OPTIMISING CARBON SEQUESTRATION IN ARGYLL & BUTE

Implementation Plan
Pilot 1: Carbon Farming Facilitation
for
Highlands and Islands Enterprise

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ekosgen
CONTEXT ECONOMIC & SOCIAL RESEARCH
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Iomairt na Gàidhealtachd 's nan Eilean

Contents

1 INTRODUCTION

INTRODUCTION AND BACKGROUND

1.1 Carbon sequestration is the process of capturing, securing and storing carbon dioxide from the atmosphere. The idea is to stabilise carbon in solid and dissolved forms so that it doesn't cause the atmosphere to warm. The process shows tremendous promise for reducing the human "carbon footprint".

1.2 ekosgen was commissioned by Highlands and Islands Enterprise (HIE) to research and develop an Implementation Plan to facilitate the development of a local carbon market in Argyll & Bute. This work forms a strand of Work Package 6 which aims to develop three pilot projects to progress the carbon sequestration in the area.

1.3 The other two pilots have their own Implementation Plans and cover:

- Enabling local landowners to participate in carbon farming to serve a local market.
- Integrated carbon management by a community-based organisation to engage with potential carbon credit buyers, such as distilleries.

1.4 It is a nascent sector and the anticipated approach in Argyll & Bute is also relatively new and innovative. The aim in Argyll & Bute is to catalyse and support a local market in order to deliver social and economic benefits and deliver against community wealth building (CWB) objectives. Specifically, these are[1]:

- **Spending**: Maximising community benefits through procurement and commissioning, developing good enterprises, fair work and shorter supply chains.
- **Workforce**: Increasing fair work and developing local labour markets that support the wellbeing of communities.
- **Land and Property**: Growing social, ecological, financial and economic value that local communities gain from land and property assets.
- **Inclusive Ownership**: Developing more local and social enterprises which generate community wealth, including social enterprises, employee owned firms and cooperatives.
- **Finance**: Ensuring that flows of investment and financial institutions work for local people, communities and businesses.

1.5 Essentially it is about capturing the value of this potentially transformative industry for local landowners, businesses and communities.[2] Through earlier Work Packages, the decision has been made to focus on land-based sequestration rather than marine.

THE PILOT

1.6 The original scope of work to develop the Implementation Plan for Pilot 1: Carbon farming facilitation was as follows:

- Identify relevant international and national case studies of facilitation of carbon farming activities and potential financing options.
- Assess the landscape of carbon sequestration support in Scotland and identify where gaps in support exist.
- Provide a set of clear recommendations on the scope/nature/scale of support in order to facilitate carbon farming activities.

[1] https://www.gov.scot/policies/cities-regions/community-wealth-building/

[2] https://www.inclusivegrowth.scot/our-work/community-wealth-building/2019/11/community-wealth-building/

- Explore the options that HIE and other agencies could play in developing carbon farming and carbon trade in the region.
- Develop an implementation plan for providing support identified above, using financing models from Work Package 5.
- Articulate the added value generated through filling any gaps in support around facilitating carbon sequestration activities in Scotland.

1.7 However, during the process of researching and developing the Implementation Plan for Pilot 1, the scope has shifted in agreement with HIE to better meet the needs that have been identified through the wider work and on the Pilots. It has become clear that landowners in Argyll & Bute are at an earlier stage than expected in terms of their thinking about and engaging with the carbon trading market. Also, whilst there are some signs of local demand from businesses, it is at an early stage and is not yet established. It is therefore clear that significant work is required to get to the stage of establishing a local market to deliver local benefits.

1.8 Also impacting on the scope, under Work Package 7.2 a study has been procured by HIE which, in summary, will:

- Identify barriers (farmers, tenants, community organisations, commercial actors) in engaging in carbon trading.
- Provide examples of Special Purpose Vehicles (SPVs) in carbon or nature-based context and draw out the learning for HIE.
- Identify operational and governance of an SPV that could source and fund turn-key activities including: R&D to catalyse the carbon market; market Argyll & Bute's trading potential; provide a conduit for green investments; provide a hub for investments; blend public and private finance to achieve the carbon market goals.

1.9 Work Package 7.2 was commissioned after Work Package 6 and there are a number of crossovers with the original scope and so, in agreement with HIE, and to add value to rather than unnecessarily duplicate with Work Package 7.2, it has been agreed that this Implementation Plan will focus on the short term (1-2 years) activities that are required to stimulate active interest amongst the supply side of the carbon credit market i.e. landowners in Argyll & Bute, and the demand side, i.e. commercial organisations who may wish to purchase carbon credits and achieve net zero objectives.

1.10 The broad conclusion is that there is some distance between where landowners, communities and some other stakeholders are at now, and the point where they are ready to co-develop an implementation plan and reach consensus on it and the next steps to initiate it. This is particularly in relation to Pilot 2 and Pilot 3.

1.11 As a result of the nascent stage of the local market, the level of readiness, and Work Package 7.2, this Implementation Plan focuses on the short term requirement to develop interest and readiness amongst landowners (suppliers), and businesses (purchasers) in Argyll & Bute and encourage and support them to be in a position to participate in a pilot local carbon market. It is a facilitation function and process, rather than a facilitation agency or vehicle, which is what will be delivered under WP 7.2.

DEVELOPING THE IMPLEMENTATION PLAN

1.12 Preparing all three Implementation Plans has been an iterative process, working closely and collaboratively with Imani Development and HIE. The development of this Implementation Plan is based on the findings of research and consultations with key informants, landowners (and representatives) and commercial actors (and intermediaries). The emerging findings and issues for a local carbon market were explored at a stakeholder workshop. This, combined with the consultations and desk research, was used to develop an evidence-based assessment of the current knowledge, activities, and readiness of actors on both the supply and demand sides of the carbon market.

2 CONTEXT AND OBJECTIVES

INTRODUCTION

2.1 This section of the Implementation Plan sets out the broader context for its development, drawing on the findings of research conducted as part of the wider Optimising Carbon Sequestration Opportunities in Argyll & Bute project. It also outlines the aims and objectives for this Implementation Plan.

CONTEXT FOR THE PLAN

2.2 Research undertaken as part of several Work Packages, and Work Package 4 in particular, has highlighted the opportunity for carbon sequestration activities in Argyll & Bute. This is due to the scale of Argyll & Bute's natural carbon assets, with a significant proportion of the region covered by existing farmland, forestation and peatland. Around 76,000ha of Argyll & Bute is identified as preferred land for future forestation and almost 49,500ha of peat is considered degraded and in need of restoration.

2.3 There is scope for carbon revenue generation at a considerable level across Argyll & Bute. However, this is dependent on sequestration mode and the rate of carbon units per hectare that can be achieved. Market rates for carbon credits are predicted to continue increasing in price, which can in theory lead to significant revenue generation.

2.4 In the short term, the most feasible approaches to carbon sequestration in the region are terrestrial biological – that is, through forestation (including silvopasture) and peatland restoration. However, it is worth noting that the extent of Argyll & Bute's marine carbon assets mean that marine-based sequestration opportunities may be realised in future, as market mechanisms and regulatory frameworks for this develop.

2.5 As well as presenting economic opportunities to Argyll & Bute, carbon sequestration activities can also secure wider community wealth building and environmental benefits. Achieving these benefits could transform the region's economy and help to reverse the trends of a declining, ageing and sparsely located population.

2.6 These wider benefits that can also be realised include: improved biodiversity and habitat creation; flood mitigation; improved water and air quality; better soil and nutrient management and reduced erosion; shelter for livestock; sustainable timber production; creation of skilled jobs; physical and mental health improvements; social wellbeing; and increased community engagement and community wealth building.

2.7 This underlying context presents an opportunity for landowners (suppliers) and businesses[3] (purchasers) to capitalise on and create a range of economic, community and environmental benefits from. However, in order to facilitate this opportunity for landowners and businesses in Argyll & Bute, there is a requirement first to generate interest and readiness amongst both groups and in doing so, encourage and support them to be able to participate in a pilot local carbon market.

2.8 Liaison with the relevant groups and stakeholders is therefore important to understand the current carbon sequestration position and readiness. Implementation Plan 2 as part of Work Package 6 explores the mechanisms in which local landowners can be supported to participate in carbon farming to serve a local market. Implementation Plan 3 examines routes to potential carbon credit purchasers/community organisations as part of an integrated carbon management approach.

[3] For clarity, businesses here is used to refer to those looking to purchase carbon credits. There is of course potential for local businesses to also be suppliers of carbon credits.

2.9 Short term actions required in order to develop interest and readiness among landowners and businesses were raised during a stakeholder workshop held in Dunbeg, Oban on 4th October 2022. The stakeholders that were present came from a wide range of sectors and organisations, including: community trusts; landowners; private farmers; policymakers at both local and national levels; service suppliers; land use consultants; carbon brokers; and analysts.

2.10 Through discussion at the workshops, several themes and key issues for consideration were raised. Attendees noted that any framework designed to facilitate the delivery of carbon sequestration projects should factor in how this support will be different across varied land types (i.e. slopes, flat land). It will be important for a facilitating organisation or group to understand these differences as well as the specific needs of local landowners or farmers and how this might impact on generating interest and readiness.

2.11 A further issue raised at the workshop was around the need to understand the importance of the economy as a whole when developing any carbon sequestration activity and framing it within a low-carbon economy context rather than looking purely at impacts on land use. Various models that factor in a whole-economy approach and that are currently in operation were explored, including Landscape Enterprise Networks (LENs) and Plan Vivo, where there is an emphasis on bringing together private, public and third sectors with regional communities to identify common interests and deliver activities benefiting the environment, communities and businesses. Both of these models, among others, are explored in more detail in the next section of the Plan.

2.12 Another key discussion area was around the specific model that is to be adopted and it was acknowledged that models which work for some places may not work for others, with the best approach often varying greatly by area. Geographical catchments as an organising mechanism were cited as useful for considering regions such as Orkney and other islands but may be less appropriate to adopt in areas of mainland where supply chains, markets and economic activity are more sensitive to global considerations. Other organisational mechanisms for carbon sequestration that were discussed include industry groupings and community groupings. When generating interest and readiness, these are important factors to consider in order to ensure the most effective model is explored with landowners and businesses in different areas.

2.13 A further concern was flagged around considering a community organisational mechanism, with less engagement in community organisations and projects often a challenge. This has an impact on understanding where and how to distribute benefits and is something a facilitating body will have to consider, with industry input. This could be informed by a replicable pilot developed by landowners eager to work on carbon sequestration that can effectively demonstrate community benefits arising from sequestration and then be scaled up for wider community benefits to be realised. Through landowners developing a pilot themselves, likely with some organisational assistance from a facilitating body, this may lead to a greater understanding of potential community benefits and how a project can target these, as well as identifying areas where intervention is most needed.

2.14 Workshop attendees also considered insetting versus offsetting carbon. Offsetting was loosely defined as any sequestration activity delivered outside of an organisation's region or externally from their operational activity, whereas insetting relates to any sequestration activity in some way directly related to the landowner's operations or operational area. With high-end natural capital available in Argyll & Bute, workshop attendees suggested certain stakeholders (such as local businesses) would take "pride" in sequestering carbon in the region and that carbon credits promoted as a premium product should be prioritised for local business owners. A facilitating organisation will have to consider this, first at a local level, before considering regional, national or international scales.

AIMS AND OBJECTIVES

2.15 The Readiness Assessment that has been delivered under Work Package 7.1 shows that there is substantial work required to develop the local supply needed for an Argyll & Bute carbon market that

delivers community wealth building. There is also a great deal of facilitation and input required to establish a market for carbon amongst local organisations.

2.16 Based on the Readiness Assessment and the overall ambitions for carbon sequestration in Argyll & Bute, the aim of this Implementation Plan is to provide a route map and set of activities to support and enable the creation of a sustainable carbon market that deliver benefits to local communities, employers and landowners.

2.17 Flowing from this aim, the Implementation Plan has the following objectives:

- Local landowners (as suppliers):
    - Understand the opportunities and benefits of participating in the carbon market and the specific benefits of this being local to Argyll & Bute;
    - Are able to make informed decisions to plan and implement carbon sequestration and trade locally;
    - Form a carbon consortium (with appropriate governance) to aggregate the supply of carbon credits into the market to ensure it is of the required scale, is secure, and is cost effective;
- Local organisations/businesses (as purchasers):
    - Are committed to transition to net zero
    - Understand that there is a local supply of carbon credits and the benefits of participating in the local market;
    - Are confident that there is an adequate and secure local supply;
- All parties have the information, networks and mechanisms they need to trade carbon credits locally
- The learning is captured to repeat and apply the process in other parts of the Highlands and Islands.

3 SUPPORT TO DEVELOP A CARBON MARKET

INTRODUCTION

3.1 This section examines learning gained from existing approaches globally to inform the implementation plan. The approaches discussed present examples from elsewhere in the UK and internationally and set out good practice across areas such as operational setup and processes, governance and management, and services offered to farmers and landowners in supporting carbon sequestration activities.

3.2 Where comparators are commercial entities, the income/commercial viability has been described to show revenue streams inherent in some facilitation agent. For public sector agencies, this stream may be channelled according to the different models set out, and public interest may warrant external funding for other natural capital benefits, community interest, or local economic development priorities.

FACILITATING ENVIRONMENTAL SERVICES

Select Carbon

3.3 Select Carbon is an environmental services company based in Australia[4]. Operating since 2010, the company specialises in developing, supporting and managing carbon farming projects throughout Australia. It is a proprietary company (a form of private limited company in Australia where shareholders have limited legal responsibility for the company's debt) and since October 2020, is a subsidiary of Shell Australia. Select Carbon works to empower Australian farmers and landowners to adopt more innovative land management practices benefiting both the environment and the business as part of the organisation's commitment to support climate change solutions and reduce net carbon emissions in Australia, while assisting regional businesses and communities.

3.4 To do this, Select Carbon develops and aggregates carbon farming projects throughout Australia in partnership with landholder beneficiaries. They have developed over 70 carbon sequestration projects currently as part of the Federal Government's Emissions Reduction Fund[5], which offers landowners, communities and businesses the opportunity to run projects in Australia that avoid the release of greenhouse gas emissions or remove and sequester carbon from the atmosphere. The Fund facilitates the creation of Australian Carbon Credit Units (ACCUs) from land-based carbon projects. These projects encompass over 9 million hectares Australia wide. They can also assist companies to reduce their carbon footprint and develop holistic solutions, offering benefits related to real, long term change and commitment to environmental, social and governance (ESG) policies.

3.5 Select Carbon is committed in the long term to increase carbon sequestration in vegetation and soil to reduce Australia's net carbon emissions. They support improvements in land management whilst helping landowners to diversify their income streams to build business resilience. The Select Carbon team is highly specialised with a unique mix of expertise in agriculture, pastoral systems, forestry, ecology, remote sensing, GIS, and commerce. This allows the organisation to offer a range of services, including carbon development and management, grazing and farm management, livestock production, GIS and mapping services, carbon law and compliance[6].

3.6 Select Carbon meets all costs associated with compliance and auditing for farmers and landowners, with a success fee paid by farmers/landowners once ACCUs have been issued.

[4] https://www.selectcarbon.com/

[5] https://www.cleanenergyregulator.gov.au/ERF/About-the-Emissions-Reduction-Fund

[6] https://www.selectcarbon.com/about-select-carbon/meet-the-team/

Overview of services and carbon activities

3.7 Select Carbon provide support to farmers and landowners through a variety of services:

- **Farm Management**: Management and production support combining practical on-ground expertise with underpinning scientific knowledge. Select Carbon can assist farmers and landowners with farm management experience, as well as wider business and consulting experience, and scientific R&D expertise.
- **Scientific Research and Development**: Working with farmers and landowners through a science-based approach to help businesses improve productivity, profitability and sustainability in agricultural and soil systems. Decision-making is backed by research and industry experience.
- **Remote Sensing and Mapping**: Select Carbon provides spatial analysis, remote sensing and GIS services, working with clients to deliver tailored solutions to develop and implement carbon practices and monitoring.
- **Complimentary Carbon Farming**: Identifying ways for carbon farming to fully complement other farm production enterprises on farms.
- **Project Management**: Wholesale project management support services from initial feasibility to the final reporting period. This includes steps such as audits and offset reports, as well as the sampling rounds. Select Carbon combines desk analysis with work on the ground, to support the practical implementation of your project.
- **Finance and Trading**: Working with partners, Select Carbon assists in the trading and sales of carbon credits generated by carbon farm projects. This includes support to tailor the marketing of carbon credits to suit business needs.

3.8 Select Carbon is experienced in selling carbon credits via government contracts and the secondary (non-government) market, either via the spot market, or via more complex and longer-term contracts with large businesses.

3.9 Select Carbon's services and expertise support farmers and landowners across several carbon sequestration activities. These are described below.

- **Help with method selection**: Each method under the Australian Government's Climate Solution Fund[7] has a set of requirements for participation and goals to be achieved. As part of the requirements, eligible activities to be undertaken as part of a carbon-related project must enhance the current 'business as usual' management and improve carbon sequestration. Select Carbon supports farmers and landowners to navigate the requirements of specific methods to check whether these are suitable for the project. The Select Carbon website contains a tool that enables farmers and landowners to understand their options by asking a series of questions[8].
- **Partnership opportunities**: Select Carbon offers farmers and landowners a range of different ways to partner with them. Farmers or landowners who have a specific carbon project can get in touch with Select Carbon online to explore their carbon farming activities and requirements, including how Select Carbon can support them, for instance to produce carbon offsets through their project.
- **Human Induced Regeneration (HIR)**: HIR projects are the most common vegetation carbon projects undertaken by landholders across Australia. They improve the natural capital on

[7] https://www.selectcarbon.com/carbon-farming-101/what-is-the-erf-climate-solutions-fund/ CSF is a voluntary offset programme established by the Australian Government that provides new economic opportunities for farmers, forest growers and landholders. Formerly known as the Emissions Reduction Fund (ERF), aims to help the environment by reducing levels of carbon pollution and greenhouse gas emissions. Project holders can choose to bid into an auction system managed by the Clean Energy Regulator to sell Australian Carbon Credit Units (ACCUs) to secure income. CSF is used to pay for the purchase of ACCUs if a bid is accepted. ACCUs may be sold to other buyers in the secondary (non-government) market that have a requirement to offset greenhouse gas emissions produced by their operations or who voluntarily choose to offset their emissions. To be eligible to participate in an ERF/CSF project, it must be conducted according to an approved method.

[8] https://www.selectcarbon.com/carbon-farming/carbon-method-selection/

which the business (purchaser) is based by storing carbon in biomass. However, it also provides additional revenue by adding another enterprise into the business. HIR projects are based on adopting land management practices that help native vegetation regenerate. The new management activities are designed to ensure the regeneration attains forest cover, defined as a species mix with the ability to reach at least two metres tall and at least 20% canopy cover, assessed at a scale of 0.2 hectares. Not all vegetation or land systems are capable of reaching forest cover, therefore Select Carbon can play an important role in accurately identifying the areas of potential within a property. The HIR method uses the Full Carbon Accounting Model (FullCAM) to estimate sequestered carbon, and is complemented by remote sensing data, GIS techniques and on-ground measurements and monitoring, where Select Carbon has expertise[9].

Select Carbon can support HIR projects through nine steps:

1. A no-obligation feasibility on property.
2. Completion of project registration with the CER (Clean Energy Regulator).
3. Obtain Eligible Interest Holder Consents.
4. Defining the project area and strategy the project area to define carbon estimation areas (CEAs).
5. Use FullCAM to calculate carbon abatement.
6. Completion of a third-party audit.
7. Submit an Offsets Report (typically completed annually).
8. ACCUs issues based on the carbon stored during the reporting period.
9. Sale of ACCUs (or the use of ACCUs as carbon offsets towards carbon neutrality).

- **Soil carbon**: A soil carbon project is one of the land-based options available under Australia's Carbon Farming Initiative legislation, designed to increase the storage, or sequestration, of carbon within agricultural soil. Soil Organic Carbon (SOC) is the carbon stored in the soil as a component of soil organic matter, including plant and animal matter. A soil carbon project involves the landholder implementing active management practices to build SOC within their system. This increase in measured carbon stocks is converted to carbon credits that can be sold[10].

  Select Carbon can support SOC projects through six steps:

  1. Feasibility.
  2. Registration.
  3. Baseline sampling.
  4. Implementation.
  5. Re-measurement.
  6. Reporting and issuance of carbon credits.

- **Environmental planting, forestry and plantation**: Select Carbon has qualified forestry expertise that can assist with a number of forest carbon projects, including Agroforestry and Silvopastoralism, Environmental Plantings for Conservation, and Industrial Forestry Carbon Plantations[11].
- **Corporate solutions**: Select Carbon can support companies to develop carbon management plans to minimise their impact on and improve the environment they work and live within. Select Carbon does this by exploring innovative solutions and taking a holistic approach to the various options available. They work with farmers and landowners to measure, reduce and offset greenhouse gas emissions[12].

[9] https://www.selectcarbon.com/carbon-farming/human-induced-regeneration/

[10] https://www.selectcarbon.com/carbon-farming/soil-carbon-projects/

[11] https://www.selectcarbon.com/carbon-farming/plantation-based-projects/

[12] https://www.selectcarbon.com/carbon-farming/corporate-solutions/

Cultivating Carbon

3.10 Based in South Africa, Cultivating Carbon facilitates the entire on-farm carbon revenue process to let farmers focus on farming[13]. A farmer partnering with Cultivating Carbon will be facilitated and guided through the necessary on-farm practices that need to be adhered to for carbon offset qualification, with Cultivating Carbon taking care of the carbon offset administration, measurement, verification, validation, trading, and other components. The goal of the organisation is to ensure thriving and sustainable farms for the future by generating an additional income stream for the farmer, whereby the bulk of carbon revenue is directly allocated to the farmer, along with a whole host of additional beneficial impacts from the implementation of conservation and regenerative agriculture (CA/RA[14]) practices

3.11 The Cultivating Carbon team is made up of leading CA/RA soil scientists, agronomists, and soil carbon scientists who assess current on-farm practices, provide technical guidance when land-management practices need to be changed (i.e. from conventional, till-based practices to CA/RA practices) for the qualification of carbon offsets, and support farmers through the carbon journey of sustainability and regeneration.

3.12 Through the Cultivating Carbon model, 70% of carbon revenues generated flow through to participating farmers, with 30% going to Cultivating Carbon. In return, Cultivating Carbon bears the cost of carbon development, monitoring, evaluation, and verification through an international carbon standard as well as providing access to direct technical guidance and assistance for farmers. The intention is to remove the technical and financial barriers to carbon market entry for farmers, in order to develop a project at scale that reduces the cost per farm and maximises returns for each farmer.

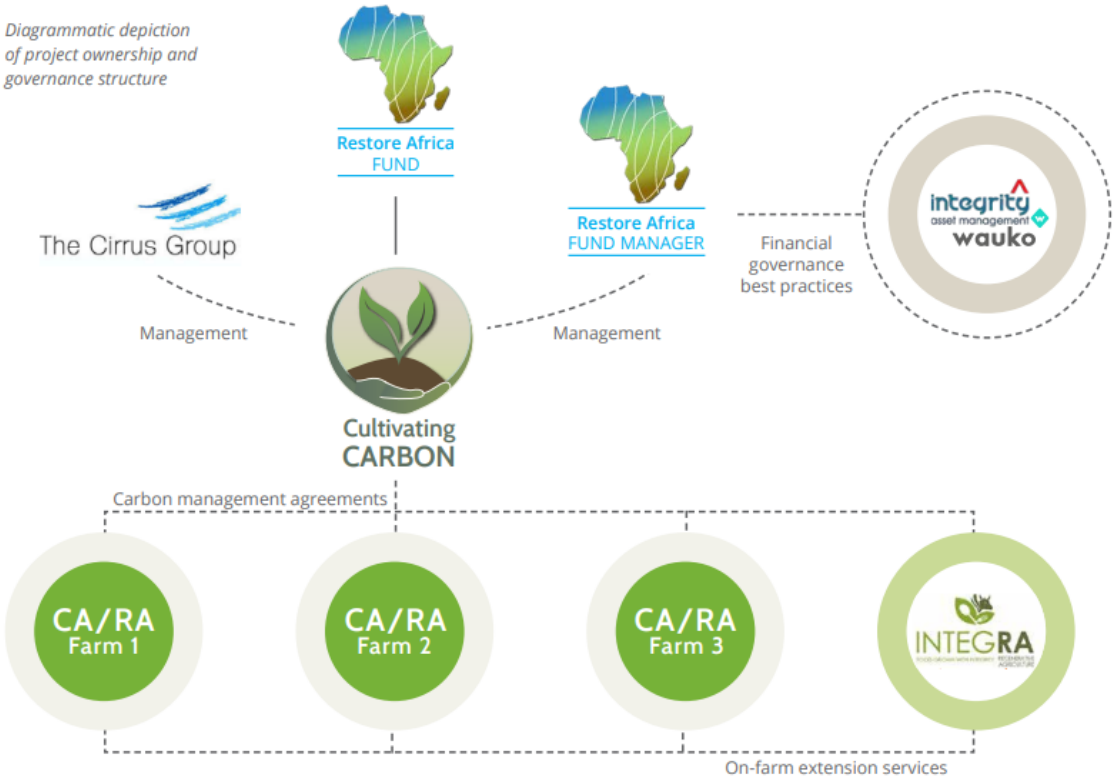
3.13 The project company, Cultivating Carbon Proprietary Limited (Cultivating Carbon), is fully owned by Restore Africa Fund 12J (RAFF 12J) Proprietary Limited. RAFF 12J and its sister fund, Restore Africa Fund Proprietary Limited (RAFF), collectively referred to as Restore Africa Funds (RAFFs), are impact funds which target a broad range of environmental, social and governance outcomes through natural restoration. The objective of the RAFFs is to fund conversion from conventional agriculture to CA/RA. Restore Africa Fund Manager Proprietary Limited (RAFFM) is the appointed manager of the RAFFs. RAFFM is responsible for the day-to-day operational ability of RAFFs.

3.14 Cultivating Carbon is operationally managed by Cirrus Advisory Services Closed Corporation (Cirrus) and RAFFM. A framework of financial governance best practices and measures are implemented and maintained by Integrity Asset Management Proprietary Limited (Integrity) and Wauko Proprietary Limited6 (Wauko), whilst on-farm extension services are provided by Integra Trust Group (Integra). Figure 3.1 outlines Cultivating Carbon's ownership and governance structure.

[13] https://www.cultivatingcarbon.com/

[14] https://www.cultivatingcarbon.com/ca-ra Conservation and regenerative agriculture

Figure 3.1: Ownership and governance structure of Cultivating Carbon



Source: Cultivating Carbon

Overview of services and carbon activities

3.15 Cultivating Carbon supports farm projects through a series of steps in order to securitise carbon and ensure an income:

1. **Feasibility**: Reviewing the viability of the farm to generate carbon credits. The timescale for this to be completed is two to three months.
2. **Engagement**: Engagement activities with Cultivating Carbon and the inclusion of the farm in the Cultivating Carbon Project. This can take between six and nine months.
3. **Project Start**: Cultivating Carbon supports the transition from conventional agriculture to Conservation Agriculture or Regenerative Agriculture (CA/RA).
4. **Monitoring**: Submission of a monitoring report by Cultivating Carbon to Verra's Verified Carbon Standard (VCS)[15] covering the farm's carbon emission reductions. This takes place around 12 months after the project begins.
5. **Verification**: The monitoring report is verified by an independent 3rd party verifier. This takes place around 14 months after project begins.
6. **Issuance**: Following verification, issuance of carbon credits by VCS takes place. These credits are called Verified Carbon Units (VCUs)[16]. This typically occurs 16 months after the project starts.

[15] Cultivating Carbon seeks verification through Verra's Verified Carbon Standard (VCS) which is an internationally recognised standard and is generally preferred by international carbon offset buyers as well as locally (where it is one of only two standards recognised under South Africa's Carbon Tax regulations). Emission reductions due to a decrease in fuel, fertiliser and lime usage as well as the carbon sequestration will be verified on an annual basis based on accurate biophysical modelling and activity-based monitoring, with supporting field measurements once every five years. Remote sensing and further spatial data is provided by GeoTerraImage, which has substantial experience in mapping agricultural systems in South Africa. Similarly, the analysis of soil samples is carried out by an accredited national laboratory in a cost-effective manner. The estimation of changes in GHG emissions due to a decrease in diesel, fertiliser and lime use is based on existing annual financial reporting done at a farm scale.

[16] Under the VCS Programme, projects are issues unique carbon credits known as Verified Carbon Units (VCUs) and each of these represents a reduction of removal of one tonne of carbon dioxide equivalent achievement by a project.

7. **Sale**: Thereafter, 70% of VCU sales accrue to the farmer. This happens around 18 months after the project begins.

Highland Carbon

3.16 Highland Carbon[17] uses expertise to shape and vet carbon offsetting projects undertaken throughout the UK, with expertise in recruiting and supporting Corporate Social Responsibility partners in the UK and US. Highland Carbon forestry and peatland restoration projects aim to bring significant community economic development benefits to the UK's remotest communities. Representing more than 50% of Scotland's land area, the Scottish Highlands has only 9% of its population while year-round employment opportunities are not as readily available as in more urban parts of Scotland. Highland Carbon aims to hire local people to undertake work that supports environmental activity, such as: deer fence installation, tree planting, earth moving, ecological assessments and more.

3.17 Highland Carbon is a private limited company (i.e. for profit) led by Directors and has Board of Advisors comprised of experts based in both the UK and US. It is committed to a low commission rate and offers a low commission guarantee; however, the actual unit fees and splits is not publicly available. Highland Carbon is engaged in a range of projects in the UK and across the world (in more than twenty countries), working on projects of varying size, e.g. from 68 hectares to over 300 hectares.

Overview of services and carbon activities

3.18 Highland Carbon helps company clients to achieve engaging content for Environmental Social Governance (ESG) and Sustainable Development Goal (SDG) reporting. The organisation also supports clients' communications by producing content that can be made available for public relations, investor relations, employee engagement, customer engagement, and digital campaigns. As of 2022, all of Highland Carbon's UK projects have been located in the wilds of Scotland and are within the official frameworks of the Woodland Carbon Code and Peatland Code. Highland Carbon sets out to achieve educational, health and wellbeing outcomes via partnerships with Highland Outdoor & Wilderness Learning (HOWL) and EarthSelf.

3.19 Carbon offsetting projects are intended to develop substantial capital for estates whilst increasing their natural capital value. The funds generated can help estates to develop other opportunities as they see fit such as renewable energy, events businesses, ecotourism and improved farming. Locals can also benefit from both project creation and project maintenance.

3.20 Highland Carbon has a track record of selling quality projects with authentic impacts whilst achieving a strong unit price for landowners. The organisation has significant experience in biodiversity and landscape conservation and supports company buyers with stacked Sustainable Development Goal outputs and communications content.

3.21 Highland Carbon is transparent with each landowner client regarding the retail price at which they sell units and the wholesale price clients will be paid and Highland Carbon offers a carbon value tracker to landowners. If the carbon value increases, Highland Carbon will increase the retail price on clients' behalf. They are committed to a low commission rate and offer a low commission guarantee.

3.22 Highland Carbon can offer a full service from project conception to design, implementation and brokerage service. Alternatively, they can offer a brokerage service alone. They support clients and inhouse teams to scope out the opportunities and to complement other aspirations for the estate, such as renewable energy, farming and eco-tourism.

3.23 In addition to generating substantial proceeds from Woodland Carbon Code and Peatland Code projects, Highland Carbon offers funding and support in relation to discrete rewilding initiatives. These funds can be made available to the estate to support its own team or to subcontract delivery. Highland

[17] https://www.highlandcarbon.com/

Carbon can also arrange for the work to be done themselves if that is preferred. Examples of rewilding support that Highland Carbon offers includes:

- Riverside restoration with tree planting and revegetation.
- Coastal woodland planting; restoring the temperate rain forest.
- Reintroduction of rare tree species, such as aspen and oak.
- Bee conservation activity such as wildflower meadow restoration and beehive installation.
- The construction and installation of nesting platforms for Golden eagles and ospreys.
- The installation of nesting boxes and perches for owls and kestrels.
- The construction and installation of floating nest platforms for northern divers and red throated divers.
- Creation of scrapes and ponds for wildlife.
- Nesting ledges for merlin and peregrine falcons.
- Flailing areas for wading birds to access standing water.
- Bird viewing hides.
- Highland Carbon also welcomes client's own ideas.

3.24 Rewilding activities can uplift the carbon value for landowners. They can also enhance landowners' credentials as an estate committed to wildlife and there are awards available for such commitments.

3.25 Highland Carbon also offers offsetting opportunities overseas with the Verified Carbon Standard, Gold Standard, BioCarbon and United Nations (UNFCCC-CDM) quality marks and offers a bespoke, blended solution that meets each client's price point and output requirements.

Landscape Enterprise Networks (LENs)

3.26 Established by 3Keel and Nestlé, and developed in partnership with a range of organisations such as Diageo, LENs is a system for organising the buying and selling of nature-based solutions, which are land management measures that deliver ecosystem functions, such as water quality management, flood risk management, resilient supply of crops, carbon, or biodiversity outcomes[18]. LENs systematically brings a diversity of private and public sector organisations together around a common interest in funding nature-based solutions within a given geography. It then brokers negotiations, and eventually transactions, between these buyers and groups of landowners who are able to deliver them on the ground. It is a new but proven system, with millions of pounds worth of live transactions set to repeat and grow in advanced trading locations.

3.27 LENs links management and investment in landscapes to the long-term needs of business and society. It does this by helping businesses to work together to influence the quality and performance of the landscapes in which they operate. LENs looks at the landscape from the perspective of what businesses need, i.e. what are the risks and opportunities that landscapes present to individual businesses, and therefore why should they engage.

3.28 Business interests can range from resilient crop production, flood risk, carrying capacity of water catchments, and management of carbon or biodiversity, to health and quality of life for their workforce.

3.29 LENs mobilises these business interests by building a series of place-based chains of transactions known as 'collaborative value chains' which enable groups of businesses to co-procure landscape outcomes from land-based organisations that can make things happen on the ground.

3.30 The rationale for LENs is that it is needed to break through the complexity and abstract theory surrounding sustainable landscapes and ecosystem services and it does this by breaking the system down into practical transactions. LENs is also required to open up the opportunity for sectors beyond

[18] https://landscapeenterprisenetworks.com/

agri-food to engage with and influence landscapes, driving greater scale, and a wider range of functions and outcomes.

3.31 The first LENs was developed in Cumbria, trading from 2017. LENs has grown extensively since then and is now actively trading across the UK and Europe. In the UK, LENs is active across Southwest Scotland, Cumbria, Yorkshire, Derbyshire, East of England, and Bristol Frome, while in Europe LENs is active in Poland, Hungary and Italy.

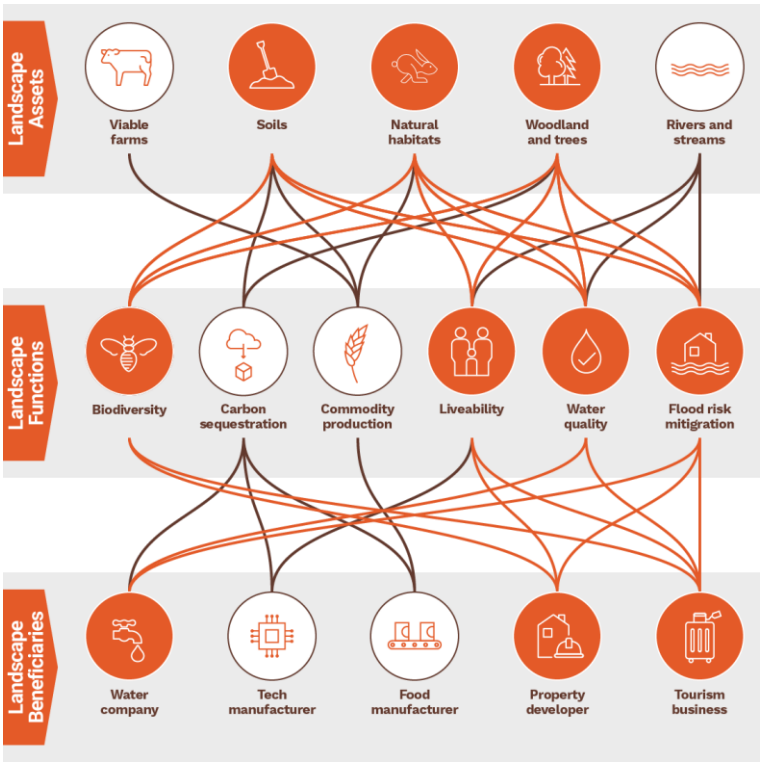
3.32 The LENs system was first developed by 3Keel, a limited liability partnership comprised of sustainability advisors based in Oxford and registered in England and Wales.

Overview of services and carbon activities

3.33 LENs works by establishing and managing a regional trading system of collaborative value chains, each driving specific landscape outcomes for different groupings of businesses. These 'LENs Laboratories' across the UK and Europe are at various stages on the three-step process described below. They include rural, urban and peri-rural (i.e. zones of transition from urban to rural) landscapes and involve interests from a range of sectors, i.e. water utilities, food manufacturers, property developers, and local authorities:

1. **Network Opportunity Analysis**: This stage involves a systematic process for understanding which sectors in a region have most at stake as a result of landscape performance, which landscape assets underpin that performance, and where there are crossovers in interest for different businesses or sectors in the same landscape assets. The objective is not about building up a comprehensive picture or plan, but about using data, intelligence and insight to identify the most promising place to start building a network, e.g. carbon sequestration.

Figure 3.2: LENs Network Opportunity Analysis

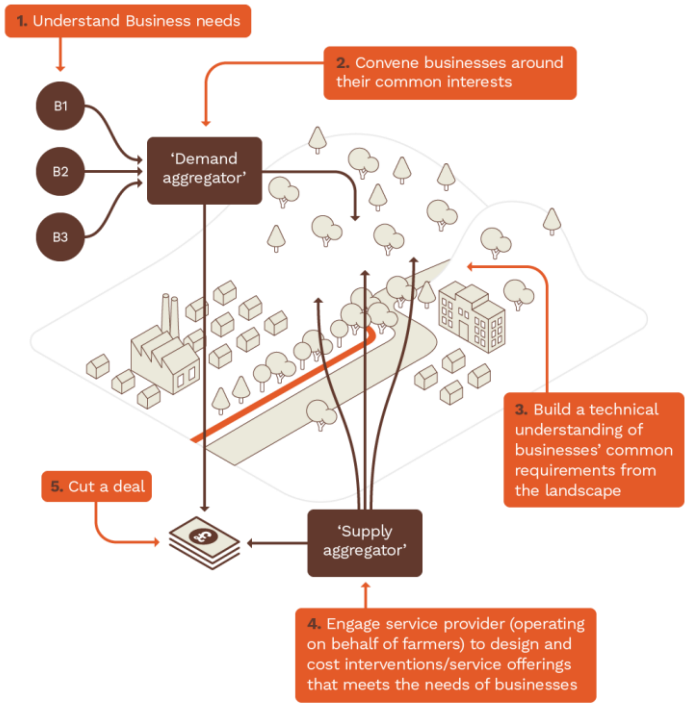


Source: LENs online

2. **The Basic Operating Unit** – a collaborative value chain: This step focuses on building a first 'anchor' value chain. It involves working with the 'demand side' interests to define a common specification for services, the 'supply side' to define a service proposition, and then working

with both to broker a deal. The supply side can work best when coordinated through 'supply aggregators' who help land enterprises to work together as a group and create a joined-up proposition.

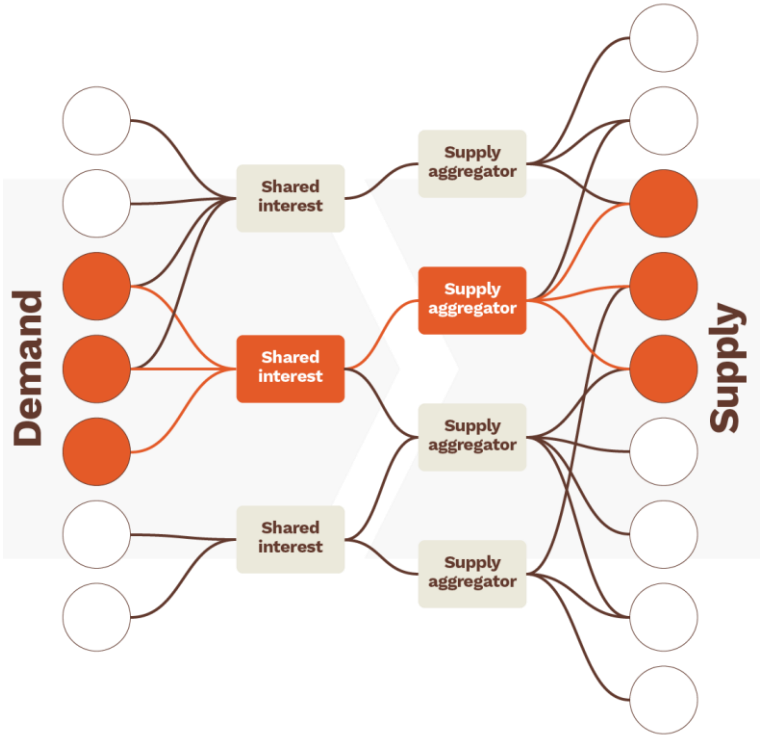
Figure 3.3: LENs Basic Operating Unit



Source: LENs online

3. **Growing and formalising the Regional Network**: Building a functioning first anchor value chain creates momentum and interest and leads naturally to both extending the first value chain – by attracting more customers and suppliers – and building the next. At this point some form of organisational infrastructure and governance is required to manage and broker trades in an equitable, transparent and locally accountable manner, e.g. ensuring landowners, community trusts or private businesses (suppliers) receive a fair and worthwhile cut of any deal made. This is an active area of development for the LENs programme.

Figure 3.4: LENs Regional Network



Source: LENs online

3.34 LENs Laboratories provide a practice format within which to develop and prove the LENs process, as well as ancillary capabilities, i.e. identifying, evidencing, and agreeing landscape interventions such as carbon sequestration, working with trading platforms, formalising monitoring and auditing functions, and developing practically grounded governance models.

Plan Vivo

3.35 Plan Vivo was developed from a desire to support communities and smallholders plant trees and generate carbon credits[19]. The Plan Vivo concept was first implemented in Chiapas, Mexico in 1994 through the Scolel'te project, which was achieved through a collaboration between the University of Edinburgh and El Colegio de la Frontera Sur, as well as other partners. Through supporting landowners to plant trees, the project generated the world's first carbon credits on the Voluntary Carbon Market, with credits sold to organisations such as the World Bank resulting in the world's first Payments for Ecosystem Services (PES) project.

3.36 An Edinburgh-based charitable organisation registered in Scotland, Plan Vivo aims to empower communities to make the best use of their resources in their own way. It engages with a range of organisations and groups through different interventions to ensure community needs and priorities are met. Projects that are delivered by the Plan Vivo Foundation are held to the Plan Vivo Standard, which ensures that benefits are provided to both communities and the environment. The Plan Vivo Standard also provides assurances to buyers of Plan Vivo certifications that emissions reductions are real, additional and verifiable environmental benefits, and that there are wider community benefits realised through projects.

[19] https://www.planvivo.org/

Overview of services and carbon activities

3.37 Plan Vivo supports communities on the forefront of the climate crisis by applying a three-stage 'Plan Vivo' concept to projects[20]:

- Relieving poverty by offering sustainable livelihoods for communities whose environments have been degraded.
- Restoring and protecting environments to help protect communities against climate change and provide a variety of sustainable development benefits.
- Building local capacity through the transfer of knowledge, skills and resources to developing countries.

3.38 Plan Vivo supports projects which capture carbon from the atmosphere. Carbon captured can be claimed as Plan Vivo Certificates which can be sold by projects to help fund operations and engage new participants – a total of 60% of the income from the sale of Plan Vivo Certificates goes directly to participants.

3.39 In order to support projects, Plan Vivo undertake and perform a range of intervention activities, described below:

- Plan Vivo is a certification body that certified carbon capture projects against the Plan Vivo Standard, which is a tried and tested framework based on 25 years' experience, developed for communities and smallholder land-use and forestry projects.
- Plan Vivo supports PES projects to be designed to fit with local circumstances, meaning the Plan Vivo Standard is intended to be flexible and practical to use. It is designed to work in different geographic, socio-economic and legal context, and has been developed through close consultation with users, i.e. projects, purchasers of Certificates and other stakeholders.
- Plan Vivo projects follow a 'whole landscape' approach, meaning they tend to consist of multiple participants and interventions depending on the needs and priorities of the communities involved. Projects can therefore be made up of a single area or many separate project areas, e.g. a range of smallholdings) across a landscape, with expansion possible over time.

3.40 By quantifying ecosystem services, demonstrating good governance and measuring performance every year, certified projects can issue Certificates and each Certificate represents one tonne of CO_2e emission reductions, alongside other non-carbon benefits (climate adaptation, biodiversity protection, water provision) and these can then be sold on the voluntary carbon market to generate funds for project activities.

3.41 Plan Vivo is internationally recognised as the leading Standard for community land-use projects meaning certification under Plan Vivo demonstrates long-term sustainability for projects which benefit people's livelihoods, the climate and environment. Plan Vivo-certified projects can therefore receive the attention they deserve, either through funding, partnerships or international awards.

3.42 As well as facilitating real, additional and verifiable emission reductions through Plan Vivo Certificates, Plan Vivo also provides a governance mechanism which ensures that certified projects meet quality standards across Free Prior and Informed Consent (FPIC) processes, community participation, environmental protection, and involvement of marginalised groups. These are all matters covered by the safeguarding mechanisms within the Plan Vivo Standard and they are checked by regular third-party audits.

[20] https://www.planvivo.org/what-we-do

4 THE IMPLEMENTATION PLAN

INTRODUCTION

The primary research undertaken to consider the facilitation of carbon farming in Argyll & Bute identified that the level of readiness is behind what was anticipated when the work was commissioned. This was underlined in the workshop, which showed considerable distance between amongst stakeholders, landowners and communities in terms of being ready to implement and participate in a carbon market.

Following the facilitation of a new carbon market in Argyll & Bute, all parties must then have the information, networks and mechanisms they need to trade carbon credits locally. This system and associated finance and governance is being developed under WP 7.2.

PRIORITY AREAS

4.1 The Readiness Assessment that has been delivered under WP 7.1 shows that there is substantial work required to develop the local supply needed for an Argyll & Bute carbon market that delivers community wealth building. There is also a great deal of facilitation and input required to encourage and support potential participants to establish a balanced market for carbon amongst local organisations where supply can meet demand, and any gaps can be met in the wider market.

4.2 Based on the Readiness Assessment and the overall ambitions for carbon sequestration in Argyll & Bute, the aim of this Implementation Plan is to provide a route map and set of activities to support and enable the creation of a sustainable carbon market that deliver benefits to local communities, employers and landowners.

4.3 This pilot will segue into the outcome of WP 7.2 which is to assess the requirements for a Highlands and Islands carbon market turn-key funding platform and identify the operational and governance requirements of a Special Purpose Vehicle that could source and fund turn-key activities, such as research and development to catalyse the carbon market in Argyll & Bute.

4.4 The Implementation Plan has the following objectives:

Local landowners:

- Are able to make an informed decision to plan and implement carbon sequestration and trade local
- Can form a carbon consortium (with appropriate governance) to aggregate the supply of carbon credits into the market to ensure it is of the required scale, is secure, and is cost effective;

Local organisations/businesses:

- Are committed to transitioning to net zero
- Understand that there is a sustainable local supply of carbon credits and the benefits of participating in the local market
- Are confident that there is an adequate and secure local supply;

Communities:

- Recognise and understand the benefits of a local carbon market;
- Are bought in to and are actively involved in the carbon market;
- Maximise Community Wealth Building potential.

Overarching all of this, the focus should be on understanding and maximising the social and economic benefits for the area, landowners, businesses and communities. In addition, the learning should be captured to repeat and apply the process in other parts of the Highlands and Islands.

4.5 Table 4.1 sets out the Implementation Plan with tasks/actions, and initial considerations of the roles and responsibilities of stakeholders. Some tasks and collateral will contribute to more than one objective. The work that will be undertaken will result in a range of tools and activities that can form an information and awareness raising package that could be used in other parts of the H&I and potentially, more widely.

4.6 The timeframe for this plan is 24 months. In the Table, Short is 6-9 months; Medium is 10-18 months; and Long is 19-24 months.

4.7 There will be a need for a series of parallel work packages within the facilitation project, namely with landowners (suppliers), businesses and organisations (purchasers); and communities (stakeholders and beneficiaries). HIE is best placed to undertake the facilitation function but may not be the on-the ground lead for all pf the facilitation, rather it will take a planning, supporting and enabling role where other organisations may provide day to day facilitation, with HIE as the overarching enabler.

Table 4.1: Carbon Farming Implementation Plan

Rationale	Proposed actions	Outputs	Priority and timeframe	Stakeholders	Resourcing
Priority 1: Developing the readiness and buy in of landowner, organisations/businesses, and the community					
The Readiness Assessment identified that readiness across the three stakeholder groups, landowners, purchasers and communities, is significantly less developed than anticipated at the outset. There is a need for a series of parallel work packages within the facilitation project, namely with landowners (suppliers), businesses and organisations (purchasers); and communities (stakeholders and beneficiaries). In the early stages, it would not be effective to have a single mixed group.					
Priority 1a: Developing the readiness of landowners					
Landowners have demonstrated uncertainty and a lack of evidence-based knowledge about how a carbon market in Argyll & Bute would operate, the costs and potential benefits, use of land and assets,	Establish a facilitated group of landowners as potential suppliers of carbon sequestration/carbon credits, noting that no such group exists currently. Undertake detailed research and consultation to develop a granular understanding of the tangible and intangible barriers. Develop a workplan with objectives, tasks and a set of outputs, outcomes and decisions. Incorporated into this will be a set of criteria that will be used to trigger the readiness of landowners to progress to the next stage of planning the supply of carbon credits in Argyll & Bute.	A group of landowners committed to piloting local carbon supply. A clear set of objectives for the supply-side of a pilot Carbon Market in Argyll & Bute. A monitoring framework to track and drive progress.	High priority Short term and ongoing to the point of readiness.	HIE as lead in ensuring there is facilitation. Membership of the group developed – drawing and building on contacts and participation in carbon sequestration in Argyll & Bute to date.	Admin and facilitation support. Travel and other expenses for members may be required.

Rationale	Proposed actions	Outputs	Priority and timeframe	Stakeholders	Resourcing
Priority 1b: Develop the readiness of organisations/businesses					
Businesses and organisations in Argyll & Bute require support to understand the process of participating in carbon trading, specifically in a local carbon market. They must be confident that there is a sustainable and adequate local supply of carbon credits.	Establish a facilitated group of businesses/organisations. Develop a workplan with objectives, tasks and a set of key decisions and agreements. Understand: • the common needs of the businesses and organisations • any current or planned carbon trading activity • the likely level of demand in the short. medium and long term. As with landowners, there should be a set of criteria that is used to assess progress and indicate when the local demand side of the carbon market is ready to progress to planning and implementation	There is a demonstrated .and measurable carbon demand in Argyll & Bute Organisations/businesses are positioned to trade in the carbon market with a priority on purchasing from local suppliers.	High priority Short term and ongoing to the point of readiness.	HIE as lead in ensuring there is facilitation. Membership of the group developed – drawing and building on contacts and participation in carbon sequestration in Argyll & Bute to date.	Admin and facilitation support. Travel and other expenses for members may be required.

Rationale	Proposed actions	Outputs	Priority and timeframe	Stakeholders	Resourcing
Priority 1c : Building social licence					
A local carbon market in Argyll & Bute will require social licence from affected communities. It is also essential that there is real, and measurable benefits for communities aligned with and maximising Community Wealth Building, Evidence indicated that communities and community organisations do not yet have a clear understanding of carbon trading, local opportunities and operationalising it to maximise and retain the value in Argyll & Bute.	Establish a facilitated group of community representation, spanning community organisations and representatives from place-based communities with shared interests. Explore the potential capacity and capability of communities and community based organisations to be: • Suppliers of land for carbon sequestration (where they are or could be landowners) • Buyers of carbon credits (e.g. through community benefit funds). Where income may be generated for communities, consider and agree the mechanisms for use and disbursement of funds in order to benefit local communities.	Communities understand and are supportive of carbon farming and trading in Argyll & Bute. Communities have a set of bespoke objectives that will shape the nature of participation in the carbon market.	High priority Short term and ongoing to the point of readiness.	HIE as lead in ensuring there is facilitation. May be a local development organisation such as ACT. Membership of the group developed – drawing and building on contacts and participation in carbon sequestration in Argyll & Bute to date.	Admin and facilitation support. Travel and other expenses for members may be required.

Rationale	Proposed actions	Outputs	Priority and timeframe	Stakeholders	Resourcing
Priority 2: Local landowners, communities and organisations have an evidence-based understanding of the social, economic and net zero opportunities and benefits of a local carbon market					
Currently, there is a lack of awareness about the depth, breadth and scale of opportunities and benefits for communities. There is also limited understanding for the role that communities could take in the carbon market.	Plan and prepare an Argyll & Bute Carbon market Prospectus. It will provide accessible, easy to digest information about the: • Opportunities in Argyll & Bute – by stakeholder group • Economic, social and environmental benefits (attach a value to these) • Case study examples of local carbon markets • Contribution to Community Wealth Building Agree consistent terminology to be used in all facilitation activity and provide a glossary of terms. Present the opportunities and benefits within the framework of wider benefits such as: achievement of next zero; biodiversity; flood alleviation. Incorporate barrier acknowledgement and removal. Develop a calendar of information events which could incorporate events being delivered by external organisations as relevant. Consider study visits to relevant projects, activities and events. Potentially combined with landowners and businesses/organisations. Develop case study examples to demonstrate achievability and benefits of a local carbon market.	An agreed assessment of common interests and the benefits for all stakeholders. Local landowners are confident to enter the carbon market and understand the financial implications in terms of costs, income, profit and opportunity costs. Businesses/organisations commit to buying carbon credits locally. Case Studies for wider dissemination.	High priority to help inform groups established under Priority 1. Short	HIE as lead to develop/fund.	Staff time/fees

Rationale	Proposed actions	Outputs	Priority and timeframe	Stakeholders	Resourcing
Priority 3: Local landowners have the tools and support they need to plan and implement carbon sequestration and trade locally. Barriers will be recognised and removed. Linked to the outcomes of WP 7.2.					
Once landowners have undertaken the tasks under Priority 1a, they will need to be supported to plan and implement their engagement in the Argyll & Bute carbon market. They will require support to plan how they will co-operate/collaborate to provide a sustainable supply of carbon into the market, understand pricing, regulation, verification, validation, trading, and accessing the necessary investment.	Form a landowner carbon consortium with a staged workplan to progress the pilot through to implementation.	A 'group' of landowners with an agreed governance structure and a Carbon supply offer. Link to WP7.2.	Medium term	Identified under WP7.2	Identified under WP7.2