

Net Zero Sector Skills consultation response

The Chartered Institute of Ecology and Environmental Management (CIEEM) is the professional membership body supporting ecologists and environmental managers in the UK and Ireland.

As CIEEM works at a UK and Ireland level, we have few Wales-specific comments to make. However, our research into the sector skills shortage and capacity crisis in ecology is applicable to Wales.

We have not attempted a full response to the consultation here. Ironically, lack of time and available staff has limited the amount of detail we can provide at this moment. **We are keen to work with Welsh Government to discuss sector skill shortages and how to address these issues.** Please contact Wales Project Officer Mandy Marsh mandymarsh@cieem.net in the first instance.

Background

CIEEM has been focusing on the skills shortage in ecology and environmental management [since 2021](#).

CIEEM is primarily focused on those who work in the ecology and land management sector. However, we recognise that a truly green economy operating on Net Zero principles will involve many workers in other sectors, such as:

- i. New skills for installation and maintenance of low carbon technology such as domestic air/ground source heat pumps, solar panels and insulation using environmentally friendly products. These need to be as locally based as possible to achieve Net Zero; for example, many contractors authorised by the UK government [Eco4 scheme](#) are based in England, with a consequent carbon cost for travel to retrofit houses in Wales.
- ii. Education; primary and secondary school curricula need greater emphasis on environmental subjects. This will require teaching the teacher. There needs to be greater joined-up thinking around initiatives and opportunities for learning about the environment; for example, some farms in the Glastir scheme offered school visits but schools which could not afford minibuses were not able to take advantage of this.
- iii. Digital and AI skills reduce carbon footprints by reducing the need for travel, increasing productivity and producing less waste.

CIEEM's work

CIEEM has worked on three major initiatives to address skills shortages and working towards net zero:

1. [Vocational pathways into nature-based green jobs](#)
2. [Equality, Diversity and Inclusion](#)
3. [Green Jobs for Nature](#)

In addition, we provided input into Wales Environment Link's [Pathways to 2030: 10 key areas for investment in nature's recovery across Wales](#). This document includes estimates of costings, timescales for delivery, and roles involved.

We are also working with [Nature Service Wales](#).

1. Vocational pathways into nature-based green jobs

In 2023 CIEEM and [Lantra](#) commissioned research into the capacity and skills crises in the environmental sector. [Read the full report](#)

The research involved workshops with a wide range of employers and new entrants into ecology to understand the barriers facing these new entrants in the profession.

Key findings include:

- a) There is a capacity crisis and skills gap in the ecology sector which puts our ability to tackle the climate and biodiversity emergencies at risk.
- b) There is a heavy reliance on unpaid voluntary work in order to gain the essential skills and experience needed for new entrants to start their first ecology job. This expectation is not seen or required in any other sector of the workforce. It devalues the work carried out by ecologists and is a significant barrier for those who cannot afford to work on a voluntary basis.
- c) Jobs in ecology are unappealing compared to other sectors due to low pay, temporary contracts, irregular working hours, requirements for car ownership, unclear career progression and insufficient professional development.
- d) Recruitment often relies on graduates and postgraduates in ecology and related subjects, with most roles requiring a degree by default. This is a key barrier to those with vocational backgrounds and qualifications. Employers currently struggle to recruit for the many vacancies they have. There is an urgent need to 'open up' ecology, both as a career for young people and to mid-career changers.
- e) The research shows that employers value the knowledge, skills and experience gained from vocational training. They can see how they complement traditional university courses both in terms of the expertise developed and by providing alternative pathways to increase equity of access to our sector.
- f) The capacity crisis is unquantified and there is no robust attempt to quantify future demand for ecology skills as we scale-up climate change adaptation.
- g) The research also shows that training providers can do more to ensure they are meeting the needs of employers and students.
- h) The sector is looking for leadership from Governments and large public sector employers, but there is no funding or concrete plan. The research highlights the role of CIEEM and governments in sharing labour market intelligence and creating an environment that supports innovation in curriculum development.

2. Equality, Diversity and Inclusion

One way to tackle the skills gap is by diversifying. Environmental professions are the 2nd least diverse occupation out of 202 occupations measured (2017 Policy Exchange Report).

CIEEM is therefore actively working towards improving pathways into ecology jobs for young people with vocational qualifications and for mid-career changers. We encourage and value diversity in all its forms – ethnicity, gender, religion, neurodiversity, disability and socio-economic background. We also encourage alternative and flexible working arrangements which allow people to take advantage of an improved work-life balance.

3. Green Jobs for Nature

CIEEM has created a dedicated website, [Green Jobs for Nature](#) (GJfN) and is working with a number of organisations, employers, and professional bodies to raise awareness of job opportunities and to encourage people to take up careers in the natural environment sector. We are jointly committed to making green jobs for nature accessible to people from all backgrounds as we seek to create a more diverse and inclusive sector.

[GJfN partners and supporters](#)

SECTION 1 – EMISSION SECTORS

Sector 1.1 Land Use, Land Change and Forestry

An example: Peatland Restoration

Peatland is a unique habitat capable of storing huge quantities of carbon. Most peatland in the UK is in poor condition, but this is reversible with proper management.

Welsh Government's Biodiversity Deep Dive and the National Peatland Action Plan have committed to restoring 45,000 ha of peatland to achieve the Net Zero 2050 target.

Section 5 of Wales Environment Link's [Pathways to 2030: 10 key areas for investment in nature's recovery across Wales](#) details the costings necessary to achieve this target and suggests establishing a Peatland Policy Unit. This would require sufficient staff to:

- Develop regulations and guidance
- Oversee efforts to eliminate the use of peat by public bodies
- Develop legislation to ban horticultural use
- Champion the restoration of peatland

Required skills: a comparison with peatland restoration in Scotland

[Source: Shaw, B. (2023) Peatland restoration – an industry revolution. *In Practice - Bulletin of the Chartered Institute of Ecology and Environmental Management* 121.]

Scottish Government has earmarked funds of £250m for peatland restoration over the next 10 years. It's estimated this will need 1,500 jobs.

Championing a sustainable natural environment

Roles/skills needed include:

- restoration scheme designers
- machine operators
- hydrologists
- satellite data analysts
- surveyors
- GIS mapping
- data management
- botanists
- entomologists
- ornithologists
- ecologists
- using remote sensing
- project managers
- project supervisor roles
- Clerks of Works
- site supervisors and foreman roles

Contractors' supervisors need to understand the underpinning principles, which often include elements of hydrology, ecology and geomorphology.

The increasing pace of restoration required has led to significant skills shortages. Some [Peatland ACTION](#) Project Officers in Scotland have 3 years work in the pipeline.

The construction industry plays a major role; highly skilled machine operators carry out techniques which include:

- damming
- ditch blocking
- reprofiling hags and gullies
- bunding
- revegetating areas of bare peat
- removing scrub
- tree-felling and stump flipping
- flattening furrows and ridges

This is often on sensitive peatland habitat and in challenging weathers. Current plant operator training establishments (Scotland) do not have sufficient expertise to be able to offer specialised restoration techniques.

Until recently, operators have learned these skill 'on the job'. Peatland ACTION has addressed this by developing a training programme for existing contractors, and by working with FE and HE colleges to offer peatland restoration modules. These and other measures are driven by a Peatland Skills Action Plan.

Wales's [National Peatland Action Programme](#) will require similar roles to be filled. CIEEM is holding a [Peatland Restoration](#) conference in Swansea on 31 January 2024.

Sector 1.2 Agriculture

To achieve Net Zero targets, agriculture will require an increase in skills and roles in the following areas:

- Agroforestry
- Regenerative farming
- Horticulture
- Traditional skills such as hedge-laying
- Digital and AI training
- Genetics and eDNA
- Monitoring and regulatory roles
- Catchment and nature-based solutions
- Species identification skills
- Infrastructure for local selling

Sustainable Farming Scheme

The Sustainable Farming Scheme makes reference to Area Statements. CIEEM has met with NRW's Area Statements team and has made suggestions for improvements based on feedback from our members and our Wales Policy Group. We feel that the ASs need amending and improving in order to be a useful part of the SFS. There will be a staff cost involved in this.

Farms in the SFS will need individual advice, as there is no one-size-fits-all approach to providing advice. As a professional institute, CIEEM's main concern is that this advice is given by suitably qualified and experienced ecologists. **We are keen to work with Welsh Government to discuss these skills requirements in more detail.**

Monitoring and regulation

Welsh Government efforts to legislate towards Net Zero targets (e.g. farming pollution targets) must be backed up by proper monitoring and regulation; without this, the legislation is toothless and open to abuse. This will require suitably qualified staff.

Q13. What knowledge or skills gaps are you aware of in the agriculture sector (including on farm or the wider supply chain) that are hindering Wales' transition to net zero and/or adaptation to climate change?

There is very little horticulture in Wales, which relies heavily on imports of fruit and vegetables to feed the nation. Greater food resilience will be achieved by encouraging horticulture. There is a huge appetite for community involvement in nature-based work such as community farms and street allotments, but this is often unstructured and definitely underfunded. FE colleges report that they have offered horticulture courses but had little interest. Possibly those interested in community farming are already employed and cannot commit to full time courses. For community farming to be successful it needs more leadership, horticultural expertise, and an infrastructure which can deal with storage, transport and selling. Effort should be put into encouraging and incentivising the take up of horticulture.

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