestry (LULUCF) inventory reporting category (henceforth referred to as the land sector) marginally reduces this share to 8.2% of net English emissions (HM Government, 2024f). In the UK, at an aggregate level, agricultural emissions constitute 11% or 47 $MtCO_2e$ of gross emissions (CCC, 2025).

Reaching net zero by 2050, particularly in the agricultural sector, requires substantial changes to land management and use. In turn, this will require a fundamental change in the approach to policy incentives land managers receive from central and local government. This also encapsulates: the role of private finance in supporting land use change, how data guides land use decision-making and monitors outcomes, power dynamics around land use prioritisation at a local level, decision-making processes and relationships between different landowners, trade policy, and the connection and coherence with wider policy processes and targets that have been set or are under development. These non-exhaustively include:

- The forthcoming 25 Year Farming Roadmap
- The **Environmental Improvement Plan** (including the results of the rapid review), including goals to plant 50,000 hectares of woodland per year by 2035 (HM Government, 2023) and

restore 35,000 hectares of degraded peatland by 2025 and restore 75% of England's water bodies to good ecological status (HM Government, 2021)

- The Voluntary Carbon and Nature Markets policy development process
- The **30by30 target** which commits all UK administrations to protecting 30% of land and seas by 2030 (HM Government, 2024a)
- Regulations to ensure that all new developments in England deliver a **10% net gain in biodiversity** (HM Government, 2024b)
- The Environment and Land Management Scheme which funds farmers and land managers to deliver environmental improvements alongside food production under the Sustainable Farming Incentive, Countryside Stewardship and Landscape Recovery schemes
- The forthcoming National Food Strategy.

Key recommendations

In this submission, we address the following key points:

Scale of change

This submission argues that the proposed scale of land use change is insufficient to meet climate and biodiversity goals. Limiting the LUF to just 12.7% of England's land area risks undermining statutory commitments such as the 30by30 biodiversity target and net zero emissions by 2050. A holistic approach is needed — one that considers the entire English landmass, prioritises nature recovery, and enables multifunctionality in both rural and urban areas. We highlight the need for stronger, spatially explicit land use planning to address the 'land crunch' and integrate multiple public goods including climate resilience, renewable energy generation, nature recovery and sustainable food production.

Land use change principles

The proposed land use principles are broadly supported, with key refinements. The principle of co-design must better engage 'hard-to-reach' farmers by employing trusted local intermediaries. Multifunctionality should be explicitly encouraged, with examples such as Agri-PV illustrating how land can simultaneously produce food, energy and ecological benefits. Land use must also be resilient to climate and market shocks, with spatial targeting based on environmental opportunity and future climate risks. Policy must incentivise and reward diversification and innovative nature-positive farming practices.

Incentives and definitions

The current statutory definition of agriculture, which prioritises food production, is outdated. A broader, future-focused conception of farming should recognise the growing role of biomass and bio-based materials in a post-fossil fuel economy and the need for farmers to produce these goods. Policy frameworks should support cultivation of crops for energy, construction and carbon sequestration. Achieving this may require redefining the purpose of agriculture in legislation.

Governance and funding

Delivering land use change hinges on consistent and adequate public funding. The current Environmental Land Management budgets fall short of the estimated £2.5–£3.2 billion annually required in England to meet statutory targets. The Government must provide predictable, multi-year financial support and link the LUF to Environmental Land Management schemes (ELMs), planning, and dietary transition policies. Clear governance frameworks are also important. Cross-departmental taskforces and local authority mandates — modelled on climate governance structures in countries like New Zealand — may improve coordination and implementation.

Driving a just transition

Multifunctional land use will necessitate new skills and livelihoods in rural areas. The expected decline in the livestock farming sector must be offset by employment in areas like afforestation, the bioeconomy, renewable energy, conservation and peatland restoration. Government support for training, apprenticeships and agricultural education reform is essential. Upskilling must be aligned with a low-carbon rural economy and provide farmers with practical, financially viable pathways to transition.

Preventing emissions leakage

Land use change cannot be considered separately to the broader food systems transformation. Linking strategic land use planning to the requisite climate-aligned dietary changes will avoid emissions leakage. Dietary shifts away from red meat and dairy, food waste reduction, and improved yields will be essential to free up land for nature and climate goals while maintaining food security. Scenarios modelled by the UK Climate Change Committee (CCC) and others show that these demand-side changes can offset reductions in domestic food output and allow England to contribute meaningfully to net zero without increasing reliance on imports.

Implementation and monitoring

The LUF should be updated every five years to ensure it remains aligned with science and other policy processes. Similar to emissions budgeting under the UK Climate Change Act, this periodic review should be supplemented by annual progress reporting to improve accountability. Embedding land use considerations into government decision-making requires statutory clarity and alignment across departments. The National Planning Policy Framework, ELMs and the Environment Act targets must be connected to the LUF to reduce fragmentation and drive coherent policy implementation across sectors.

Principles and policy considerations of land use change

Question 1: To what extent do you agree or disagree with our assessment of the scale and type of land use change needed, as set out in this consultation and the Analytical Annex?

The scale of land use change proposed in the current consultation is misaligned with the scale of transformation required to transition towards land uses that are ecologically restorative, resilient to climate extremes and aligned with statutory targets and commitments.

Critically, the consultation limits the scope of the LUF to just 12.7% of England's land area and 19% of the Utilised Agricultural Area (UAA). This narrow geographic focus risks excluding the remaining 87.3% of land from strategic oversight — an omission that undermines national ambitions for climate action, biodiversity recovery and sustainable land use.

Various studies have highlighted the 'land crunch' resulting from competing demands across food, energy, housing, infrastructure and environment. Indeed, King et al. (2023) estimate the UK would need an extra 4.4 million hectares of land by 2050 — more than twice the area of Wales — to meet current policy targets for net zero and biodiversity (MacMillan et al., 2025). The National Food Strategy (NFS) estimated that 5–8% of English land would need to be released from agriculture entirely by 2035 to meet climate and biodiversity targets. The NFS notes that there is considerable scope to focus this transition on the least productive 20% of farmland which produces 3% of calories (Dimbleby, 2021).

Agriculture and food production have driven land use change, habitat loss and fragmentation in the UK. The UK now has precious few ecosystems that can be considered truly natural, with all habitats impacted by human modification (Mercer and Gregg, 2023). The 2022 UK Biodiversity Indicators document short- and long-term deterioration across key metrics, such as a 60%

decline in priority UK species since 1970 and a 22% decline since 2011, and a decline in the condition of protected sites in the UK in recent years (JNCC, 2022). Since 1930, 97% of wildflower meadows have been lost alongside 50% of ancient woodland, 56% of heathland, and 90% of our lowland ponds (Dimbleby, 2021). In England only 16% of surface and ground waters meet the criteria for 'good ecological status', and no lakes or rivers meet the criteria for 'good chemical status' (Kristensen et al., 2018). Land use planning must reverse these trends.

Homing in on one particular objective exemplifies the misalignment between the scale of land use change within the consultation document (by 2050) and the 30by30 target — where the Government has committed to restore 30% of land and sea for nature by 2030. At present, 7.1% of English land satisfies Government criteria and is counted towards the 30by30 target. Category 3.2 (5% — 430 kilohectares) and 4 (9% — 760 kilohectares) may be charitably considered to contribute to the 30by30 criteria summing to 20% of the total 30% target (the consultation document has a 2050 target which may mean progress is substantially off track by 2030). Incidentally, other research finds only 2.93% of land in England effectively protected and managed nature in 2024 which would further imperil the target (Wildlife and Countryside Link, 2024). Greater ambition is needed.

A robust LUF must apply across the entire English landmass. The paucity of ecological complexity and biodiversity in many farmed landscapes (Clark et al., 2023) necessitates, in the main, reintegration of nature and ecological processes into existing farming models. Restricting interventions to rural or marginal areas — those furthest from population centres — misses the opportunity to co-locate multiple land uses in peri-urban and urban settings, where the social, ecological and economic benefits can be most acutely realised (Finch et al., 2023).

Question 2: Do you agree or disagree with the land use principles proposed?

A framework to manage land use in England is an encouraging policy development that has the potential to provide data-driven insights into the potential and relative strengths of land throughout England, support more evidence-based decision-making and allow different stakeholders to contribute to land use decision-making. The proposed principles are *prima facie* well formulated. However, the extent to which they are connected to other policies and incentives will be the key determinant as to whether the intent of the principles will be delivered.

The proposed principles will be discussed in turn.

1. Co-design

We support this principle but propose a refinement to broaden the scope to 'hard-to-reach' farmers: "Support for participation and leadership at the local and regional scale to develop and align spatial strategies and assess the fairness of changes in land use**, with special provisions to ensure inclusivity and engagement with hard-to-reach segments of the agricultural community**."

We support the principle of co-design (and broader design-thinking principles) relating to the LUF's interface with affected stakeholders. While not free from criticism, this approach can help to ensure that policies are developed and implemented in a way that aligns with the needs, desires, values and lived realities of multiple stakeholders (Blomkamp, 2018). Its participatory nature can promote a sense of engagement and co-ownership of the developed solutions — especially when power is shared with participants to reach consensus on policy solutions to promote — enhancing long-term impact and adoption.

However, it is important to learn from past co-design efforts in policy development with farmers in the UK, such as co-design of the ELMs by Defra, farmers and other land managers. Lessons from these experiences highlight the need for special provisions to promote the inclusion of segments of the farming population who are 'harder to reach' (HTR) by government or 'easily omitted'. Co-design approaches targeted at HTR farmers are most successful when they are facilitated by 'skilled local intermediaries'.

This special attention is required because farmers and other members of the agricultural community are a highly heterogenous group, with different needs, strengths and vulnerabilities. A significant number of farmers and agricultural workers — often overlapping with the HTR segment for government bodies — are struggling with issues of mental health, depression and elevated susceptibility to suicide (King et al., 2023). Therefore, their needs must not be overlooked in policy planning. This means that the planned outputs such as the Farming Roadmap and spatial incentives must be co-designed in the knowledge that farmers and the agricultural community have diverse needs and may require adaptive solutions to be developed for their views to be best represented within an LUF. For example, it may turn out that to achieve fair outcomes, land use incentives may need to be diversified not only spatially but also in terms of who they target, for example, making different provisions for farmers who find it harder to cope financially.

Standard methods of engagement — such as those put forward in this consultation, including workshops, roundtables and online consultations — are typically unfit to engage HTR farmers. Hurley et al. (2022) write that: "Research shows that common engagement methods such as online consultations or village hall meetings prioritise the voices of the few (generally middle class, formally educated, equipped with IT skills) at the expense of people who are busier and less able to access online surveys, publicly express their views or travel to meetings." Powerful voices also tend to resonate with government more easily than voices that have historically not been heard (Chilvers and Kearnes, 2015).

Reports from research on engagement with HTR farmers for the co-design of ELMs highlight that this is a heterogenous group with different needs and structural and behavioural barriers to engagement, requiring different strategies for engagement. Many times, government bodies might not be the ones best placed to create engagement with HTR farmers, not least due to farmers' business and limited trust towards the government, but also due to internal resistance and struggles with inclusivity and external engagement on the part of government bodies and officials themselves (Hurley et al., 2022). The recommended strategy is to seek out locally embedded skilled intermediaries.

The key characteristics of skilled intermediaries include being credible among HTR farmers, accessible and easily approachable, knowledgeable, and good communicators. Beyond support with the policy in question, they need to be able to listen to farmers' ongoing concerns and provide more short-term practical advice. They can be recruited from diverse farming and rural bodies (charities, support groups, associations, business relations like vets or land agents, churches and faith groups, press, peer groups, trade bodies, environmental non-governmental organisations, etc.).

Government needs to identify and create working partnerships with skilled intermediaries, by providing the support they need to engage HTR farmers. This support might take the form of information provision on the policy itself, training (e.g. on mental health support), funding that enables them to go beyond regular job duties and incorporate engagement activities with HTR farmers.

2. Multifunctional land

We support the formulation of this principle but instead suggest some tweaks to explicitly target multifunctionality and support innovation in land use. "Target the delivery of multiple benefits from land, through innovations in co-location of food, energy and natural infrastructure, according to opportunity, societal needs (such as the health benefits of co-locating new homes and nature), and environmental pressures (such as reducing pollution)."

The LUF must be a spatially explicit tool to reconciling land use competition. The overarching objective must be to maximise multifunctionality and signal a national shift to a paradigm where land use decisions are no longer viewed as binary and recognise that land is a strategic asset that should be incentivised to deliver multiple benefits. The way land is used offers unique opportunities, relative to other economic sectors, to both reduce emissions while also offering space and optionality to build resilience and manage the risks of climate-driven extremes and

variabilities. Despite this, we have suggested the tweak to the principle because there is evidence that multiple benefits can be wrought from a parcel of land which previously produced one public good.

This is most clear in the debates regarding deployment of new sources of green energy and food production. Beyond agricultural emissions abatement, the Government has set ambitious targets for renewable energy development by 2030. These include targets to increase onshore wind generation to 35 gigawatts (GW) from a base of 15 GW and to increase offshore wind generation to 55 GW from a base of 14.7 GW (Renewable UK, 2024). For solar photovoltaic (PV) generation, the target is 50 GW from a baseline of 16.9 GW (HM Government, 2024d). Meeting these targets will be challenging and relies upon successfully reducing the time it takes projects to receive planning approval, complete construction and connect to the grid. The following section considers multifunctionality through the lens of solar PV integration into farmed landscapes.

Solar PV

Discourse from concerned community groups near proposed sites of solar PV generation presents a stark trade-off with food production. But evidence in the literature does not wholly align with these concerns.

There is increasing evidence that agrivoltaics, where crop or livestock production is co-located with solar PV arrays, can increase farm income and contribute to the Clean Energy Mission, contributing to both food and energy security, while providing climate and biodiversity benefits (Barron-Gafford et al., 2019; Chatzipanagi et al., 2023). Zimmermann PV-Agri (Eastern Netherlands) has covered a 3.3-hectare raspberry crop (raspberries being shade-tolerant and needing shelter) with 10,250 specially designed wide-spaced solar panels to generate 2.67 megawatts (MW) — enough energy to power up to 1,250 households. No decrease in yield or quality of berry has been recorded, and electricity is sold back to the grid. In the UK, there is guidance that grazing can be integrated with solar power generation at similar stocking densities to conventional farming (BRE, 2014). Other widely cited evidence, from the University of Oregon (Andrew et al., 2021), exploring lamb growth and pasture production on Agri-PV and control paddocks found little change in lamb weight gain and a slight reduction in the quantity of forage, which is offset by improvements in quality of forage. Blaydes et al. (2021) find that ground-mounted solar PV can support invertebrates with food and nesting resources, better integrating fragmented habitats and bolstering pollination on natural and managed landscapes alike.

Recent evidence in Blaydes et al. (2025) indicates that solar PV generation will occupy a small land area compared to that devoted to agriculture. The authors find that 0.22–0.39% of total UK land under various policy and economic scenarios would be occupied by solar PV assuming 55% of new deployment is ground-mounted. This equates to 0.45–0.82% of agricultural land. If assuming 100% of new solar PV is ground-mounted, the respective range for UK land is 0.40–0.72% and for agricultural land is 0.83–1.50%. In reality, the figure will be somewhere between the two scenarios given that deployment to date has been 65% formerly arable land and 30% improved grassland and there will be substantial rooftop and floating deployment. These figures are for the whole of the UK and not just England although 86% of solar farms are located in England (Blaydes et al., 2025). It should also be noted that around 0.6% of the UK's landmass is occupied by golf courses (CarbonBrief, 2022). The LUF should ensure that spatial overlays are created for golf courses, land used for equine grazing/racing and Christmas tree production to further highlight the opportunity costs of pursuing these land use options against nature restoration, food production and renewable energy development.

A recent paper by Copping et al. (2025) demonstrates that well-managed solar PV farms can enhance bird abundance and species richness relative to arable land when managed specifically for biodiversity. Where solar farms are located within structurally diverse mixed habitats such as those featuring hedgerows and boundary trees, they support higher numbers and diversity of birds, including threatened species, compared to intensively managed solar sites and arable fields. The authors exemplify the multifunctional benefits of intentionally managed solar farms within

areas of mixed habitat solar farms in degraded, arable-dominated landscapes. This finding is reaffirmed in Solar Energy UK (2024) for birdlife and for pollinators in Blaydes et al. (2022, 2025).

Additional solar PV capacity will involve a combination of building-integrated (rooftop), ground-mounted or floating systems. However, there will inevitably be widespread ground-mounted deployment due to cost factors to build at utility scale on greenfield sites alongside policy drivers and proximity to grid connections (Blaydes et al., 2025). Grid capacity is a key determinant of the location of solar PV, alongside Agricultural Land Classification (ALC), land gradient and aspect, proximity to road networks, current land use, community acceptance, and avoidance of environmentally sensitive areas (Blaydes et al., 2025; Palmer et al., 2019). Where utility-scale greenfield solar PV projects are developed, it is imperative that project developers ensure that food production is maintained through continued grazing of the site (at a lower density) or that innovative Agri-PV production methods are encouraged to ensure multifunctionality.

While brownfield and rooftop solar are often proposed as alternatives to agricultural siting, both face significant deployment barriers. Brownfield developments are slowed by remediation and regulatory approval, while rooftop solar is limited by suboptimal positioning and shading which diminishes efficiency and increases costs (Palmer et al., 2019). A balanced policy approach is needed — one that supports diverse deployment pathways but recognises the strategic advantages of utility-scale solar PV, within a broader LUF that embraces multifunctionality rather than competition (Blaydes et al., 2025).

The future bio-based economy

A wider point related to the principles underpinning land use decision-making is the definition of agriculture within the Agriculture Act. Within the Agriculture Holdings Act 1986 (S96-1) 'agriculture' includes horticulture, fruit growing, seed growing, dairy farming and livestock breeding and keeping, the use of land as grazing land, meadow land, osier land, market gardens and nursery grounds, and the use of land for woodlands where that use is ancillary to the farming of land for other agricultural purposes. The farming element is seen entirely through the lens of food production. As we transition towards a net zero economy that substitutes upstream and downstream use of fossil fuels for energy and materials, farmers will increasingly need to provide the raw commodities for this bio-based economy (CCC, 2025). Thus, considering agriculture solely in relation to food production misses the complexity of delivering multifunctional land use. While not within the remit of the LUF, this wider point deserves deeper consideration.

A traditional definition of agriculture will not reflect the diverse goods that will need to be produced from land. Some of these are produced today — perennial grasses such as miscanthus are deployed at small scale and are valued in the equine industry for bedding but have an array of additional uses including energy production (and negative emissions when combined with carbon capture and storage technology) and used in bio-based construction materials. Wider benefits of miscanthus relate to carbon sequestration, soil health, and aspects of farmland biodiversity (von Hellfeld et al., 2022). Short rotation coppicing of willow and poplar is well suited to the UK's climate and willow and poplar are well suited for bioenergy use due to their fast growth (Tubby and Armstrong, 2002). Oilseed crops such as rapeseed, sunflower, and camelina will see increases in cultivation for bio-fuel production, particularly sustainable aviation fuels and biodiesel (Allen and Hammond, 2019). Other options include maize and sorghum, both for grain and their residues for use in bioethanol or biogas systems. Novel crops like hemp and seaweed (macroalgae) offer further potential for sustainable fibre and fuel production, while microalgae represent a long-term opportunity for high-yield biomass grown without competing for arable land (Gegg and Wells, 2019). The aforementioned crops can produce fuels, electricity, bioplastics, construction materials and negative emissions. These goods all have inherent value in a post-fossil fuel world and development has been hampered due to negligible policy support, cultural associations and statutory definitions of agriculture which preclude widespread deployment of bioenergy. It may be advantageous to go back to first principles and redefine agriculture within relevant pieces of legislation to future-proof the industry and give statutory signals as to what goods are valued in society so that farmers can more easily practice multifunctional use of land.

3. Playing to the strengths of the land

We agree with this principle but suggest the following tweak. "Playing to the strengths of the land: Support and spatially target land use change to locations where benefits are greater, and trade-offs are lower. At a minimum, this means all landowners should strengthen resilience of a small area of their landholding through nature restoration while also integrating land uses that are more scarce or spatially sensitive (for example grid capacity places restrictions on new renewable generation sites or protecting land that is best suited for food production)."

Evidence indicates that there are substantial areas of overlap between areas with high nature restoration potential (Gregg et al., 2021) and those areas with high carbon sequestration potential. Optimising land use solely for net zero will select land uses solely based on sequestration or abatement potential. This will invariably lead to increases in non-native production forests and bioenergy with carbon capture and storage (BECCS) which have high sequestration/removal potential but limited benefits beyond climate domains.

Land use strategies that are truly multifunctional and play to the strengths of the land will attempt to optimise for a broader array of co-benefits across nature recovery, carbon sequestration and climate resilience by targeting expansion of native woodland and grasslands, coastal and marine habitat expansion, and peatland restoration, which all support habitat expansion, connectivity throughout England, and increased carbon sequestration and durability of carbon stores (Gregg et al., 2021). Thomas et al. (2013) bolsters this argument by identifying the substantial overlaps that exist between areas with carbon uptake and priority regions to restore biodiversity. The large spatial overlap between these two domains will protect 90% of the highest priority carbon storage and 91% of the highest nature priority areas.

Strategic land use planning will recognise the risk reduction benefits afforded by nature. An LUF that recognises the strength of natural infrastructure would highlight opportunities to integrate nature into cities and towns, where natural infrastructure provides critical climate resilience. In these areas, wetlands, naturalised watercourses and vegetation absorb excess precipitation, attenuating peak flows and lowering peak summertime temperatures through provision of shade. Conversely, a strategic 'future-proofed' LUF must also include deploying renewable energy infrastructure such as onshore wind and solar in less traditionally favourable or previously food-exclusive areas, enabling the co-location of energy and food production (Copping et al., 2025). Such integration not only delivers climate mitigation but smooths farm income fluctuations.

There is sound ecological evidence that nature-process-led environmental restoration (often termed wilding or rewilding) can rebuild degraded ecosystems at low cost (Mercer and Gregg, 2023). Expanding large, interconnected habitat mosaics constituting species-rich grassland, scrub, heath, woodlands, peatlands and saltmarshes should be identified in the LUF and funded through an expanded Landscape Recovery Scheme and Local Nature Recovery Strategies that fairly recompense landowners to participate in large-scale natural-process-led restoration. These actions build ecological resilience, adaptive capacity and the strength of landscapes, giving nature a better chance of recovery given the widespread degradation of the countryside and lack of healthy trophic functioning in these areas (Broughton et al., 2021). Widescale nature recovery cannot be expected with token gestures to build and maintain hedgerows and wildflower margins — we need a fundamental shift in approach to farming and nature (Clark et al., 2023).

Fragmented habitats should be connected to enhance biodiversity and resilience to climate change, as highlighted in Finch et al. (2025). A narrow focus on farmed landscapes misses the benefits of 'mountains to the sea' conservation and the lack of contiguous habitat throughout England and the UK (Sandom et al., 2019). For these reasons, a comprehensive LUF should also identify heavily modified and frequently flooding rivers as candidates for re-naturalisation. Restoring river function — through re-meandering, wetland expansion and reintroducing species such as beavers — offers multiple benefits, including slowing peak water flows, improving water retention during droughts, and protecting downstream communities (Puttock et al., 2021). These nature-based solutions demonstrate the multifaceted benefits of a nationwide, integrated LUF

that supports ecological function while delivering tangible protections for people, communities and economies through avoided costs and risk.

4. Decisions fit for the long term

We agree with this principle but suggest the following tweak to better reflect the need to ensure land is resilient to climate change but also to market factors. "Decisions fit for the long-term: Take a long-term view of changing land suitability, prioritising resilience **to climate change but also of the farm business through diversification into nature positive income streams including nature carbon markets, nature-tourism and renewable energy.** This could include planning for new homes that are resilient to climate impacts, such as flooding and overheating."

The UK Food Security Report 2021 identifies climate change, biodiversity loss and environmental degradation as critical long-term threats to domestic and global food systems. These systemic risks are already materialising; for example, England experienced its second-worst harvest on record in 2024, largely due to severe winter rainfall that reduced yields and disrupted sowing (HM Government, 2024c). Most cereal crops and oilseed rape saw lower yields than in 2023, with oats the only exception, up 8.6%. Overall yields fell below the five-year average.[1] According to the World Weather Attribution organisation, the persistent rain which inhibited sowing, growing and harvesting was made 20% heavier by human-caused climate change (WWA, 2024).

The Met Office (2022) indicates there will be an increased chance of warmer, wetter winters and hotter, drier summers alongside increased extreme weather events in the UK over the remaining century. This is evidenced by record high temperatures in July 2022 of over 40°C resulting in the Environment Agency declaring droughts in parts of the South West, Southern and Central England and the East of England (HM Government, 2022). Floods in London and the Southeast in August 2022 were exacerbated by dry compact earth which did not absorb the deluge of rainwater. Irrespective of the climate policy choices in the UK, climatic volatility will become more frequent and intense and undermine the productivity and resilience of English and UK food systems.

Decisions that are fit for the long term invariably involve incentivising a combination of climate mitigation and adaptation across the landscape and enacting policies that align with the CCC's Seventh Carbon Budget (7CB) advice given that the UK Government has committed to achieving net zero greenhouse gas emissions by 2050. This target implies that any residual emissions will be counterbalanced by carbon sequestration and storage through greenhouse gas removals. The CCC's 7CB provides a 'Balanced Pathway' of emissions reductions (across the whole of the UK) that aligns the agricultural and land use sectors with a trajectory to reach net zero greenhouse gas emissions while maintaining self-sufficiency of food production. The 7CB forecasts emission reductions in the agricultural sector to decrease to 39.2 $MtCO_2e$ in 2030 (–27% on 1990), 29.2 $MtCO_2e$ in 2040 (–46% on 1990) and 26.4 $MtCO_2e$ in 2050 (–51% on 1990). During this period, the share of agricultural emissions within the wider economy is forecast to climb from 13% in 2030 to 27% in 2040 due to steeper emissions reductions achieved in other sectors.

In order to reach net zero by 2050, the balance of agricultural emissions will be offset by expansion of carbon sinks within the land sector, through woodland creation, peatland restoration, energy crop production, hedgerow expansion and agroforestry integration, such that the land sector expands from a source of emissions at present (0.8 $MtCO_2e$ in 2022) to a small sink of –1.9 $MtCO_2e$ in 2040 which offsets 17% of agricultural emissions, and –29.9 $MtCO_2e$ in 2050 which fully counterbalances residual emissions from the agricultural sector (CCC, 2025). The 7CB advice to Government further suggests incentivising landowners to integrate trees into farmed landscapes and restore peatlands to maximise carbon sequestration, and increasing the proportion of land managed under regenerative and agro-ecological approaches and mixed farming models within closed nutrient systems which emphasise cover cropping, no-till sowing,

[1] Wheat production dropped 20% to 11.1 million tonnes, due to an 11% fall in planted area and a 10% drop in yield. Barley production rose slightly by 1.8% to 7.1 million tonnes, with a 24% fall in winter barley offset by a 24% rise in spring barley. Oat production increased by 19% to 986,000 tonnes, supported by gains in both area and yield. Oilseed rape fell 32% to 824,000 tonnes, with declines in both area and yield (HM Government, 2024c).

reductions in synthetic pesticides and herbicides and agroforestry, which all reduce emissions and improve soil health. Moreover, the LUF must connect with the urgent imperative to transition diets away from meat and dairy, as identified in the CCC 7CB and a phase down in the proportion of agricultural land which grows crops for livestock consumption so that this land can be released and contribute to nature recovery, biofuel production or renewable energy.

The 7CB Balanced Pathway would require substantial changes to land use in the UK. This is most clearly demonstrated by the modelled reduction in sheep and cattle numbers (a 38% reduction on 2023 levels by 2050) and steep uptake of low emission farming practices by increasing crop yields (by 16% on 2022 levels), faster finishing of livestock, and 93% electrification of on-farm machinery. Importantly, the 7CB advice recognises that a food systems approach is necessary to facilitate these reductions by also focusing on demand-side measures with a reduction by 35% (on 2019 levels) in average meat consumption by 2050. These measures may be politically unappealing, adopting the 7CB advice would represent, to a great extent, decision-making for the long term. In addition, by developing policies to mitigate agriculture and land sector emissions, the UK would continue to show climate leadership — beyond the 2035 nationally determined contribution (NDC; to reduce greenhouse gas emissions by 81% on 1990 levels) — that there are policy tools to manage trade-offs while decarbonising land use.

Beyond the necessity of delivering on net zero, rural communities need support to modify their business strategies to reduce sole reliance on primary production to future-proof businesses in a more chaotic climatic and geopolitical world. The government should be prioritising policy packages that weave resilience into rural business by diversifying on-farm income into tourism, events/hospitality, renewable energy generation, or for marginal lands — large-scale natural-process-led restoration to maximise ecological benefits at lowest risk to food production (Thomas et al., 2013). In areas with high food production potential, farmers are dependent on transitional policy support to deploy low-methane livestock genetics, methane and nitrification abatement technologies, and farm-level training. Incentives should be aligned with public good outcomes through ELMs and high-integrity carbon markets, including the Peatland and Woodland Carbon Codes (CCC, 2025).

Incentivising decisions fit for the long term would do well to begin with following advice set out in the 7CB.

5. Responsive by design

We agree with this principle and do not suggest any further tweaks.

Question 3: Beyond Government departments in England, which other decision-makers do you think would benefit from applying these principles?

The five principles should be applied across all stakeholders with decision-making capacity regarding land use in England. Combined and local authorities will be the lead agency to monitor, ground-truth and report on alignment with the LUF principles. However, combined and local authorities must be compelled and funded to actively shape land use within the area of their statutory remit. This responsibility should be further refined through connecting the LUF with the National Planning Policy Framework (and ELMs) to ensure that there is a coherent strategy throughout Government planning and funding.

Applying the LUF principles through ELMs' funding agreements to larger landowners with holdings of >200 hectares would ensure that the principles are observed by farmers and there is a contractual mechanism to ensure alignment (at a high level) with landowners who have the scale to make a meaningful contribution to 30by30, net zero and food security. If applied to landowners with holdings of >200 hectares, 11,086 farms would be in scope, which constitutes 4.9 million hectares or 55% of the UAA within England according to statistics recently released by Defra (HM Government, 2025b) while not overburdening smallholders.

Question 4: What are the policies, incentives, and other changes that are needed to support decision-makers in the agricultural sector to deliver this scale of land use change, while considering the importance of food production?

If the intent of ELMs to provide public money for delivery of public goods is to be given a chance to deliver on nature recovery, net zero and food security, the fiscal outlay needs to be commensurate with the challenge landowners will face to deliver this triumvirate of goals in the face of challenging market and climatic conditions. Additionally, and most critically, the incentives given to farmers need to be predictable and meaningful. The forthcoming spending review must increase the allocation of funds to landowners to deliver on critical statutory commitments across net zero and nature that provide the ecosystem services which underpin soil health and fertility and resilience to future climate change. Funding commitments for at least five years should be made and targeted to those farms in the uplands and Less Favoured Areas (LFAs) in the first instance where there is most overlap between biodiversity and carbon and fewer potential implications regarding food production.

Policy consistency is incredibly important given that land use changes are considered on decadal timescales and landowners need to ensure that the opportunity cost of land retirement is minimised as much as possible. Trust needs to be rebuilt between the agricultural sector and Defra and changes to ELMs (see for example the Sustainable Farming Scheme abruptly stopping disbursements in March 2025) should be clearly signalled and consulted upon so that farmers actively choose to participate in ELMs and support the Government's statutory objectives. The goals and spatial maps within the LUF need to closely align with the subsidies and incentives within the ELMs package. The Government should also consider other mechanisms such as water allocation, nitrogen and ammonia caps, or emissions pricing to drive agricultural decarbonisation and behaviour change.

Maintaining the English agricultural budget at £2.4 billion/annum during the 2024 Autumn statement should be commended (with £1.8 billion allocated to ELMs), but this budget will only serve to manage the steady decline of the UK's countryside across critical environmental indices and do little to invest in land managers to deliver the natural infrastructure, biodiversity gain, carbon sequestration and food production required in this critical decade (MacMillan et al., 2025).

Two pieces of analysis provide an indication of the magnitude of investment required to deliver on legally binding nature and climate targets while maintaining self-sufficiency of food production. The first, commissioned by the RSPB, National Trust and The Wildlife Trusts (Rayment, 2024) models income foregone and costs incurred for a 'typical farm' to estimate the net cost of delivering on Environment Act targets, net zero by 2050 and 30by30. By analysing gross margins and cost variations across different farm types, the study finds an upward-sloping supply curve, suggesting uniform payments may not secure uptake in high-margin sectors like dairy, pigs and poultry, and horticulture. Across the UK as a whole, the required annual investment is £5.5–£5.9 billion — almost double the current agricultural budget allocation. In England, the required investment totalled £2.5 billion–£3.2 billion (across multiple scenarios) which would require, at minimum, a £0.7 billion–£1.4 billion uplift in funding for landowners to deliver on these targets.

The second piece of analysis, commissioned by the National Farmers Union (NFU, 2024) and delivered by the Andersons Centre aligns with findings in Rayment (2024) and suggests England requires an annual agricultural budget of approximately £4 billion comprising £2.7 billion for environmental goals, £615 million for productivity improvements, and £720 million for farm business stability. Across the whole of the UK, this equates to a budget of around £5.6 billion.

Beyond adequate provision of funding to support this transition, policies to support the required magnitude of land use change need to coalesce around the following areas.

- Incentivise **low-carbon farming practices** including reduced reliance on fertilisers, improving livestock efficiency (to reduce the amount of ruminant pressure on ecosystems) and health and slurry management which can reduce greenhouse gas emissions from soils, livestock and manure management.

- Development of incentives for on-farm actions above a baseline including nature carbon markets for **afforestation and peatland restoration** and other on-farm carbon management.
- **Upskilling land managers** so that they are equipped with the knowledge and skills to adopt new land management strategies and management of new sources of on-farm sequestration. **Resolving asymmetries between tenant farmers and landlords** related to participating in agri-environmental schemes.
- Roll out measures to **encourage consumers to shift their diets and reduce food waste**. Such a strategy needs to encompass behavioural science through information provision, knowledge exchange and mandatory reporting across standardised metrics for businesses across the food system. These measures can be encouraged by public procurement of nature-friendly farming products to send positive market signals.
- Continue to **invest in a robust monitoring, reporting and verification system** to support land managers to understand their nutrient balance and carbon losses.

Question 5: How could Government support more land managers to implement multifunctional land uses that deliver a wider range of benefits, such as agroforestry systems with trees within pasture or arable fields?

The LUF must not only safeguard land for its current productivity but must act as a strategic vehicle to future-proof land use. This involves incentivising climate-smart practices, enabling land diversification, and embedding resilience within rural economies. Failure to act decisively risks compounding vulnerabilities across food systems, ecosystems and livelihoods.

The agricultural sector is faced with systemic economic constraints, including escalating input costs and market dominance by food processors and supermarkets, leading to price and margin pressures for farmers (Ross et al., 2023). The transition to net zero will likely shift agricultural workers to lower-carbon practices, either within the agricultural sector, or to aligned industries. It is highly likely that the livestock farming sector will shrink, potentially creating new roles in afforestation and peatland restoration and other low-carbon land management strategies. Tree-planting and peatland restoration targets may require thousands of new workers, offsetting some job losses in livestock agriculture (CCC, 2023). The CCC's Net Zero Workforce (2023) report projects significant growth in afforestation, regenerative agriculture and peatland restoration. Policymakers must ensure that workers are equipped with the necessary skills to transition into lower-carbon rural occupations, thereby maintaining economic viability in affected communities (CCC, 2020).

The transition towards multifunctional land use, including natural capital markets and ecotourism, will require land managers to develop new competencies across agriculture, forestry, conservation, renewable energy development and carbon/nature markets. Local authorities and the Environment Agency should be supported and funded by Defra to deliver the significant upskilling and retraining across low-carbon agricultural production methods. These might include yield enhancements through new crop cultivars and agronomic practices, integrating low-methane livestock genetics into herds, modern slurry management, agroforestry, woodland creation and peatland restoration. Responsible agencies must be proactive and meet farmers to understand their land use plans, capabilities and opportunities for nature improvements/emissions abatement (Royal Society, 2023).

Training provision in agriculture remains insufficiently aligned with emerging demands. The Royal Society (2023) further suggests expansion of professional development for farm managers and the agricultural service industry alongside reforming agricultural curricula through colleges and universities. Apprenticeships, particularly under the Green Apprenticeships Standard, offer an inclusive pathway into the sector, and would benefit from stronger collaboration between public and private actors.

Ideas worthy of dissemination among the farming community include the 'Maximum Sustainable Output' (MSO) system publicised by the Nature Friendly Farming Network. The study (Clark et al., 2023) involved financial analyses of 165 farms (predominantly beef, sheep, dairy, and mixed farms) across upland and lowland contexts in the UK. MSO is defined as the point at which commercial returns are maximised through reliance on the farm's naturally available resources and requires the identification and minimisation of 'corrective variable costs' (CVCs) — which are external inputs such as fertilisers and bought-in feed. Clark et al. (2023) find that farms can increase profitability while reducing environmental pressures, with average improvements in commercial returns ranging from 10–45% across different farm types. MSO is achieved when productive outputs are sustained by essential inputs only, elimination of CVCs, revealing a profitability 'sweet spot' aligned with environmental goals.

Question 8: In addition to promoting multifunctional land uses and spatially targeting land use change incentives, what more could be done by Government or others to reduce the risk that we displace more food production and environmental impacts abroad? — food systems approach demand-side incentives to reduce food waste thus limiting need for offshore import.

As discussed in question 2, the LUF must connect with the required dietary transition away from carbon-intensive meat and dairy and towards plant-based and alternative protein sources. Encouraging this transition will do much to limit emissions leakage. The CCC models in the 7CB[2] a phase down in the proportion of agricultural land that grows crops for livestock consumption so that this land can be released and contribute to nature recovery, biofuel production or green energy. Transitioning diets towards less carbon-intensive sources of protein is inimitably linked to decisions around land use. According to the consultation document, "85% of the UK's UAA in 2023, across both arable and grassland, was used for animal feed or animal production" — either directly through grazing or indirectly through feed crops — highlighting a significant inefficiency in land use.

In the 7CB Balanced Pathway, average meat consumption is projected to decline by 25% by 2040 and 35% by 2050 relative to 2019 levels. However, this reduction sees steeper reductions for more carbon-intensive food products with red meat consumption modelled to decrease by 40% by 2050 and dairy consumption by 20% by 2035 through to 2050. These shifts align with the observed decline in meat consumption by 10% between 2020 and 2022 according to the Defra Family Food Survey (HM Government, 2024e). The pathway envisages a protein transition where meat consumption is predominantly replaced by plant-based alternatives and whole foods such as legumes, pulses and grains alongside novel alternative proteins produced through precision fermentation. Increasing the proportion of sustainably managed fish, shellfish and bivalve mollusc stocks in diets is also important for health reasons and offers (when managed carefully) sustainable protein stocks which further support land release.

The agricultural land that currently produces the fewest calories overlaps with land that has high conservation value. If, by 2035, 9% of the least productive farmland in England was managed to maximise land-based carbon sequestration, less than 1% of England's food production would be lost. The National Food Strategy further finds that the least productive 20% of our land produces only 3% of our calories. Thus, limited dietary change would enable land release without offshoring production (Dimbleby, 2021). Reducing consumption of emissions-intensive meat and dairy by 25–35%, especially when considering the opportunity cost (in terms of lost sequestration) of releasing grazing land for carbon sequestration, will allow farmers to focus production on areas best suited

[2] Beyond reductions in livestock numbers, four additional measures contribute to land release from agriculture, accounting for 2% of emissions reductions and 32% of land released by 2040. Firstly, food waste reductions by 39% at 2030 and 45% by 2040 (relative to 2021) contribute to 12% of land release. Secondly, increased livestock stocking densities (which does not lead to emissions reductions) on lowland grasslands by 10% by 2050 enables destocking from upland areas which contributes to 12% of land release. Thirdly, sustainably improving crop yield through enhanced agronomic practices and crop breeding account for 7% of land release while enabling equivalent output with reduced land and inputs. Finally, shifting 10% of horticultural production to indoor systems by 2050 frees 0.2% of land by 2040 (CCC, 2025).

to livestock production and continue to serve the domestic market's high quality products that have not been displaced by imports.

A recent study modelling land use change scenarios in England by Finch et al. (2025) draws out these challenges. Scenarios that optimised for greenhouse gas emissions abatement in the agriculture, forestry, and other land use (AFOLU) sector featured high deployment of nature-based solutions (NbS) but resulted in the largest calorie gap with more conventional farming scenarios but with substantial co-benefits for biodiversity.

Importantly, no scenarios in Finch et al. (2025) find England reaching net zero by 2050. However, scenarios with the highest ambition for peatland restoration and woodland creation came closest to achieving this goal. All scenarios resulted in a reduction in food production in England by 2050 compared to the 2015 baseline. The scenarios with the smallest reduction in food production were those that prioritised on-farm management changes with less NbS deployment with the 'Balanced' scenario seeing a 14% decline and an organic farming scenario a 15% decline. Scenarios which deliver strong climate change mitigation see reductions in food production of up to 25%. Mitigation measures within the food system are thus needed to ensure that this does not result in offshoring of environmental impacts via increased food imports. Ambitious combinations of measures including reducing food waste, using arable land to grow crops for direct human consumption rather than livestock feed (and thus implying a dietary change), and increased productivity on remaining farmland, could fully mitigate expected reductions in food production (Finch et al., 2025).

Incentivising and coordinating land use change

Question 14: How can Government support closer coordination across plans and strategies for different sectors and outcomes at the local and regional level?

Delivering multifunctional land requires an all-of-government response. As set out in the consultation, the delivery of a fair land use transition will cut across different ministries (led by Defra) and involve changes to nature recovery, emissions reductions, food production, infrastructure and housing, among others. Lessons can be learned from processes for coordination of government climate change responses. Like land use policy, climate change policies involve a wide range of sectors and ministerial portfolios. Climate change policies also require close interaction and alignment between and across national and subnational authorities (Sridhar et al., 2022).

Our study on the impacts of climate legislation and preparation of national emissions reduction plans in New Zealand and Ireland found that cross-departmental 'taskforces' focused on implementation and shorter-term actions strengthen sectoral coordination (Averchenkova et al., 2024a, 2024b). In New Zealand specifically, our research highlighted the impact of cross-departmental bodies like the 'Climate Change Chief Executives Board', which involve the 'chief executives' of relevant government departments, to facilitate coordination at the administrative level. This coordinates individuals who are responsible for the day-to-day implementation of programmes in that portfolio, and who report to the Minister for the performance and operation of the agency. For example, this Chief Executive Board involves key decision-makers across the Ministry of Environment, Treasury, Primary Industries, Business, Innovation and Employment, Transport and Internal Affairs, and the National Emergency Management Agency. Requiring these bodies to provide progress reports to ministerial-level bodies or parliamentary committees can enhance oversight and visibility on how land use changes cut across the public sector.

In Ireland, our study found that issue-specific cross-department taskforces, with targeted expertise, are useful to coordinate implementation of key elements of wide-reaching climate action plans. In this case, interviewees referred to the Offshore Wind Delivery Task Force as a particular success, given its clear remit and mandate. The Offshore Wind Delivery Task Force was convened to address the extensive list of measures listed in the Annex of Actions to the Climate

Action Plan 2021, which related to the development of offshore renewables in Ireland. Separate cross-departmental taskforces were established under the Delivery Board chaired by the Department of the Taoiseach and the Department of the Environment, Climate and Communications, to implement other listed policy objectives and actions under the Plan.

The proposed LUF, as a long-term vision, could be supported by such cross-departmental bodies, with clear and specific mandates and timeframes for designing and actioning elements of the Framework.

Governing land use change

Question 23: Should a Land Use Framework for England be updated periodically, and if so, how frequently should this occur?

Yes, 5 years.

The land use transition is a large-scale transformation, which requires strategies that set clear long-term objectives and policy direction but are also flexible enough to respond to evolving scientific information, technological changes, socioeconomic factors and the rising urgency of climate change. These are also challenges faced by climate mitigation and climate adaptation strategies, which need to respond to the urgency, but also evolve with the best available science as it develops. Our research on the impact of climate legislation in the UK, Ireland, Germany and New Zealand has found that regular strategy-setting and progress reporting strengthens political accountability and improves public debate on climate action (Averchenkova et al., 2024a, 2024b). Regular planning with annual progress reporting requirements offers consistent opportunities to check in on progress and enables policymakers to evaluate year-on-year fluctuations in emissions and realign or adjust when necessary (Averchenkova et al., 2024a). It also provides a regular timeline with key information points for parliament, the media, civil society organisations and the broader public to engage with the debate on climate change. Implementing a clear process for updating and reporting on the LUF may similarly generate a point of reference for key stakeholders to engage.

The answering options to this question include every three or five years. In the case of the LUF, it may be appropriate to follow a five-year cycle, which aligns with the five-year system for reviewing the Environmental Improvement Plans (EIPs) and the environmental targets, under the Environment Act 2021. The UK carbon budgets, which include LULUCF, are also set in five-year cycles, with the most recently published 7CB covering 2037–2042. In July 2024, Defra announced a rapid review of the current EIP and in January 2025, the Secretary of State confirmed the review has been completed and a new Plan will be published this year (HM Government, 2025a). If the LUF is also finalised this year, this could align the five-year cycles.

The interim statement on the EIP rapid review suggested that improvement could include having "a clear process for prioritisation, which could help with assessing competing demands" (HM Government, 2025a). If it is decided that the LUF should be updated periodically, alignment with the review of EIP and meeting targets may help mitigate the risk of high transaction costs and planning or reporting 'fatigue' for relevant ministries. In our study of climate action planning and reporting in Ireland, Germany and New Zealand (Averchenkova et al., 2024a), some interviewees involved in planning and reporting processes expressed that a five-year cycle may generally be a realistic timeframe to review, assess, prepare and consult on updating economy-wide plans. Shorter cycles can place pressure on capacity and generate less public attention and engagement.

However, to avoid political short-termism, the longer planning cycles can be complemented with annual progress reporting. This aligns with the current system of annual progress reports on the implementation of the EIP, under Section 9 of the Environment Act 2021. The interim statement also suggested finding "opportunities to better co-ordinate evidence with others to better understand where action is needed or can be better targeted/focused". Aligning updates of the

LUF with the EIP may also help facilitate the Office for Environmental Protection's (OEP) reviews. The OEP prepares an annual progress report on the EIP and targets under Section 28 of the Environment Act 2021. Given the close interaction between the LUF and the EIP, allowing the OEP to report on implementation of both policies may be appropriate.

Question 24: To what extent do you agree or disagree with the proposed areas above? Please include comments or suggestions with your answer.

- A strategic oversight function to ensure the right information and policy is in place to enable delivery against a long-term land use vision.
- A cross-governmental spatial analysis function to produce evidence-based advice on strategic implications across different demands on land.
- Processes to embed land use considerations in strategic Government decisions.
- Open policymaking processes in collaboration with research organisations.

This response focuses on the third proposed area: "processes to embed land use considerations in strategic Government decisions".

Our research suggests that giving public bodies a clear mandate to operate in a way that is aligned not only with climate goals but also with climate plans and policies can have significant positive benefits for climate action (Averchenkova et al., 2024a, 2024b). In particular, our study of Ireland's regulatory framework found that strong legally binding language requiring decisions by public bodies to be "consistent with" the climate action plan was associated with impacts on strengthening accountability and engagement from key sectors (Averchenkova et al., 2024a).

To effectively embed land use considerations in strategic Government decisions, relevant public authorities would benefit from increased clarity in their mandates on whether and how their actions should be consistent with the principles set out in the LUF. We have previously recommended that the National Planning Policy Framework explicitly recognise the need for public authorities, including the relevant Secretary of State, Planning Inspectorate and local planning authorities, to align planning decisions with targets and carbon budgets set, and climate policies and adaptation programmes produced, under the Climate Change Act (Grantham Research Institute, 2024). Our research has found that aligning decisions to specific short-term or medium-term indicators in climate plans is easier than aligning to an overall target in the far future. Depending on the final LUF and noting that it is intended to serve as a foundation to inform decision-makers, additional guidance on how decisions can be aligned against each principle is likely necessary to guide implementation.

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