



## External Assessment Report 2013

Subject(s)	Managing Environmental Resources
Level(s)	Higher

The statistics used in this report are pre-appeal.

This report provides information on the performance of candidates which it is hoped will be useful to teachers/lecturers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding. It would be helpful to read this report in conjunction with the published question papers and marking instructions for the examination.

# Comments on candidate performance

## General comments

The paper covered all three units of the topics outlined in the specification, and reflected both national and international environmental issues. All questions in the paper were similar in standard to previous years and accessible to candidates. A balance was maintained in the marks awarded between those testing Knowledge and Understanding and those testing Problem Solving or Practical Abilities. The quality of answers throughout the paper was generally good, with candidates indicating a very positive attitude to, and understanding of, current environmental issues.

Section A of the paper comprises structured questions. Discriminating questions in this section of the paper functioned appropriately. This part of the paper included questions on environmental issues relating to natural resources, energy — its use and sources, agencies and initiatives, waste reduction, food webs and biological processes, soil profiles, moorland management and its conflicts, land use and agencies with responsibility for land use, and environmental and human benefits and conflicts set in the Orkney Islands and in the fishing industry. The vast majority of candidates coped well with this part of the paper. However, performance in problem-solving and data-handling questions was disappointing, indicating that more attention should be given to the development of these skills.

Questions requiring discrete factual information, particularly biological information as detailed in the subject specification, still prove difficult, which indicates that candidates may require more structured revision of terminology throughout the course. Published marking schemes can be useful to centres in this respect, in that they provide concise definitions and examples, eg biological terms or legislation.

In Section B, the essays were discriminating. Question 8 offered a choice between succession and investigation techniques, and Question 9 between initiatives and changes in agricultural practices, and impacts and solutions to the use of non-renewable sources of energy. Very few candidates used bullet points in responses, but the presentation and standard of English was deemed to be lower than expected at Higher level. However, most candidates formulated essays containing relevant factual information, for which they were given credit.

The majority of candidates attempted both essays. Good candidates did well in both essays, often with marks in double figures. Some centres had clearly given their candidates the opportunity to carry out basic fieldwork, resulting in some very detailed accounts when answering question 8B.

## Areas in which candidates performed well

### Section A

Candidates performed well particularly in questions 1, 2, 4, 5 and 6 in Section A of the paper. These questions ranged across the three topic areas of the MER specification.

Most candidates showed good knowledge and/or gave sound explanations in the following questions:

- ◆ 1b) renewable/non-renewable resources
- ◆ 1e) energy reduction in the home
- ◆ 2a) role of agency and initiative at local level
- ◆ 2c) impact of legislation on marine environment
- ◆ 2d) ecotourism
- ◆ 2 (f) waste strategy in EU country
- ◆ 4a)i) describing impact of subsidies on moorland
- ◆ 4b)i) naming a predator and habitat
- ◆ 4b)iii) control of vermin when chicks hatch
- ◆ 4b)iv) monitoring of hen harrier population
- ◆ 5b)i) meaning of statutory
- ◆ 5b)ii) role of SNH
- ◆ 5c)iv) recreational activities
- ◆ 5d) purpose of EIA
- ◆ 5f) historical impacts on landscape
- ◆ 6a)ii) cereal crops grown in Scotland
- ◆ 6d) examples of pressures and benefits
- ◆ 7d) conflict and resolution

Some of the problem-solving and data-handling aspects of questions were also well done, particularly in the following questions:

- ◆ 1a)i) and 2 select information
- ◆ 3(a)i) and iii) select information
- ◆ 4a)ii) select and explain
- ◆ 6a)i) calculation
- ◆ 6c)ii) trend
- ◆ 6d)i) and ii) explain/give a reason

## **Areas which candidates found demanding**

### **Section A**

In Section A the following questions in questions across the paper proved difficult for a number of candidates:

- ◆ 1d) factors in life cycle assessment
- ◆ 1f) reducing energy demand in industry
- ◆ 1g)i) energy use and sources in ELDCs and EMDCs
- ◆ 2a)ii) abbreviations
- ◆ 3e) role of leguminous bacteria
- ◆ 3f) percentage humus content
- ◆ 3g) soil profiles
- ◆ 4c) suggest and explain impact of Japanese knotweed
- ◆ 5a)ii) calculate percentage
- ◆ 6c)i) graph
- ◆ 7a)i) and ii) – CFP and TAC

- ◆ 7c)ii) – Describe and explain trend in fish catches

## **Section B: Essays**

Essays prove to be the most discriminating part of the Higher paper. Once again, some candidates could not provide enough detail in essays. A significant number of candidates did not attempt, or wrote very little in their essays. Attempting both essays makes it much more likely that the candidate will be able to attain at least the pass mark in the paper. This should be emphasised when training candidates in essay writing. In all essays it is important to relate factual knowledge to the stem of the question.

In this year's essays, performance was average to good for the structured questions on biological-based topics: 8A (Succession) and 8B (Investigation techniques). Both essays were equally appealing to candidates. Question 9B was the preferred option of candidates from the unstructured essay options, but high marks were achieved by those attempting 9A.

### **Question 8A**

- ◆ The sequence of changes in succession was described well, but some candidates did not include appropriate terminology, eg pioneer and climax community, or exemplification as suggested in the essay title.
- ◆ Characteristics of the climax community were described well for the most part.
- ◆ Giving appropriate definitions and exemplification of inter and intra specific competition proved to be challenging for a number of candidates.

### **Question 8B**

- ◆ Sampling techniques were well exemplified and their use explained.
- ◆ Techniques for measuring named abiotic factors were described fully.
- ◆ Reliability and data collection was well known, but few were able to describe the concept of validity clearly.

### **Question 9A**

- ◆ Most candidates produced a range of initiatives in agricultural practices, some describing them in a historical perspective.
- ◆ Some candidates failed to relate the changes in initiatives to the sustainable use of resources sufficiently.

### **Question 9B**

- ◆ Most candidates were able to comment on direct and indirect impacts of using non-renewable sources of energy, giving a range covering impacts on landscape, wildlife and biodiversity.
- ◆ Fewer candidates responded with a range of actions that could be taken to reduce these environmental impacts.

## **Advice to centres for preparation of future candidates**

This year we welcomed four new centres as well as maintaining interest from established and returning centres. As a result, there was an increase in the total numbers of candidates

presented at Higher. All centres, particularly the new ones, should be congratulated on the support given to candidates in preparing for this examination.

Very few questions were not attempted, and many were answered with extended responses that indicated the wide scope of the candidates' knowledge and interest in environmental issues.

The preparation of candidates for data-handling questions, particularly completing the graph and % change, was not as good as in previous years. Calculations and graphs are an established aspect of the Higher examination.

Centres appear to be preparing candidates better for the challenging definitions and knowledge that are subject-specific, eg sustainability, ecotourism, SNH and its roles, but some basic biological terms relating to food webs (eg detritivores, photosynthesis) were poorly attempted. The question on soil profiles in particular proved very challenging. Candidates also have difficulties with questions where an explanation is required.

Practice with past paper questions and providing candidates with succinct definitions using guidance from published marking schemes can be very supportive. Practice with essay questions in both the structured and unstructured style helps to build up candidates' confidence.

Success in the essay on succession and investigations this year suggests the added value for candidates experiencing fieldwork. Fieldwork should be encouraged as one method of teaching some of the coursework, especially in relation to techniques and terminology such as transect studies involving frequency and distribution of organisms, repeating and averaging, and the impacts of abiotic and biotic factors. Soil as an ecosystem is included in the MER specification for study in a practical way, while land use studies allow for field excursions to enrich candidates' knowledge. Candidates who have been involved in such studies demonstrate their understanding clearly in responses to questions in biological and land-based studies.

## Statistical information: update on Courses

### Higher Managing Environmental Resources

Number of resulted entries in 2012	243
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Number of resulted entries in 2013	362
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## Statistical information: Performance of candidates

### Distribution of Course awards including grade boundaries

Distribution of Course awards	%	Cum. %	Number of candidates	Lowest mark
Maximum Mark 110				
A	16.6%	16.6%	60	76
B	23.8%	40.3%	86	65
C	30.1%	70.4%	109	54
D	8.8%	79.3%	32	48
No award	20.7%	100.0%	75	-

## General commentary on grade boundaries

- ◆ While SQA aims to set examinations and create marking instructions which will allow a competent candidate to score a minimum of 50% of the available marks (the notional C boundary) and a well prepared, very competent candidate to score at least 70% of the available marks (the notional A boundary), it is very challenging to get the standard on target every year, in every subject at every level.
- ◆ Each year, SQA therefore holds a grade boundary meeting for each subject at each level where it brings together all the information available (statistical and judgemental). The Principal Assessor and SQA Qualifications Manager meet with the relevant SQA Business Manager and Statistician to discuss the evidence and make decisions. The meetings are chaired by members of the management team at SQA.
- ◆ The grade boundaries can be adjusted downwards if there is evidence that the exam is more challenging than usual, allowing the pass rate to be unaffected by this circumstance.
- ◆ The grade boundaries can be adjusted upwards if there is evidence that the exam is less challenging than usual, allowing the pass rate to be unaffected by this circumstance.
- ◆ Where standards are comparable to previous years, similar grade boundaries are maintained.
- ◆ An exam paper at a particular level in a subject in one year tends to have a marginally different set of grade boundaries from exam papers in that subject at that level in other years. This is because the particular questions, and the mix of questions, are different. This is also the case for exams set in centres. If SQA has already altered a boundary in a particular year in, say, Higher Chemistry, this does not mean that centres should necessarily alter boundaries in their prelim exam in Higher Chemistry. The two are not that closely related, as they do not contain identical questions.
- ◆ SQA's main aim is to be fair to candidates across all subjects and all levels and maintain comparable standards across the years, even as arrangements evolve and change.