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Introduction

Eden Valley Climathon took place on 3rd and 4th May 2022, at Barrock End Farm near Armathwaite. Participants were asked "How might we optimise farming and land use in the Eden Valley to achieve net zero?" Working in teams, they developed five creative solutions, and learned from host Paul Coates about the sustainability approaches he is taking on his farm. The event was organised as two related components: a webinar, to set the scene for participants, introduce the idea of net zero, learn about existing projects and begin the process of identifying local priority actions; and the in-person event, where participants worked together in teams to build net zero projects for the Eden Valley. The agenda for each component is provided in Appendix 1, with a summary of the outputs generated from the two elements summarised in the following sections.

Part 1: Webinar

The Climathon kicked off with a webinar on Tuesday 3rd May, which gave an overview of the net zero challenge and how this applies specifically to the Eden Valley (see Appendix 1). Adrian Banford, who leads the Land Use Group within the Zero Carbon Cumbria Partnership (ZCCP), spoke on land use and climatehighlighting the transitions already underway and the need to shift societal norms.



Figure 1: Land use and climate, courtesy of Adrian Banford 2022

Roe Baker and Kate Gascoyne, from Cumbria Action for Sustainability (CAfS) and The Farmer Network respectively, spoke about a farm carbon-footprinting project delivered as part of the Fellfoot Forward Landscape Partnership Scheme. This highlighted the significant potential carbon reductions that could be delivered through actions farmers already planned to take- such as increasing hedgerows and reducing fertiliser inputs.

- Average soil organic matter of the Fellfoot project was 6.94%
- On the majority of farms livestock are the highest emitter in both baseline and adjusted footprints
- Woodland the highest source of measured carbon sequestration
- Measured SOM (Soil Organic Matter) gives the greatest carbon sequestration potential on most farms: more data needed!



Figure 2: results from the Fellfoot Forward carbon footprinting project, courtesy of Roe Baker and Kate Gascoyne 2022

Damian Maye from the CCRI oversaw the agenda, and led everyone through a couple of exercises in which participants wrote down their ideas for net zero solutions on virtual sticky notes – this was intended as a 'warm up exercise', but also instructive to get a sense of how participants engaged or not with net zero and its multiple meanings. From the prolific nature of responses (Figure 3), we knew we had an enthusiastic and engaged group of people!



Figure 3: "What words come to mind when you think about net zero in relation to farming and land use?"

As we can see, some participants associated net zero with specific solutions (already thinking in a climathon mindset!), whilst others associated net zero with the idea of change (in different guises); other words reflected the opportunities net zero presented (income, diversification, etc.) alongside other less positive comments regarding the complexity of the challenge or limitations of off-setting. We identified some themes in these initial ideas and moved them into clusters to help inform our work on the second day.



Figure 4: "How might we optimize farming and land use in the Eden Valley to help achieve net zero?"

Part 2: In-person event

Morning introductions

The following morning, we all gathered bright and early (well, perhaps a little rainy and early) in a cleaned out livestock shed on Barrock End Farm. A welcome coffee was provided by Katie Edgar's mobile catering van, which kept us well fed and caffeinated throughout the day.

After introductions, a quick safety briefing, and some background from the CCRI team, the group collectively set some ground rules for the day. These included: "Be a good listener", "Don't be judgemental", "Remember we are here for a common purpose", and "Everyone's perspectives are valued".

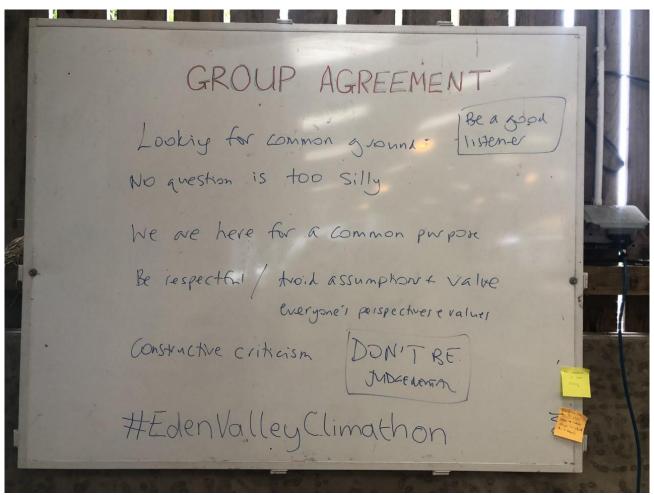


Figure 4: The group agreement

Brainstorming, team formation and idea development

Now better acquainted, participants were guided through a series of brainstorming activities, beginning with writing down ideas individually then discussing them with other people at their table. Each table ended up with 3 or 4 favourite solutions, which they fed back to the whole room.

Time for a coffee break- while participants mingled, the UoG team reviewed the shared solutions and searched for themes. Solutions were organised into seven main themes:

- Engagement, advice, and listening
- Energy: agrivoltaics, renewables, farm space
- Regenerative agriculture and soil health, minimum tillage
- Trees and hedgerows, optimising natural capital
- Support for carbon footprinting
- Resource efficiency and reducing inputs
- Communicating with the public



Figure 5: The seven themes based on our morning's work

The seven main themes provided a good mix of solutions, particularly at farm scale, and with a good mix of social and technical innovations, combining net zero with wider issues linked to energy, grid infrastructure, natural capital and public engagement with the agri-food sector. At this stage participants were also reminded of the themes from the webinar – some of these did not make it the final list (access to land and local sourcing, for example), but it was agreed that these were crosscutting themes for all teams to consider.

Participants then voted on which themes they saw as a priority for the Eden Valley. This left us with five themes representing five teams, and participants moved to sit round the table corresponding to the theme they wished to work on. After some reshuffling to make sure each team had a good mix of skills and experience, the following teams were formed:

- 1. Voices of Eden- Engagement, advice, and listening (also with the public)
- 2. Elegant Energetics- Energy: agrivoltaics, renewables, farm space
- 3. Soil Not Dirt- Regenerative agriculture and soil health, minimum tillage
- 4. Hedge Fund- Trees and hedgerows, optimising natural capital
- 5. **Mucky Business-** Resource efficiency and reducing inputs

The new teams had to then work to prioritise which specific solution they wanted to work on within their theme. Using voting templates to identify preferences, and classifying solutions as "Most Exciting", "Most Rational", and "The Long Shot", helped them think through what could work. After an intense morning of activity, each team shared what they planned to work on in the afternoon, and it was finally time for lunch.

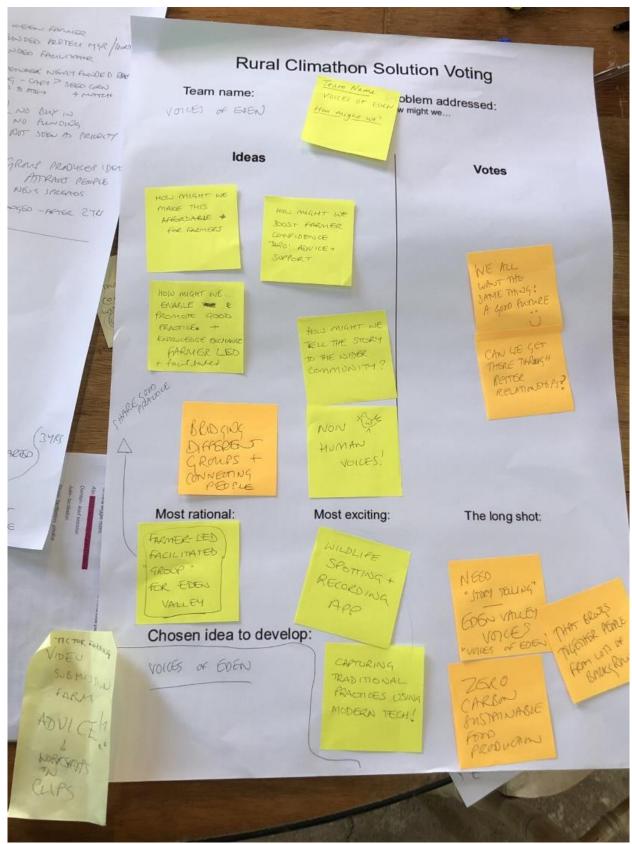


Figure 6: 'Voices of Eden' Solution Voting template

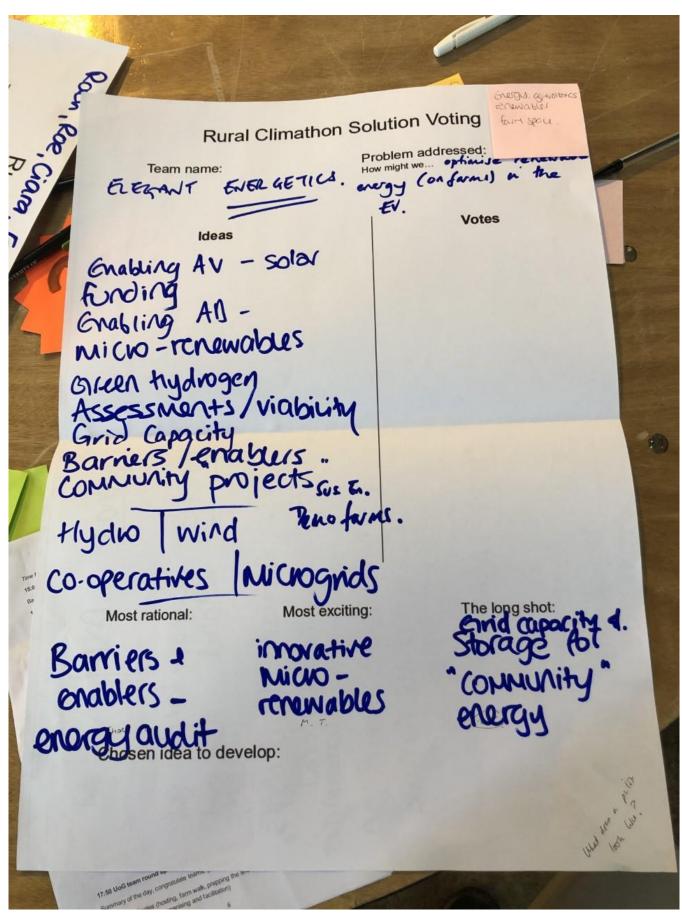


Figure 7: 'Elegant Energetics' Solution Voting template

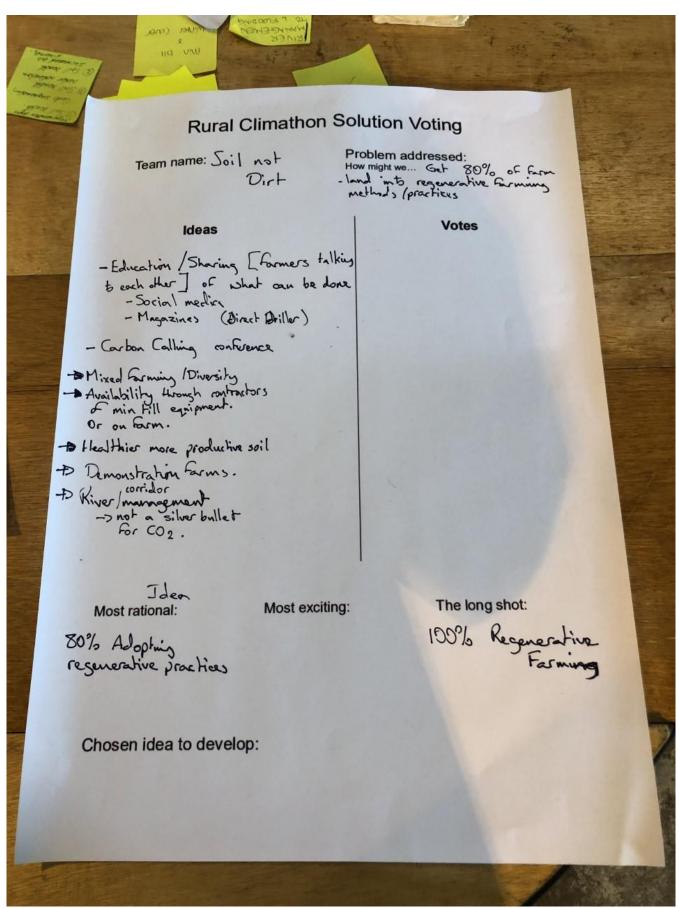


Figure 8: 'Soil Not Dirt' Solution Voting template

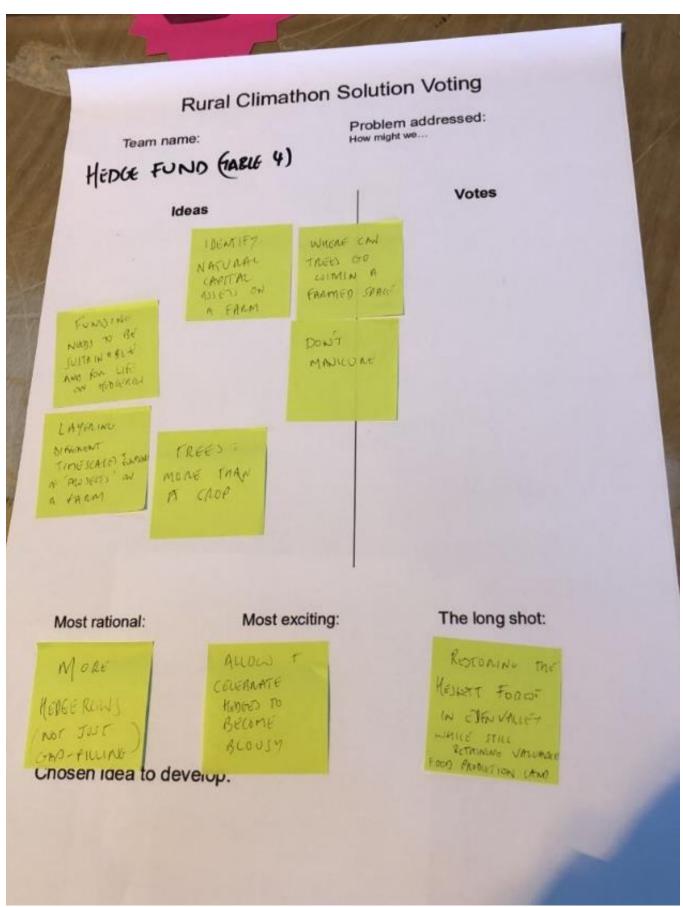


Figure 9: 'Hedge Fund' Solution Voting template

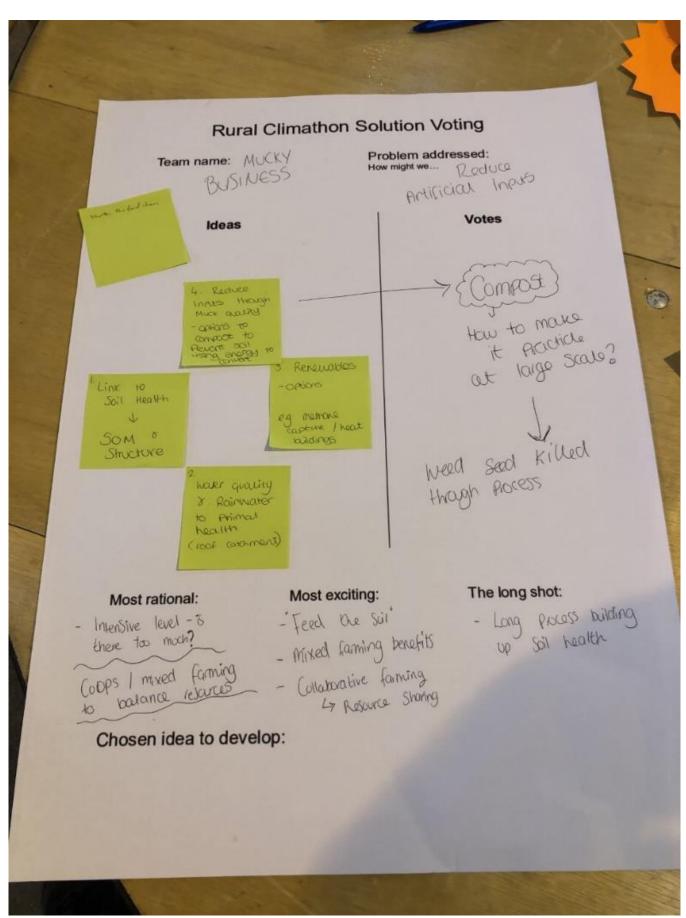


Figure 10: 'Mucky Business' Solution Voting template

Farm walk

The farm walk was led by our host, Paul Coates, with support from Andy Dyer of Eden Rivers Trust, Paul's agronomist Steven Gate, and a team from Morrisons supermarket who work with the farm. Trekking over 2 miles through the rain did little to dampen the spirits of our participants, who were full of questions and entered into debates as they moved across the landscape.



Figure 11: Participants on farm walk

Beginning around the cowsheds to visit Paul's dairy-beef herd, we heard about the work being done to calculate and reduce GHG for this aspect of the farm business, including an experiment to test two types of feed (conventional, and one with a lower carbon footprint). We then moved out to fields sewn with herbal leys, viewed different cropping rotations, and heard about ways to improve soil health.



Figure 12: Participants on farm walk

We next visited an area of wet woodland that acts as an important wildlife habitat and carbon store, and finally returned to the farm via Paul's herd of Shorthorns and their new calves; learning how this premium beef element fits into the farm's business plan and work with Morrisons. We finished the walk with a look at Paul's minimum tillage drill, which allows him to sew crops without turning over the soil and releasing sequestered carbon.

Solution development and presentations

Following the walk, it was time to get down to serious (mucky) business. With just over an hour available, teams worked intensively on their solutions, trying to nail down the What, Why, Who, When, Where, and How of their proposals. Some wrote a lot down, while others used their artistic skills to convey their vision. The CCRI team had their eye on the clock, working to facilitate and gather feedback from participants while not taking too much time away from the ongoing deliberations. Before too long, it was time for the teams to present.

Questions for developing solutions

What? What is the solution and what does it contribute to net zero?

When

Why? Why is this needed and does it add to existing work?

Where? Where is the solution targeted (scale and geographical location)?

When? When can the solution be implemented, when will it end (timescale)?

Who? Who is the solution for, who is responsible for delivering it, who else needs to know about it?

How? How does it work, how will it be implemented, how will you overcome hurdles and challenges, how will you fund/resource the project, how will you know it's been successful?

Figure 13: Developing solutions slide



Figure 14: Participants developing their solutions in teams



Figure 15: Participants developing their solutions in teams

Voices of Eden

This team were interested in how the local farming community might share good practices and advice around land use and net zero, proposing to create a farmer-led group with a dedicated facilitator. They identified that funding would be a challenge, and suggested some local organisations (such as The Farmer Network and CAfS) who might be willing to support the initiative.



Figure 16: 'Voice of Eden' presenting their solution

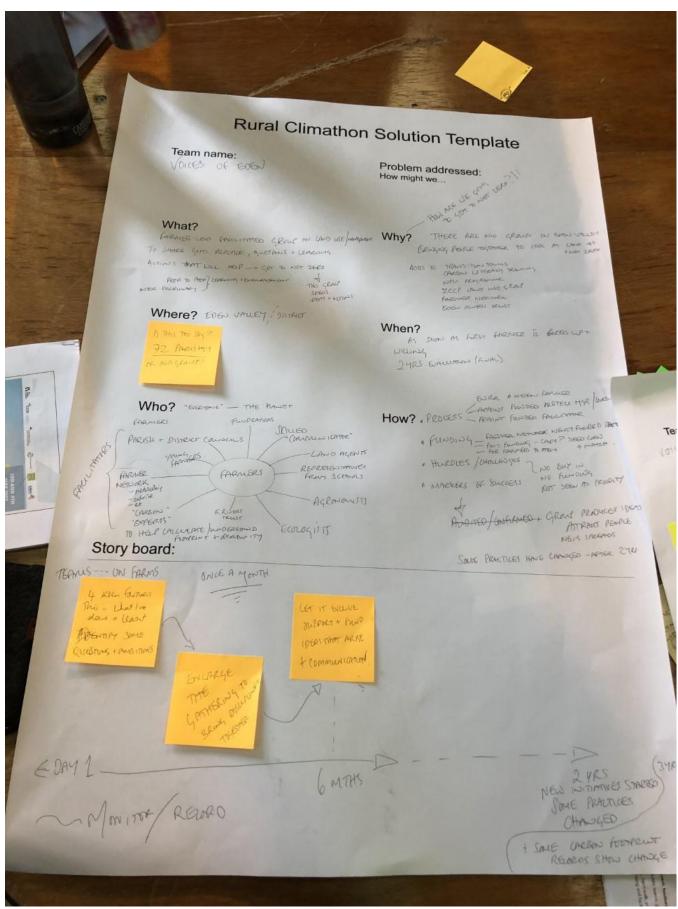


Figure 17: 'Voice of Eden' solution

Elegant Energetics

This team presented a pilot project for increasing on-farm renewable energy sources such as wind and solar - making sure the energy produced benefitted the farm and local community directly. They proposed a whole-farm approach, aiming to utilise 10% of the available land and roof space. Adequate grid connection is a significant barrier to this type of project in the Eden Valley, so the team aimed to begin by focusing on farms within grid connection range before widening the scope. Robust business advice and planning would be a key component of their approach.



Figure 18: 'Elegant Energetics' presenting their solution

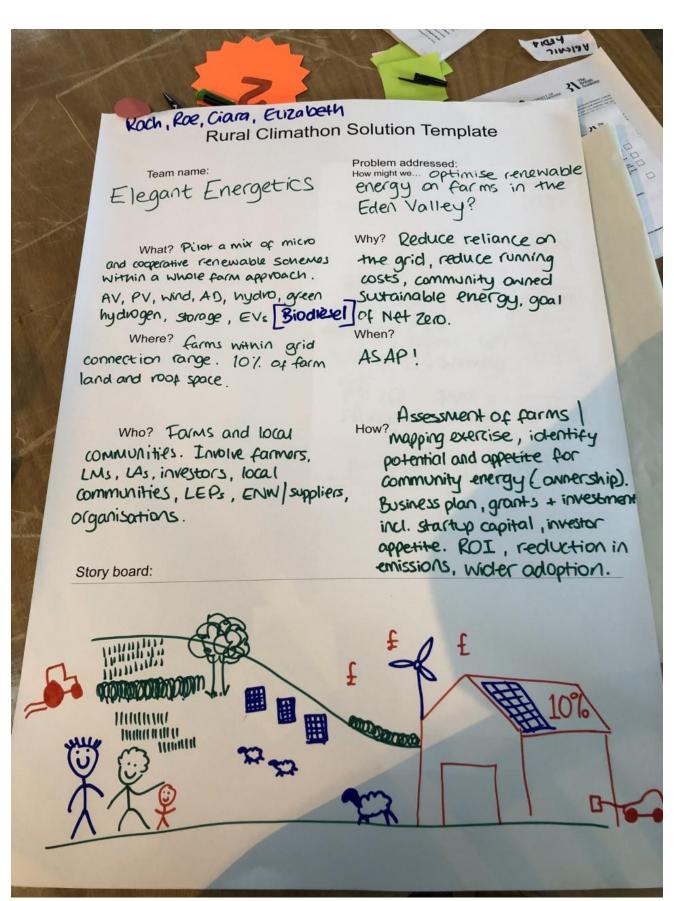


Figure 19: 'Elegant Energetics' solution

Soil Not Dirt

Soil Not Dirt had the ambition for 80% of farmland in the Eden Valley to be managed with regenerative practices, using strategies such as demonstration farms and financial advice for farmers. Their presentation highlighted the diverse benefits of regenerative agriculture and the potential to improve farmers' bottom line through reducing reliance on expensive inputs.



Figure 20: 'Soil Not Dirt' presenting their solution

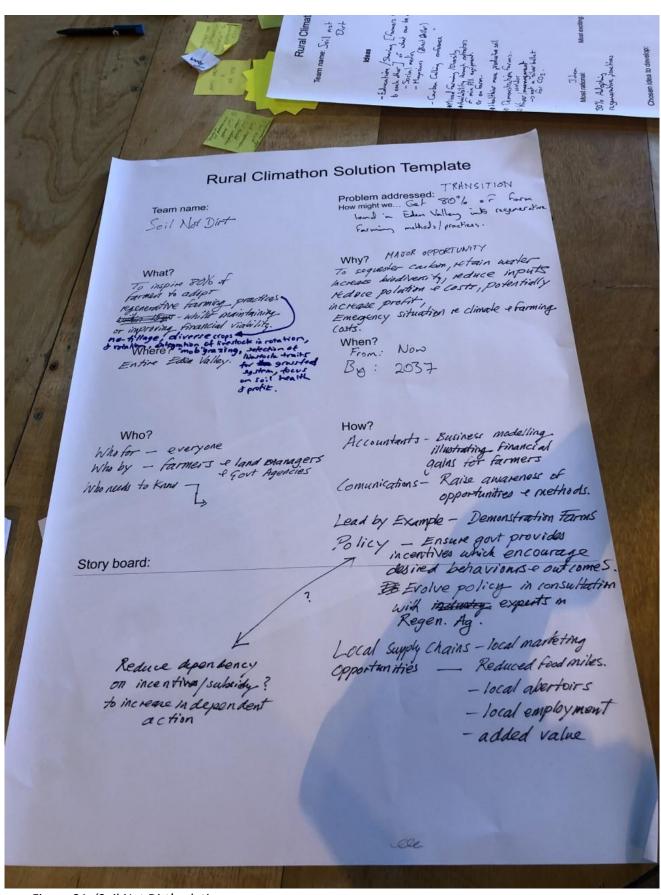


Figure 21: 'Soil Not Dirt' solution

Hedge Fund

Hedge Fund wanted to "make hedges sexy", proposing a system for individuals and corporations to invest in planting different lengths of hedgerow in the Eden Valley. By asking people to "Pledge for the Hedge", they aimed to plant 145km of new hedgerow by 2030- the same length as the River Eden. Organisations who had invested in a length of hedgerow could then send their employees to learn about hedge laying once the planted shrubs and trees had matured.



Figure 22: 'Hedge Fund' presenting their solution

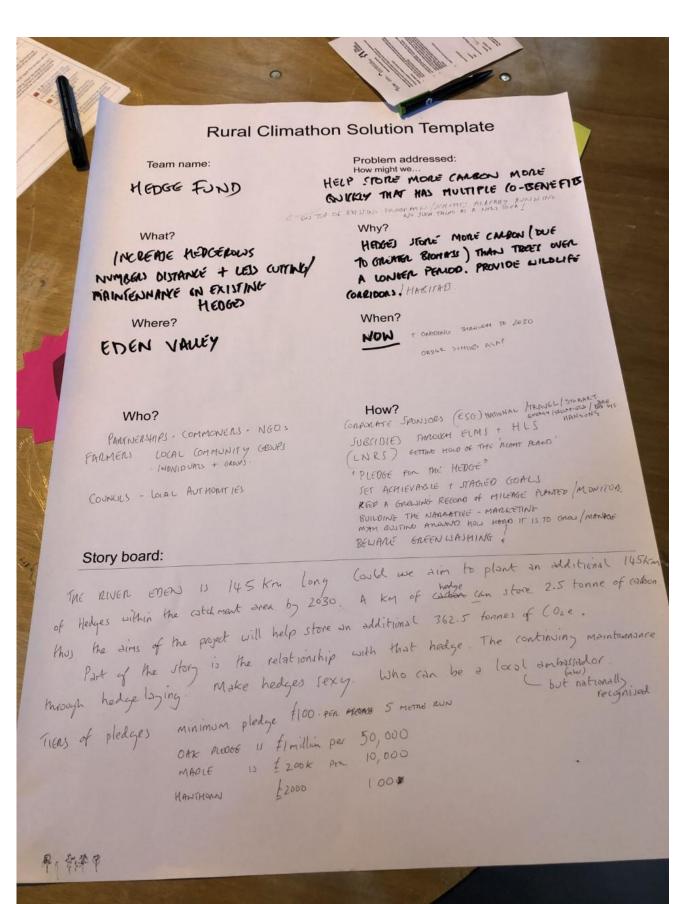


Figure 23: 'Hedge Fund' solution

Mucky Business

Farmyard manure was the focus of team Mucky Business, who were interested in how composting this valuable resource could reduce or replace inputs. Compost provides more readily available nutrients to the soil than manure, so this could be a solution for reducing the need for artificial fertilizer, which is generated using fossil fuels. A challenge would be finding the additional time, labour, and possibly machinery to turn the compost. The team identified knowledge gaps that would need to be filled, suggesting that the organic farming community could be a useful source of advice.



Figure 24: 'Mucky Business' presenting their solution

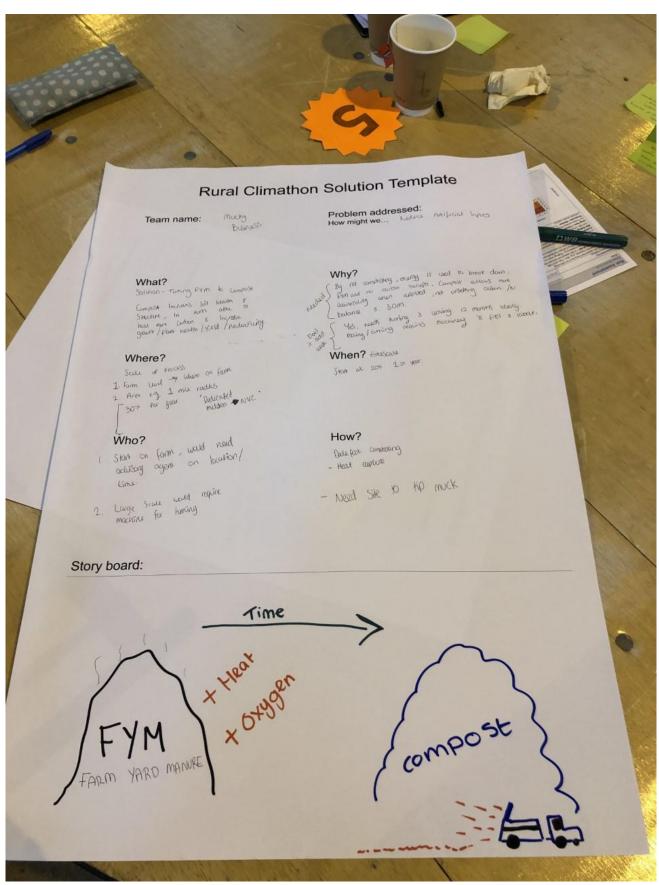


Figure 25: 'Mucky Business' solution

Following each presentation, the teams received questions and comments from their peers, which sparked further discussion and highlighted some of the overlapping themes between the different solutions.

Despite the limited time and fast-paced nature of the day, Eden Valley Climathon participants created five diverse and promising solutions. Furthermore, many new connections were forged, and most went away having learned something (or at least having learned what they needed to learn!). After viewing some digital stories created together with local farmers, we wrapped up the day with a well-deserved dinner before going our separate ways.

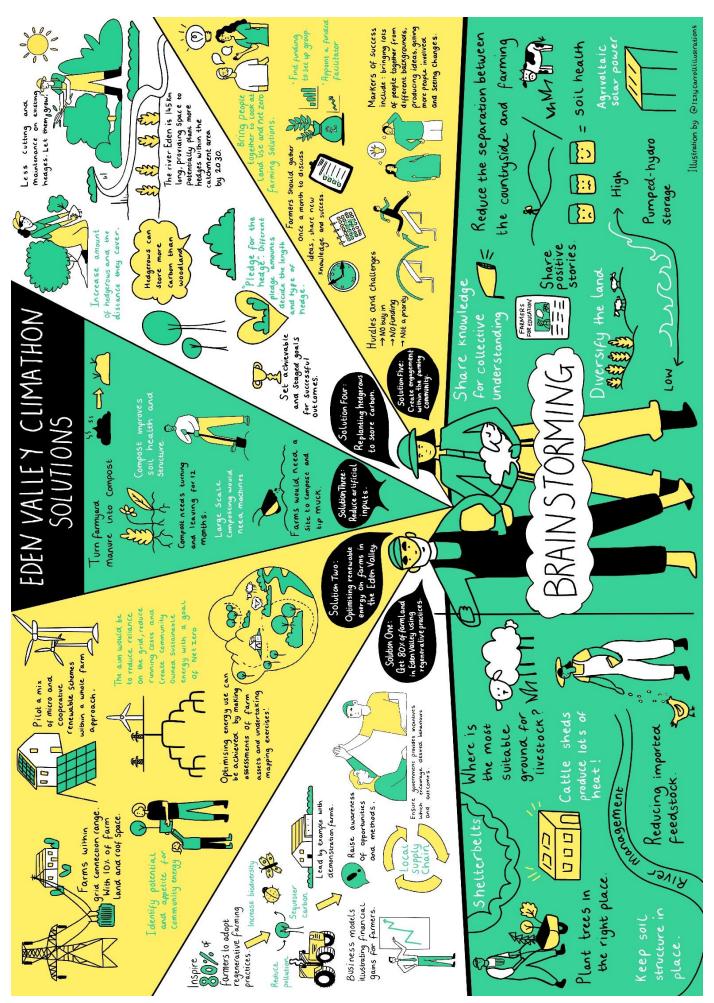


Figure 26: Illustration of Eden Valley ideas and solutions by Izzy Carroll 29

Next steps

All participants are invited to an Exchange Webinar with Bude Climathon at 12 noon on Wednesday 15th June. This will be a space for the two communities to hear about one another's local context, the solutions generated by the Climathon process, and any initiatives being taken forward. We hope this will be a useful opportunity to reflect on the experience, as well as creating new connections and potentially inspiring some new ideas.

The UoG team will prepare a further report for BA in due course, with analysis of data collected from the two Climathons. We will also create a "Rural Climathon Playbook" detailing what we have learned about adapting this city-focused format for rural settings. We'll be happy to share these documents with participants, and to discuss the lessons learned with anyone who wishes to go on and host their own Climathon in future.

Acknowledgements

This project was coordinated by a team of researchers from the Countryside and Community Research Institute (CCRI) at the University of Gloucestershire, with funding from the British Academy. The event wouldn't have happened without a lot of help from local partners, including Eden Rivers Trust, The Farmer Network, and Cumbria Action for Sustainability, and the North Pennines AONB Partnership.

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Appendix 1: Eden Valley Climathon agenda

Objective: To enhance existing partnerships and on-going work in the local area through providing a safe, convivial environment within which to build trust and explore future possibilities.

Warm-up Webinar (lunchtime on Tuesday 3rd May):

12:00-12:10 Introduction to the project (Damian)

12:10-12:30 Net zero and land use in Cumbria and the Eden Valley: setting the scene (Adrian Banford)

12:30-12:40 Fellfoot Forward carbon footprinting project (Roe Baker and Kate Gascoyne)

12:50-13:00 UoG team shows digital stories from local farmers

13:00-13:10 What is a Climathon? Structure for tomorrow, challenge, objectives (Damian)

13:10- 13:25 Interactive initial round of ideas for solutions using Jamboard (Damian and Sofia)

13:25-13:30 Summary and Q+A session (to local experts and event organisers as necessary)

13:30 Webinar close

Webinar will be recorded and sent to participants who have signed up through Eventbrite

In-person event (Wednesday 4th May):

08:30-09:00 Arrivals, registration, completing informed consent forms

09:00- 10:15 Introductions, setting objectives for the day, facilitated brainstorming sessions

10:15-10:30 Coffee break

10:30-12:00 Team formation and idea development, sharing of digital stories from local farmers

12:00-13:00 Hot lunch

13:00-15:00 Farm walk

15:00 Coffee available

15:00-16:30 Teams develop their solution with optional template

16:30-18:00 Teams present their solutions, peer to peer feedback, research team summarise the day

18:00 Buffet dinner served, optional 1 beer per participant

18:30-19:30 Optional: informal discussion and networking

19:30 Event close