4 April 2022

UK Farm Soil Carbon Code Stakeholder Workshop #3
*Research Update and Next Steps: Workshop Summary*

## 1. Workshop Summary

- The aim of the workshop, the third in a series, was to update participants on the various research elements that underpin the UK Farm Soil Carbon Code (UKFSCC) and explain how it will be to applied to the code's creation. It also provided an opportunity for the 150+ participants present to raise any questions and concerns.
- Matthew Orman, Co-Director of the Sustainable Soils Alliance (SSA) and Programme Manager for the UKFSCC shared three options under consideration by the Code Consortium for its content and design. These were:
    1. **Independent, Commercial Code:** A fully operational code with defined rules and methodologies for Monitoring, Reporting and Verification (MRV). Such a code would compete with existing codes on the marketplace and issue credits to an existing or new registry in the global marketplace. It would need to be operated by a registered company.
    2. **Accreditation Standards and Guidance:** A targeted oversight model built around two specific elements:
        - A set of minimum standards that all codes and projects would meet in order to operate in a defined UK marketplace, including critical elements (e.g. permanence, additionality) against which projects can be evaluated.
        - A series of workable approaches to key code principles (additionality, permanence) as well as MRV, based on best practise from existing, approved codes that can then be applied in the UK context.
    3. **Minimum Viable Community Code with Accreditation Standards and Guidance.** This includes the elements of Option 2 in combination with a third element - a 'minimum viable' code created to address the particular needs of potential soil carbon projects in the UK land management community that cannot or do not want to use existing codes. Reasons for this might include; cost, scale, alternate objectives, etc.
- A live survey asked participants which of the three options would bring the most value to the UK farm soil carbon marketplace. It revealed initial support for the 3rd option (28/59) while the second and third options received 6 and 8 votes respectively, while 17 participants responded'don't know'.
- Dr Helaina Black (James Hutton Institute) presented the guiding principles for a code, and the lessons for a UK code that emerged from the review of 12 MRV methods and associated programmes from around the world the Consortium had recently carried out, and which it plans to circulate (pre-print) in advance of formal publication.
- Dr Black also gave an overview of the lessons and information the Consortium plans to establish from the application of code principles in a real-life setting via the Gloucestershire Pilots. These include the impact of different approaches to MRV, the hybrid (measurement and modelling) approach to the quantification of soil carbon changes, the level of confidence in credits that can be established from a code and costs of a soil carbon project.
- Professor Pippa Chapman (University of Leeds) updated participants on three separate pieces of research (two completed, one ongoing) that examine farmer attitudes towards the farm soil carbon marketplace. Results reveal a preference for blended (public + private (blended)) financing, measured

(over modelled) soil carbon sequestered, and rewards for historic good practice and short (≤10 year) contracts and permanence periods.

- Professor Mark Reed (SRUC) provided an overview of the wider policy ecosystem with which the code would need to align, including developments at the international level and policy frameworks for investing in nature recovery from across the four UK nations. He emphasised the importance of expert groups applicable for different habitats and land uses, robust standards or codes and independent verification bodies.
- Issues that arose during the discussion/Q&A session included research into grassland soils, the role of tenant farmers, saturation, permanence, additionality, soil chemistry and biodiversity, and overall costs and competitiveness in the marketplace.

**The Consortium emphasised that the workshop launched the beginning of a brief (one month) consultation process on the merits of the three options and the content and structure of the different elements, and a short survey to that effect would accompany the meeting summary. In addition, participants were invited to contact the Consortium directly to share their thoughts.**

## 2. Three Options

- Matthew reminded participants of the objective of the code, namely to create a clear, consistent and universal approach to the measurement, reporting and verification of soil carbon sequestration that can be applied to a number of different markets – whether soil carbon is monetised or not.
- He laid out the three options as follows:

| | 1. Independent, Commercial Code | 2. Accreditation Standards & Guidance | 3. Accreditation Standards, Guidance & 'Minimum Viable Community Code' |
|---|---|---|---|
| Scope | A fully operational code | Accreditation scheme | A fully operational Code |
| Role | Competes with existing codes | Does not compete with existing codes | Sits alongside existing codes |
| Standards | Incorporates minimum standards | Sets out basic minimum standards 'checklist' that every code/project should achieve | Sets outside minimum standards, and minimum standards are included in the MVCC |
| Methodology | Fully prescriptive on MRV, additionality, permanence etc | Includes best practice options, 'approved' approaches to MRV, additionality, permanence etc | MVCC prescribes approaches to MRV, additionality, permanence |
| Users | Applicable to all | Framework would signpost users to approaches suited to their needs (insetters etc). | CC would reflect niche/unmet market needs (e.g. small scale, local authorites) |
| Registration | Projects could register on any carbon registry | UK Land Carbon Registry could use min. Standards to assess projects | Developed specifically with the UK Land Carbon Registry in mind |

During the discussion that followed, the merits and drawbacks of the different approaches were considered as follows:

1. *Independent, Commercial Code*

- **Pros:** This approach would meet the original objectives of the NEIRF project and UKFSCC Consortium – a commercially operated independent code with fully defined rules, methodologies and approaches to MRV as prescriptive as those for other codes in the marketplace. This would implement the guiding principles unique to farmland soil, and be able to sit alongside other UK ecosystem carbon codes e.g. peatland and woodland.

Such a code has the potential to become a de-facto code for all UK soil carbon projects, thus standardizing MRV and other elements at a high standard which provide confidence to UK carbon credit buyers

- **Cons:** The code would be run by a registered company, which would need sufficient resources to operate and maintain all aspects of a code as a commercial entity, with soil carbon projects required to include sufficient costs to maintain this stand-alone infrastructure. As such, and given limited resources available, the code might not be financially viable in the existing UK marketplace. There is limited added-value to UK farming given the prevalence of existing codes.

2. *Accreditation Standards and Guidance*

- **Pros**: It enables a focus on what many see as the priority for the code – minimum standards that all codes or projects should meet in order to operate in the UK marketplace. These standards would address critical elements e.g. permanence, additionality against which projects can be evaluated – and seen to either pass or fail.

  In the short term, these standards would be owned and managed by the SSA, but to give them particular authority, they might become affiliated with the UK land carbon registry and/or be delivered through a recognised accreditation scheme. A clear, credible Government policy 'landing space' would ultimately be valuable in providing tangible authority to the importance of the standards and guidance.

  These minimum standards should achieve a "levelling up" of the marketplace, as well as highlighting less scrupulous players and encouraging them to raise their game. It would embed a level of 'trust' in the marketplace for farmers and other users.

  The second element (Guidance) would reflect the different needs of different market users – off-setters, insetters, ecosystem services buyers – and in that way give users flexibility and consistency where it is needed as long as baseline criteria provided by the baseline standards are met.

  This would come in the form of a series of standardised options - workable approaches for additionality, permanence etc. based on best practise that we have identified from existing programmes and approved codes that can then be applied in the UK context.

  Users could also use the guidance to benchmark/compare the different approaches, and instil direct comparability of carbon credits from different codes.

  This approach could potentially be used to enable existing codes to register credits with the UK Land Carbon Registry, and therefore support a comprehensive ecosystem carbon marketplace, with existing peatland and woodland codes plus other habitat codes in development.

- **Cons**: This approach would not result in the delivery of a code in of itself, but rather a stand-alone oversight model.

  Unless adopted by any government authority (in each devolved administration) there would not be any formal requirement for codes/projects to comply with the minimum standards. Its uptake might depend on demand from credit buyers.

  Finally, there would be questions around the legitimacy and transparency of the process by which those minimal standards are created and modified over time. To address this, a voluntary governance body (based on the UKFSCC Consortium as a start) could take responsibility for maintaining the standards, and a set of principles for stakeholder engagement should be part of the framework, detailing how modifications would be made.

*3. Accreditation, Standards and Minimum Viable Community Code*

- **Pros:** This option could add real value to the UK soil carbon marketplace and address a gap for potential UK soil carbon projects. It would include the two elements included in the second option – the minimum standards and the commercialisation – but add to them a third, what we are referring to as a 'Minimum Viable Community Code'.

  This Community Code (CC) would be created to address particular needs of UK soil carbon projects that. would not be viable or are not served by the existing codes and/or marketplace. This code could add something new to the marketplace, sitting alongside but not competing with existing codes.

  The CC would be built around UK specific needs - as the woodland and peatland codes were - and include clearly defined approaches to specific challenges - e.g. how to integrate them with other ecosystem services and the thorny issue of additionality - how to successfully blend public and private income sources. As a live code, there would be regular reviews and updating of the rules to enable additionality and other rules to be adapted to reflect changing public policies across the UK nations.

  The CC "home" would ideally be alongside the existing and future UK habitat carbon codes with credits registered and issued through the UK Land Carbon Registry.

- **Cons:** Many of the 'cons' for Option 2 would be applicable here.

  There is currently a degree of uncertainty over the exact scope and detailed content of an operational version of the CC. Clarity might only emerge once the issues over viability, constraints to using existing codes, alternate objectives are better understood e.g. wider policy benefits, alternate commercial objectives.

  For a CC to be viable, especially for small projects or niche markets, there is likely to be a need for subsidy/contribution from public/private funding for its operation - (similar to woodland and peatland codes, managed in kind by Forestry Commission and IUCN, respectively). Without such support, it is unlikely that costs/fees can be low enough for a CC.

  There currently is no such 'host' aligned to take on the CC and support it.

**3. Review Outcomes**

- Dr Black explained that the Consortium had recently completed and submitted for publication a review of 12 MRV methods and associated programmes from around the world. This was not intended as a performance review but to inform the content of the UK code. It plans to circulate a pre-print version within the next month.
- The Review concluded with a series of **guiding principles** for a code, as well as **lessons for the UK code** as follows:

*Guiding Principles*

| | |
|---|---|
| **GOVERNANCE** | Maintain transparent policies, processes, |
| | Align with national and international legislation and regulation |
| | Work with established registry /registries to issue and track credits from cradle-to-grave |
| | Ensure the integrity of soil carbon as an emissions reduction strategy |
| **EVIDENCE** | Access expert advice e.g. agronomic, soil science, economic, social, etc |
| | Use peer-reviewed and credible publications and reliable models and methods |
| | Address the evidence gaps with new analyses from existing and new data |
| | Work with stakeholders to identify and prioritise evidence gaps |
| **ADDITIONALITY** | Establish that management changes should result in emission reductions |
| | Ensure that market finance is essential to facilitating the change |
| | Support alignment with public funding, and environmental regulation |
| | Recognise potential added-value from co-benefits |
| **PERMANENCE** | Recognise that management must maintain GHG reductions / soil carbon gains |
| | Adapt to the challenges of transitioning and long-term management |
| | Use credit adjustments for risks to permanence and leakages |
| | Support flexibility to enable adaptation and reduce risks |
| **MEASUREMENT, MODELLING , MONITORING and REPORTING** | Use reliable measurement and modelling methods |
| | Address method uncertainities in soil carbon credit quantification |
| | Conduct periodic resampling and remodelling under project monitoring |
| | Regularly report progress in GHG reductions and soil carbon gains |
| **VERIFICATION** | Establish and apply recognised standards throughout the verification process |
| | Embed independence and qualified personnel in the verification process |
| | Comprehensively audit projects, from reports to site visits and supplementary data |
| | Deliver transparency from project audits |
| **STAKEHOLDERS AND MARKET-PLACE** | Understand who wants to use a code, why and in what context |
| | Recognise when existing codes do not meet these needs |
| | Work with stakeholders to deliver a workable code |
| | Maintain engagement to keep a code active, relevant and practical |

*Lessons for the UK Code*

- Dr Black explained that there is no such thing as an 'off the shelf code', all codes need **adapting** every time they are used by a project and specifically to the UK environment. There is considerable development and revision time required to get a code up and running, and then to maintain a code. This has implications for what is needed in the UK, and what can be delivered by this team given available resources.
- **Additionality** rules in existing codes do not account for the UK's distinctive farming environment where public finance is a significant and dynamic factor. A UK code must enable public and private finance to complement each other.
- Carbon markets are supposed to enable the **permanence** of removal of carbon from the atmosphere, which in short means that farming funded through this route should transition to consistently lower GHG emissions and higher soil carbon stocks.
- Most codes use internal standards to **verify** their carbon credits. Although these are sometimes rigorous, they are generally not transparent, not comparable between codes and not independent.

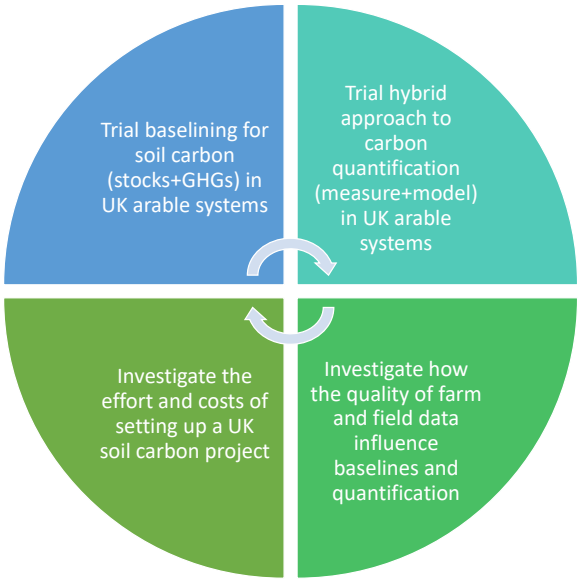
- The **number of codes** is growing every month – and many could be adapted to the UK with enough effort and resources. This means there are different routes that the UKFSCC could take to fill any gap in the marketplace. The proof of their integrity can be determined by applying the guiding principles.

4. **Pilots**

Dr Black explained how the code development needed to learn from applying a code in a **real-life setting** – hence the importance of the Gloucestershire Pilot with 20 fields, 20 farms with similar soil types and different arable systems (conventional, organic, regenerative, transitioning).

- The pilots will include the collection of **different types of data** to support both baselining and credit quantification. The primary focus will be on what is called a "hybrid approach" combining modelling and measurement to address both soil carbon stocks and GHG emissions. The first sampling of the soils has just been completed.
- She shared a few highlights of what will be collected and the value it will provide:
    i. **Trial baselining in arable systems**. How do different approaches to MRV influence the baselines? The data from the chosen fields will provide critical insights into effort needed to monitor for change in soil carbon in UK arable fields.
    ii. **Trial the hybrid quantification** of soil carbon changes. The pilot provides a rare opportunity to combine robust soil measurement and (reputable) soil modelling to explore how different management changes will affect soil carbon and the resultant credits that can be issued, and critically the confidence in these credits.
    iii. **Confidence in credits**: Uncertainty is influenced by the amount and quality of data available from farm to field, and the pilot will explore how these effect credits. Ultimately a great deal of effort goes into data collection and reporting and the Consortium would like to examine which data influence confidence most.
    iv. **Costs of a soil carbon project** can be significant using existing codes, and so could be a barrier for UK soil carbon projects. The pilot will allow us to look at these to see what sort of scaling will be needed to make projects affordable.

*What will be collated through the Gloucestershire Pilot*



## 5. Farmer Survey

Professor Pippa Chapman shared the results of two recent and one ongoing survey of farmer opinions on the agricultural soil carbon market and UKFSCC.

- The UK Farm Soil Carbon Code Survey is ongoing, and has so far got 43 complete answers, including:
    - Practically ALL farmers are already implementing practices (e.g. min-till, field margins, cover crops) but the majority would still do more if paid for.
    - Strong preference for public and private (blended) financing.
    - Farmers are happy to be paid for measured soil carbon sequestered (63%), but less so for carbon from modelling (21%).
    - Farmers want to be credited/rewarded for what they have done in recent past if they were managing their land 'well' (42%).
    - Most (over 85%) of farmers wanted a 10-year or less contract and a less than 10-year permanence period.
- The survey also collected some qualitative comments:
    - "Farmers need to think carefully regarding this whole area as they may need carbon credits in order to show themselves as being carbon neutral. Hopefully, this code will enable this to be clearer and transparent."
    - "It [the Code] should be independent and policed - it should register all fields so double accounting cannot happen; it should not be forced down routes by biased individuals with commercial interests in selling carbon."
    - "This [soil carbon] is a fast-moving topic; you need regular communication to keep farmers engaged right through the process."
    - "Reward for effort - circumstances change. Annual contract moving year to year - long term presents too many problems."
    - "It is my hope that the Consortium involved recognizes the substantial benefit well-managed, grazed grassland plays in sequestering and storing carbon and, with that in mind, has a plan to reward grassland area alongside arable areas."

- Prof Chapman also shared two recent studies carried out in UK, also based on interviews with farmers (Hewson, MSc Dissertation RAU, 2022 and Jones, MSc Dissertation CISL, 2022). Results included:
    - The needs of farmers and investors may be at odds with each other.
    - Farmers believe that they should be paid for carbon storage from historical practices and practices they adopt for other reasons (although carbon markets do not see this as "additional").
    - Farmers did not think it was fair that those who had degraded their soils stood to gain most from carbon markets.
    - However, regenerative agriculture is seen as "the right thing to do" whether or not carbon markets paid for it (and could increase profitability by reducing input costs, reduce risks from extreme weather and produce higher quality food).
    - Many farmers are deferring entry to market schemes due to:
        - A lack of transparency around carbon prices (farmers did not feel able to judge whether they were being offered a fair price for their carbon).
        - Concerns around long contract lengths.
        - Other contractual issues (e.g. how to share benefits with tenants, risks with contractors and tax).
        - A lack of clarity on how engagement with carbon markets could affect Defra's Environmental Land Management (ELM) schemes eligibility.
        - Concerns about the accuracy of soil testing for baselines and whether results will be accepted by markets.
        - Concerns about future insetting demands from buyers if they have already sold offsets to third parties.

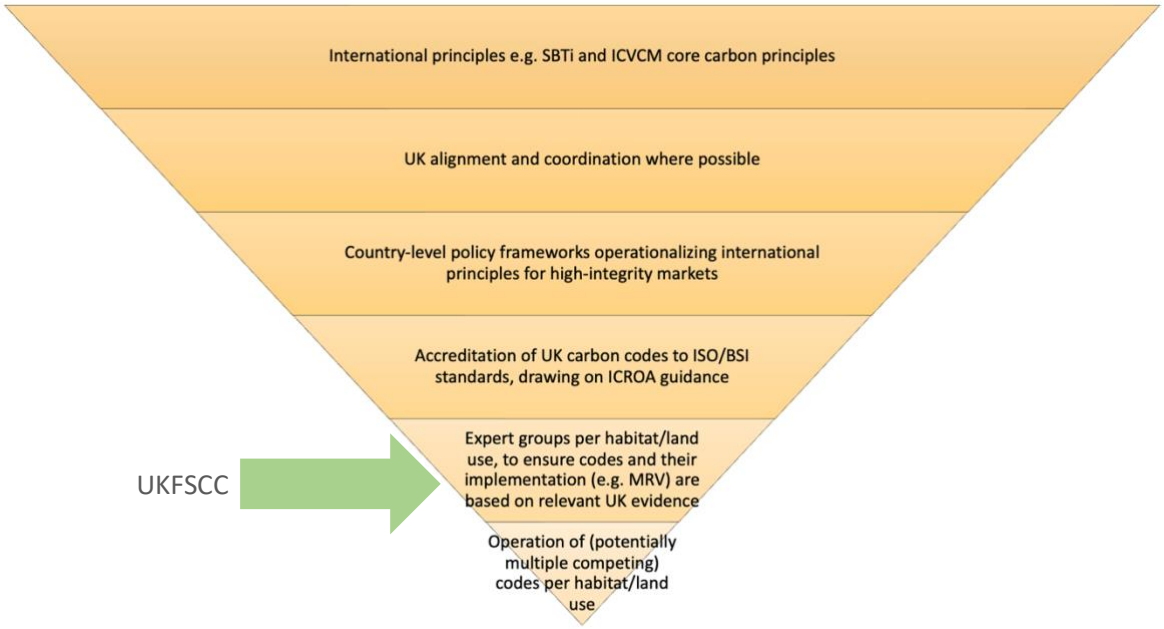
- A trade-off between flexibility versus consistency of management to maintain carbon stocks.

## 6. Policy Context

Professor Mark Reed (SRUC) provided an overview of the wider policy ecosystem into which the code would fit as follows:

- The code should align with **developments at the international level**, such as the SBTi (aimed at buyer integrity) and with the Core Carbon Principles (aimed at supply side integrity) being developed by the Integrity Council for Voluntary Carbon Markets (part of the Task Force on Scaling Voluntary Carbon Markets, a global private-sector led initiative initiated by Mark Carney). These are broad however, for example, providing additionality principles or pushing markets from avoided emissions towards GHG removals (although SBTi have recently consulted on this, and this position may change).
- All four UK countries are working on **policy frameworks for investing in nature recovery**, with significant work under way in both Scotland and England. For example, Scotland have just published Interim Principles for Responsible Investment in Natural Capital. Defra is currently looking to develop a standards framework for ecosystem markets to try and bring some coherence to the currently very complicated landscape, integrating high level principles, such as the Core Carbon Principles being developed internationally by the Integrity Council for Voluntary Carbon Markets, with other rules and criteria that could protect the integrity of national voluntary markets in the UK.
- There is a clear desire among policymakers for market integrity, which requires some agreed rules and principles. The goal is to achieve **alignment or integration**, where appropriate, at a national level, for example through government-level policy forums or the work of the ecosystem markets coordination group chaired by the Joint Nature Conservation Committee (JNCC).
- There is a hope that it may be possible to **reduce the amount of different data** that has to be collected by landowners to engage with different codes, and get economies of scale for verification bodies who might be able to be accredited to work with multiple codes that share similar designs, keeping verification costs low for project developers.

*National/international standards policy context*




- Underneath these broad policy and market principles, mechanisms are needed to **accredit individual carbon codes and other types of ecosystem markets**. The Consortium is examining the range of bodies and mechanisms that could fulfil this role, taking into consideration relevant ISO standards, and bodies

such as UKAS who accredit the Woodland and Peatland Codes. International experience, for example through ICROA who already provide quality assurance for carbon offsetting in international markets, could provide a useful basis for this work.

- However, ISO standards are silent on many of **the specifics of carbon codes**, as they differ between land uses and habitats. So, it would in theory be possible to get a code accredited to ISO standards that take samples to very different soil depths, or that operate very different minimum permanence periods, leaving the market open to schemes with very different levels of integrity. Similarly, in the Saltmarsh Code project, consideration is being given as to how a Verra code could be used in UK saltmarshes, making sure there is sufficient UK-based evidence to develop projects that will actually work in the UK.
- As a result, whether or not we decide to take this route, there is a need for **expert groups to provide guidance and set additional** standards within different habitats and land uses, to ensure the integrity of UK carbon codes, signposting buyers and sellers alike to schemes that meet the benchmarks they set. Robust methodologies will be key, and such groups might be able to provide best practice and objective criteria, and be able to keep standards under review so they can adapt to the latest evidence as it becomes available.
- In the future, this could also help to guide decisions about how the **more robust standards or codes** could be supported or promoted. For example, through the inclusion of UKAS accredited codes in the government's Environmental Reporting Guidelines.
- It may also be able to enable **independent verification bodies** to become accredited by UKAS to operate with multiple codes in a given land use or habitat, reducing costs to these bodies. These ideas are all very putative at this point, hence why the Consortium hopes to hear your views about how we might develop something in this space that could add value to the current ecosystem of existing soil carbon codes, standards and schemes operating in the UK, whilst making it easier and safer for both farmers and investors to engage with soil carbon markets.

## 7. Discussion

The following is a summary of the Q&A and discussion:

- The **lifespan** of a code depends on how actively it is being used – new methods need to reflect new circumstances, however, 12-24 months is not unusual. Even 'prescriptive' codes are not set in stone but require adaptation/discussion between project owners and operators e.g. on MRV to reflect circumstances.
- Under the Woodland and Peatland Codes, **costs** for development and registration are subsidised by government. Where costs are high and run over a long time (30+ years), certainty is needed that the body responsible will be in place over that period – emphasising the importance of some degree of government 'ownership'.
- There are many different approaches to **permanence** in existing codes – some up to 50-100 years. Permanence needs to be understood as permanent change (and not simply permanent storage), and how to support the immediate transition to lower GHG/high carbon farming that can be maintained long-term. This might be achieved by contract terms, payments and credits issuance, buffer pools and risk sharing – including regional circumstances where farmers might have to change practices. The focus needs to be on getting farmers to increase their carbon stocks until saturation – and what role the marketplace can have in achieving this.
- There is little/no appetite at government level to prevent **competition** in the marketplace. For example, the Peatland Code has a competitor (Wilder Carbon) with buyers checks, with a minimum 50-year period and conservation covenants that could be more attractive to investors. The minimum standards provide benchmarks against which to test schemes and give farmers confidence about which schemes to participate in.
- When it comes to farming types, the Consortium is working 'module by module' starting with arable, which is less complex than **grasslands** and considerably less complex than rotational systems. The modelling is calibrated for arable, but the plan is to expand to other systems. One participant raised the

concern that there is an underestimation of grasslands' carbon storage potential since many schemes only look at the first 15-20cm of soil. This range needs to be tweaked for particular circumstances. The potential to sequester more carbon is far greater for arable than grassland soils however.

- There needs to be clear 'boundaries' as to what is measured under the code, and what is not – e.g. carbon from the soil, and that from the **biodiversity** within it. A participant shared the concept of 'sterilisation' where value claimed under one scheme is therefore illegible from being valued under another. Standard soil carbon measurements include a 2mm sieve, so excludes anything larger. In addition, the carbon claimed through the Code should not negate the biodiversity benefits that derive from it. Prof Reed shared a guide on stacking versus bundling options for carbon projects.
- On the issue of **additionality**, private schemes have hitherto only been willing to pay for new (i.e. additional) carbon, leaving responsibility for maintenance to public funded initiatives – such as Redd+ (which incentivises against deforestation). It would be a challenge to apply such an approach to soil because the evidence for it – that a land area is at immediate risk of degradation – would be hard to prove, and therefore unattractive to the market.
- There are **standard methodologies** for measuring organic carbon, inorganic carbon bulk density etc. in labs, however, these are not necessarily applied consistently according to prescribed quality control/analytical standards. Users should request information about methods from labs they are using. It is important that bulk density as well as carbon concentration is understood.
- Soil carbon is not determined only by relative measurements, but also the RB209 fertiliser manual (measures **soil chemistry**) – which is an indicator of the overall soil ecosystem in which carbon sequestration takes place. Carbon dissolved in water should also be taken into account.
- The code could be used to help local authorities develop their local nature recovery (and other) strategies and help them identify and prioritise appropriate land use across counties. There is a caution about inappropriate land use and this code can support decision-making in that regard.
- There is growing evidence in scientific literature that **equilibrium** for soil carbon takes longer (20 years) than had previously been assumed - and in some instances hasn't been met even after 50 years. However, this depends on starting point, soil type, climate, management and consistent use over that period. This emphasises the importance of modelling alongside measurement to help the quantification process – what the trajectory of carbon gains is and how long it will take to achieve a given target. Over time, the rate of sequestration does decline.
- There are examples from peatland and woodland codes as to how **tenant farmers** can be brought into a carbon contract – whereby the permanent contract is with the landowner (ownership rights), but the project contract is with the tenant. Owners will not be able to achieve outcomes without support from tenants.
- There needs to be a policy decision about whether a market allows the **re-sale of carbon credits**, and how this should be reflected in pricing etc. Most codes retire credits rather than support a secondary market. There is a role for blockchain (and hence cryptocurrency) to ensure integrity in those markets. This also relates to the appetite (currently under discussion across the UK) for overseas investors paying into the UK market – woodland and peatland currently only allow UK investors to ensure all those benefits can count towards the UK inventory and UK Paris targets (without double-counting). The decision will have implications for the potential of the marketplace.