



National Unit specification: general information

Unit title: Countryside Management: Sustainable Resource Use (SCQF Level 6)

Unit code: FV43 12

Superclass: QA

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Summary

The purpose of this Unit is to enable candidates to develop basic knowledge and understanding of natural resources, the impact our consumption and actions has on the environment and the steps taken towards sustainability. Candidates will undertake an Environmental Impact Assessment Scoping Report and examine products to understand the impact their production, usage and disposal has on the environment.

This is an optional Unit within the National Certificate in Countryside Management (SCQF Level 5) and is also available for candidates wishing to study the Unit on its own.

This Unit is suitable for candidates who are looking to develop a career towards sustainable management of the natural heritage.

Outcomes

- 1 Explain the sustainable use of resources.
- 2 Explain the evolution of sustainable development and its legislation.
- 3 Undertake an Environmental Impact Assessment Scoping Report.
- 4 Produce a Product Lifecycle Assessment.

Recommended entry

Entry is at the discretion of the centre.

General information (cont)

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Credit points and level

1 National Unit credit at SCQF level 6: (6 SCQF credit points at SCQF level 6*)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Core Skills

Opportunities to develop aspects of Core Skills are highlighted in the support notes of this Unit specification.

There is no automatic certification of Core Skills or Core Skill component in this Unit.

National Unit specification: statement of standards

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Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

Outcome 1

Explain the sustainable use of resources.

Performance Criteria

- (a) Explain the difference between renewable and non renewable resources.
- (b) Explain the advantages and disadvantages of using renewable and non renewable resources.

Outcome 2

Explain the evolution of sustainable development and its legislation.

Performance Criteria

- (a) Explain the meaning of sustainable development.
- (b) Explain the evolution of sustainable development.
- (c) Describe current legislation related to sustainable development.

Outcome 3

Undertake an Environmental Impact Assessment Scoping Report.

Performance Criteria

- (a) Describe the function of Environmental Impact Assessments.
- (b) Undertake a scoping consultation for an Environmental Impact Assessment.
- (c) Produce a basic Environmental Impact Assessment Scoping Report.

Outcome 4

Produce a Product Lifecycle Assessment.

Performance Criteria

- (a) Explain the function of a Product Lifecycle Assessment.
- (b) Produce a Product Lifecycle Assessment.

National Unit specification: statement of standards (cont)

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Evidence Requirements for this Unit

Written and/or oral recorded evidence must be produced to demonstrate that candidates have achieved all of the Outcomes and Performance Criteria.

Assessment for all Outcomes must be produced under open-book conditions. The assessor must be satisfied that the evidence submitted is the individual candidate's own work.

Outcome 1

Written/oral or recorded evidence must include:

- ◆ an explanation of the difference between renewable and non renewable resources
- ◆ an explanation of a minimum of three advantages and three disadvantages of using renewable alternative resources
- ◆ an explanation of a minimum of three advantages and three disadvantages of using non renewable resources

Outcome 2

Written/oral or recorded evidence must include:

- ◆ an explanation of sustainable development to include:
 - economic sustainability
 - environmental sustainability
 - social sustainability
- ◆ an explanation of the evolution of sustainable development to include reference to:
 - Brundtland Report “Our Common Future” (1987)
 - Rio Conference on the “Environment and Development” or Earth Summit (1992)
 - Agenda 21/Local Agenda 21
 - World Summit on Sustainable Development 2002
 - recent conventions/protocols
- ◆ description of current legislation relevant at the time of study

National Unit specification: statement of standards (cont)

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Performance and written/oral or recorded evidence must include:

- ◆ a description of the function of Environmental Impact Assessments to include:
 - scoping
 - significance of effects of the project
 - alternatives to the project
 - role in planning
- ◆ active participation in a scoping consultation for an Environmental Impact Assessment
- ◆ the production of a basic Environmental Impact Assessment Scoping Report to include:
 - flora and fauna
 - water
 - land
 - human environment

Outcome 4

Product and written/oral or recorded evidence must include:

- ◆ an explanation of the function of Product Life Cycle Assessment must include:
 - compiling and examining the inputs and outputs of materials
 - energy used
 - associated environmental impacts
- ◆ the production of a Product Lifecycle Assessment to include:
 - production
 - usage
 - disposal

National Unit Specification: support notes

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This part of the Unit specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

Guidance on the content and context for this Unit

This Unit is aligned to the following LANTRA National Occupational Standards (NOS):

- ◆ EC6 Communicate environmental information

Outcome 1

For Outcome 1 candidates will be required to explore the different types of renewable and non renewable resources. The environmental consequences of using non renewable resources should be investigated and the need to look towards alternatives discussed. Global warming, climate change and the effects this will have on the environment should be covered. Local examples to highlight the effects of climate change could be used. For example, indicator species to illustrate the change in range of species could include the increased range of butterflies and the limited range of suitable habitat for the Scottish Primrose. Candidates should have the opportunity to research the various alternative resources available and discuss the positive and negative impacts these may have on the environment. Local examples should be used throughout with field trips to wind farms, local recycling centres or Hydroelectric Power stations where possible. Case studies of local developments could be used to initiate debates with candidates debating over possible new developments in the local area, eg a new wind farm.

Alternative energy sources could include:

- ◆ wind
- ◆ wave
- ◆ tidal
- ◆ solar
- ◆ geothermal
- ◆ biomass
- ◆ biofuel
- ◆ hydroelectric
- ◆ nuclear

Alternative materials could include:

- ◆ hemp — seeds/oil, paper, cosmetics, textiles, fabric, construction
- ◆ building materials — recycled glass, lime plaster
- ◆ timber alternatives — palmwood, bamboo, cork
- ◆ fabric alternatives — sheep wool for insulating, Jute, modal made from beech clippings

National Unit Specification: support notes (cont)

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Outcome 2

Outcome 2 will require to candidates to understand the origins of sustainability. The concept of sustainability and its origins should be explored. Milestones in sustainable development and the importance of the Brundtland Report should be explored and candidates understanding of the term discussed. The definition used in the Brundtland Report/Our Common Future should be used as a benchmark. A Sustainable Development Timeline should be used to explore the milestones in the history of Sustainable Development this will also allow a progressive route through to future Earth Summits. Key milestones should include:

- ◆ First World Climate Conference 1979
- ◆ Brundtland Commission Report 1987
- ◆ UN Conference on Environment and Development 1992
 - UN Conventions on Climate Change and Biological Diversity
 - Agenda 21 Blueprint for a Sustainable Planet
 - Creation of the United Nations Commission on Sustainable Development
 - Rio Declaration
 - Forest Principles
- ◆ World Summit on Sustainable Development 2002
- ◆ Third World Climate Change Conference 2009 Geneva
- ◆ COP15 Copenhagen Climate Conference – Copenhagen Accord
- ◆ Earth Summit 2012 and beyond

The concept that sustainability is in three parts: economic, social and environmental should be briefly covered to reaffirm candidates understanding of the term.

The main current and historical conventions and legislation should be discussed these should include Agenda 21 and Local Agenda 21 an Outcome of the (UNCED) held in Rio de Janeiro, Brazil in 1992. The Kyoto Protocol set in 1997 and came into force in 2005 and the Basel Convention that came into force in 1992. The Copenhagen Accord should be discussed with candidates to show the difference between a legally binding agreement, eg the Kyoto Protocol and the Accord that was not adopted but countries and has no legal binding. Current legislation, events and future conferences at the time of study should be investigated by the candidate and literature kept up to date.

National Unit Specification: support notes (cont)

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Outcome 3

For Outcome 3 candidates will be required to understand the function of Environmental Impact Assessments, the process involved and the benefits they provide in decision making. Actual Environmental Impact Assessments Scoping Reports should be examined where possible to allow candidates to understand the cause and effects of proposed actions on the terrestrial, aquatic and human environment. Candidates are required to undertake a basic Environmental Impact Assessment Scoping Report. Appropriate developments/land use should be chosen within the local area to allow candidates the opportunity to visit sites and witness firsthand the effects or potential effects on the environment. Case studies could also be used, eg local wind farm development or site visit to local farm/reservoir or other appropriate land use to undertake Outcome 2 (b). Candidates need to understand activities that may be undertaken in a given situation and the potential impacts these may have on potential receptors.

Potential receptors of impact may include:

- ◆ flora and fauna
 - aquatic ecology
 - terrestrial ecology
- ◆ water
 - surface water hydrology
 - channel morphology
 - surface water quality
 - groundwater hydrology
 - groundwater quality
- ◆ land
 - landscape
 - soils
 - geology
- ◆ human environment
 - air pollution
 - noise pollution
 - light pollution
 - socio economic
 - health and safety
 - archaeological heritage

National Unit Specification: support notes (cont)

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Outcome 4

Product Life Cycle Assessments will allow candidates to examine the range of environmental and social damages assignable to products and services. Candidates should have the opportunity to investigate various products and services, examining the environmental impact of that product or service through the system of production, usage and disposal. Working in small groups candidates could produce a flow diagram to show the various stages within a Product Life Cycle, everyday consumables could be used, eg a loaf of bread or milk. Candidates should be encouraged to discuss alternative systems and approaches that may reduce the environmental impact of their product or service.

Stages within a Product Life Cycle Analysis may include:

- ◆ process
- ◆ extracting and processing of raw materials
- ◆ manufacturing
- ◆ transportation and distribution
- ◆ use
- ◆ reuse
- ◆ maintenance
- ◆ recycling
- ◆ disposal

Candidates should understand the chain of activities linking raw material extraction and/or production with processing use and disposal. The environmental impacts covered in a Product Life Cycle Assessments should also be discussed these may include:

- ◆ climate change — greenhouse gas emissions
- ◆ acidification — acid gas emissions
- ◆ eutrophication — nutrifying emissions
- ◆ low level air quality
- ◆ stratospheric ozone depletion
- ◆ abiotic and biotic resource depletion

Factors affecting Product Life Cycle Assessments should be included depending on case studies or examples used. These include:

- ◆ organic/non-organic
- ◆ transportation — air, lorry, car
- ◆ local or globally sourced
- ◆ fresh, cold preserved food
- ◆ packaging
- ◆ manufacturing processes

National Unit Specification: support notes (cont)

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Guidance on learning and teaching approaches for this Unit

A mixture between class based sessions and field work sessions should be used in an appropriate balance. The aim of the Unit is to allow candidates to explore their own concept of sustainability and to develop a greater understanding and acknowledgement of what our practices and consumption are doing to the environment.

Field trips may include:

- ◆ visit to local landfill site
- ◆ visit to local recycling centre
- ◆ reservoir
- ◆ wind farm
- ◆ agriculture
- ◆ visit to local supermarket – food miles
- ◆ other appropriate land uses

Case studies may include:

- ◆ proposed wind farm development
- ◆ mineral extraction
- ◆ hydroelectric power station

The Scoping Environmental Impact Assessment should be introduced in class and real land uses used where possible; this could be incorporated into field trips mentioned previously. Existing Scoping Environmental Impact Assessment should be examined by candidates.

The Product Lifecycle Assessment will allow candidates to gather research material and assess the impact the product or service has on the environment. Candidates should be encouraged to discuss how impacts could be reduced through clean technology and alternative practices. Candidates could complete an Ecological Footprint Analysis to understand the impact their own life has on the environment prior to completing the Product Lifecycle Assessment. Case studies should be used to illustrate good practice.

National Unit Specification: support notes (cont)

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Guidance on approaches to assessment for this Unit

Outcome 1

Assessment could be:

- ◆ Open-book written report including a table for PC (b) comparing advantages and disadvantages.

Outcome 2

Assessment could be:

- ◆ Open-book short response questions

Outcome 3

Assessment could be:

A written report to include:

- ◆ introduction PC (a)
- ◆ table:
 - flora and fauna, water, land, human environment
 - activity to be undertaken
 - effects of activity

Checklist for participation in scoping consultation.

Outcome 4

Assessment could be:

- ◆ portfolio of evidence
- ◆ checklist for oral presentation
- ◆ evidence of written presentation

Opportunities for the use of e-assessment

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by Information and Communication Technology (ICT), such as e-testing or the use of e-portfolios or e-checklists. Centres which wish to use e-assessment must ensure that the national standard is applied to all candidate evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. Further advice is available in *SQA Guidelines on Online Assessment for Further Education (AA1641, March 2003)*, *SQA Guidelines on e-assessment for Schools (BD2625, June 2005)*.

National Unit Specification: support notes (cont)

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Opportunities for developing Core Skills

In this Unit candidates will develop research, organisational and presentational skills.

Candidates will:

- ◆ explain the differences between renewable and non renewable resources
- ◆ plan and undertake a Scoping Environmental Impact Assessment Report
- ◆ research and produce a Produce Lifecycle Assessment

As candidates are doing this Unit they will be developing aspects of the Core Skills in *Communication, Problem Solving, Information and Communication Technology* and *Working with Others*.

Disabled candidates and/or those with additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website www.sqa.org.uk/assessmentarrangements

History of changes to Unit

Version	Description of change	Date

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