The Joint Nature Conservation Committee's Response to England's Land Use Framework Consultation Response

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? [Strongly agree / Agree / Neither agree nor disagree / Disagree / Strongly disagree / I don't know] Please explain your response, including your views on the potential scale of change and the type of change needed, including any specific types of change.

Response: Agree

The Joint Nature Conservation Committee (JNCC) acknowledges the complexity of the analysis presented in the consultation document and annex. Based on the evidence provided, and our own analysis, we endorse the general trend outlined in the annex regarding the scale and type of land use change required in England to ultimately meet the UK's international commitments and obligations.

Rather than duplicating the assessment of assumptions and subsequent implications for interpretation that have been conducted by England-specific organisations, this response will focus on the UK-wide implications of this analysis. Our key reservation is whether the scale of land use change presented is sufficient to meet cross-government targets. A substantial amount of land use change could occur without achieving targets at either the England or UK scale, particularly if multifunctionality is not pursued or if there are shifts in consumption that undermine progress. Therefore, the impact of ongoing land use change must be monitored and evaluated regularly with particular focus on 'early warning signal' indicators that overcome issues with long lags between land use change and outcomes.

JNCC encourages and supports Government to consider continue developing its understanding of the societal outcomes and benefits derived from land. JNCC has an interest in the resilience of food security given this is a reserved UK area, while food production falls under the remit of Devolved Governments. JNCC's position is that high levels of biodiversity in ecosystems play a crucial role in stabilising and supporting resilience in food security across the UK. Shifts in land use management and changes across England will have UK-wide implications, particularly on cross-border sites, and for species and environmental pressures that traverse borders. Such changes could also have wider impacts on the food system, relevant markets and prices. We welcome further analysis that considers these wider impacts to ensure that changes do not lead to unintended consequences.

QUESTION 2: Do you agree or disagree with the land use principles proposed? [Strongly agree / Agree / Neither agree nor disagree / Disagree / Strongly disagree / I don't know] Please provide any reasons for your response including any changes you believe should be made.

Response: Agree

JNCC supports these principles in theory but has concerns about their successful implementation. Without effective routes to implementation, these principles may create false expectations and ultimately lead to greater confusion or even failure to achieve targets. JNCC is committed to helping ensure this does not happen. Therefore, with these reservations, we agree with the principles, but would like to see greater focus on routes to implementation particularly around common spatial data, regional implementation and data governance.

Detailed Response:

1. Codesign: Decisions need to be made locally, utilising integrated data sets and breaking down siloes between industry, government, and environmental NGOs. This approach can lead to more efficient use of resources. However, significant questions remain about the feasibility of translating these principles into everyday life. JNCC would welcome supporting any regional or Government efforts to implement such codesign, especially through the provision or relevant data or analytical methods.

2. Multifunctionality: Decisions must be made locally but also need to align with targets committed to at multiple scales—local, regional, and national. There is an outstanding question about how these principles can be applied without more information or a plan for how this aggregation can happen, particularly as a regional tier is often missing in aggregation. Social science will play a crucial role alongside environmental evidence, as eventually someone will have to arbitrate between priorities, especially when benefits are often felt elsewhere from the site of land use change. For example, Scotland's timber transport scheme finances projects that reduce the negative impacts of timber transport on local communities. By prioritising multifunctionality, we can create synergies that support economic development while also addressing environmental and social goals.

3. Spatial Approach: JNCC strongly supports using a spatial approach as it is key to unlocking future productivity and increasing efficiency of land. Achieving greater alignment and coherence between biodiversity and other industries, such as what has been promised for energy through the Strategic Spatial Energy Plan in Great Britain. Further integration with other spatial frameworks will be key to land use change delivery. The challenge will be how important it is to consider the representation of different ecosystem services and how they are compared and weighed against each other. This matters because the methods chosen will have to remain relevant as conditions change and the ability to reassess and adjust priorities becomes essential. A well-defined framework for weighing priorities allows for adaptive management, ensuring that land use practices remain relevant and effective over time. This will help to create transparency in decision-making processes, especially on

identifying what ‘decision grade data’ are, ultimately building key stakeholder support leading to more economically and environmentally sustainable and equitable outcomes.

Biodiversity plays an underpinning role across societal benefits from land and as statutory nature advisor, JNCC’s view is that biodiversity must be considered in relevant decision making. Social science will be needed to communicate the international significance of an area and its rationale for land use change.

4. Long Term Changes: JNCC agrees that long-term thinking is needed for both the long-term and wider-scale nature of benefits delivered from land. So, whilst we are supportive we must also flag the significant cultural change required. For example, we are keen to ensure that homebuilding should benefit from the long-term resilience provided by natural flood management. However, that land use change to deliver resilience to new houses could be delivered upstream in another country or region. Appreciating this benefit may require new evidence or indicators to identify this reliance as well as social science evidence to underpin how this is communicated. This improved recognition and shift in perception will especially be needed for areas that require change and are internationally/nationally important ‘infrastructure’ assets like peatland often in the uplands.

5. Responsive Policy: JNCC is supportive of adaptive policy in response to new data streams. However, it is important to flag the significant implications for decision making in government when new data sources come online. Here our proposed framework for ecosystem service priorities/metrics/representation will need to also be used effectively by governance routes to influence policy design/implementation. Landowners need the ability to plan for the medium to long-term, so changes as new data, policy and pressures arise must be made in consultation with stakeholders.

Secondly, the implementation of this concept will involve not just integration into policy design but also into policy implementation, requiring a significant scaling of existing approaches thereby representing a cultural and operational shift. This requires well-managed change, and implementation will require strong cross government governance to give certainty to those on the ground.

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

● Combined and local authorities (including local planning authorities)

● Landowners and land managers (including environmental and heritage groups)

● **Others (please specify)**

The Land Use Framework ultimately is about striking a balance across a suite of benefits that land provides for society. These principles should apply to everyone involved in land-use decision making at all scales – from those involved in implementing the recommendations of the Local Nature Recovery Strategies (LNRS), local planning authorities, deciding on the location and nature of Biodiversity Net Gain through to the design and implementation of regional spatial strategies, the Nature Recovery Fund and national initiatives and policies. At all scales, stakeholders will need access to spatially relevant information to guide decision making and ensure strategic consistency.

The principles alone will not drive the change, we need initiatives leveraging both strong social and natural science to support the cultural shift removing silos between land managers, industry, local authorities and central government. We need to ensure that we understand how evidence is perceived by different sectors and how it could be appropriately communicated for coherent change at different scales. To trial a more coordinated approach, the LUF could establish regional LNRS-style pilots with wider cross-sectoral engagement to learn from a more coordinated approach and then expand from there. These should consider how to deliver joined up local change. LNRS is just one example, and while it is environmentally focused, growth and development are key across multiple areas. The same approach and evidence base should be applicable to all land use decisions and engage all land use decision makers.

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?

Any country's Land Use Framework is ultimately about striking a balance across a suite of benefits that land provides for society, and England's is no different. The following answer discusses both the strategic and practical changes that are required for the agricultural sector to deliver land use change in levels commensurate with the ambition of international targets the UK has signed up to.

To achieve a balance where land and the benefit derived from the natural environment provide a strong foundation for society, JNCC's position is that there needs to be a cultural shift in how land is viewed across the UK. JNCC believes society's perspective on land needs to expand to increasingly recognise the multiple benefits land can provide. Notably, improved indicators are needed that put smaller areas of land into a wider context reflective of their full support for society. Naturally, a particular focus for land use will always be the provision of food. In an increasingly volatile future however, it is important to recognise that measuring food security should extend beyond production and measure other critical factors such as consumption, impact of importing goods on the environment overseas and resilience.

Evidence alone will not drive the changes at the pace and scale society needs. Government must pursue initiatives that harness both strong social and natural science to support the cultural shift on land's value. Policy driven land use change must be measurable with responsive early warning signals that show locally if measures are working. This information must feed back into policy decision-making as this will be important in an uncertain future. This managed change will require strong cross-government governance to give certainty to those on the ground who ultimately take actions which constitutes progress towards targets.

To deliver this vision there are several practical solutions the LUF should consider implementing:

1. Dedicated approach to understanding multifunctional land use and the benefits it can deliver – and disseminating this knowledge to land managers. JNCC's work in understanding decision support tools and in developing our work on Spatial Prioritisation[1] can support with this. At its core JNCC's Spatial Prioritisation approach makes information and relevant data accessible and tailored to audiences working to implement land use change.
2. Taking account of existing work on consumption such as the Global Environmental Indicator on Consumption[2] – which looks to breakdown how the UK's imported consumption has an impact on overseas biodiversity. This must be balanced against domestic changes we make to ensure environmental externalities are not displaced.
3. Long-term partnerships between social, environmental and economic evidence specialists with on-the-ground behaviour change initiatives to help land managers and other industry implement the change required. Government needs to understand how evidence is perceived by the agricultural sector and how data could be

appropriately communicated for cohesive or multifunctional change at different scales. This could be trialled with local pilots which consider how to deliver joined up local change.

4. Developing a suite of responsive land indicators that relate key components of the system (e.g. consumption/production balance, wider societal outcomes, piloting a regional approach to test how this could work before rolling out more broadly), JNCC's expertise in local change detection and work on UK Biodiversity indicators can support here. UKBI 10.1 is an indicator for the proportion of agricultural area under productive and sustainable agriculture is directly relevant however all the area-based indicators are driven by land use (protected areas, 30by30 etc.).
5. To ensure successful implementation of change, it is essential to develop a long-term vision that includes multiple stages and review points. Effective governance structures must be established not only within government but also in collaboration with industry. This will facilitate frequent and effective communication, ensuring that all stakeholders are aligned and engaged throughout the process.

1. https://jncc.gov.uk/our-work/spatial-prioritisation/
2. https://oifdata.defra.gov.uk/themes/international/K1/

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?

Understanding how multifunctional any area of land is, is complex and requires a holistic understanding of each farm's value to society. Given this complexity it may be difficult to incentivise farmers to implement measures at appropriate locations and the right scale for impact. By providing strong evidence that clearly shows the multiple ways in which a land parcel is delivering across a suite of societal outcomes, benchmarked to regional priorities, Government can provide clarity. This will require the land managers to be helped to understand what multifunctionality for their land could look like. One-way JNCC can help with this is our Spatial Prioritisation approach/proof of concept tool[1]. This considers ecosystem service priorities at local to national scale and location-based eligibility for schemes (incentives) to show how interventions can deliver multiple benefits at the land parcel scale.

To understand how more effective decision making is impacting our environment we need stronger evidence to monitor changes (baselines and indicators), and to communicate how the land manager is benefitting from multifunctionality (this could be the resilience of individual holdings, access to public grants/schemes, or even engagement with private markets). Communicating progress and eliciting change should be supported by social science to ensure a just transition for those implementing changes. By communicating evidence effectively, through routes backed by social and behavioural science, then the use of those indicators and baselines will be effective in communicating the change required achieving the successful delivery of the LUF.

It will be particularly important to communicate to land managers how they can benefit from multifunctionality too, including through managing land for greater resilience and adaptation to climate change, alongside sustainable intensification in the longer term (farmers may be able to take land out of production and still maintain higher yields), widened access to private finance markets, and increase the value of their land. Developing an evidence base which demonstrates these benefits will be key.

Benefits of multifunctional land use change may also be felt beyond the boundaries of a land parcel. Farmers who are farming appropriately for their land, which might mean reductions in yield to increase climate adaptation of a whole region, should be recognised and compensated for their contribution in similar ways to farmers increasing yields from their land when appropriate. Therefore, our understanding of what 'good' farming looks like needs to adopt a more holistic view of land at a regional scale with incentives delivered in line with this. This might involve building a common understanding of shared finite resources within a catchment and how we allocate them for a wider benefit to society and incentives land managers fairly for changes they make. Access to grants/incentives and maintaining support so that the benefits endure, and landowners are better able to plan, remains key to delivering this vision.

There are many approaches to achieving this vision which the government could take, but a common thread throughout is improving evidence for decision making, which Defra could champion across government. JNCC considers this an area in which we can support by:

- Helping to develop a common vision for multifunctionality which aligns with policies and targets such as the Environmental Improvement Plan (EIP) and is shared across government. This is critical in ensuring we have a common understanding that multifunctionality is a critical delivery route in an uncertain future. Resilience of food systems and ecosystems together is underpinned by multifunctionality.
- Reviewing, understanding and developing decision support tools to help those engaged in land use change understand what is needed and where (more information on Spatial Prioritisation below). The key here will be to move beyond considering individual tools by also making sure that the underlying evidence is aligned and can be collated to measure progress. In addition, these tools must be underpinned by the right kind of evidence at appropriate scales, with appropriate accessibility and clearly articulated dependencies/uncertainties to help support effective decision making.
- Sharing our existing user research into how evidence is viewed and perceived by land managers (in collaboration with Defra) and identifying gaps.

A multifunctional approach, “considers simultaneously all the market (such as food, timber and energy crops) and largely nonmarket (such as biodiversity habitats, carbon sequestration, flood alleviation and recreation) products and services provided by the land. It considers trade-offs and synergies between different outputs and suggests how landscapes can be designed to increase benefits to multiple stakeholders, from individual landowners to society”[2].

Considering all these products and services from land requires a range of high-quality evidence, brought together in a scientifically robust manner, which can be clearly communicated and translated into an accessible and meaningful approach to underpin decisions made on land as recommended by a Royal Society report[3].

JNCC has developed a novel land-use decision-making approach using a range of evidence to support the delivery of multifunctional landscapes and the attainment of multiple policy objectives. Spatial prioritisation involves systematically identifying and ranking interventions based on their suitability and potential impact on delivering locally relevant ecosystem services or reducing pressures on the natural environment. By doing so it captures the synergies and trade-offs of different interventions against the delivery of multiple environmental benefits, including food production.

There are three main evidence pillars underpinning Spatial Prioritisation:

- **Location-based eligibility mapping** analyses the presence of existing assets, environmental conditions, legal/administrative barriers and protected site boundaries to create mapped layers representing where it is feasible to undertake land management interventions.

- **Impact Assessment (IA)**, which involves evaluating the potential impact of each land management intervention on the delivery of ecosystem services. Spatial Prioritisation uses the Qualitative Environmental Impact Assessment (QEIA) to do this (Emmett *et al.* 2023)[4]**Error! Reference source not found.**. Other methods for assessing impact are available.
- **Priority Maps** identify high priority locations where it is important to maintain or increase the delivery of an ecosystem service or reduce existing pressures on natural capital assets and their functions.

These three evidence pillars are brought together using a Multi Criteria Decision Analysis (MCDA) to support multifunctional land-use decision making. MCDA is set of decision-making methods that assess and compare the performance of multiple, often conflicting, options against an agreed set of criteria which contribute towards the attainment of the decision makers objective (DCLG, 2009)[5].

In this context, our objective is to deliver multiple benefits through land management and contribute towards multifunctional landscapes. Our criteria are a range of different ecosystem services that we want to deliver on land, ranging from Access and Recreation to Flood Regulation. Finally, our options are the numerous land-management practices that are available to land managers. Through our MCDA we can identify environmental priorities in a given area and the available land management practices which are likely to deliver more of those priorities than others, ranking them to support the selection of options which contribute to multifunctionality.

Some of the key benefits of MCDA's are their ability to:

- Handle **a lot of large, complex & conflicting data**
- Incorporate **conflicting stakeholder priorities.** This can include local priorities in addition to national priorities, ensuring local perspectives are directly embedded in the analysis
- Be transparent and easily communicated

This novel land-use decision-making approach, that allows land managers to more easily harness an extensive array of evidence to support the delivery of multifunctional landscapes, should be considered to support the wider delivery of multiple policy objectives.

1. https://jncc.gov.uk/our-work/spatial-prioritisation/
2. Multifunctional landscapes: Informing a long-term vision for managing the UK's land, 2023, pg 7. Online: https://royalsociety.org/-/media/policy/projects/living-landscapes/des7483_multifunctional-landscapes_policy-report-web.pdf
3. Multifunctional landscapes: Informing a long-term vision for managing the UK's land, 2023. Online: https://royalsociety.org/-/media/policy/projects/living-landscapes/des7483_multifunctional-landscapes_policy-report-web.pdf
4. Emmett, B. A., Bell, C., et al. (2023). Qualitative impact assessment of land management interventions on Ecosystem Services ("QEIA").
5. DCLG (2009) Multi-criteria analysis: a manual. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/7612/1132618.pdf

QUESTION 6: What should the Government consider in identifying suitable locations for spatially targeted incentives?

JNCC advocates for a long-term and holistic approach to ensure targeted actions are based on robust environmental and socio-economic evidence. This response will first outline JNCC's perspective on how targeting high-potential areas for multifunctional outcomes and leveraging unique natural resources can drive growth, enhance productivity, and provide resilience for society and the economy. Next, it will detail more specific considerations from analytical approach JNCC is developing to support this ambition. Finally, it will address key barriers to wider-scale targeting, particularly the socio-economic research required for policy implementation and the steps needed to ensure decision grade and robust environmental data is used in decision making.

JNCC agrees with the statement in the consultation document that, "Targeting land use incentives to the right locations will help achieve … better value for public spending by achieving greater benefits from the land use or management changes that are paid for." There is an opportunity to use available evidence to consider targeting areas with higher potential to deliver multifunctional outcomes, or where there are assets with nationally limited spatial extent making a high contribution to individual targets. It is imperative to recognise that nature plays a fundamental role in underpinning both economic growth and key societal outcomes such as food security. By identifying and protecting critical ecosystems, we can maintain the natural foundations that provide essential services that drive sustainable growth and support agricultural productivity. JNCC's analytical method discussed above has been designed to identify win-win-win scenarios where, if implemented appropriately, incentives could achieve multiple objectives. It should also be noted that robust environmental regulation and enforcement will also be necessary to uphold these principles and safeguard the natural environment, ultimately helping to ensure Government delivers value for money.

This approach of considering the context within which actions are being taken should allow unique natural resources to help drive growth through increased productivity, providing underpinning resilience for society and the economy. An inexhaustive list below demonstrates the breadth of potential ways in which government targeting could be beneficial:

- **Sustainable Farming**: Enhancing soil health and biodiversity, can ensure resilient ecosystems that produce food and support rural economies by making communities and businesses more adaptable to climate change and market fluctuations.
- **Forestry:** Maintaining biodiversity within forests, helping provide timber sustainably while contributing to climate change mitigation through carbon sequestration. This biodiversity enhances the resilience of forest ecosystems to pests, diseases, and extreme weather events, supporting long-term economic benefits.
- **Peatland Restoration:** Protecting and restoring biodiversity in peatlands enhances carbon sequestration and downstream ecosystem services, and generating economic benefits for land managers green finance markets. Restored peatlands are more resilient to climate change impacts, such as droughts and wildfires, and will be critical for societal resilience to the impacts of a changing climate.

- **Urban Green Spaces**: Supporting urban biodiversity can help improve public health and fostering economic growth through enhanced ecosystem services. These spaces also contribute to urban resilience by mitigating heat islands, reducing flood risks, and providing recreational areas that improve community well-being.

The following sets out in more detail, JNCC's approach to spatial prioritisation and presents key policy and analytical factors that Government should consider whilst targeting incentives. Notably, identifying suitable locations for spatially targeted incentives must be based on robust and appropriate evidence, alongside thorough analysis of where these incentives will be most effective. Additionally, it is crucial to align these incentives with the intended policy outcomes and targets. There is a Government role in steering the targeting of incentives in response to appropriate evidence to ensure outcomes align with the intended delivery of policies and targets.

There are several key policies which should be considered to help understand the appropriateness of targeting to enhance policy effectiveness, optimising resource allocation and enabling informed decision making. This would help to ensure clarity for land managers, local communities, local authorities and across government understanding, thereby providing enhanced efficiency and accountability.

Key Policy Considerations for Spatial Targeting:

1. **Policy Targets/Outcomes**: What specific policy target(s) or outcome(s) are we aiming to address with spatial targeting? Are these isolated or in combination?
2. **Objectives of the Incentive**: What environmental benefit(s) is the incentive seeking or expecting to address (e.g., carbon capture, air quality, flood protection, and will there be co-benefits delivered)?
3. **Mapping to Policy Objectives**: Can the incentive be clearly mapped to the delivery of a specific policy objective?
4. **Necessity of Spatial Targeting**: Why must the incentive be spatially targeted? Not all incentives can be linked to spatial priorities and actions may be equally effective anywhere or achieved more effectively through other routes.
5. **Monitoring and Evaluation**: How will we monitor whether the spatial targeting is eliciting the expected environmental response?

Once these considerations are addressed, it is then possible to identify where the priority locations are for delivering incentives which address policy outcomes. With clear objectives defined, this enables appropriate data and evidence to be obtained, developing a robust methodology for priority areas to be mapped for each of the objectives.

Key Analytical Considerations for Spatial Targeting:

A fundamental analytical step will be to initially consider where actions can feasibly be undertaken via:

> **Location-based eligibility mapping** which analyses the presence of existing assets, environmental conditions, legal/administrative barriers and protected site

boundaries to create mapped layers representing where it is feasible to undertake land management interventions.

- By considering potential barriers it embodies the concept of 'do no harm', ensuring actions are not taken in places where they will have negative environmental impacts, whilst also considering the suitability of existing environmental conditions for undertaking an action.
- When actions, often but not exclusively in agri-environment schemes, are created by policy content teams there needs to be a clear set of eligibility criteria for performing an action, which can then be translated into national-level maps through the use of appropriate spatial datasets. To account for uncertainty in some national-scale datasets, multiple datasets derived from different sources (Earth Observation, survey data) can be used to ensure a more robust map is developed.
- Where necessary, these can also be assessed by local-level advisors and supplemented by local datasets where national-level data may not accurately identify eligible areas for interventions.
- The incentive's resilience to future climate change can also be approached. Using climate projections and modelling, some actions can be assessed for their resilience to future climate conditions. This is a natural extension of suitability/eligibility mapping described above

If increased value for money is a primary aim, then JNCC's work on Spatial Prioritisation[1] demonstrates that creating spatially explicit maps can identify priority areas for ecosystem service delivery. This moves beyond simply understanding where actions can feasibly be undertaken to where there are opportunities for greater impact. We therefore define '**priority areas**' as regions where there is a need/priority to:

- **Maintain and/or increase service delivery** (e.g. creating woodland to increase carbon sequestration). This involves identifying areas where there is societal demand for ecosystem services and considering where these services need to be delivered to meet this demand. It also includes assessing where the supply of these services can be maintained (if currently high) or where capacity can be increased (if currently low). Enhancements to underpinning natural capital assets, such as improvements in habitat or soil health, are classified as 'services' for this purpose.

- **Reduce pressures on natural capital assets and functions** (e.g. water body buffering to reduce pollution entry into waterways). This focuses on areas where there is a need to improve ecosystem health and resilience, specifically the functions underpinning the flow of services. By enabling these ecosystems to function better, we can preserve the long-term delivery of services to society. This may involve multiple steps along a logic chain and the benefits may be felt outside of where actions are taken. For instance, river re-naturalisation strategies improve the ability of rivers to support high storage of water in landscapes or higher levels of aquatic biodiversity and increase nitrate uptake. This can

enhance the resilience of riverine ecosystems to pressures such as pollution or mitigate the impacts of flooding for communities downstream.

JNCC has developed a range of maps collaboratively with experts from across Defra's Arms-Length Bodies, using national-level datasets and evidence to identify priority areas. We are working at pace to produce and share these products with appropriate users.

There are two key barriers that Government will need to address to achieve spatial targeting of incentives:

1) integrating socio-economic research with environmental evidence required for a just land use transition led by policy and

2) the transparent process needed to ensure decision grade and robust environmental data is used in decision making.

Government must consider the implications of spatial targeting upon achieving a just land use transition. Socio-economic research will be a critical component alongside natural environment evidence to implement the actions needed to realise the ambitions in the consultation documents. For instance, as described in the above response to Question 2, land use change may result in some farmers taking land out of production while others sustainably intensify, it's important to holistically recognise that both contributions to land use change are valuable and should be incentivised and regulated appropriately. The consultation document also rightly points out there may be societal implications of the aggregation of land use changes in some locations, particularly those that are in the least agriculturally productive areas. The impact of these changes upon communities should be considered and addressed by Government with critical input from regional and local decision makers. It is also important to consider the inverse of this, i.e. areas which do not receive targeted incentives and resultant land use management and changes that may occur in non-targeted areas. It is possible that these non-incentivised changes could similarly have significant community and ecosystem impacts. Monitoring and evaluation across national changes will therefore be required alongside robust integration of social and behavioural science. Together they will be key to ensuring the delivery of the land use transition is fair as environmental evidence alone cannot achieve this.

To achieve the widescale implementation of spatially targeted incentives, Government must evaluate the robustness of the evidence underpinning such incentives to identify decision grade data. At the policy design stage, there must be clear evidence on the potential benefit(s) of targeting and efficacy of the proposed potential implementation method(s). Then if targeting, using spatial data, is required the appropriateness of spatial data used to underpin targeting must be assessed with a focus on suitability, accuracy, spatial and temporal resolution. Additionally, while each dataset is an important component, the overall effectiveness depends on how these datasets are integrated and used together. Therefore, any analytical combination between data layers must also be considered too. There is precedent for this kind of data governance process within Government and principles outlined in the HMT Aqua Book[2] will be essential to ensure the overall integrity and reliability

of the analysis. Any thorough quality assurance process must balance maintaining proportionality with a transparent rigorous process.

Therefore, JNCC recommends that a Framework for Identifying Decision Grade Data must be established to provide a transparent and auditable process decision making. This framework should outline how decision grade data are identified and can be used, managing expectations and risks, particularly those related to the National Audit Office's position on Fraud and Error rates and consider implications for Cost to Serve. Any implementation of this framework should have empowered decision makers equipped with the necessary expertise and confidence to decide what robust data and analytical process are required. These data arbiters will also need to consider how national data interacts with local data as integrating local knowledge and insights is essential to improve outcomes. A collaborative approach will be needed to help Government to establish routes to merge national data with local information and facilitate divergence or standardisation, if needed, across patchy datasets. The process must be adaptable to function effectively when new datasets emerge or priorities change. This adaptability is crucial to manage stakeholder perceptions and mitigate risks that could damage uptake.

1. https://jncc.gov.uk/our-work/spatial-prioritisation/

2. https://assets.publishing.service.gov.uk/media/5a7f3bb8e5274a2e87db49be/aqua_book_final_web.pdf

QUESTION 7: What approach(es) could most effectively support land managers and the agricultural sector to steer land use changes to where they can deliver greater potential benefits and lower trade-offs?

Spatial targeting is an approach that can be effective in supporting land managers and the agricultural sector to steer land use changes to where they can deliver greater potential benefits and lower trade-offs. Spatial targeting focuses on putting specific actions in specific places for single outcomes. It involves the strategic placement of specific interventions in particular geographic areas to achieve a specific outcome. For example, targeting areas for tree planting to increase biodiversity benefits from woodland cover or designating specific zones for new housing developments. Ensuring environmental targets are achieved requires spatial coherence, where actions are synergistic. Spatial targeting is a mechanism that helps achieve this coherence.

England now has decades of experience with agri-environment schemes since their inception in the 1980s and they have evolved over time. Through this evolution, it has been established that a scheme requires three things to be successful:

- Environmentally ambitious actions.
- Uptake by users at a sufficient scale.
- Spatial targeting – actions being targeted to where they can have the most benefit.

Spatial targeting has been embedded in agri-environment schemes in various ways. Past schemes and grants have incentivised spatial targeting in a variety of ways, with a range of both “softer” and “harder” approaches used - the level of incentivisation can be imagined as a scale. On the far left on the scale there is no direction or ‘free choice’ approach, towards the middle there is an ‘incentivised free choice’ approach, and to the right there is a directed selection approach where there is compulsory uptake. Advice has been an incentivisation tool in nearly all schemes and grants.

An example of a ‘free choice’ scheme was the Countryside Stewardship Mid-Tier scheme. It included online optional guidance about local priorities. An ‘incentivised free choice’ scheme example is the High-Level Stewardship (HLS) scheme that was in place between 2005 and 2014. The HLS pipeline areas proactively offered agreements and thus there was application prioritisation based on spatial targeting. An example of a scheme requiring compulsory uptake is the CS ESSENTIAL process for Scheduled Monuments and SSSIs. In this scheme scheduled monuments and SSSIs must be included in agreements and for Scheduled Monuments compulsory options are prescribed. Each of these schemes used spatial targeting in different ways and lie at different points on the scale of ‘harder’ or ‘softer’ approaches.

The Slurry Infrastructure Grant used spatial targeting. The grant helps farmers invest in future proof slurry infrastructure. Round 1 of the grant ran from 2022 to 2024. Grants of between £25k and £250k were available to help replace, build new or expand existing slurry stores to provide 6 months storage. There was approximately £33 million available in Round 1. The grant was highly oversubscribed and there was the need to decide where the grant would have the most impact and deliver good value for money. JNCC, working

collaboratively with the Environment Agency, created two spatial targeting maps; one showing priority areas to reduce air pollution associated with ammonia in England and the other showing priority areas to improve water quality in England. JNCC took these targeting maps and combined them to identify target areas where air and water quality were both priorities. Applications were then assessed using this combined map to focus investment where there was a need to deliver multiple environmental benefits. This combination of multiple environmental priorities being addressed simultaneously demonstrates a precedent for how spatial data can help achieve multifunctional outcomes.

Alongside spatial targeting of agri-environment schemes, a particular focus for land use will always be food security, it is important to recognise that measuring food security should extend beyond production and measure other critical factors such as consumption and resilience. We should take account of existing work on consumption such as the Global Environmental Indicator on Consumption[1] – which looks to breakdown how the UK's imported consumption has an impact on overseas biodiversity. This must be balanced against domestic changes we make to land to ensure we are not simply displacing our challenges.

Spatial targeting refers to the strategic placement of single interventions in specific geographic areas to achieve single ecosystem service outcomes like placing water body buffers alongside a river. Spatial prioritisation involves systematically identifying and ranking interventions based on their potential impact, suitability, and opportunities to achieve outcomes across multiple ecosystems services (see the Slurry Infrastructure Grant example above where targeted layers are combined to deliver multiple priorities).

With an increasing number of policies for environmental outcomes, there are more places to target interventions. Prioritisation is essential for making informed decisions across all these targets. Assessing trade-offs and making compromises/prioritising to achieve more multi-functional land use also isn't inherently negative, it can lead to multiple benefits being delivered across a region and in areas where they have the greatest impact.

1. Global Consumption Indicator https://oifdata.defra.gov.uk/themes/international/K1/ or www.commodityfootprints.earth

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? Please give details for your answer.

There is currently no established method for understanding risks related to displacement of food production and environmental impacts abroad, leading to its exclusion from decision-making processes and a lack of ability to monitor changes over time. JNCC is undertaking scoping work for potential development of a decision support tool that would provide evidence to support such considerations on a commodity-specific basis, to gain a more holistic understanding of land use decisions. JNCC have also developed an indicator that can show the extent of current displacement of environmental impacts[1]. Government could reduce the risk of displacement by using and sharing these tools, to facilitate change through improved understanding and awareness of the issue and provision of an evidence-based mechanism to inform policy and land use decisions.

As well as improving the evidence base for more informed decision making, Government could consider policies aimed at reducing waste (which would improve efficiency and reduce land area required), sustainable intensification (where appropriate), commodity specific solutions (e.g. certain commodities may actually have lower impacts when produced elsewhere, and so in these cases displacement would not be an issue), ensuring a level playing field for domestic and imported commodities through environmental considerations in Free Trade Agreements (which would lower economic incentives for displacing production overseas and reduce environmental impacts of displacement in cases where this does take place), including sustainable production as a key aim in ODA spending (to reduce environmental impacts of displacement in cases where this does take place), and reducing meat consumption (thereby reducing total land requirements and so probability of displacement).

1 - www.commodityfootprints.earth / Global Consumption Indicator https://oifdata.defra.gov.uk/themes/international/K1/

QUESTION 9: What should Government consider in increasing private investment towards appropriate land use changes?

While a financial target is useful for setting out the level of ambition, overall success must be judged against environmental outcomes. Well-designed markets should follow the mitigation hierarchy, meaning that buyers will seek to avoid causing environmental harm before paying for restoration. Furthermore, a key benefit of using markets is to leverage private sector expertise and innovation to reduce costs. Consequently, a successful market is not judged by how much money it raises but by achieving its environmental objectives at the lowest possible cost. It is important that Government defines its objectives clearly and uses robust indicators capable of measuring changes in environmental outcomes.

While voluntary markets can be effective, Government can only achieve ambitious objectives if it also expands compliance markets. Compulsory pollution markets can deliver cost-effective reductions in harm while following a ‘polluter pays’ principle. Incorporating woodlands and peatlands into the Emissions Trading Scheme could provide opportunities for quick successes for nature provided carbon benefits are supplemented by public policies which ensure gains for nature are resilient.

Expanding compliance markets can also support Government missions to accelerate growth and build new homes if prescriptive regulations are replaced with clear science-led outcomes-based environmental objectives with opportunities to offset unavoidable impacts.

QUESTION 10: What changes are needed to accelerate 30by30 delivery, including by enabling Protected Landscapes to contribute more? Please provide any specific suggestions.

30by30 represents an opportunity to engage and empower a wide range of communities in nature conservation and restoration, as well as driving positive land use decision making. This will set in train an approach that will endure and ultimately achieve the long-term ambition and targets for ecosystem integrity, connectivity and resilience under the Kunming-Montreal Global Biodiversity Framework. Achieving both short- and long-term ambitions, will require enhanced collaboration across Government, Arm's Length Bodies, environmental NGOs, and landowners and managers, as well as the identification of targeted incentives and join-up across environmental targets. 30by30 cuts across several of Government's ambitions for land use change and should be a key driver for meeting multiple statutory targets, such as the Habitat Target, "to restore or create more than 500,000 hectares of a range of wildlife-rich habitats outside of protected sites by 31st December 2042"[1]. As a global target, 30by30 also affords opportunities for engagement and knowledge-sharing across the Devolved Governments as they develop their own approaches to meeting the target, which will set foundations for the best outcome for nature across the UK.

Meeting 30by30 could be accelerated through:

- Improved accessibility and quality of data – Defra's vision[2] for meeting 30by30 on land recognises the need for a strategic approach that addresses wider objectives for nature's recovery, food security, and beyond. Understanding the existing links to Government environmental targets, the requirements for land use change and outcomes across environmental themes, and the data that will be required to assess progress, will be key to driving efficiencies in data use.
- Other effective area-based conservation measures (OECMs) – 30by30 will require detailed spatial mapping of protected areas and OECMs, with input from multiple stakeholders. The selection of areas that count towards 30by30 should build on other habitat mapping, creation, restoration and connectivity initiatives (e.g. Nature Recovery Network, Biodiversity Net Gain, Local Nature Recovery Strategies) to maximise environmental outcomes.
- Incentives – meeting 30by30 requires an ambitious vision for targeting and delivering effective conservation of biodiversity. Where there are opportunities for agri-environment schemes to contribute to the target, these should be supported by mechanisms that engage landowners and managers and communicate the multiple ways in which their land is contributing to nature recovery and targets. There should be explicit links between schemes and how these are going to contribute to meeting 30by30.
- The 30by30 target is a part of the longer-term goal of the Kunming-Montreal Global Biodiversity Framework where, "the integrity, connectivity and resilience of all ecosystems are maintained, enhanced, or restored, substantially increasing the area of natural ecosystems by 2050"[3]. Realising the benefits from land-use change and habitat restoration takes time, and any incentives and measures to deliver effective,

long-term conservation and management for nature needs to consider requirements beyond 2030 and the resilience required to adapt to change.

- Protected Landscapes role – Defra rightly acknowledge that, “it is important that Protected Landscapes deliver a significant contribution towards 30by30 in England”[4]. 30by30 represents one of the best chances we have of realising the potential of our Protected Landscapes to deliver for nature. It is recognised that, “merely reaching a number is not enough; the quality of the areas being protected or conserved must be considered too”[5]. By identifying areas where Protected Landscapes are already delivering for nature, being both conserved and effectively managed, we can support Protected Landscape partnerships to deliver more.

1. Environment Act Habitat Target - Reporting Data Model and Standard, 2024. Natural England Technical Information Note TIN223. Online: https://publications.naturalengland.org.uk/publication/5581504720404480

2. 30by30 on land in England: confirmed criteria and next steps - GOV.UK https://www.gov.uk/government/publications/criteria-for-30by30-on-land-in-england/30by30-on-land-in-england-confirmed-criteria-and-next-steps

3. The Convention on Biological Diversity, Kunming-Montral Global Biodiversity Framework 2050 Goals. Online: 2050 Goals

4. 30by30 on land in England: confirmed criteria and next steps - GOV.UK

5. IUCN-WCPA, 2022, Conserving at least 30% of the planet by 2030, p3. Online: https://iucn.org/sites/default/files/2022-08/what-counts_final_web_0.pdf

QUESTION 11

--- This question is intentionally left blank---

QUESTION 12: How can Government ensure that development and infrastructure spatial plans take advantage of potential co-benefits and manage trade-offs?

Government should adopt a holistic and integrated approach that leverages the technical expertise of organisations like JNCC. This approach can attract investment, enhance productivity and increase value for money while enhancing biodiversity and ecosystem resilience.

Integrated Planning and Stakeholder Engagement – encouraging integrated spatial planning that aligns development projects with environmental, social, and economic goals is crucial. This involves engaging a wide range of stakeholders, including local communities, businesses, and environmental groups, to ensure diverse perspectives are considered. Knowledge sharing, communities of practice, and case studies where 30by30 targets are delivered through collaboration with different partners can help identify and maximize co-

benefits. This approach can also attract investment critical for the development of green finance markets.

Data-Driven Decision Making and Policy Alignment – utilising comprehensive data and advanced modelling tools to assess the impacts and benefits of different development scenarios is essential. This data-driven approach can inform decisions that identify co-benefits and manage trade-offs effectively. Frequent policy-coherence reviews would help identify emerging priorities and ensure spatial plans are aligned with national and regional policies. Aligning policies can streamline efforts and reduce costs, contributing to economic efficiency and increased value for money.

Analysis of Natural Capital and Ecosystem Resilience – incorporating analysis of natural capital and ecosystem resilience into spatial planning is critical. Holistic system approaches can help understand the societal resilience that biodiversity secures. This includes using evidence to inform decisions and enable sustainable development. Improved monitoring regimes for biodiversity, including reporting from agri-environmental schemes, can provide a solid baseline to assess progress. Healthy ecosystems can enhance agricultural productivity and reduce costs associated with environmental degradation, supporting economic growth.

Multi-Criteria Decision Making and Transparent Methodologies – the use of multi-criteria decision-making approaches, like those in the Strategic Spatial Energy Plan and JNCC's Spatial Prioritisation[1] approach, can ensure that ecosystem services and priorities are represented and weighted appropriately. Transparent methodologies that allow alignment with other spatial plans are necessary. Integration across sectors beyond farming, requires a common spatial data environment representing key themes. This can lead to more efficient resource allocation and better economic outcomes.

Governance Routes and Cross-Government Collaboration – effective governance routes are needed to facilitate cross-government collaboration. Collaborative governance can streamline processes, reduce administrative costs and importantly communicate an aligned message to give key stakeholders certainty.

The JNCC can play a pivotal role in enabling these efforts by providing expertise, convening key stakeholders and facilitating knowledge sharing, and supporting the development of transparent methodologies. By integrating natural capital analysis, multi-criteria decision making, and cross-sector collaboration, Government can ensure that development and infrastructure spatial plans deliver co-benefits and manage trade-offs effectively, contributing to both economic growth and environmental sustainability.

1. https://jncc.gov.uk/our-work/spatial-prioritisation/

QUESTION 13

--- This question is intentionally left blank ---

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

By promoting integrated decision making, the LUF should help ensure that policies and strategies are not developed in isolation but rather consider the broader impacts and synergies across different sectors. This approach encourages collaboration and coordination where decisions are based on their potential for multifunctional benefits ultimately leading to more holistic and effective outcomes at the local and regional levels.

Government support for coordination of local and regional planning across sectors therefore needs to focus on several key areas:

1. **Piloting Coordination and Leveraging Existing Initiatives**: To trial a more coordinated approach, LUF could establish regional LNRS-style pilots with wider cross-sectoral engagement. This would allow learning from a coordinated approach and expansion to all land use decisions. LNRS, while environmentally focused, provides a strategy and identifies environmental priority areas but would benefit from expansion into wider land use drivers and strengthened delivery mechanisms. There is also a risk of missed opportunities if LNRS do not serve as a mechanism for further consistency and standardisation, such as informing wider spatial plans, Environmental Land Management (ELM) options or monitoring effectiveness. The adaptive approach of LUF must allow for flexibility but would benefit from underpinning data consistency, compatibility, and interoperability across multiple areas, ensuring effective implementation and avoiding inconsistencies.
2. **Data Alignment**: Using a common thread of appropriate national data sets to underpin the evidence base is essential. Local data can supplement and supersede national data if appropriate, but transparency in auditing methods is crucial to ensure the selected data have a provenance that is appropriate. This will allow aggregation of local actions up to regional and national assessment of progress and not stifle local adaptation to circumstances. Ensuring the accessibility of evidence and tools is vital for maintaining consistency in approaches.
3. **Policy Coherence and Alignment**: Policies should be holistic, comparable, and consistent. JNCC recommends that Government should frequently review policy coherence to ensure that outcomes from different policies align and are achievable, rather than being in competition or contradictory. Given the complexity of existing policies and strategies, this review could be followed by efforts to streamline and harmonize policies, making them more effective and easier to communicate and implement at the local and regional levels.
4. **Capacity to Deliver**: Delivering locally- and regionally aligned planning requires resources at the local and regional authority level. It is necessary to consider the resource demands cross-sector collaboration will require, particularly for regular communication, joint decision making, interagency/organisation task forces, and shared digital tools or appropriate training.

QUESTION 15

--- This question is intentionally left blank---

QUESTION 16: Below is a list of activities the Government could implement to support landowners, land managers, and communities to understand and prepare for the impacts of climate change. Please select the activities you think should be prioritised and give any reasons for your answer, or specific approaches you would like to see.

● Providing better information on local climate impacts to inform local decision making and strategies (for example, translating UK Climate Projections29 into what these mean in terms of on-the-ground impacts on farming, buildings, communities and nature)

● Providing improved tools and guidance for turning climate information into tangible actions (for example, how to produce an adaptation plan for different sectors)

● Developing and sharing clearer objectives and resilience standards (for example, a clear picture and standards of good practice for each sector under a 2°C climate scenario30)

● Supporting the right actions in the right places in a changing climate (for example, prioritising incentives for sustainable land uses where they will be most resilient to climate change)

● **Other (please specify)**

JNCC recognise the vital role of climate adaptation particularly as it is substantial contributor to wider ecosystem resilience which will deliver a strong foundation for societal outcomes including nature recovery and sustainable and long-term economic growth. We have nationally significant analytical expertise on how this challenge can be tackled. JNCC welcomes the opportunity to support any future efforts in this area. JNCC is supportive of the consultation's proposed list and are working to identify how climate adaptation can be addressed across our spatial prioritisation analytical method including:

- **Priority Areas for Carbon Sequestration/Storage**: Mitigation included as a specific environmental priority for land
- **Climate Projection Modelling**: Implicitly capturing climate projections in priority areas for hazard-based services (e.g., coastal erosion, flood regulation, drought resilience)
- **Future Resilience of ELM Options**: considering how to supplement eligibility mapping under future climate change scenarios, depending on options and policy risk appetite
- **QEIA Impact Score on Climate Adaptation**: flagged in MCDA for delivering climate adaptation benefits (subject to peer-review)
- **Policy Weightings**: these can be applied to emphasize specific policy targets.

Any Government response to climate adaptation must consider how to provide a clearer steer on what adaptation Government seeks to address and the risk threshold around particularly modelled climate projections.

QUESTION 17: What changes to how Government's spatial data is presented or shared could increase its value in decision making and make it more accessible?

● Updating existing Government tools, apps, portals or websites

● Changes to support use through private sector tools, apps or websites

● Bringing data from different sectors together into common portals or maps

● Increasing consistency across spatial and land datasets

● More explanation or support for using existing tools, apps or websites

● Greater use of geospatial indicators such as Unique Property Reference Numbers (UPRNs) and INSPIRE IDs to allow data to be more easily displayed on a map

● **Other (please specify)**

In the view of JNCC, all the suggestions contribute significantly to providing a central thread of evidence at appropriate scales for decision making. Broadly, we describe this as a three-part process:

1. **Consistent Underlying Evidence Base**: This involves standardising and aligning evidence across sectors to ensure a common baseline. This includes supporting existing tools and both private and public sector portals. Government should consider what is essential to represent in a common spatial data environment.

2. **Accessibility of Evidence**: This pertains to how data is displayed through UPRNs for local-level decision making and how it is integrated into private sector tools, apps, or websites via APIs. Additionally, it is crucial to overcome barriers to accessing this data, enhancing skills in understanding evidence for farmers and land managers, and ensuring they can see how their land holdings contribute to the broader picture. Encouraging long-term academic partnerships is also essential to ensure evidence remains robust and updated as new scientific insights emerge.

3. **Appropriate Use of Data at Appropriate Scales**: While there is substantial evidence supporting the LUF, caution must be exercised when using data collected at one scale for decision making at another. For instance, the Natural Capital and Ecosystem Assessment (NCEA) programme manages numerous datasets and aims to compile them into a national average. However, this national average may not be suitable for local decision making as it cannot capture local nuances. The evidence is produced for different purposes and is not designed for this type of use. While some NCEA datasets may be useful, expertise is required to use them appropriately. Government guidance on understanding how data can be appropriate in some decision making but not others would be welcome, particularly if this includes information on ensuring comparability between datasets and approaches such as guidance on accompanying metadata and documentation on how datasets are combined.

JNCC is working to constructively engage in these discussions and wishes to work collaboratively with partners to achieve this vision.

QUESTION 18: What improvements could be made to how spatial data is captured, managed, or used to support land use decisions in the following sectors? Please give any reasons for your answer or specific suggestions.

- Development and planning: such as environmental survey data
- Farming: such as supply chain data and carbon or nature baseline measurements
- Environment and forestry: such as local and volunteer-collected environmental records
- Recreation and access: such as accessible land and route data
- Government-published land and agricultural statistics

Industry and government data, if made more accessible and cost-effective, could significantly improve the evidence base and policy decisions, as highlighted by the Office for Environmental Protection (OEP) review of environmental assessment regimes. Additionally, aligning and sharing data from various sources, including agri-environment schemes and local environmental records, can enhance decision making at multiple scales, though caution is needed to ensure data is used appropriately for its intended purpose.

Development and planning: such as environmental survey data

There is a vast amount of industry data that could greatly improve the evidence base and policy decisions if it were more accessible and cost-effective, since it's already being collected. The OEP has reviewed the implementation of environmental assessment regimes in England and makes recommendations around accessibility of EIA data[1].

Farming: such as supply chain data and carbon or nature baseline measurements

Changes which Government drives in land use management and change must be measurable with responsive early warning signals that show locally if changes are working. In Scotland, farmers must conduct a biodiversity/habitat audit to receive incentives. This audit provides essential baseline data for assessing interventions and if they are effective. JNCC can share insights from all four UK countries to learn from, progress and align evidence at the UK level.

Government-published land and agricultural statistics

The OEP has highlighted in their Annual Progress Reviews of the EIP that data from JNCC and Defra on agri-environment schemes is not aligned. This misalignment highlights the need to harmonise key datasets and spatial information. By aligning and sharing this data with more stakeholders, decision making can be improved at multiple scales. Additionally, when new data is collected, it is crucial to have guidance in place to ensure it is correctly licensed and as accessible as possible, adhering to FAIR principles.

Environment and forestry: such as local and volunteer-collected environmental records

Caution is needed when using data collected at one scale for decision making at another scale. For example, the NCEA aims to provide a national and regional change picture of a range of natural capital metrics across England. This framework will be key in assessing the overall outcome of the LUF. However, in terms of directing, and assessing the outcome of, more local interventions the evidence the data will need to be integrated with other sources. Work is needed to further explore how to make optimal use of existing evidence sources across a range of organisations and in particular strengthening existing and establishing new long term academic partnerships to support this.

1. A review of the implementation of environmental assessment regimes in England, OEP - https://www.theoep.org.uk/environmental-assessment-regimes-england

QUESTION 19

--- This question is intentionally left blank---

QUESTION 20: Which sources of spatial data should Government consider making free or easier to access, including via open licensing, to increase their potential benefit?

JNCC has developed a novel land use decision-making approach using a range of evidence to support the delivery of multifunctional landscapes and the attainment of multiple policy objectives. Spatial Prioritisation[1] involves systematically identifying and ranking interventions based on their suitability and potential impact on delivering locally relevant ecosystem services or reducing pressures on the natural environment. By doing so it captures the synergies and trade-offs of different interventions against the delivery of multiple environmental benefits, including food production. While there may be value to making underlying spatial data available via open licensing, it's important to consider that the data alone will not achieve the Land Use Framework's desired impact. It is also important to address the way that data are combined, presented, communicated and used for decision making on land that will impact the delivery of the Land Use Framework.

It is imperative to establish improved access to information regarding publicly funded interventions and licensed activities to effectively assess their impact on outcomes. In the context of air pollution, local authorities have been approving activities based on available information, yet there is no standardised record of these approvals. The UK Air Pollution Abatement Strategy (UK APAS)[2] aims to address this gap. Such access is essential for developing a more strategic approach to adjusting interventions for more effective outcomes. For instance, in the air pollution sector, another entity might be willing to finance modifications to existing agricultural practices to reduce emissions, thereby creating opportunities for other developments to gain approval.

Robust spatial data remains essential to underpin this work, enhancing effectiveness and ensuring robust decision making. Appropriate data on soils, for example, are necessary for the Land Use Framework, as they underpin many of the ecosystem services that land provides (e.g. food/fibre provision, carbon storage, water regulation). Government is already collecting significant data on soils which will be openly licensed through the NCEA's England Ecosystem Survey and National Forest Inventory Plus Survey. However, most current soil data is not openly licensed and is held by private entities (e.g. Cranfield University LandIS data, UKCEH Countryside Survey data). Bringing together such data sources would allow us to combine, compare, make use of historic time series and access data that is not being collected by NCEA. This would improve our understanding and confidence in making evidence-based land use decisions.

1. Simplifying Land Management with Spatial Prioritisation in England https://jncc.gov.uk/our-work/spatial-prioritisation/
2. UK Air Pollution Assessment Service (UK APAS) - https://jncc.gov.uk/our-work/uk-air-pollution-assessment-service/

QUESTION 21

--- This question is intentionally left blank---

QUESTION 22

--- This question is intentionally left blank---

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

● Yes, every 5 years

● Yes, every 3 years

● **Yes, another frequency or approach. Please provide details.**

● No

● I don’t know

Yes, another frequency or approach

The Land Use Framework for England should be updated periodically. The frequency of updates depends on the nature of the framework and its effectiveness in guiding land use change. The distinction between framework updates and data updates is crucial.

It is possible for less frequent framework updates, following the precedent set by Scotland’s Land Use Strategy. Framework updates could occur every 5 years to ensure the framework remains relevant and effective in directing land use change. This interval allows for comprehensive reviews and adjustments based on long-term trends and outcomes.

Data updates however should happen more frequently, to provide timely and accurate information that can influence decision making. Regular data updates ensure that decisions are based on the most current evidence, aligning with ongoing policy targets and outcomes. This focus on outcomes necessitates considering the effectiveness of the current outcome indicator framework. The review should assess the framework's ability to project policy delivery trajectories against outcomes and how policy decisions are adjusting these trajectories. More frequent updates would be required to enable timely adjustments. If observed outcomes diverge from projections, this could indicate potential issues and prompt a refresh of the LUF if required.

This dual approach ensures both stability in long-term planning and responsiveness to new information, maintaining the framework's relevance and effectiveness.

“Government will consider how best to co-ordinate and provide:

- **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 policy-making processes in collaboration with research organisations.”**

QUESTION 24: To what extent do you agree or disagree with the proposed areas above? Please include comments or suggestions with your answer. [Strongly agree / Agree / Neither agree nor disagree / Disagree / Strongly disagree / I don’t know]

Response: Strongly agree

Identifying the ‘right’ information requires significant effort, long-term vision, and commitment from a wide range of stakeholders and experts. The Government needs to consider how a central thread of evidence can flow from international commitments, to UK-wide commitments, down to country-level decisions, regional discussions (particularly for local authorities) and further to local community and land manager decisions at the field scale. JNCC is working constructively across governments in the UK to progress this.

We believe this golden thread of evidence should cut across the suite of societal outcomes delivered from land. Any government initiative must consider the role of a common spatial data environment that allows accessible use of data across these levels. The data’s accessibility and eventual use on the ground must be considered to avoid overwhelming users. There will be significant data barriers to overcome with the ambition to produce consistent, interoperable, and real-time datasets.

Organisations like JNCC will be instrumental in creating effective workflows and processes that help establish standardised procedures, allowing local data to be harnessed and helping Government identify decision grade data. These data should be used outside of Central Government too, and will be useful for local authorities and private markets. JNCC’s position is that this data should also consider early warning signals so that policy can be more confidently adjusted if efforts are off track.

Long-term academic partnerships and a collaborative approach will be needed to help identify when data are insufficient and where gaps need to be filled. We believe there needs to be significant collaborative cross-government efforts to achieve this ambition and would welcome any invitation to engage constructively using our expertise to assist this.