

# Examiners' Report

## June 2015

GCSE Geography A 5GA2H 01

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## **Introduction**

The Natural Environment paper continued in its new format for the June 2015 series. Candidates are required to answer all topics in Section A, on the physical geography of Coasts, Rivers and Tectonic Landscapes, at a mark tariff of 15. In Section B there is a mark tariff of 20, however candidates still have the option of either Wasteful World or Watery World topics. The extended writing questions in Section B carry a SPaG mark of 4. SPaG at Higher Tier is judged on the same criteria as the Foundation Tier paper. Overall, this means that both Unit 2 examinations now have a total mark allocation of 69.

Even though the content of this specification has been strengthened it is clear that there are some centres who may have not fully appreciated some of the changes in this content. The style of the 6 mark questions in the Coasts and Tectonics sections in this June 2015 examination were a reflection of the questions in the second set of Sample Assessment Materials. It would be advisable for some centres to look at these, which are available on the GCSE Geography A part of the Pearson Edexcel website, so they can prepare their candidates fully. We would therefore suggest centres carefully focus on these changes to inform future teaching or attend training provided by Pearson Edexcel.

The paper was generally well received by all candidates and centres and although the paper had a greater demand, the mean mark was only slightly lower than in previous series. With the added emphasis on purer physical geography the performance in Section A dropped slightly. However, ironically, the Rivers section which had a case study style question performed the worst out of the three options, with candidates scoring highest in the Tectonics section. In Section B, many more candidates attempted Question 4 than Question 5, though performance was similar across both sections with near identical mean marks.

The following report outlines candidates' performance on the paper, highlighting areas of strength and weakness across the different questions, offering examples of performance and suggestions for improvements in future series.

### **Question 1 (a) (i)**

Many candidates were able to successfully tackle this question and recognise the correct direction of longshore drift, from right to left. Some candidates did not use the box; however, this did not make a difference if they had the correct answer. Some candidates did not answer the question and a few simply drew their arrow to the shore without giving a direction.

### **Question 1 (a) (ii)**

The majority of candidates were able to identify the landform X as a spit.

## Question 1 (b)

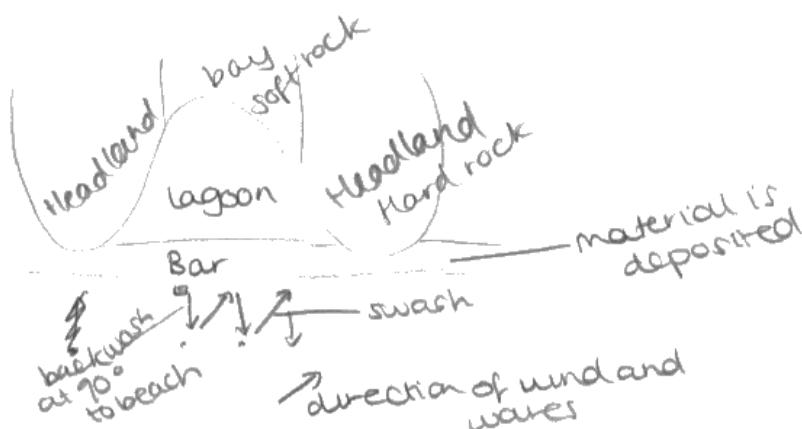
This question required description of bar formation rather than explanation as has perhaps appeared in past exam series. Therefore, candidates were not required to offer explanation but simply describe the stages of formation. Credit was given for the idea of longshore drift moving along the coast, developing into a spit, which ultimately joined to another headland. Candidates could get credit for developing the process of longshore drift with reference to the process of swash and backwash or by developing the formation of a bar with a lagoon. Many candidates recognised that lagoons were a product of longshore drift and that they attached between two headlands. Good candidates also recognised that they often form in low energy bays. Some candidates incorrectly thought that they were a product of erosion of the headland.

The following answer was awarded 3 marks for a simple response.

(b) Describe the formation of a bar.

You may use a diagram to help with your answer.

(3)



A bar is formed by longshore drift across a bay.

It forms a lagoon behind it. The material is moved in the direction of the prevailing wind and backwash at ~~at~~ right angles to the beach.

The material is deposited as it moves along.



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Examiner Comments

This candidate recognised the process of longshore drift moving sediment along the beach, and also the build-up of material connecting two headlands. They also developed their answer with reference to swash and backwash and identified the lagoon formation. The diagram is a good representation of what is written in the text.



**ResultsPlus**  
Examiner Tip

Use annotated diagrams with clear labelling to show the processes in landform formation.

### Question 1 (c)

The concept behind this question was well understood and therefore many candidates were able to gain some credit. The secret to answering this question was to (i) ensure that there was clear comparison i.e. using comparative words such as 'whereas' or 'however', and (ii) ensure that there were four matching pairs. Candidates let themselves down by describing a range of characteristics of one wave and not the other. Common characteristics included swash and backwash, energy, wave height, wave length and conditions of formation. No credit was given for references to the beach as this is not a direct wave characteristic.

- (c) Describe the differences between constructive and destructive waves.

You may use a diagram to help with your answer.

(4)

Destructive waves have high energy due to the large fetch that formed it. It has a high frequency of 10 to 14 waves per minute. It is also high and steep. A destructive wave has a weak swash and a strong backwash, this causes it to erode the coast. In comparison, a constructive wave has low energy. The waves it produces are low and long. They have a low frequency of 6 to 10 waves per minute. Also, a constructive wave has a strong swash and a ~~the~~ weak backwash. This causes it to deposit material onto the coast.



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Examiner Comments

This candidate followed a fairly typical approach to answering this question, going through each wave type and highlighting the characteristics. Here the candidate has energy, frequency, height, swash/backwash and erosion/deposition for both wave types. This candidate does however have a specific comparative phrase and is therefore able to achieve full (4) marks. Many candidates followed this approach but did not use comparative language and were therefore held at 3 marks.



**ResultsPlus**

Examiner Tip

Make comparisons explicit within one sentence, e.g. destructive waves cause more erosion whereas constructive waves deposit material. This method will ensure that you achieve maximum marks if you have to compare in order to obtain full marks.

### **Question 1 (d)**

This question appeared to take some candidates by surprise as it looked as though they were expecting a traditional style, 6 mark case study type question. However, this type of question was included in the sample assessment material (SAM) for this linear specification and hence it has been asked. The format to marking this took a similar line to the landform formation questions; however, the focus was on more than one landform and also about geology. Many candidates found the resource, a photograph of the Oregon coastline, a benefit but equally restraining. This was because although the photograph prompted answers on different resistant geology, it focused many of the answers onto just Headland and Bays which limited the range of landforms. Only relatively few candidates ventured beyond this which kept many of the responses in Level 2. Good answers focused not just on different resistant geologies, but also weaknesses within a rock type due to jointing/cracks, or vulnerability to certain erosional processes e.g. limestone affected by corrosion. Some really strong candidates focused on the angle of dip of the rock beds, though these were more AS Level type answers than GCSE ones. Whilst some candidates were restricted by the range of landforms in the question, many focusing on headlands and bays, there were some who focused on the development of the headland into caves/arches/stacks and stumps. Other candidates also included beaches and cliffs.

It is fair to say that candidates have a good grasp of the concept of geology, but need to apply this on a wider scale than simply to hard and soft rocks.

This is a top Level 3 answer which scored 6 marks.

\*(d) Study Figure 1b (photograph) in the Resource Booklet.

Explain how geology influences the formation of coastal landforms.

(6)

Harder rock is more resistant than softer rock, and so erodes ~~the~~ less quickly than softer, less-resistant rock, like weathered clay. If alternating bands of hard rock, eg chalk, and soft rock lie discordant (at 90°) to oncoming waves, the soft rock will be eroded away faster and form bays, whereas the harder rock will withstand erosion from the sea and form headlands which stick out <sup>from</sup> the coastline. In addition to this, some cliffs have seaward dips, meaning their rock is more susceptible to erosion, while others have landward, more resistant rock. (from chemical) Other rock types are more susceptible to corrosion, such as limestone, causing arches and cliffs to erode. Acid rain is an example of this. Total for Question 1 = 15 marks

type of weathering.



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Examiner Comments

This candidate had a clear grasp of the question and used a wealth of appropriate terms in their answer. There is a clear understanding of discordant coastlines leading to differential erosion, with reference to relevant rock types in support. The process is also clearly linked to the landform which adds to the explanation. However, this candidate also refers to dip of rocks and also vulnerability to corrosion which are other geological influences. As this candidate referred to three different geological contexts and linked these to a range of processes and landforms they were able to reach a top Level 3 answer and score full marks.



## ResultsPlus

Examiner Tip

The specification clearly requires candidates to understand the role of geology in the formation of landforms. Ensure there is sufficient focus on this, and try to develop understanding beyond just hard and soft rock types. For the able candidates they should try to link geology, process and landform.

## **Question 2 (a) (i)**

This question, following on from Question 1(d), led to many responses which made reference to hard and soft rock. While this was not credited, references to clay being the area most susceptible to flooding were (even if they were part of a hard/soft rock type answer). Most candidates could recognise the pattern of flooding and link it to geology thereby scoring one mark. Good answers then linked this to a descriptive reason e.g. permeability or porosity. Some candidates recognised the correct pattern but confused the concept. Generally, for those who understood the concept of geology, most achieved one mark and many achieved two.

## Question 2 (a) (ii)

The vast majority of candidates scored either 2 or 3 marks on this question. Many were able to identify possible effects of the flooding shown in Figure 2a, the most common included disruption to communications or damage to homes or possessions. Some candidates limited themselves by focusing on environmental impacts e.g. damage to ecosystems, rather than human impacts. Other common mistakes included not referencing the figure, therefore limiting responses to 2 marks. However, on the whole, candidates were adept at applying their knowledge of flooding to an unknown resource.

- (ii) Describe how flooding might affect people living in the area shown in Figure 2a.

Use evidence from the map in your answer.

(3)

Flooding may affect people because there is a high amount of flooding on the A259 road which means there will be damage to roads which will reduce transport of people and products. Flooding has occurred in the Pagham Harbour which means it will affect industry as it may destroy jobs and prevent money coming in to the area. Flooding has also occurred in built up areas such as Chichester which means houses will be destroyed, causes spread of disease and destroys crops and farming.



**ResultsPlus**

Examiner Comments

This candidate has included a series of possible impacts on people as a consequence of the flooded areas shown in Figure 2a. These include damaging the road, reducing transport, affecting jobs, and damaging property. The candidate makes reference to Figure 2a which enables them to access full marks. Therefore, this candidate scores 3.



**ResultsPlus**

Examiner Tip

When asked for evidence from a map, make reference to places, names, road names, or any specific feature identifiable from the resource. Doing this will help you to access full marks, even if there is no credit for the evidence.

## Question 2 (b)

Interestingly candidates who were competent at applying their knowledge of flooding to unknown resources found the same application of downstream process more of a challenge in this question. The majority of candidates were able to identify the correct stage of the river; in this case both upper and middle course were acceptable. If the candidate mentioned lower course, they were given credit if they identified upper or middle course features in their response. However, most candidates were only able to describe features from the resource rather than offer the appropriate reasons for them.

Candidates commonly identified the relatively narrow channel, low discharge or low velocity, low depth, meander or the large deposits in the channel. However, often the reason given for their existence was because it was in the stage which had been named. Common reasons also included a lack of erosion on the large deposits hence middle/upper course, or a lack of energy, by the channel, to transport the deposits hence their prominence in the channel. Some good answers were able to combine factors, for example a low velocity is caused by the increased friction as a consequence of the low depth.

This is clearly one skill that needs to be practised by candidates - explaining information from an unknown resource.

(b) Study Figure 2b (photograph) in the Resource Booklet.

River courses are divided into three stages. Which stage of the Virgin River is shown in Figure 2b?

Explain your choice.

(4)

Chosen stage Upper Course

I think it is in the upper course because it seems to be rather narrow and quite shallow, which are features of a river in its upper course. Also, it has large boulders in the middle of it which shows the water has not got enough energy to move them, a feature of a river in its upper course. The fact it is at the bottom of a <sup>narrow</sup> valley also shows this as it lacks lateral energy to carve through the rock at its sides which is a feature of a river in its upper course.



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### Examiner Comments

This candidate identifies a series of characteristics: shallow, large boulders, and narrow valley. However they only offer explanation for the large deposits and narrow valley, i.e. lack of energy and lack of lateral erosion. In the first sentence this candidate did what many other candidates did, which was to justify the features identified by simply linking them to the stage. Even so, the candidate had two clear descriptions and two explanations so was able to score 4 marks.



## ResultsPlus

### Examiner Tip

The easiest way to approach this type of question is the old classic of point and explanation. Identify the descriptive feature then link the reason to it. Use of link words such as 'due to' or 'because' will help answers become more explicitly linked to question.

## Question 2 (c)

Although this was not a traditional flooding case study question, many candidates adapted their knowledge, from examples they had studied, to this question well. The question required an explanation of how the effects of flooding can be reduced through planning and education. On the whole the planning was well attempted with some good responses about defences or adaptations to buildings or possessions, whereas education was a little more generic. As a result many candidates were limited to Level 2 answers as they only had some explanation of one aspect of the question. Some candidates were self-limiting by not giving examples, which included either specific place detail or organisations, in their answers and therefore scored only 3 marks. Those that used examples as part of their answers often scored the best marks and in some cases achieved Level 3. Good use was made of the River Nene, Blandford Forum and the Boscastle flood. However, there were also many generic responses which made fleeting references to places e.g. in Bangladesh all houses are on stilts, which offered little explanation.

- \*(c) Using examples, explain how the effects of flooding can be reduced through planning and education.

(6)

Planning can involve land-use zoning which means lower priority buildings or features are nearer the river. This reduces effects as high priority constructions have a lower impact. For example, at Blandford Forum (which has the River Stour running through) emplaced washlands which cannot be built on and allow excess water to flood. Planning can also involve employing emergency evacuation routes and plans which ensure people know what to do in case of a flood. Planning can also involve building design, in which electrical sockets are raised > ~~40cm~~ 1 metre from ground level, heating units are placed on the upper floor and synthetic materials are used for construction. These all reduce the cost of clearing up after a flood. Educating people on what to do in case of a flood can ensure people are prepared for floods and know what to do in such an emergency. For example the Environmental Agency has constructed a website with what to do in preparation for a flood.  
**(Total for Question 2 = 15 marks)**  
This includes preparing supplies and ways to keep safe in the process of flooding.



## ResultsPlus

### Examiner Comments

This answer has a clear focus on both planning and education and is set within the example of Blandford Forum, yet it also has some specific references to agencies - in this case, the Environmental Agency. A series of points about planning are offered with some being well developed. The points on education are less detailed but are clearly linked; therefore this candidate is able to achieve top Level 3 - 6 marks.



## ResultsPlus

### Examiner Tip

Instead of learning case study examples for a variety of different questions get the candidates to apply their case study knowledge to planning and education contexts. Therefore they can develop an excellent understanding of one example and learn the skill of application at the same time!

### **Question 3 (a)**

This was a really well answered question with over half of all candidates scoring full marks. It was good to see old advice acted upon, as many candidates identified a general pattern, used map evidence and identified anomalies from the pattern to describe the distribution. The skill of describing distribution has clearly improved over the past 5-6 exam series.

Common answers included the north-west orientation of fault lines, the distribution around the road, and the fact that there were few near mountains (except Red Mountain).

### **Question 3 (b)**

This was generally well answered and is a concept that is well understood by candidates. Many offered the Richter scale to measure magnitude or the Mercalli scale to measure intensity. The main limitation to candidates' answers was not offering any development for the second mark or simply repeating the question e.g. Richter scale measures magnitude; there is no credit given for repeating the word in the question. Typical answers that scored two marks linked the Richter scale to how it was measured e.g. with seismometers, or by developing what the scale measures e.g. energy from seismic waves, or shaking of the ground.

### Question 3 (c)

Although candidates are not used to 4 mark case study style questions, many coped well with this one, and the majority of candidates (over two thirds) scored either 3 or 4 marks. Of those who were limited to 2 marks or below they often gave generic effects on people or focused on effects on the environment. Those that used case study information to back up their answers were often able to develop their answers with explanation and hence reach 3 or 4 marks. There were some excellent references to the effects associated with the Haiti and Izmit earthquakes or the Montserrat volcanic eruption. Responses linked to Sicilian or Mt St Helens eruptions tended to be vaguer. There were still some candidates who offered a range of descriptive points but failed to link them together and hence scored 2 marks. Although the performance on this question was pleasing, examiners recommend centres continue to focus on developing explanation through linking points together.

- (c) For an earthquake **or** volcanic eruption you have studied, explain **two** effects on people.

(4)

Chosen earthquake/volcanic eruption Montserrat

One of the ~~the~~ major effects on people was the migration. Lots of skilled workers left the island, reducing the population down to 1500 and creating a skills deficit. As a result, it left 50% of people on the island unemployed.

The refugee camps, set up by the Red Cross were bad. As sewage and drainage systems collapsed, the increase in number of people together caused a spread of disease, also due to poor hygiene. The camps lasted two years. This also links to ongoing respiratory problems.



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Examiner Comments

This candidate scores full marks with two fairly simple descriptions and developments - the skills deficit and poor camp conditions. Although this response was not as detailed as many others it does enough to reach full marks.



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Examiner Tip

Ensure that when you are explaining effects, you are able to link descriptive points together to achieve the development.

### **Question 3 (d)**

As with Question 1(d), this question required development of a landform as a 6 mark question, something which was included in the second set of Sample Assessment Materials released at the start of the strengthened specification.

This question was generally well attempted and it was pleasing to see so many candidates offer explanations of the different stages of the process in the formation of volcanoes at convergent plate boundaries. Answers were slightly polarised in that candidates either had excellent understanding or managed to get it wrong. Common mistakes were answers which focused on divergence rather than convergence, or those that spent much of the answer referring to fold mountains rather than the volcanoes themselves. A good understanding of continental-oceanic convergence was displayed; however, there was greater confusion over oceanic-oceanic convergence.

Answers that were descriptive were kept in Level 1, and these tended to be from those candidates who understood that plates moved together and magma rose. To access Level 2 candidates needed to give some explanation, and for the top of Level 2 two partial explanations were required; with this sequence of landform formation most explanations are partial. For example, convection being the reason for driving the plates together, or subduction of the denser oceanic crust. To access Level 3, candidates had to have a further partial explanation and for the top of the level they needed to make explicit reference to the build-up of the volcano on the surface, or make reference to a characteristic associated with convergent volcanism. The most common further partial explanations made reference to either the high temperatures in the mantle causing the melting of the oceanic/subducting plate, or, the melt formed rising as a result of its lower density. Common characteristics of convergent volcanoes included explosive eruptions or the formation of ash or pyroclastic flows.

This question certainly posed a challenge to many; however, over half of all candidates scored at least Level 2 answers showing that there is good understanding out there. Centres would be advised to teach volcano formation specifically linked to the plate boundaries as set out in this question rather than in a generic context.

\*(d) Study Figure 3b (photograph) in the Resource Booklet.

Explain how volcanoes are formed on convergent plate boundaries.

(6)

Convergent plate boundaries happen when two plates move towards each other and eventually meet. Once the two plates collide, the denser plate is subducted underneath. The convection current from the magma pulls the subducted plate closer to the Earth's core, and as it gets closer the rock on the plate begins to turn into molten rock, due to the intense heat given off by the core. As the molten rock is lighter and less dense than the surrounding rock, it is able to rise through the cracks in the surface, eventually going above the surface. Once the molten rock (magma) reaches the surface, it forms a volcano on the surface. The volcano increase in height over time as convergent plate boundaries also cause mountain fold which increase the height of volcanoes.



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### Examiner Comments

This candidate has an excellent grasp of the sequence of the formation of volcanoes at a convergent plate boundary. They identify convection as the reason for plate movement, density of the subducting plate, high temperatures leading to plate melting, and low density causing magma to rise. They also make reference to the volcano building up over time. As a result, with 4 partial explanations (one more than necessary for max marks) and clear reference to volcano build-up they score 6 marks.



## ResultsPlus

### Examiner Tip

Ensure that the teaching of volcanoes and characteristic features are linked specifically to plate boundaries. Ensure candidates understand the difference between volcanoes at a convergent and a divergent plate boundary.

## **Question 4 (a)**

This was a well answered question with a majority of candidates scoring full marks. Many identified that recycling involved producing a new product from an older one, while reusing was to use the same product over and over again, with many citing an example i.e. plastic bags, to make their point. Although the question asked candidates to describe the difference, in this case, the mark scheme allowed for two definitions, hence the high percentage scoring full marks.

## **Question 4 (b)**

With over three-quarters of candidates scoring either 2 or 3 marks this question was well understood. At the lower end candidates recognised that products could be recycled. However, marks were often gained through the application of the throw-away society or consumer society idea, one which many of the candidates have a personal association with. Good answers recognised that recently purchased technology was being replaced with brand new items even though they still functioned. Some developed their answers with real-life examples. Some irrelevant answers focused on the rubbish on the floor or the size of the man in the cartoon, both were ideas which did not gain any credit.

## **Question 4 (c) (i)**

This question produced a spread of results as it was easy for candidates to repeat the information from the resource without describing the differences. Differences could be achieved through comparing two different sets of waste production, e.g. highest and lowest and then another. Alternatively some candidates achieved the second mark by calculating the difference in the waste production. This form of data manipulation is encouraged. For example, a common response for full marks identified that fast food produced more waste than cinemas, by 130kg per 6 hours.

## **Question 4 (c) (ii)**

This was another question, like Question 4(c)(i), which produced a wide spread of responses. At the lower end candidates often gave simplistic and generic answers for HICs exporting waste, such as not enough room, or can afford it. These were awarded one mark. Some candidates incorrectly believed that HICs get paid by LICs for removing the excess waste!

Good answers tended to focus on the idea of a lack of landfill space, lack of appropriate facility to store or process the waste or referred to a type of waste e.g. hazardous which developed from the point on storage. Many of the candidates that scored 3 marks used information from a case study, overwhelmingly Germany, to explain the type of waste and its destination. The use of case study information applied to questions is encouraged and it is pleasing to see the increasing regularity of its occurrence.

#### **Question 4 (d)**

On what seemed like a fairly straightforward question a range of marks were achieved by the candidates. The concept of energy waste was not a difficult one for candidates and it was one they have more than likely encountered both in their studies and at home and school. This was evident in that many candidates were easily able to achieve at least two marks; however, relatively few developed this to achieve the third or fourth mark. The question required an explanation of energy wastage for both industry and household and one of the key limiting factors was that candidates explained only one of the two, or gave two explanations of one and nothing on the other.

Of the relatively few candidates who scored zero marks, they often focused on management rather than wastage. Another common error was to just focus on leaving appliances/lights on, which in this case was treated as a similar concept and therefore only credit-worthy once. Many candidates gave responses which were relevant to both household and industry, e.g. leaving on appliances or leaving windows open. Other good answers referred to the need to turn up heating due to a lack of double glazing or not having insulation. Some candidates, certainly in their responses on households, gave statistics to support their answers which was credited as a development. For the energy wastage in industry some candidates developed answers through examples of specific workplaces or made reference to inefficient machines or overuse of machinery.

(d) Explain how energy is wasted by industry and households.

(4)

Machinery that is not maintained properly or regularly checked /updated can become inefficient, meaning that their percentage yield of energy is low. Photocopiers, computers and fax machines which are left switched on or on standby in workplaces waste energy (estimated a loss of £8 million annually) because appliances still use electricity when on standby. Energy is wasted in the home if there is no loft or wall insulation because the heat energy in particular can escape (25% through the roof and 35% through walls). Leaving lights on also wastes energy because the electricity is still flowing even though it is not needed.



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Examiner Comments

This answer scores 4 marks with relative ease. The candidate has well developed points on the inefficient machinery in industry and the loss of energy through the walls in the home. In the household example the point is supported with both an explanation and statistics. This candidate shows a clear understanding of the concept and explains it fluently.



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Examiner Tip

When developing a point on energy try to support your point with small examples or statistics to give the answer some specificity.

## **Question 4 (e)**

Although based on a familiar topic, renewable energy, this question produced few Level 3 answers and was, on the whole, one of the poorer answered questions in the Waste topic. The question required an examination of the local and global environmental impacts of the chosen renewable energy source, yet very few candidates even attempted the command. As a result the maximum mark for content was 5. When given an 'examine' style question, an overall comment is necessary as an overview after summarising the points of the question. In this case a simple comment such as 'the impact locally is more significant on the environment than globally because...' would have been sufficient. Only a tiny proportion of candidates managed this.

The use of wind energy was by far the most popular response, being used by candidates more often than HEP and solar, and it tended to offer some of the higher scoring responses. Level 2 answers were achieved by the vast majority of candidates as they gave explanations about the local or global environmental impacts of the renewable energy source. Common responses globally focused on the reduction of carbon dioxide reducing the impacts of global warming. Some also developed the idea of damage to birds colliding with blades locally to the global impact of decreasing numbers of migratory birds; however this was not very common. On a local scale, candidates found the environmental impacts easier to explain. Injury to birds, noise and poor aesthetics of the turbines were the most common responses. Some candidates developed this part of the answer through a local case study which often meant clearer explanations. However, there was a tendency to be descriptive in this question which limited many candidates. Other common mistakes included not focusing on environmental impacts or in the worst case scenario, giving non-renewable examples. Some candidates also used this question as an opportunity to simply give the advantages and disadvantages of renewable energy.

Candidates need greater guidance on the command 'examine', and they also need to focus on the different impacts of renewable and non-renewable energy rather than just advantages and disadvantages.

Answers to this question generally scored 2-3 marks for SPaG. Good answers used specialist terminology, carefully checked spellings and used paragraphs to make clear points.

- \*(e) Examine how the development of a renewable energy source may have impacts on both the local and global environment.

(6)

Chosen renewable energy source Hydroelectricity

Hydroelectricity in Norway equates to 99% of the total renewable energy there. As a result, the <sup>local</sup> air is cleaner there and but some species of birds have had their habitat destroyed. Hydroelectricity equates to about 12% of Europe's energy which reduces the quantity of CO<sub>2</sub> released into the atmosphere greatly. Hydro electrical dams in India has destroyed the <sup>local</sup> habitat of the orangutan as well. A big hydroelectric dam produces many terawatt hours of energy which can power many thousands of homes. This means less coal is used to produce electricity which reduces global temperatures through less greenhouse gases.



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Examiner Comments

This candidate was one of the few who used either solar or HEP rather than wind energy. They have clear development of the global impact and it is fairly well explained hence the Level 3 score - 5 marks for content. The points on the local environment are a little more descriptive but they have attempted to use examples to develop their answer. As with many candidates, this one failed to offer any comment and was typical of the majority of all answers.



## ResultsPlus

Examiner Tip

When answering an 'examine' question, set out your answer, then offer a paragraph at the end which reflects on the different aspects of the question followed by your opinion on the significance or importance based on the evidence you have presented.

## **Question 5 (a)**

Over two thirds of candidates gained full marks on this question. Examiners saw quite a few answers on the following lines: 'A water-borne disease is a bacteria or virus that multiplies and spreads through the water such as dysentery whereas water pollution is when harmful chemicals or toxins are mixed or put into the water and make it contaminated'. Some candidates even talked of point-source pollution (single location i.e. discharge from a factory) and non-point-source pollution (different sources i.e. run-off from farmer's fields where nitrates are added to the river).

Although the question asked for differences this was not a requirement for full marks as many candidates failed to do this.

## **Question 5 (b)**

This was another well answered stimulus-response question. The majority of candidates comfortably achieved 2 to 3 marks mainly by reference to the correct identification of a dam, storage, control and appropriate usage. Where many candidates linked this to hydro-electric power, the overall outcome was less successful, often remaining on 1 mark. Credit was also given for not only describing what the water management scheme did but also its appearance; so a mark was given for reference to 'concrete'. Credit was not given to uses associated with the dam, for example energy supply and tourism; the focus had to be clearly on water supply.

## **Question 5 (c) (i)**

Many identified the highest and lowest water uses but were held at 1 mark for not either giving another difference or calculating the difference. Many candidates simply listed the values as shown on the figure which limited the responses as no differences were identified. A significant minority also spent time explaining the reasons for differences which did not gain any credit.

## **Question 5 (c) (ii)**

A good proportion of the candidates were quite aware of some of the key issues related to water supply where there was a marked seasonal variation of rainfall. The better responses utilised the appropriate examples from the Mediterranean holiday areas such as the Costa del Sol or Greece. This clearly meant that they were able to discuss the increased level of demand in summer and relate this to rainfall totals or an equivalent description, which often resulted in a deficit due to the need to meet the tourist requirement for water (golf courses, swimming pools) at the expense of the local population. The idea of a black market economy was sometimes introduced. However, a minority of candidates focused on the rainfall and population imbalance notion rather than on the effects of seasonal variability on water supply.

## Question 5 (d)

This question was similar to Question 4(d) in that the majority of candidates were familiar with the topic and were able to score at least 2 marks. As the focus was on industry and household, to score 4 marks candidates needed to explain both. Some were limited by only explaining one and describing the other. Candidates are advised again to use link words to help them explain, i.e. by linking two ideas together with words such as 'therefore' or 'leading to' or 'which means that'.

Of those candidates who explained water management in industry many focused on examples, such as the Walkers Crisps factory, to develop the idea of conservation. There were also many generic answers on push taps and short flush toilets which were not developed; candidates need to say how the methods 'manage' - not just that they do.

In the home, water meters proved popular as did short flush toilets. Again, there is a general need to explain how the methods 'manage' not just describe them.

(d) Explain how water is managed by industry and households in HICs.

(4)

In HICs, industry, such as Walker's Crisps, have reduced water usage ~~the~~ by 50% through management, e.g. recycling in production process, educating staff and introducing 30 water metres in their factories. Also, push-button showers in industry make sure water isn't left running. In households, water meters are installed to discourage people from using excess water, while droughts ~~cause~~ water companies to make hosepipe bans, fining people for excess water usage. Also, short-flush toilets in homes reduce water usage.



**ResultsPlus**

Examiner Comments

This candidate has a good understanding of a range of different water management methods which are used in both the industrial and domestic contexts. Here the candidate uses the Walkers Crisps example well to develop their answer and also explains the use of water meters in the household. This candidate scored 4 marks.



**ResultsPlus**

Examiner Tip

Try to use examples where possible to develop your answer to give it greater specificity.

## **Question 5 (e)**

Candidates produced variable responses to this question. The vast majority ignored the command 'examine' and simply explained the use of appropriate technology and as a result were limited to 5 marks. To overcome this with future questions and to satisfy the command 'examine' candidates need to offer a concluding point which comments on the evidence presented. For example, in this case it may be that one form of appropriate technology is more effective than another.

The candidates who displayed a sound understanding of the term 'appropriate technology', i.e. small-scale, sustainable, suited to the wealth, skills and needs of the local population and that are in harmony with the local environment, were clearly at an advantage with this question. They were able to offer a good range of types of water management and go on to explain how they were suitable and how they could be used by small communities in improving their overall water supply situation. However, too many candidates seemed only capable of producing, at best, partial explanations related commonly to wells and boreholes, testimony to their lack of true understanding of the key term in the question, namely 'appropriate technology'.

Some answers lacked sufficient depth in their examples, instead just giving names. A few answers at the bottom end were also focused on practices that could hardly be described as appropriate for the economic setting e.g. large-scale dams.

Answers to this question generally scored 2-3 marks for SPaG. Good answers used specialist terminology, carefully checked spellings and used paragraphs to make clear points.

- \*(e) Examine how appropriate technology is used for water supply in small communities in LICs (Low Income Countries).

Use examples in your answer.

(6)

Sustainable management has been a key strategy used for towns in India, such as the Saranam village. The village has been designed to be sustainable, especially with water usage. For example rooftop containers have been built to <sup>store</sup> collect water for the housing when it rains, this water is used for toilet systems and watering the garden. Furthermore, the use of cost effective boreholes in LIC's <sup>has</sup> provided clean water for many LIC's. The use of simple technology in the bortholes makes the technology simple to ~~use~~ <sup>be built</sup> be used by the locals and also very cheap ~~for the village~~. Sustainable management also in LIC's villages like Saranam have three pipes to their homes, there are: rooftopwater, sewage waste and ground water supply. This technology keeps the cleaner from the dirty water and further reduces the spread of disease and access to the clean water.

(Total for spelling, punctuation and grammar = 4 marks)  
(Total for Question 5 = 24 marks)

**TOTAL FOR SECTION B = 24 MARKS**  
**TOTAL FOR PAPER = 69 MARKS**



## ResultsPlus

### Examiner Comments

This candidate has a good understanding of the idea of appropriate technology and uses examples of both place and type which are relevant to the question. The explanations of how the appropriate technology works are clear and there is specific detail on how gravity feed pipes work. However, the candidate only scores 5 marks as they do not make any attempt to examine. In this instance the SPaG score is 3 for use of specialist terminology and spelling, despite making many crossings out and corrections.

Sar  
Saranam  
India.



## ResultsPlus

### Examiner Tip

When answering an 'examine' question ensure that you conclude with a comment which looks at the significance or effectiveness of the points covered.

## Paper Summary

The performance across the paper was pleasing considering this was perhaps a slightly more challenging paper in terms of technical requirements than in previous series. Outlined below are a few general suggestions which may further improve performance across the paper:

- Ensure that new content in the specification is covered and understood by candidates so that they are prepared for this content.
- Show candidates the difference between partial and full explanation so that they are able to access Level 3 marks on the case study or extended writing questions.
- When answering a question with the command 'compare', ensure that candidates use comparative language such as 'whereas', 'however' or 'this is similar to' so that they are able to meet the demands of the question.
- Learn terminology, particularly from the Section A topics, to improve question interpretation.
- In case study questions, use located detail from examples to develop your points. This approach can often enable a candidate to reach the top of a level.
- In questions where case study material can be used, although not specifically asked for, use it to develop your points.
- Practice interpreting landforms from images and maps not just learning how they are formed.
- Ensure that candidates know how to tackle 'examine' questions - offer a concluding comment which summarises the evidence presented.

The examining team offer their congratulations to the many candidates who attempted this paper and hope that centres and future candidates can learn from it.

## **Grade Boundaries**

Grade boundaries for this, and all other papers, can be found on the website on this link:

<http://www.edexcel.com/iwantto/Pages/grade-boundaries.aspx>

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