

Developing Peatland Carbon Metrics and Financial Modelling to inform the pilot phase UK Peatland Code

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This Project



 Reviews the metrics; develops user-friendly methodologies and field protocols; tests and adjusts these tools with peatland projects across the UK

Team: Mary-Ann Smyth, Emily Taylor, Richard Birnie, Chris Evans, Rebekka Artz, Alan Gray

 Financial models project feasibility tools and market assessment for potential investors in the Peatland Code

Team: Stephen Prior, Andrew Moxey

Categorising peatland condition



- Reviewed and re-analysed the scientific literature
- Categorised the papers on greenhouse gas emissions from peatlands into the following condition categories:

Near natural



Actively eroding, bare peat



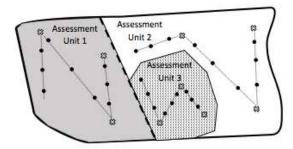
Modified





Designed a field protocol





6 Condition Assessments (Tick appropriate box for each Condition Assessment following questions until Condition Category reached)

CAZ CA3 Q1 Is the area severely eroded? Presence of actively eroding hags and gullies with Severely Eroded Severely Fraded Severely Fraded no vegetation in gully bottom & do Q5 on veg & do Q5 on veg & do Q5 on veg on tops on tops on tops No actively eroding hags or gullies, vegetation in Go to Q 2 gully bottom Go to Q 2 Go to Q 2 Q2 Is the area drained? Drains/old hags present within 30m __ Drained Drained ☐ Orained No drains/old hags present within 30m Go to Q3 Go to Q3 Go to Q3 Q3 Extent of bare peat (walk 20 paces to assess) Extensive continuous bare peat (not gullies) Severely Eroded Severely Eroded Severely Eroded Small discrete patches bare peat frequent Highly Degraded Highly Degraded Highly Degraded None/Small discrete patches bare peat infrequent Go to Q4 Go to Q4 Go to Q4 Q4 Extent of Sphagnum Sphagnum dominated Intact Intact [Intact Sphagnum in parts Go to Q5 Go to Q5 Go to Q5 No obvious Sphagnum layer J Go to Q5** Go to Q5** Go to Q5**

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Testing the protocol











The effect of restoration



By comparing the before-project emission factor with the expected after-project emission factor, you can easily work out the greenhouse gas savings expected for the project (draft figures illustrated here; final values expected Nov 201)

Table 3 Net effect on emissions resulting from restoration and changing Condition Categories calculated using the Emission Factors given in Table 2. Units are t CO₂ eq ha⁻¹ yr⁻¹.

Condition State Change	Net Effect
Restoring from Modified to Near Natural	Saves 0.85
Restoring from Drained to Near Natural	Saves 2.86
Restoring from Drained to Modified	Saves 2.01
Restoring Actively Eroding to Modified	Saves 16.81 to 26.08
Allowing Drained to develop into Actively Eroding	Loses 14.80 to 24.07

Financial Model



Financial models and feasibility tools for potential investors in the Peatland Code

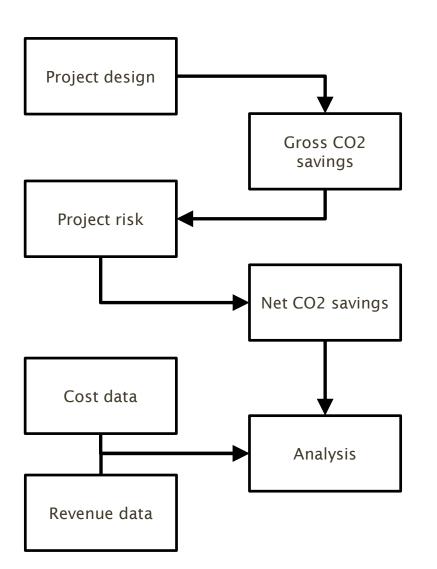
How the feasibility tool works



Input data such as site condition, work planned, current land use

Project risk assessed on factors such as location, management team and natural risks

Costs and revenues depend on project design, with sample values supplied within the tool, that can be over-ridden by local values



Gross CO2 savings derived from project design and GEST default values developed by Metrics team

Net value is Gross value less risk % derived from assessment

Analysis should reveal the deliverability of the project, and if there is a financial shortfall whether the project would qualify under the Peatland Code

Cost categories



- Capital works (e.g. blocking grips, revegetating bare peat)
- Management costs (e.g. scrub clearance, repairs to dams and fencing).
- Opportunity costs (e.g. if sheep grazing is to be reduced).
- Monitoring, accreditation and administrative costs.

Revenue Categories



- Agri-environment schemes
- The Peatland Code
- Other (e.g. water payments, reduced grazing revenue)

Analysis and Usage



Output tests:

- Is there a financial shortfall without PC funding?
- If so, what is the unit carbon unit price for PC funding?
- Does the shortfall qualify under PC additionality rules?
- Output also facilitates "what if?" changes to costs, revenues and other assumptions
- The tool is freely available, and is being tested across several restoration projects

Example of output



Analysis	
Total project size (ha)	20
Total project tCO2	3,000
Project risk %	20%
Net project tCO2	2,400
Project shortfall/surplus (£)	18,672
Required CO2 price £/t	7.78
Shortfall %	16%

Stopping carbon emissions



Bare peat emits more than ten times more carbon than vegetated peat Stopping future erosion is very carbon-efficient.







This project...



... takes us several steps further towards having a working Peatland Code

- Develops good protocols and guidelines.
- Provides useful financial modelling
- Advises on carbon and wetland accounting as part of the UK's national statistics.

Thank You...

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