SUSTAINABLE SOILS ALLIANCE

February 2022

UK Climate Change Commission Call for Evidence on Carbon Offsets
Consultation response by the Sustainable Soils Alliance on behalf of the UK Farm Soil Carbon Code Consortium

This response is from the Sustainable Soils Alliance (SSA), with input from members of the Consortium developing a UK Farm Soil Carbon Code (UKFSCC). The SSA was launched in 2017 to address the current crisis in our soils. It aims to campaign to restore UK soils to health within one generation by seeing soil health elevated to where it belongs as a priority alongside clean air and clean water.

The SSA is a non-profit organisation (CIC number 10802764). As part of this work, the SSA is the host and co-founder of a Consortium of academics, farming organisations, businesses and international code experts looking to develop a UK Farm Soil Carbon Code, a set of formal protocols that will allow farmers to quantify and verify reduced greenhouse gas emissions and/or soil carbon capture as a result of adopting regenerative farming practices.

For more information, please visit: https://sustainablesoils.org/soil-carbon-code

Introduction

1. *What are the main risks and opportunities presented by voluntary carbon offsets?*

Risks:

- Evidence base: Sequestered carbon must be scientifically measurable according to robust, high-integrity methodologies. With insufficient measurement, reporting and verification, there is already evidence that several schemes have failed to deliver promised Greenhouse House Gases (GHG) abatement, further undermining trust in ecosystem markets.
- Net Impact: Impact must be understood 'in the round', in terms of net GHG emissions (practices may store more carbon in soil but also increase emissions of nitrous oxide, another GHG), but also in the global context. Investment in local offsets must not lead to leakage - increases in emissions elsewhere to compensate for domestic productivity loss.
- Taking land out of production: Investors in natural capital (private/individual and corporate/institutional buyers) are increasing competition in the farmland market, putting up the price of land “land sparing”, because land is taken out of production, and put aside or “spared” for carbon (see below).
- Wider Benefits: GHG removal is only one of the potential ecosystem and other benefits of increased carbon stocks, which include productivity biodiversity, clean water, flood risk management etc. There is a risk that a focus on carbon offsetting will lead a) to unrealistic expectations of the economic prize at stake, b) an undue focus on offsetting as the principal motivator of change at the expense of other ecosystem market-places and c) an emphasis on carbon as the exclusive indicator for soil health at the expense of other outcomes (structure etc).

Opportunities:

- Investment from the voluntary offset market has the potential to stimulate and accelerate the growing commitment to net-zero farming by farmers, supply chains, consumers and financial institutions and the adoption of carbon-positive farming practices - a transition that has been limited to date, reflecting diverse economic, social and environmental barriers.

- Permanence: This investment, when placed alongside public funding and support can generate the kind of momentum and joined-up thinking needed to give farmers confidence and motivation for long-term change (i.e. permanence) to their land management changes.
- Stacking: Investment from carbon offsetting is only one of the financial drivers underpinning the sequestration of carbon into soils (see above). By aggregating demand for multiple services, it is possible to design packages of measures including those that sequester and store soil carbon that provide multiple co-benefits including improved water quality, biodiversity, resilience to drought, and improved yields (see Reed et al, 2020) as has been successfully done in Landscape Enterprise Networks.

Quality and Duration of offsets

2. *What data/evidence is there on the scale, range, pricing and quality of offset activities that are being purchased in the UK, and are being produced in the UK? How can we expect this to change in future? What are the data gaps?*

Natural capital purchases for offset purposes are increasingly being recognised as an important influence on land markets, and a proxy indicator of the scale of offset production. However, the precise size of the market and the extent to which natural capital investment is driving land acquisitions and sales is unclear. As a subcategory of natural capital, the marketplace for soil carbon is still immature (many schemes only launched formally in 2021), and engagement in these projects across the UK remains small with the result that no holistic analysis of the scale, quality and scope of the marketplace have taken place.

Our Consortium is in the process of reviewing several of these schemes - to assess their respective approaches to MRV. We are also considering their approaches to the critical principles (permanence, additionality etc) which will have a bearing on the quality and robustness of any offsets that result. This analysis is already revealing a fair degree of variance among these projects to reflect different scales, nature of backing, geography, crop and in particular investment purposes - e.g. offsets versus certification. This does not necessarily indicate a poorness of quality but is emblematic of a market still establishing itself, and a learn-as-you-go approach.

Determining when and how agricultural practices increase carbon stocks, and how to measure and credit their gains, is complex. The efficacy of soil carbon interventions depends on local climate conditions, land management history, and soil characteristics. On top of that, any changes in soil carbon occur slowly, which makes it difficult to reliably track changes once new practices are implemented. Improved modelling and measurement and the use of technology can be expected to close this knowledge gap over time.

Finally, it is important to consider the timeframe for any sequestration achieved. This relates to both the ‘Permanence’ period (how long any project can guarantee to keep carbon in the soil for) and also the ‘equilibrium’ of carbon stocks where carbon in = carbon out. There is growing evidence that shows that in most agricultural soils undergoing management to increase soil carbon - it can take several decades to gain this steady-state in soil carbon stocks. Given agricultural soils are so dynamic with carbon in/carbon out - there will be a great deal of variability around the "steady state" with retaining soil carbon becoming the challenge as it gets nearer to this theoretical steady state.

Voluntary offset market regulation and standards

3. *What is your assessment of the various standards relating to offsets (including UK specific standards such as the Peatland Code, and international verification standards such as Gold Standard and Verified Carbon Standard), including those in development (including UK specific standards such as the UK Farm Soil Carbon Code, and international standards/principles such as the Core Carbon Principle)? What more is needed?*

Currently, international voluntary carbon markets charge high fees and command low carbon prices, and so far not-for-profit domestic carbon standards only exist for woodlands and peatlands in the UK (codes are being developed for agricultural soil carbon, hedgerows, saltmarshes, kelp and rewilding).

Members of the Consortium developing a UK Farm Soil Carbon Code (UKFSCC) recently undertook a review of the existing codes in use around the world (to be submitted at a later date, subject to finalisation). The review employed a novel analytical framework intending to develop a comprehensive understanding of the approaches taken by existing soil carbon codes, exploring the commonalities and differences between the existing methods, standards, rules and guidelines and associated programme documents. This understanding from different regions and contexts will be used to inform the establishment of an operational UK Farm Soil Carbon Code.

The Review concluded that although these codes and associated methods could be adapted to the UK environment, this would not be without significant investment in method development and model calibration and validations, assuming that all legal and other obligations could be accommodated. The most obvious of these are (i) the significant role of public subsidy in UK farming, with an increasing focus on public finance for public good including ecosystem goods and services such as ecosystem carbon and (ii) potential restrictions to UK investors as per existing UK voluntary carbon markets for peatlands and woodlands. The implementation of existing codes and/or development of new codes would benefit from recognised independent verification standards to support greater market and farmer confidence in, and comparison of, soil carbon credits from different MRV methods.

Existing soil carbon codes around the world would need substantial investment/development to be applicable in the UK, and some organisations (Rothamsted, UKCEG, etc) are working with certain codes to adapt MRV to the UK and therefore open up these codes to UK projects. However, the costs associated with these codes (several 000's per project large i.e. 10,000 hectares) mean that there are questions over economies of scale given the relatively small farms and diversity of land uses, soils etc in the UK.
By comparison, the far lower costs associated with the Peatland and Woodland Code would make a soil carbon project more economically viable.

4. *What are the strengths and weaknesses of monitoring, verification and reporting (MVR) for offsets produced in the UK and globally? What more is needed?*

There are many soil carbon MRV methods/protocols available from international soil carbon programmes (e.g. Verra, Gold Standard, CAR, BCarbon, Australian, Les Bas Carbonne, GSOC_FAO, etc). However, none of these has, as yet, been trialled, calibrated and validated for use in UK farming systems. This would require substantial effort with piloting to demonstrate validity.
What is missing is comparability between the MRV methods. This could be achieved in part through international standards (see below) but it would also benefit from a method comparison - which this consortium is proposing to initiate for key aspects across MRV methods.
At present, there are three common approaches to soil carbon quantification across these MRV methods – measurement, modelling and a hybrid that combines measurement with modelling. The Hybrid approach is becoming the most widely used – given the strengths of improving modelling predictions of carbon credits with direct soil measurement from fields and the opportunity to validate MRV quantification with measurable credits after several years.

The Cost has long been considered a constraint to direct soil measurement; however, rapid technology developments (from field to satellite) now means that this is no longer a real constraint given the benefits to MRV quantification.

The UK is well placed for hybrid MRV quantification given the academic capacity and reputation for relevant soil carbon modelling capacity. The RothC model, widely used in soil carbon projects, was developed in the UK and hence there is already capacity to calibrate and validate. James Hutton Institute/UK Centre of Hydrology and Ecology/ Aberdeen University are working to release a soil carbon modelling MRV platform to support UK-based MRV.

However, a key weakness for all MRV quantification is the availability of enough data at the appropriate spatial scale which includes farm records and field-scale soils information. This could be addressed, in part, through local pilots for soil C, which are growing in number (c.f. UKFSCC arable pilot in Gloucestershire, and grassland activities by Nestle (LENS), First Milk, Yeo Valley, etc.) and/or government support for farm soil monitoring to ensure consistency and compatibility.

Ultimately, MRV is reliant upon the standards set for the quantification and verification of credits. At present these standards are internal to the soil carbon programmes. There is an urgent need for universal independent and internationally recognised standards that would ensure that all soil carbon credits are "equal".

5. *What does the evidence indicate are the key areas of voluntary offset markets that could benefit from regulation or intervention?*

There is currently no regulator responsible for carbon markets in the UK (under discussion with the Financial Conduct Authority). We strongly advocate for the creation of a regulator for farm soil carbon markets and the nomination of an appropriate arms-length body to own and operate existing and proposed nature-based carbon Codes.

Changes in agricultural soil carbon are not currently included in the UK GHG Inventory, so would not count towards targets under the Paris Agreement. We would like to see the creation of a pathway for new carbon Codes to be evaluated for inclusion in the UK's Environmental Reporting Guidelines, to signpost investors towards high-integrity projects.

We would like to see greater government clarity on how different ecosystem markets will operate in future - specifically what should be the relationship between the UK Land Carbon Registry, existing soil carbon programmes and new and emerging Codes – specifically the UK Farms Soil Carbon Code. Is the expectation that soil carbon projects for agriculture will operate outside the peatland/woodland/other ecosystem codes that link to the UK Land Carbon Registry?

There are no international standards in soil carbon credits - specifically for the MVR of GHG removals/soil carbon. We also think there is a case for intervention to address behavioural barriers (willingness to change) among farmers, including low awareness of the importance of soil organic matter, concerns around contract length (required for permanence) and concerns that adoption of private schemes might compromise eligibility for Environmental Land Management. A February 2020 DEFRA Farm Practices Survey revealed practices relating to greenhouse gas mitigation are widespread with 66% of farmers currently taking action to reduce GHG emissions from their farm. However, only 32% of farmers keep track of soil organic matter. This gap demonstrates a willingness among farmers to address GHG emissions, but a comparatively low awareness of the potential for soil carbon to contribute to this - 43% of farmers that don't measure SOM in their soils gave the reason it is 'not important enough to test for'.

Harnessing Financial Flows

6. *What is the scale and potential impact of voluntary offset activity on land use and wider social, environmental and development outcomes, both positive and negative? How would this differ between UK-based and international projects?*

Large land acquisitions for carbon driven by voluntary offset activity bring with them a variety of risks and trade-offs, summarised in the Sefari report: Risk and opportunities from large-scale land acquisition for carbon (in annex). The project considers two approaches to large-scale changes in land use - "land sparing", where land is taken out of production, and put aside or "spared" for carbon and the "land sharing" approach, where land is "shared" between carbon and other uses, for example moving to more regenerative agricultural practices in anticipation of payments for soil carbon.

Land sparing risks:

- Competition for land may drive up the value of land (benefit landowners - impacting rental prices for tenants).
- Land may be consolidated into large holdings owned by institutional investors, undermining the land reform agenda.
- Conversion of agricultural land to forestry could compromise food sovereignty and offshore emissions.

- Agricultural communities could be lost in marginal/sparsely populated areas. A narrow investment focus on carbon and forest habitats may lead to negative impacts on other ecosystem services.

Land sparing opportunities:

- The majority of land targeted by green buyers is lower grade (e.g. rough grazing) agricultural land, and the appropriate planning could direct investment to locations where investment is most likely to support new business models and diversification
- The scale of funding available could help rapidly achieve afforestation targets and sustainable land-use/management and make a significant contribution towards net-zero and biodiversity goals.

Land sharing risks:

- Engagement in carbon markets without robust standards may expose project developers and investors to risks from non-delivery.
- Current market models may benefit intermediaries more than landowners, and tenants cannot benefit directly. Landowners must enter long-term contracts.
- Early entrants may miss benefits of rising carbon prices, compromise eligibility for agri-environment schemes or struggle to meet future insetting requirements from buyers.
- Currently, consultation is only required where land is entered into domestic carbon markets and there are few tangible benefits for local communities whose interests may be compromised by the change in land use.

Land sharing opportunities:

- Private investment provides additional income for farmers and land managers.
- Increased investment in effectively regulated and standardised carbon and ecosystem markets will accelerate the delivery of net-zero and biodiversity goals, and deliver other public goods, without compromising food sovereignty or the interests of local communities.
- Impacts on land values are likely to be modest compared to land sparing approaches. Buyers using relevant standards can make net-zero claims.

7. *Are there specific activities or regions where directing funds for offsetting might have a particularly positive impact? Please consider the UK and/or the international context, depending on experience.*

The land which is likely to be available for conversion to woodland, biofuels or low-carbon farming with the support of offset funds is not evenly distributed across the UK, with some regions likely to see much greater change in land use than others. A considerably larger proportion of agricultural land in England is used for cropping (44%) than in Wales and Scotland, where over 80% of farmland is grassland or rough grazing (with 60% of Scotland's agricultural land classed as rough grazing). Over two-thirds of all farmland are also classed as Less Favoured Area (LFA) in both Scotland and Wales (Scottish Government, 2020). While food production in LFAs is largely unviable without public support, these areas offer considerable potential for enhancement of natural capital, with marginal agricultural ground in Scotland offering the greatest potential for woodland expansion at scale (WEAG 2012). This reflects the current high demand (and values) for plant-able hill ground in Scotland, with upwards of 20% of existing agricultural land in Scotland likely to be required.

8. *What could help concentrate private investment in offsets towards the most effective activities? What role, if any, is there for public funding?*

- Code Creation: Public money has been committed for the creation of the Farm Soil Carbon Code through the Environment Agency Natural Environment Readiness Fund; however, this will address only some of the critical knowledge gaps needed for the Code's creation. Others remain, requiring funding including expanding the scope to cover different soil types across land, which will ensure broad applicability and the generation of the accurate, decision-grade data needed to underpin action by the farming sector that was demanded at COP26.
- Accelerator: Government investment and explicit support for a farm soil carbon code as the foundations of a robust, credible marketplace will kickstart investment from elsewhere. It will provide the market confidence needed to unlock pent-up private investment capable of

transforming UK farming and contributing to the target laid out in the 2021 Spending Review to raise at least £500 million in private finance to support nature's recovery.

- Baseline Measurements: In recognition of the potential barrier for certain farm soil carbon projects from MRV costs we see a role for the government in covering some of the start-up expenses involved. We would draw your attention to Australia where the Government offered grants to support baseline measurement costs, the US independent quantification and analysis platform, COMET, was developed under USDA guidance. Government support along these lines will help reduce costs to projects and deliver economies of scale relevant to a UK marketplace.
- Sustainable Farming Incentive (SFI): Government support is not just about direct funding, but how this funding will sit alongside private schemes. A good example is the Soil Standards embedded in the SFI (England), under which farmers will be paid (between £22 and £58 per ha) for practices that protect/ improve their soils. Defra estimates this could save up to 60,000 tonnes of CO2 each year from 2023 to 2027, increasing to 800,000 tonnes per year by 2037. Defra sees public and private schemes operating alongside one another; however, this raises the challenge of additionality - ensuring the government pays for additional benefits and avoids paying for the same thing twice, whilst not 'crowding out' private funding and investment. Private investors will be equally keen to avoid paying for things twice. Indeed, the principle of additionality may disqualify farmers who receive money via the Standards from participating in private markets (especially where carbon credits used for off-setting are at stake).

Company Transparency and Targets

10 . What is the evidence on the scale of reliance on offsets for Net-Zero targets, for businesses, financial institutions, and/or other institutions and the role that offsets play in affecting emissions reduction ambition? If you are a business/financial institution/other institution with a Net-Zero target, what role do voluntary carbon offsets play in your Net-Zero target and emissions reduction ambition?

Several technical, cost and legal barriers are slowing down the establishment of a scalable farm soil carbon offsets market. Where we are seeing greater interest and momentum is around insetting, where businesses are looking to avoid, reduce or sequester upstream or downstream within their value chains. Within the UK supply chain, this is particularly prevalent among dairy businesses looking to secure low carbon futures. This is placing the focus and demand on MRV to demonstrate and certify carbon reductions that can then be applied across several uses - offsets, insets, certificates etc.

Article 6 and GHG accounting

At COP26, guidelines were agreed for an international carbon market for carbon credits, under Article 6. As we set out on page 8 of our COP26 briefing, this included new guidance for how to avoid double counting through 'corresponding adjustments'. We will analyse the risks and opportunities the new guidelines pose to the role of voluntary carbon offsets in reducing global emissions and assess what role UK policy and company action can play in navigating this.