



Higher National Unit specification

General information

Unit title: Sustainable Resource Management: An Introduction
(SCQF level 7)

Unit code: H65M 34

Superclass: QE

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Version: 01

Unit purpose

This Unit has been developed to introduce learners to the waste and sustainable resource management sector. The Unit will explain how the sector operates and how it responds to economic pressures, social demands and environmental constraints. This Unit will also introduce the learner to concepts such as sustainable development and environmental responsibility. They will learn how the industry has changed in recent years moving away from reliance on landfill to reuse and recovery as the first choice. Learners will discover how environmental policies, plans and strategies are radically changing the waste sustainable resource management sector.

Outcomes

On successful completion of the Unit the learner will be able to:

- 1 Analyse what 'sustainability' means by referring to economic demand, social equity and environmental protection.
- 2 Examine the role of ethical standards within the waste sustainable resource management sector.
- 3 Explain how the waste sustainable resource management sector have developed to meet the needs of a modern society.
- 4 Explain how government strategies, plans and policies have impacted on the waste sustainable resource management sector in recent years.
- 5 Identify the key industry drivers and explain how they are being used to change the way waste sustainable resource management sector operate.

Higher National Unit specification: General information (cont)

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Credit points and level

2 Higher National Unit credits at SCQF level 7: (16 SCQF credit points at SCQF level 7)

Recommended entry to the Unit

Entry is at the discretion of the centre.

Core Skills

Opportunities to develop aspects of Core Skills are highlighted in the Support Notes for this Unit specification.

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

Context for delivery

If this Unit is delivered as part of a Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes.

Equality and inclusion

This Unit specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence.

Further advice can be found on our website www.sqa.org.uk/assessmentarrangements.

Practical site visits to some waste/resource sites may be used. These may be difficult for learners with disabilities; appropriate sites should be carefully selected to ensure there are no unnecessary barriers. A short film/commentary depicting waste/resource sites may be considered as an alternative.

This Unit specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence.

Higher 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

Analyse what 'sustainability' means by referring to economic demand, social equity and environmental protection.

Knowledge and/or Skills

- ◆ Economic demand
- ◆ Social equity
- ◆ Environmental protection
- ◆ Resources
- ◆ Natural environment

Outcome 2

Examine the role of ethical standards within the waste sustainable resource management sector.

Knowledge and/or Skills

- ◆ Corporate responsibility
- ◆ Environmental responsibility
- ◆ Ethical standards
- ◆ Green Business

Outcome 3

Explain how the waste and sustainable resource management sector has developed to meet the needs of a modern society.

Knowledge and/or Skills

- ◆ Population growth and its consequences
- ◆ Resource depletion
- ◆ Land availability
- ◆ Infectious disease and its spread
- ◆ Climate change including mitigation and adaptation
- ◆ Technology development applied within the waste sustainable resource management sector
- ◆ Waste hierarchy

Higher National Unit specification: Statement of standards (cont)

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Outcome 4

Explain how governmental strategies, plans and policies have impacted on the waste and sustainable resource management sector in recent years.

Knowledge and/or Skills

- ◆ International Agreements
- ◆ E.U. Directives
- ◆ National strategies, policies and plans
- ◆ Local waste management plans

Outcome 5

Identify the key industry drivers and explain how they are being used to change the way the waste and sustainable resource management sector operate.

Knowledge and/or Skills

- ◆ Energy market and its main participants: Energy producers, primary producers, retail sector and regulator
- ◆ Recyclate market
- ◆ Regulatory drivers

Evidence Requirements for this Unit

Learners will need to provide evidence to demonstrate their Knowledge and/or Skills across all Outcomes.

Outcome 1

Learners will be required to identify the meaning of sustainability by providing evidence that demonstrates they understand how modern society tries to balance the competing interests of its economy, the environment and a desire for social equity. They must also provide evidence of their knowledge relating to the way a sustainable society manages its natural resources and natural environment.

- ◆ Economic demand for sustainability
- ◆ Meaning of social equity
- ◆ Benefit and cost of environment protection
- ◆ Management of natural resources
- ◆ Natural environmental protection

Written and/or recorded oral evidence is required from learners to demonstrate this.

Assessment will be completed under open-book conditions.

Higher National Unit specification: Statement of standards (cont)

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Outcome 2

Within the context of a nominated organisation learners will be required to provide evidence to meet all Knowledge and/or Skills items by showing they can explain what is meant by:

- ◆ Corporate responsibility
- ◆ Ethical standards
- ◆ Environmental standards
- ◆ Green business

Written and/or recorded oral evidence is required from learners to demonstrate this.

Assessment will be completed under open-book conditions.

Outcomes 3, 4 and 5

Learners will be required to demonstrate an holistic understanding of how the demands of society, government strategies, plans and policies and key industry drivers have all influenced the development of the waste and sustainable resource management sector over the past 150 years.

- ◆ The impact of population growth
- ◆ Resource depletion and land availability
- ◆ The spread of infectious disease
- ◆ Causes of climate change and how technology has developed within the sector to mitigate this impact
- ◆ The hierarchy of waste
- ◆ International agreements
- ◆ European Union directives
- ◆ National strategies and local plans
- ◆ Energy and recycle markets
- ◆ Energy producers
- ◆ Retail sector
- ◆ Regulatory drivers including Fiscal drivers

Written and/or recorded oral evidence is required from learners to demonstrate this.

Assessment will be completed under open-book conditions



Higher National Unit Support Notes

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Unit Support Notes are offered as guidance and are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 80 hours.

Guidance on the content and context for this Unit

This is an optional Unit for learners wishing to achieve an HNC in Sustainable Resource Management. The Unit provides an introduction to the topic and is therefore particularly recommended for learners with little or no previous experience of the waste sustainable resource management sector.

It should be recognised that there is no exact definition for some of the topics covered by this Unit. It is therefore important that learners have an understanding of what is meant by sustainability, sustainable development and sustainable resource management.

It should be borne in mind that environmental strategies, plans and legislation vary from region to region [or indeed country to country]. It is therefore incumbent upon the Centre to apply what is considered relevant to their locale.

In placing the industry within a contemporary context it is important that learners are given an appreciation of its historical legacy, in particular how it has adapted over the years to meet the needs of society. It is recommended that the starting point for this learning objective is the 19th century when significant progress was made by the industry in dealing with the causes of typhoid, cholera, etc.

Covering a period of 150 years it is recommended that the time line is divided into 5 significant periods

- ◆ 1870s to 1890s covering the period when basic improvements to the waste management within Victorian towns and cities made a major contribution to life expectancy and the quality of urban living standards.
- ◆ 1900s to 1920s a period of great social change before and immediately after the First World War, also a period of technical change for the waste management industry, not least the move from horse drawn to motorised cleansing vehicles.
- ◆ 1920s to 1960s when the waste management sector was required to deal with a large amount of wastes from the increase in post-war consumption and rapidly changing waste streams (plastics, etc).
- ◆ 1970s to 1990s a period which saw the introduction of increasing amounts of environmental legislation being used to control the activities of the waste and resource management sector.

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- ◆ 2000 to date the current period within which the industry has moved away from landfill as its preferred option to be replaced by recycling and resource recovery. Also the period which has seen the introduction of integrated pollution prevention control as the means of regulating the industry.

It is recognised that elements of this Unit will be reinforced by future learning at later stages in the HNC course. Time should be spent with learners ensuring they have a good understanding of the concept rather than the detail, which can be picked up later.

Guidance on approaches to delivery of this Unit

This Unit is likely to form part of a Group Award which is designed to provide learners with the professional and technical knowledge and skills for wastes sustainable resource management sector. In these circumstances, the Unit is likely to be delivered towards the beginning of the Group Award as the information provides the background to many of the Units which make up the Group Award.

Alternatively the Unit can be undertaken as a standalone Unit for learners to support their continued professional development.

A range of delivery techniques can be employed including class-room based lectures and small group workshops and activities.

This Unit could be delivered by distance-learning. The use of a virtual-learning environment (VLE) is highlighted, with on-line lectures and activities; the employment of video and audio clips, social-media and other online tools is encouraged. Learners should be encouraged to use the Internet as a research tool in addition to traditional library based resources. Independent study should be encouraged by using learner-centred, resource based methodologies.

The element of this Unit which deals with strategies, plans and policies would benefit from a top down approach. For example, start learners with the Kyoto protocol, which had global significance, leading them on to its adoption by the European Union and the directives that followed, explain that these in turn will influence UK legislation and national strategies which ultimately shape local plans and policies.

As there is no exact definition for 'sustainability' it is important that learners develop a view of the concept, this could involve a degree of debate and informed discussion leading to consensus.

To reinforce their learning experience learners should review real case studies such as the BP oil spill in 2012 or the Loscoe (landfill) gas explosion in 1986. Learners may also benefit from a site visit to one of the numerous locations where a legacy of contaminated land has been left by companies failing to take their environmental responsibilities seriously. As an alternative a centre may wish to show a film or devise a commentary.

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In explaining how government plans and policies have impacted on the waste and resource management industry (Outcome 4) it would be advantageous if the learner had an understanding of the Strategic Environmental Assessment (SEA) process and the Zero Waste Plans.

SEA is a legally enforced assessment procedure required by Directive 2001/42/EC which requires significant plans and programmes to be assessed to ensure they take into consideration the environmental effects they cause.

Zero Waste is about planning to prevent waste and minimise resource use, diverting material from landfill and maximising its economic value.

In considering the importance of ethical standards within the waste and resource management sectors (Outcome 2) learners may refer to the following principles:

Polluter Pays Principle — the party responsible for producing pollution is also responsible for paying for the damage caused to the environment.

Proximity Principle — waste should be disposed as close as reasonably practicable to the point at which it is generated.

Duty of Care which is a legal obligation on companies to dispose of their waste properly.

Producer Responsibility — requires the producers of waste, packaging materials, etc to take responsibility for their environmental impact.

These principles will be covered in more detail in other Units.

Guidance on approaches to assessment of this Unit

Evidence can be generated using different types of assessment. The following are suggestions only. There may be other methods that would be more suitable to learners.

Centres are reminded that prior verification of centre-devised assessments would help to ensure that the national standard is being met. Where learners experience a range of assessment methods, this helps them to develop different skills that should be transferable to work or further and higher education.

Please note that learners must achieve all the Learning Outcome to pass the Unit.

This Unit introduces learners to a range of issues and concepts, to provide knowledge and understanding of the relevance of Sustainable Resource Management regulations and initiatives. Learners will be expected to develop a holistic approach in their knowledge and understanding. Written and/or recorded oral evidence is required from Learners to demonstrate this. Assessment will be completed under open-book conditions.

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Outcome 1

This Outcome could be assessed by requiring an open-book essay in the region of 800 words within which the learner will demonstrate an understanding of the key features of sustainability with a minimum of three clear references to relevant literature.

Outcome 2

This Outcome could be assessed by asking learners to select a company known to them and summarise in an open-book essay in the region of 800 words the relationship between its declared ethical standards and its actual environmental performance.

Alternatively, learners are given a case study involving a company which failed to act responsibly in disposing of its waste and are then asked to summarise in an essay in the region of 800 words the ethical issues raised.

Outcomes 3, 4 and 5

These Outcomes could be assessed by a single open-book essay in the region of 2,500 words. The assessment would require learners to construct a 'time-line' for the past 150 years which indicates the order and timescale in which new technologies and changes to working practices have taken place within the waste/sustainable resource management sector. Learners must then cross reference this time line to major social events, key industry drivers, and relevant environmental legislation/strategies/plans.

As with any Unit, centres should ensure they can authenticate learners' assessments. This may be done by questioning learners about their work, by viewing drafts of partially completed assessments or by using an online anti-plagiarism tool.

Opportunities for 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 social software. Centres which wish to use e-assessment must ensure that the national standard is applied to all learner evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. The most up-to-date guidance on the use of e-assessment to support SQA's qualifications is available at www.sqa.org.uk/e-assessment.

Higher National Unit Support Notes (cont)

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Opportunities for developing Core and other essential skills

There are opportunities to develop the Core Skills of *Communication* at SCQF level 6 by requiring learners to respond by means of Oral and Written communications. The Core Skill of *Working with Others* will be developed during this Unit as learners are encouraged to co-operate with each other as they work towards a shared view of sustainability. Further, *Numeracy* at SCQF level 5 and *Information and Communication Technology (ICT)* at SCQF level 5 may be developed by completing this Unit. There is no automatic certification of Core Skills or Core Skills components.

History of changes to Unit

Version	Description of change	Date

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General information for learners

Unit title: Sustainable Resource Management: An Introduction (SCQF level 7)

This section will help you decide whether this is the Unit for you by explaining what the Unit is about, what you should know or be able to do before you start, what you will need to do during the Unit and opportunities for further learning and employment.

This Unit will provide you with an opportunity to learn about the waste sustainable resource management sector. It will be of particular benefit to you, if you are anticipating employment at a landfill, waste treatment, recycling or reuse facility.

This Unit is an introduction to the management of sustainable resource issues and is therefore particularly relevant for you, if you have little or no previous experience of the industry.

You will review the recent history of the waste and sustainable resource management sector and consider whether it has shown itself capable of adapting to meet the needs of society. You will also be asked to consider the industry drivers including environmental legislation, landfill tax and fuel security and decide how and why they are impacting on the industry.

There will be an opportunity to review the most significant environmental strategies and policies such as the Kyoto Protocol, Greener Scotland and the Zero Waste Plan, and decide whether they have been effective.

Referring to real case studies you will learn about the legacy left by companies who failed to take their environmental responsibilities seriously and the impact this has had on society.

The learning content from this Unit will be developed in more detail later on in the course and it should therefore provide an effective foundation for you to progress through the course. If you are currently uncertain what sustainable development or environmental responsibility actually means you should consider opting for this Unit.

Over the course of this Unit, there may be opportunities for you to develop Core Skills in the areas of *Working with Others* at SCQF level 6, *Communication* at SCQF level 6, *Problem Solving* at SCQF level 6, *Numeracy* at SCQF level 5 and *Information and Communication Technology (ICT)* at SCQF level 5, although there is no automatic certification of Core Skills or Core Skills components.

Your performance through this Unit will be assessed by asking you to develop a time line specifically for the waste and resource management sector that covers the past 150 years. This assessment will be produced out-with class time. In addition, your knowledge of other topics covered within this Unit related to sustainability and ethical standards will be tested by open-book assessment.