WP T3 Activity 3: Value Chain Assessment for each pilot site

Value Chain Analysis in the Region of the UK Pilot Sites

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Content

1. Introduction and method

Within the CConnects project, value chain analyses have to be carried out for all of the pilot sites by Philipps-University Marburg (UMR). Value chain analysis is based on the theories of global value chains (e.g. *Gereffi* et al. 2005) and global production networks (e.g. *Coe* and *Yeung* 2015; *Coe* et al. 2008; *Henderson* et al. 2002) and explores the different stages of production, processing and distribution of materials and products. It thereby allows an understanding of where, how and by whom value is created, enhanced and captured and takes into consideration power relations between different actors and the embeddedness of production systems in broader political and societal contexts (*Henderson* et al. 2002; *Gereffi* et al. 2005).

During a partner meeting in November 2019 a flexible approach to data collection was agreed with partners, so that those who wished to could conduct interviews themselves to cater for the language needs of interviewees and maintain relationships with local stakeholders. To facilitate this process and ensure a coherent data collection approach within the project, UMR designed sample interview guidelines alongside a brief on how to conduct interviews for qualitative data collection, which was shared with partners in May 2020. For the UK data collection, it was decided that interviews would be undertaken by UMR, while the interview guideline was adjusted by the Wear Rivers Trust (WRT), the North Pennines AONB and UMR collaboratively to make it more applicable to the conditions of the stakeholders selected for interviews. The interview guideline is included in Annex I.

The UK case study was carried out in June and July 2021 with ten farmers of upland livestock farms in the UK and one nursery supplying peatland plants. The farms and nursery were located in the upper Wear catchment, Weardale County Durham, Leicestershire County and were purposefully selected by the Wear Rivers Trust as representative hill farmers, willing to share their views, and to have indicated willingness to receive further information from Carbon Connects as “2nd tier” farmers and to engage in further discussion. The interviews were conducted by a senior researcher from UMR on the phone and took between 28 and 76 minutes. Interviews were recorded, processed and coded by UMR and data was assessed by applying content analysis and interpretation techniques.

2. Business characteristics

2.1 Business sizes, labour and overall activities

The sizes of studied farms ranged between 85 (F6) and 780 hectares (ha) (F10) (Table 1) and only three farms (F1, F2, F6) were smaller than the 144 average characterising farms in the North East of England in 2019 (*Defra* 2021). All of the studied farms were family farms with the majority of farmers having taken over farms from previous generations, but also the combination of two family farms through marriage or buying up other family members' shares occurred. The interviewed farmers predominantly owned most of the land they farmed outright. Three farms were only working on their own land, four farms were renting between 7 and 20 % of the land they farmed, while for three farms 50 to 92 % of the land they farmed was rented. One farmer renting 70% of the farmed land described having to work on yearly licenses from various people as lacking security and explained they were trying to find another farm to buy and back up the tenanted land. Furthermore, four farms held shares of commonage grazing rights.

Labour on the interviewed farms was commonly organised with family members, such as spouses farming in partnership with each other, with their children or in-laws. Two farms reported to employ one to 1.5 permanent additional staff. The number of people working permanently on farms ranged between 1.5 and 5. However, these numbers need to be considered carefully, as sometimes family members only worked on the farms part-time or the farmer and/or their spouses had other jobs or businesses off farm or undertook contract work.

All farmers were farming sheep and all but three farmers were additionally farming cattle. Herd sizes of sheep ranged between 130 and 1700 ewes. Most farmers kept Swaledale sheep, which were both bred pure and crossed with Bluefaced Leicesters to produce the North of England Mule. Some farmers kept also small flocks of other breeds that they either bred pure such as Herdwicks, Bluefaced Leicester and Texel, or crossed with other breeds such as Cheviot and Texel. Herd sizes for cattle ranged between 30 and 300 animals, however, five of the seven cattle keeping farms had herd sizes below 70 and only two over 100 heads (F3, F10). Breeds included pure bred Dairy Shorthorn, Belted Galloway, Durham Shorthorn, Beef Shorthorn, Blue Grey and Wagyu, and beef crosses of Limousin, Simmental, Charolais, and Hereford. One farm also had a herd of around 70 outdoor pigs (Gloucester Old Spot and Berkshire), that were grazing in woodland (F10).

All sheep were outwintered, with some farmers bringing in a proportion of the ewes from January onwards, prior to lambing, while cattle was mostly housed in winter. Most of the interviewed farmers sold their livestock through local auction marts, but farmers also sold through agents, private sales, meat boxes, directly to pubs, or were operating as

contract finishing businesses. Sheep were sold mainly as store lamb or as finished lamb, and a lower proportion was being sold for breeding. Cattle was mainly sold as store calves at 8-18 months or as finished stock, and one farmer was also selling pedigree breeding stock. In the last couple of years, the demand for new season lambs increased, which was surprising to some farmers because people were expecting a decline in sales after Brexit. One farmer also reported that the sale for breeding stock in sheep had also improved from former years, when the sales had not covered the cost of rearing, so that farmers were making losses.

Table 1: Overview of interviewed farms

Farm	**Farm size, acre**	**Farm size, ha**	**Peatland size, acre**	**Peat-land size, ha**	**Farm Activities**	**Peatland Activities**
F1	250	101.2	43.5	17.6	Sheep	Sheep grazing
F2	224.9	91	~3	~1.2	Cattle, sheep	Livestock grazing
F3	1000	404.7	3 + common	1.2	Cattle, sheep	Silage making, sheep grazing on common
F4	593.1	240	111.2	45	Cattle, sheep	Sheep grazing
F5	500 + common	202.3 + common	30 + common	12.1 + common	Cattle, sheep	Livestock grazing
F6	210	85	46.5	18.8	Sheep	Sheep grazing
F7	1100 + 500 common	445.2+ 202 common	300-400	121-162	Sheep, trees	Sheep grazing
F8	1900 + 400 common	768.9 +161.8 common	1100 + 400 common	445.2 +161.8 common	Cattle, sheep	Livestock grazing
F9	950	384.5	750	303.5	Cattle, sheep	Sheep grazing
F10	1927.4	780	1445.6	585	Cattle, sheep, pigs	Sheep grazing

All farms produced their own silage, hay or haylage from their farms, with most of them reporting to be mostly self-sufficient and some only needing supplementary fodder purchases in longer winters. One farm was buying two thirds of their fodder. As none of the interviewed farmers was managing any arable land, concentrate feeds, especially for

ewes, were commonly bought. Most farms included some area of woodland, yet only two farms were using them commercially. One farmer was selling trees from a commercial conifer plantation of 420 acres for logs or as biomass, which was described as a worthwhile activity as current wood prices are high, the second farmer used their woodlands of mainly broadleaf species (hazel, rowan, oak, silver birch) for grazing pigs and coppicing to use as biomass or heating. The reasons for woodlands to be not used commercially ranged from them having been established in places that are too difficult to access, too small amounts, they were used as shelterbelts especially along rivers or because they were planted under environmental schemes and could thus not be taken out. These small woodlands were a mix of deciduous and coniferous trees including larch, fir, Sitka spruce, scots pine, birch, alder, willow and rowan.

The nursery was employing 30 people. The business was started about 20 years ago and today the whole business is supplying peatland plants mostly to the UK but also to the EU. They started with the micro propagation of Sphagnum 15 years ago and it has taken a long time to develop the technique. The business is unique in being able to produce Sphagnum in this way. It allows to have a small amount of starting material, which can be send in by post and produces hundreds of Sphagnum plants. In this, it is a very sustainable way of producing Sphagnum. Since peatlands are in the news a lot recently, this has meant that the business is ever increasing, doubling the greenhouse capacity this year. The business did not receive grants for production but was involved in research and development work for which they could apply for grants and they also collaborated with universities. Most of the work so far has been for restoration of upland areas, so that customers included public bodies, NGOs, the Wildlife Trust, Moors for the Future, with a number of funding streams feeding into those bodies from water companies or Defra.

2.2 Subsidies, Schemes and Public Support

All farmers were receiving money under the Basic Payment Scheme (BPS) and the countryside stewardship scheme. Farmers were taking different actions under the environmental scheme such as keeping the ground in good condition, maintaining and repairing drystone walls, reducing fertiliser application on meadows, enhancing meadows for wildlife, cutting certain fields for hay and spreading grass seeds to self-propagate grasses; keeping and grazing a traditional breed of cattle, abstaining from thistle spraying, feeding in designated places, mixing grazing of cattle and sheep, tree or scrub planting, creating scrapes for birds, seed transfer from other farms in the region, restricting grazing and stocking numbers, managing hedgerows and rushes, and building multi-species swards.

Farmers were split in their opinions on how fair the current payment regimes were. Whiles some thought it a fair system and had no reasons to complain about it, others

thought that payments were biased to benefit larger estates, that it was not appropriate to the taxpayer to reward annual grants on the basis of land area or that not enough thought went into designing or administering payments, especially in shared grazing situations. Many farmers stressed their dependence on farm payments, without which some farmers claimed their businesses were unprofitable and stated that the loss of BPS payments would have a big impact on upland farms. At the same time, many farmers acknowledged that the payment system would be changing and welcomed ideas for strengthening the environmental focus of farm support as it often resonated with farmers' ideas of developing their own farms and it was stated that the uplands were already well placed for environmental services in terms of flood prevention or biodiversity.

However, some farmers were sceptical about details of this, ranging from concerns over the complexity of certain issues such as soil health, and a lack in confidence in the government. Some farmers were of the impression that the government was not yet clear on what payments would look like and stressed the current uncertainty related to the issue.

> **"Nobody seems to know who it's going to go in the future. It's a bit difficult to know how they are going to encourage you or what they are going to encourage you to" (F1)**

At the same time, some farmers also worried that a change towards more environmentally focused payment systems could mean that farmers would live from providing environmental services rather than producing food and that people might leave upland farms as a result, which could mean a decline of traditional knowledge. Some farmers acknowledged that besides payments, mindset changes were important for influencing the management of upland areas.

> **"I think, unfortunately all farmers, we're going to get our heads round – and I think this is the worry that some won't – we're going to almost not be paid for being farmers anymore and farming livestock and producing something, we're actually going to be paid producing more the environmental side of it and almost the livestock, which a lot of farmers are going to struggle with, are going to become secondary and the environment will become the primary income" (F9)**

Half of the interviewed farmers were assured under the Red Tractor scheme. One farmer stated they were not assured as they did not have sufficient space to be able to comply with the rules, while two other farmers, who had dropped out of the scheme, named the costs related to accreditation as too high in relation to the bonus it was bringing them when selling their animals. It was stated that for store lambs it would not make a difference in the price that they received and for their breeding cattle reputation was

more important than the Red Tractor sign. Farmers who were members of the scheme stated that the scheme overall worked for them, that it was demanded by abattoirs and that the costs for it was usually paying itself off in the benefits. At the same time, it was stated that the accreditation was not necessary if the demand was good on auction day and that it did not make much of a difference to livestock sold as stores, while it was a requirement when selling for meat. Farmers who were members acknowledged that the accreditation was somewhat of a contentious subject amongst farmers with people leaving the scheme and a degree of frustration amongst those staying with regard to new rules and regulations claimed to lack common sense, and the effort of going through the inspection process. Yet, this was also viewed as a chance to keep on top of admin and regulations.

In terms of the support that farmers feel from the media, politics and the general public, opinions were mixed. Some farmers thought that the public could do with a better explanation from the media, which were partially viewed as opposing farming and country pursuits such as shooting. Contrasting, other farmers stated they thought there were a lot of good things happening in media for farming with occasional bad things, so that overall media coverage was balanced. Equally, farmers thought that some people were understanding of farmers, while others were not, with some farmers stating they had felt under constant attack for red meat causing climate change and were frustrated to get lumped in with meat production elsewhere such as Brazil. The nursery stated they were not so much supported in terms of publicity and related this as well to the fact that peatlands were not visible enough to people, but that they worked closely with Defra to develop their peatland strategy and looking at Sphagnum for growing media for horticultural use as well.

The COVID-19 pandemic has changed the awareness of the public for farms and their value, which financially has done farms good, because the public realised the shortfalls of importing food and demanded more locally produced food. One farmer particularly stressed how beneficial it has been for them to communicate with consumers directly on how they farm, and how starting a website and social media work has increased their selling point for people. Other farmers have stated that while the pandemic has led to people having more respect, there was still room for improvement. This coincides with one farmer's opinion that while to a certain extent, British agriculture had the public backing, this did not necessarily translate to higher spending with food being bought based on price. At the same time, the support from policy was expected to decrease over the coming years. While the current market for livestock being quite strong could mask a lot of the change that is coming, livestock markets are volatile, so there is no guarantee that these will remain strong. Some farmers were expecting changes in policies, bringing new land use conflicts between climate change mitigation and agricultural production.

3. Peatland use

3.1 Peatland status and activities

All farmers of this study were managing peatlands as part of their businesses, yet the size of land varied significantly (Table 1). Sizes ranged between only a few hectares to over 600 hectares including the use of common land. Status of peatlands varied from the descriptions of farmers, with most reporting that peatlands were not drained or that existing drains had filled up and were no longer active. One farmer stated that there were some active drains on the peatland they managed. Farmers generally described the peatlands as being wet, but that the water table varied with the seasons and that in winter the ground was often too wet or soft to get machinery on it or walk on it, yet this might also be the case after heavy rain in summer. One farmer described the peatland as dry with only a few wet patches. In terms of ground cover, most farmers stated that the peatlands were covered by vegetation such as mosses; tough, marshy grasses; rushes; water grass; heather; fescue or cotton grass. One farmer explained that self-propagated alder trees were growing on the peatland. Two farmers described bare areas as having been exposed by a cloudburst or as bare ravines with only a small amount of vegetative cover at the base.

All farmers grazed livestock on the peatland they managed, although it was stated that stocking densities were often reduced compared to other ground due to the grazing quality of tough grasses being low. Most farmers stated that they were not undertaking any management activities on the peatlands. However, two farmers had cut rushes or bracken to stop encroachment, one farmer was producing silage from peat soils, and one farmer explained they were managing the heather with a burning program. Three farmers reported grouse shooting was happening on the peatlands they used, with the sheep flock being used as a tick mob to keep numbers low for grouse. One farmer explained that he had been a contractor undertaking peatland rewetting in the area for a number of years with a machine he designed and patented for the process, yet this activity had ceased after frictions with the carriers of peatland restoration projects and other contractors. The main challenges related to the peatland management related to the poor grazing value and stocking limitations, the accessibility of the land due to the wet ground and keeping enough water off to be able to use it.

3.2 Peatland economics

All of the interviewed farmers grazed their peatland with sheep, and some additionally with cattle and often this was considered the only activity that was possible for peatlands. On rented or shared land room for action or changes is limited, so that land ownership can be considered central to enabling rewetting and restoration on the ground.

"You got to manage it somehow and what else can you do with it? It's only fit for sheep." (F7)

The products that farmers were producing from peatlands did therefore not differ from the output from other parts of their enterprises. Due to the lower forage quality and thus limited stocking densities, livestock grazing on the peatlands was often not considered profitable, while costs of improving it, e.g. through draining would not be economical. While one farmer stated that they would not want to be without the peatland for summer grazing as it sustained the hardy sheep even if it was not the best grazing, and another that it was profitable to manage it like they did, even though in some years they could not access the land when it is too wet, others stated that the peatland was at least breaking even or that the BPS or environmental schemes were helping (e.g. reduced stocking numbers) to support costs such as rent for the land.

The majority of produce from the nursery was used for bigger projects and only occasionally smaller farmers and they prefer to link up with larger organisations with the required expertise for peatland restoration. Constraints encountered related to the timeframes involved, regulations and administration around big projects, with the biggest constraint being the weather. Since the window for planting for restoration stretches from September to March, before work stops because of nesting birds, planting depends on how bad the winter is. The process of Sphagnum propagation is very complex and different to other plant propagation techniques. It took the nursery a lot of research and time to develop, which was viewed as the main reason why not many growers are doing it, although it is a profitable business. The nursery business was expanding their facilities because they noticed that the demand for peatland restoration was increasing.

Opinions on the future management of peatlands were divided, yet farmers were mostly open for changes to their management systems. Some farmers were more pragmatic in acknowledging that even though peatlands had been grazed for hundreds of years, their future management would depend on whether grazing would be profitable under new funding rules and that this could mean that a lot of farms in the area would not be grazed and destocked. Others were more critical of the notion of reducing stocking numbers further and were worried about consequences for the landscape or expected land use conflicts between grazing and peatland restoration.

"What else can you do? If you don't graze it, it will just end up overgrown, eventually somebody will drop a match on it by accident, it will all go up in smoke and is all blown away." (F7)

Amongst those farmers open to management changes there was agreement that the current schemes were not providing enough incentive to take livestock off the land

completely, yet they welcomed the notion of more options in future public schemes or private sector developments such as carbon trading or offsetting.

> **"Someone once said: why don't we put a [...] fence around it if someone will give us a good payment for it and we'll leave it? But at the time being there is no incentive to do anything like that" (F3)**

This impression was shared by the nursery, which while not yet seeing a difference, acknowledged that new schemes had potential and would be very interesting for both restoration and growing media purposes. They felt that the political side was the most important support for the sector in terms of strategic policies, funding schemes supporting restoration and farming. Access to knowledge or advice on funding for rewetted, destocked peatlands was seen as a challenge in this regard and farmers described that exchange on peatland subjects was generally low.

4 Knowledge, exchange and public support for peatland management

The interviewed farmers were largely aware of the ecological value of peatlands, yet not all farmers could name specific ecological benefits that they provided. Water-related benefits such as slowing down of water flows or run-off and gradual release of rainwater, water purification and water storage were mentioned more often than the carbon storage potential, which was mentioned by three farmers only. The provision of ground cover for animals, especially birds, was viewed as another benefit and some farmers reported to see a variety of birds (e.g. redshank, curlew, black grouse, lapwing, plover, red grouse, kestrels, meadow pipit, snipe) and other animals such as amphibia, mice or insects on their peatlands.

The high rate of emissions from drained peatlands was only discussed by one farmer, while another farmer brought up wind erosion as a problem occurring on bare peatland, and another acknowledged the high organic matter content of peat. The anecdotal manner in which this knowledge was presented, shows some gaps in understanding of the ecological functioning of peatlands and the consequences when they are disturbed. Being specifically asked what they understand of the terms peatland "rewetting" and "restoration", farmers were mostly clear that rewetting involved the blocking of drains and grips, even though not everyone had seen it done on the ground, yet there was less understanding of what restoration entailed. Some suspected it involved halting livestock grazing or knew of vegetation spreading that had happened on moors to cover bare peat. At the same time, farmers were wondering about the consequences of rewetting for eroding peat, as they had seen this happen after high rainfall events on bare peat sites.

In connection with this, farmers also commented on how the policies for the uplands had changed through the years, from times when the moors were drained to promote

livestock numbers, while nowadays governmental organisations such as Natural England did not want high amounts of sheep on moors, but that drains were blocked to increase water storage. Concerns from farmers with regard to rewetting was that water storage capacity of peatlands also had their limits and that a plant that thrived in rewetted areas, Bog Asphodel, which was viewed as a threat to livestock as it is poisonous to sheep, could increase. The reduction of sheep numbers on the moors was another point of criticism as not all farmers agreed with the changing appearance of a landscape that had historically been grazed with more sheep.

In terms of exchange on peatlands with other farmers, most farmers stated that it was not a topic that was discussed often, but some noticed that rewetting was happening on the moors that surrounded them, yet they were not sure how much was driven by farmers and how much by Natural England.

5 Barriers and enablers of rewetting

There are different barriers but also enabling factors to peatland rewetting which could be identified from farmers' interviews. One of the main levers is the introduction of payments for rewetting and destocking peatlands. While farmers were not unanimous in viewing the reduction of livestock in the uplands as a desirable way forward, they agreed that an annual compensation would be necessary if farmers were to take land out of production for rewetting and restoration purposes. This is especially important since livestock farming was viewed as the main possibility for generating an income on upland farms.

> **"Paying them to rewet it and reduce the stock would compensate for the loss of income from the numbers" (F2)**

> **"Payment, I would think would be the main one. If you got to destock them, one would need to be compensated for the destocking. I can't see any other way." (F4)**

If a payment was provided, the actual blocking of drains and the rewetting of peatland areas were viewed as easy to achieve. However, excluding animals from certain areas of the farm might require farmers to put up additional fences and thus involve costs. With the BPS scheme being phased out after the UK leaving the EU and new schemes being developed, farmers thought that a greater focus on environmental services in future payments could benefit hill farmers agreeing to rewet peatland areas. Yet, it was stressed that it was important that payments were substantial enough to offer an alternative to livestock farming and produce comparable revenue to be considered.

"So, unless it is financially viable for them to do so to the point where it's far more attractive than farming hill sheep on these areas, they are not likely to do it." (F8)

At the same time, farmers were wondering about the long-term continuity and security as to whether and when payments might cease and what would be done to maintain a financial balance for farms. This point was also stressed by the nursery, which articulated that one risk related to policy was if it changed.

"I think everyone needs a long-term commitment on policy. For a farmer or any landowner, who says they want to do some restoration, they need to know that that policy is going to continue for maybe 20 years and not change with the next change in government." (N1)

Farmers were still unsure about other payment concepts such as carbon stocks or carbon credits. While it is more discussed and mentioned than before, information and knowledge on it seemed to be sparse. Farmers stated to be unsure how these schemes would work, that they worried about carbon offsets becoming a commodity with the potential of middlemen making a lot of money from them and that they felt this would not offer an incentive to protect peatland that was already in a good state.

Another barrier that could be identified from the interviews relates to mindsets. Farmers were split in their opinions on how far rewetting and related destocking should go. While there seemed to be a general notion on preventing overgrazing, some farmers stressed that peatlands would turn into 'a mess' if they were not grazed and that they thought peatlands should not be wet all the time. This seemed to be rooted in a deep understanding of upland peatlands as parts of a managed landscape, which has traditionally been grazed. Additionally, farmers had difficulties in imagining alternatives to grazing on peatlands, disagreed with the rate of destocking that has already occurred or with leaving peatland areas become 'wild'.

"I can't imagine what that would look like if it didn't have sheep on" (F1)

"It would be a wilderness, which will be a shame because a wilderness is a mess. The farmed environment is a lot tidier. You get a varied landscape, if it is a wilderness, you don't." (F4)

This is also related to previous payment schemes focusing on high productivity and new tendencies of extensive management meaning a shift in management goals, which can feel quite sudden. Yet, many of the interviewed farmers stated they realised the focus was changing towards the environmental services delivered by farming and seemed open for change.

> **"We've all been used to once it was the more you produce the better the payments were and we are all getting used to this idea now where its more about the environment, not about the stock" (F1)**

Yet, it was also mentioned, that particularly in the light of advanced farmer's age, changes in mindsets could also be a generational issue and could take time.

> **"In agriculture it is very, very easy to continue doing what previous generations have done. And I imagine it will often take more than one generation to make a change" (F8)**

At the same time, the rewetting and destocking debate touches on the understanding of farmers' own roles and identities, with the primary goal being food production and feeding people. In the past, peatland drainage was undertaken to increase productivity. Farmers stated that some farmers would still like to increase sheep numbers to increase productivity, but also that this could change if payments were adapted.

> **"Some people would want to run twice as many sheep up there [...] but then if there was enhancements on the payment, then that changes everything, if you were being paid to keep less" (F1)**

Shooting was mentioned as preventing rewetting by one farmer as managing the land for grouse would not work with rewetting. At the same time, one farmer reported that the landowner of some commonly grazed peatland was a wealthy, foreign owner, who wanted the land only maintained for shooting and would thus not be interested in – or in need of – public money for rewetting the land. People from outside farming pushing the prices of farms up was considered a further issue in this regard. While all farmers of the case study owned at least parts of their lands and most farms of the area are owner-occupied, short-term farm tenancies were mentioned as hindering to peatland rewetting as farmers would want to get out as much as possible from the farms in the time they had.

Related to the political processes and aims for peatlands, interviewees were observant of the current changes in public perception of farming and future payment development. Some thought that due to programs on TV and during the pandemic, farmers had become more respected and people had better understanding of farming and the countryside, and therefore welcomed explaining the approach of "public money for public goods" to the public. However, farmers also expressed some degree of doubt on how well the transition to new payment regimes would be handled by the government.

Farmers were especially hoping that government were not going to "do environmental things on the cheap" (F9) and that there would be payments for the carbon storage they were expecting to be part of new payment regulations, while some farmers also hoped that there wouldn't be too many changes to peatlands involved with the schemes. While

some farmers were waiting at what the government would be offering, some expressed discontent about how farmers were not enough involved in the design of the new schemes, that NGOs should consider local knowledge of the lands besides theoretical concepts when designing payments, and that they feared a possible top-down approach could cause tensions between institutions and farmers in the future.

> **"If there's a financial incentive to it and you explain to them why, then they will probably quite receptive. But if you just have this top-down legislation under them and basically push it onto them, then it creates a bit of friction and distance and this isn't the way if you want to take farmers along with you" (F9)**

Thinking about the practicalities of peatland rewetting, some farmers were confident that the actual process wouldn't be very difficult on their land, as often the drains were filling themselves up naturally. However, many farmers stated that simply making money available for rewetting would not be enough, that they needed access to information on rewetting techniques and the manpower to carry it out, that they would welcome more showcasing of examples, especially if combined with livestock management and that currently there was not enough known about peatland rewetting and restoration amongst farmers. Asked about where they would look for information on peatland rewetting, farmers gave a range of answers. Half of the interviewed farmers stated they had no idea where they would go for advice on the topic, speculating that they would be informed on a new scheme by their land agent or as part of a project they were in.

> **"At the moment you don't seem to be able to go anywhere. We don't know what is going to happen with the environmental payment we have because you can't find out. […] So, to find out anything about peatland, which could be years down the line, there'll be no hope." (F4)**

Three farmers stated they would look for information on the internet, with one farmer mentioning the websites of Defra and the Upper Teesdale Agricultural Support Service (UTASS); two farmers said they would find information at farmers' talks and meetings, and one mentioned he would ask their AONB North Pennines case manager. Asked about how information on peatland rewetting and restoration should or could be brought to farmers effectively, farmers mentioned a mixture of social media (e.g. Facebook, Youtube) especially for younger farmers, and traditional media such as the farming press including publishing results from trial works by universities, or information letters through the post as well as in-person information exchange through land agents or farmers' meetings, focus groups, farmer-to-farmer learning situations and showcasing involving scientists. Information sources that farmers suggested included organisations such as Natural

England, the Environment and Rural Payments Agencies, the National Farmers' Union, AONBs or local Wildlife Trusts.

While there was some worry about what would happen to the uplands after the basic payments were ceased and one farmer stated it was difficult to see past the grouse shooting model as there was too much money involved in that, asked about what they thought about the future of peatlands, many of the interviewees were fairly optimistic. It was thought that the environmental importance of peatlands was increasingly recognised, that most peatlands would be rewetted and restored. It was furthermore thought that the crucial role of wet peatlands in reversing or stopping carbon emissions would be recognized and that there would be a reward for looking after the carbon storage well, alongside livestock production. More work was still to be done on addressing peatland benefits, also in comparison to tree planting, with the public.

6 Conclusions

All of the interviewed farmers used peatlands mainly for grazing. While being of lower fodder quality and productivity and often seen as non-profitable, peatlands were parts of the existing livestock enterprises and thereby linked to the value chains of their output: mainly store, breeding and finished animals. Most farmers described their peatlands as wet in winter and after big rainfall events and stated that if there were drains on the land they had filled themselves in. Only few farmers reported to have active drains on their peatlands.

The interviews for this study allowed good insight into the opinions on and specifically barriers and enablers of rewetting in the North Pennines upland area. It could be noticed that while farmers were largely confident about what the term "rewetting" meant and could name some of the related benefits, they were less sure or unaware of the terms "restoration" or "revegetation". Farmers were generally open to discuss the subject of rewetting and most of them could imagine rewetting their own land, viewed as a process that would be easy to achieve by filling in remaining drains.

However, farmers were less certain on reducing livestock numbers as a consequence of rewetting as some thought that numbers had reduced too much in the past already, that the land needed grazing as it would otherwise turn into an overgrown wilderness and that the role of farmers would shift away from producing food to producing environmental services. Some of these views might be linked to the focus of potential new payment schemes meaning a stark contrast to previous ones, and could therefore need a long time to be accepted. Still, some farmers were more pragmatic about the issue of shifting payment regimes and seemed ready for a change, maybe not least because some already made improvements the environmental performances of their farms.

The main enabler of rewetting that was brought up by all stakeholders were payments for rewetting as well as compensating for the loss of income from the reduction of livestock numbers. It was stressed that these payments would need to be substantial enough to be comparable, e.g. with grouse shooting, and that security on their continuity was required. Farmers saw opportunity for new payments for the upland peatlands under the developing new subsidy schemes, yet there was also some doubt on whether they would be created and enforced top-down or through a participatory way to include local knowledge.

With farmers stating that the exchange on peatland matters and knowledge were rather low, creating opportunities where people can come together and talk about the functioning of peatlands, the damage of drainage, the practicalities and benefits of peatland rewetting and showcasing what this looks like on the ground as well as increasing knowledge output through farming and social media are further important actions, not only enabling rewetting but taking along farmers and landowners in ways that go beyond the mere enforcement through payments.

7 References

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Annex I: Interview Guidelines UK

WP T3., Activity 3: Value Chain Analysis

Interview guideline for project partners – Farmers and Landowners, UK

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Preliminary remarks

- Introduce yourself
- Give an estimation of how long the interview will take
- Ask for consent to record the interview and tell them when you start the record (especially when conducting interviews on the phone)
  START RECORDING
- Reassure confidentiality of data use, no names will be communicated, data will be handled anonymously
- Thank people for agreeing on the interview
- Briefly explain the purpose of the interview: "This interview contributes to the value chain assessment of the project Carbon Connects, which among other things aims at developing business models to open up additional income streams from re-wetted peatlands. For this purpose, we are conducting interviews with farmers/landowners and businesses involved with peatland management and products or supplies in order to better understand which actors are involved, what are challenges faced and strategies employed to overcome them."
- Clarify on any questions interviewees might have

Part I: General Information on the Farm

For a start I'd like to get to know the characteristics of your farm. Can you outline the development of the farm and describe what you are doing here?

- Ownership, Age, Buildings

- Type of management (arable, livestock, …)
- Products (from the whole farm, not only peat soils)

Please describe the land you are farming with regards to size, quality and ownership.

- Size in hectares; owned/leased; quality of land (sufficient for what is done with it/what else would he like to do with the land)

Can you estimate the shares and/or hectares of the different kinds of land use on your farm?

- arable (incl. perennial field crops), cultivated grassland, pastures, fallows, forests/woodland/orchards, short-rotation-coppices, conservation zones, other

Are you planning on expanding or reducing the production range or amounts? Why?

Can you please outline how farm labour is organised?

- Number of employees (full time/part time)
- Ease/difficulty of finding skilled labour
- Number of family members working on the farm
- Labour costs

What sort of agricultural support do you currently receive?

Do you think the way agricultural support is given is appropriate?

- Why, why not?
- What needs to change?

Do you follow any environmental or social production standards or schemes (e.g. organic, fair trade; red tractor) and why or why not?

Are you member of a farmer cooperative/ production group?

Do you feel supported in the way you farm by politics, society, media…?

Part III: Output and Marketing

What kind of products do you generally produce on the farm and how are they marketed? What inputs do you need for them?

Do you produce any output other than livestock from your peatlands?

- If yes: please describe the processing, marketing and distribution of the product.

Do you communicate the way you manage peatlands to your customers?

- If yes: Why and how?
- If no: why not?

Could you elaborate on livestock prices, how they are defined and whether you think they are appropriate?

Do you have any difficulties regarding selling your livestock?

How would you characterize the market for livestock products from peatlands?

Part II: Peatland Management

Are there any peatlands on your farm?

Can you describe the peatlands on your farm with regard to size, wetness, vegetation and use?

Can you describe any management activities undertaken on your peatlands?

Has there ever been or is there still turf cutting on your peatlands?

Do you use any machines on the peatlands?

Do you buy any supplies for the management of your peatlands and where from?

Can you give an indication of quantities and costs of inputs? What are the largest expenses related to the peatland management?

Do you think your peatland provides any ecological or economic benefits?

What do you think are the main challenges related to the management of your peatlands?

Would you consider the management of the peatlands "profitable"?

- If not: Why not, what needs to change to make it so?

How significant is the impact of re-wetted peatlands on farm economics and ecology?

Are you considering changing the management of your peatlands?

- If yes: In what ways and why?

Do you talk with other farmers/landowners about peatland management?

In what areas of would you wish to receive support regarding the peatland management?

Part IV Peatland Support

Have your heard of the term peatland rewetting or restoration? In your understanding, what does peatland rewetting or restoration mean?

Under wet conditions, peatlands are the largest land-based carbon store, which makes them important in mitigating climate change. Additionally, they provide habitats for a range of rare plant and animal species and function as natural regulators of water flows, preventing both floods and droughts. Re-wetting and restoring drained and degraded peatlands, including the reduction of grazing animals, are therefore important measures for fighting climate change and improving ecological functioning overall.

In your opinion, what would motivate or help farmers wanting to rewet their peatlands?

What could be barriers to rewetting peatlands?

What reasons could farmers/landowners have for wanting to or not wanting to rewet peatlands?

Could you personally imagine to rewet/re-vegetate your peatlands?

- Why, why not, what would you need?

Where do you get advice, help, support in farming matters, especially concerning peatland management?

What do you think is the best way of bringing knowledge on rewetting to farmers?