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Geography B (1313)

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Examiners' Report

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Introduction

The Foundation Tier papers in 2006 were designed to be much more accessible for students and so they proved to be. A pleasing improvement in standards was seen on both the Foundation and Higher Tiers, although case study tasks remain the biggest challenge for candidates on both 2F and 4H. This year there were fewer instances of centres entering candidates for an inappropriate tier.

Some outstanding coursework continues to be produced. The quality of coursework depends crucially on centres ensuring that their students have appropriately structured tasks, and most centres do this admirably. However, a few still use simulation exercises heavily dependent on secondary source material and these do not allow their candidates to tackle the full range of assessment objectives required in Specification 1313.

In 2006 all four examination papers were again marked online. Online marking is more reliable and quicker than traditional marking, and enables Edexcel to provide centres with a detailed statistical analysis of their candidates' performances both as a cohort and as individuals. Many centres have commented on how useful they find these data.

However, scripts cannot be scanned for online marking if candidates use extra sheets or do not use a dark blue or black pen to write with. Such scripts must be marked in the traditional way, and detailed statistical analysis cannot be supplied for the candidates concerned. Centres are requested to ensure that their candidates use a correctly coloured pen, and do not use extra sheets unless it is unavoidable. Lengthy answers are not necessary to score full marks, and the spaces allocated for answers on the question papers should be sufficient. In fact, conciseness is usually a characteristic of the best answers.

To help centres organise their revision programme, Edexcel again wish to emphasise their policy of not setting the Decision Making Exercise on the same unit in consecutive years. Since the 2006 DME (Energy Issues in the UK) was set on A1 Providing for population change, the 2007 DME will be set either on A2 Planning for change or Unit A3 Coping with environmental change.

It follows that Unit A1 will be tested on Papers 2F and 4H in 2007. Centres embarking on revision early in 2007 could therefore concentrate on Unit A1 plus their chosen two option units, confident that there will be questions on all these units in Papers 2F and 4H. Of course, once the Advanced Information Booklet for the DME is published in April 2007, centres will be able to work out which other core unit (A2 or A3) will be tested on 2F and 4H in 2007, and can plan their late revision accordingly. Obviously, centres will be able to apply the same principles when preparing their candidates for examinations in subsequent years too.

Paper: 1313 1F

The Resource Booklet contained a wide variety of materials: e.g. text, aerial and ground photographs, maps, statistics, a cartoon and various types of chart and graph. There was a deliberate attempt to make the examination paper more accessible for less able candidates in the target range, and therefore to raise the mean mark. A greater use of multiple choice and basic questions on Paper 1F meant there was a greater contrast between it and Paper 3H than in previous years. Tasks were of course still included to challenge abler students in the target range, ie, some questions were common to both 1F and 3H.

The paper proved to be generally accessible for the target grade candidates, with only a couple of the later parts – 5(a) ii) and 6(b) ii) – not being attempted by a number of candidates. Generally candidates handled the resource materials well and their knowledge of some geographical terms on the examination paper (e.g. "renewable" and "conservation") was very pleasing too. However, the term "subsidies" in the Resource Booklet appeared cause some confusion.

Question 1

(a) This was straightforward for most candidates.

(b) The definitions in parts (i) and (ii) caused difficulty for quite a few candidates. Many thought "natural increase" was the rate of population growth and "net migration" proved even more troublesome. However, parts (iii) and especially (iv) were understood by the vast majority.

Question 2

(a) Nearly all candidates scored both marks.

(b) Nearly all successfully defined the term "renewable" and nearly as many identified landfill gas as the   main source.

(c) Most candidates could name a greenhouse gas, the vast majority giving carbon dioxide and a few saying methane. Part (ii) was much more difficult. Many simply quoted statistics from Figure 6 that were not relevant to the question and so gained no credit. Although some knew reducing emissions would help to combat global warming, far fewer elaborated on this by explaining that link or by mentioning a problem(e.g. melting ice-caps) that global warming would cause. A few did mention the UK had a target for reducing emissions under the Kyoto agreement. Too many vaguely said that greenhouse gases caused pollution, or confused global warming with acid rain or destroying the ozone layer. Also quite a few did not grasp the irony in the cartoon and said global warming was causing wind farms to collapse.

The example below contained much vagueness which was not credited, but it earned 1 mark for showing some understanding of how the greenhouse effect works.

Example 1

> *The government wants to reduce greenhouse gas because there is a lot of pollution from it, which is causing the atmosphere to be destroyed. It is also dangerous to humans because sunlight can get in but can't get out that is why it is called the "greenhouse" gas.*

(d) Most scored 1 or 2 marks by describing one or two relevant changes from the pie charts, although some candidates appeared to think "imports" were a type of fuel. Very few however could **explain how** these changes had led to a reduction in greenhouse gas emissions. To gain credit it was necessary to be quite precise in the explanation: e.g. to say that HEP "produces no greenhouse gas emissions" or that natural gas "produces fewer emissions than coal". Many just said, for example, " less coal was used so greenhouse gas emissions were reduced" which was just repeating the phrase in the question.

Question 3

(a) Most candidates answered this correctly.

(b) Part (i) was straightforward but (ii) proved very difficult. pVague answers such as "oil will cost more" or "there will be more pollution" were typical and not accepted. Some candidates were aware of the issue of security of supplies. The answer below scored 1 mark.

Example 2

> *The UK doesn't really get on with these countries so they could refuse to give us their oil.*

Question 4

(a) Most answered (i) and (iii) correctly but few scored more than one mark in (ii).

(b) Parts (i) and (ii) provided three easy marks for all except those who omitted the units of measurement (years and £). However, in (ii) few understood the term "economic" and most gave environmental or health problems instead. Some others thought the local people would have to pay the cost of decommissioning the power station.

Question 5

(a) Virtually all candidates answered part (i) correctly. There were some answers to part (ii) that were too vague to credit, as the example below illustrates.

Example 3

> *They take up a lot of land so some of the environment has to be destroyed when they are being built. Also the nuclear waste isn't very good for the environment.*

Others over-dramatised the impact, suggesting that everything was about to die a horrible death, because (they assumed) radioactive waste was routinely being dumped in the sea or on the land. However, most candidates scored one or two marks, usually by referring to visual pollution, the destruction of habitats or the danger of radioactive leaks. The answer below scored three marks.

Example 4

> *The power station is an eyesore. It is quite unpleasant to look at. It will make noise pollution which will destroy the quietness of the countryside around it. If it had a leak it would pollute the water around it and kill the fish.*

(b) Most candidates answered part (i) correctly, although a few thought the land had great value for farming. In part(ii) few realised the farmer would earn money from the turbines on his land; most thought he would get the electricity from them. Part (iii) was well understood, with many mentioning problems of noise or visual pollution, and some the danger to birds. The term NIMBY was often used here.

Question 6

(a) Nearly all candidates answered (i) correctly and over half gave an acceptable definition of "energy conservation".

(b) The majority chose the solar panel and most of these did far better than candidates who opted for wood-fuel boiler or bio-fuel car. Those who chose the latter often confused it with a liquefied petroleum gas car and scored few if any marks. Most candidates scored only low marks, usually by making one or two general statements about green technology like "it is environmentally-friendly" or "it helps stop global warming". More specific knowledge was usually lacking. The example below did score full marks.

Example 5

> Solar panel
> *Solar panel is a green technology as when the sun is out it provides hot water meaning less electricity needs to be produced by the national grid. It is also a green technology as it is renewable as its power is the sun. This means it is environmentally friendly.*

Question 7

(a) The issue of future energy options in the UK was very topical and most candidates engaged with it enthusiastically. They generally understood what the options involved and so were able to tackle the question. Wind farms and energy efficiency/green technology were easily the most favoured ones. Nuclear power was less popular than expected, but still had plenty of supporters. Reduce the population was supported the least but was more popular with Foundation candidates than it was with those taking Paper 3H. Of course candidates' answers were judged on the reasons they put forward to justify their choices rather than the choices themselves.

Wind power was usually advocated for its cheapness, renewable nature and/or lack of harmful waste. Many supported the building of offshore wind farms to lessen the impact of noise/visual pollution. Some candidates put material from Figure 9 to good use here. Supporters of nuclear power usually cited its great output and lack of greenhouse gases. Evidence from Figure 10 was sometimes used well here.

Candidates supporting reduce the population often found it more difficult to marshal coherent points. They rarely used the evidence available in Figures 1 and 2 to argue their case (probably because these were statistical and graphical resources rather than texts). More successful answers emphasised the cheapness and simplicity of Option A or pointed to benefits such as reductions in teenage pregnancies and STDs. Incidentally, surprisingly few argued that immigration should be stopped or immigrants repatriated.

Many of the answers favouring energy efficiency were also short on supporting evidence, although there was plenty available in Figure 11. Better answers focused on the benefits for the environment and the advantages of some specific green technologies, especially LPG cars.

The average score for all the answers to Q 7(a)+(b) that were marked online was 5.9 out of 12, ie, virtually at the top of Level One.

Most answers to 7(a) did not go beyond Level One, either because they were somewhat vague and thin on evidence, or because they merely lifted points from Figures 13 and/or 14 without further comment. Example 6 shows an answer favouring energy efficiency and reducing the population. It is generally vague and sometimes unclear, but does include a fair number of basic points.

Example 6

> *Policies D and A*
> *I have chosen policy A because it would not be very expensive. It would not be very expensive. It would be easy to make contraceptives more easily available because you could sell them cheaper and put more off them in the shops. It would also be cheaper because you are only giving family allowance to the first two children. This may encourage parents to have les children so that it does not cost as much money as it used to. I also chose policy A because it would not take long to introduce into the UK.*
> *I also chose policy D because it would also be cheaper to run. I think that it would work because if they advertised energy saving better and more often people would feel more encouraged to get it. It is a good idea for builders to add it into new homes because it would already be there so people would not have to pay for it. It would cause much less pollution and would save a lot of money. As people buy it and set it up, more people will see it and want it for their houses.*

To reach Level Two an answer had to include some "developed" points, where the candidate exemplifies, explains or elaborates on some of the basic points typical of Level One. Alternatively the candidate had to judge on a wider range of criteria by drawing evidence from earlier sources in the Resource Booklet. The following example was a low Level Two response. Some of the content was lifted from Figure 13 but it did also include a few developed points on both the options, and the candidate even explicitly acknowledged some of the disadvantages of the preferred choices.

Example 7

> *Policies A and D*
> *I think reducing the population would be a good way to deal with the Country's future energy situation because it is the cheapest option. There could be more education on contraceptives and if the one child policy was brought to the UK this could prevent more energy being used. But on the other hand, it could be restricting people and could be against religious beliefs to have a small family with one child. Quotas could be used to make sure the rate of immigration isn't higher than the rate of emigration. If that was so it could put a lot of businesses out of work because they have no workers. There could be allowances given to only the first & second child to try and reduce the population which would help environmentally by reducing Global Warming.*
> *Encouraging more energy-efficient houses & transports would be another possibility because the more energy saved the less harm to the environment and individuals would save money to by travelling by public transport. But, by doing this it may not be good for individuals because they won't have their own private vehicles which some may prefer. More energy efficient homes helps save energy which would decrease the 60% of energy which is wasted in UK homes.*

Example 8 shows a good Level Two response. It considered each of the chosen options under a fairly narrow range of criteria but in some detail. The candidate incorporated relevant knowledge to further the arguments and the quality of written communication was good enough to allow the top mark for Level Two to be awarded.

Example 8

Policies B and C

This advantage of policy B, which is to encourage the development of more wind farms do not give off any greenhouse gases, therefore this will help the government achieve its aims. Also, wind farms are a form of renewable energy as they use wind, which will never run out and as a result the UK will always produce its own energy. In addition to this restricting planning for new onshore wind farms will help because more off shore wind farms will be built, this means they will get more reliable and stronger winds therefore will generate more electricity. The UK's landscape is ideal for windfarms because the west and the north of the UK contains highlands and for wind farms to get more wind they will need to be built on highland. It is also very easy to erect and dismantle wind farms therefore as long as the planning for the windfarms has been done, we would be able to use its energy almost straight away.

Policy C is also a good choice the reason being: nuclear power stations use Uranium, which is imported from Canada a country with a stable government and as a result the UK will be able to import Uranium for a cheap price. Also, compared to wind farms Nuclear power stations use less space. Hinkley point B generates 1220mw of electricity where as Cheidol wind farm generates 2.4mw of electricity therefore one nuclear power station has the potential to produce the electricity of five hundred wind farms. Another advantage is that Nuclear Power Stations do not give of greenhouse gases as a result will not cause any environmental damage.

Finally, Example 9 shows a good level two answer that argued for wind power and (a little less convincingly) for energy efficiency. It stressed some environmental advantages of wind farms and included some evidence on the UK's potential for offshore wind power. It also illustrated some advantages of green technologies in the home and vehicles.

Example 9

Policies B and D

I have decided to choose policy B because it is a renewable and sustainable source of energy. It will help the UK cut down emissions of greenhouse gases as it does not release any gases and does not cause any pollution. The energy production potential that wind farms have will be sufficient enough for the UK and its rising population as the UK has 40% of Europe's potential production of wind energy. This is three times the UK's present total electricity consumption. They have a good lifespan of 20years and could be easily dismantled and the land can be easily restored quickly and cheaply. Later on, the land can be

used for farming, small-scale industries thus create job opportunities.

I have also decide to choose option D as it encourages the use of Green Technologies which are sustainable and have minimal, if not no, impact on the environment. This means that there will be a less demand for electricity from the National Grid. Cars using liquefied petroleum gas produce less carbon dioxide than cars with petrol engines. The government gives grants for energy conservation and this benefits people. Houses with green technologies produce less C02 and conserve the energy. Option D will be a great option as houses with green technologies conserve the energy and have minimum, if not none, impact on the environment.

(b) Nuclear power stations were the most frequently rejected option, with wind farms and reduce the population the next in line. Candidates were often more focused in their criticism than they were in their promotion of their choices in part (a). It was therefore quite common for them to score relatively higher marks in 7(b), eg. reach Level Two here when the 7(a) answer may have been at Level One.

Nuclear power was usually rejected on grounds of costs (building and decommissioning) and safety, with many candidates making good use of material in Figure 10 or other knowledge (e.g. about Chernobyl). Sometimes the dangers were described in gruesome detail. The example below considered various criteria and used some factual information to support the case. This was a top Level Two response.

Example 10

> *Policy C*
> *I have not chosen policy C as it costs a lot. it costs one billion pounds to build one nuclear power station and would cost £4.8 billion to decommission all of the UK's nuclear power stations. They take a lot of time to build,12 years and only have a lifespan of 25 – 302 years. This is not worth the price it costs. Transporting the Uranium from Canada pollutes the environment as the ships used will be using oil which emits green house gases. Digging for Uranium is costly, harms the land, environment and animals along with their natural habitat. This is not sustainable. There are potential health risks that can affect the world, environment and animals for 100's of years, an example of this is the Chernobyl disaster in the 1980's. it takes 135 years to lean up and the radioactive material.*

Reasons for rejecting wind power tended to focus on environmental issues (e.g. air and noise pollution). The following answer is a typical low Level One response. It is generally vague and lacking in any factual evidence to support the opinion. It contains an inaccuracy about the building time needed, but does show some awareness of alternative uses for taxpayers' money.

> *Policy B*
> *I did not choose this policy B because it would spoil the scenery in the countryside and by the coastline, and would cause a lot more pollution than there already is.*
>
> *It would be to expensive and would be a waste of money. The money could be used for more important things such as schools and hospitals*
>
> *It would also take a long time to build. So I don't think wind farms are a good idea.*

Many of those rejecting reduce the population tended to focus on the child allowance proposals and argued rather curiously that it was an infringement of human rights to encourage people to have smaller families. Others explained more convincingly why the proposals on contraceptives were unlikely to succeed or why limiting immigration would be unwise in view of the economic contribution of immigrants to the UK. The answer below included developed points against all three of the planks in Policy A and scored full marks.

Example 11

> *Policy A*
> *I did not choose this policy as it would take 44 years to reach its goal whereas the Nuclear Power Stations and the wind farms will take far less to achieve its goal. I also think this policy would be a bad idea as people may not like the idea of limiting the amount of children they have. It may also be against some religions to use contraceptives the choice for these people is to stop having sex or to carry on as per usual and I think most people would choose to carry on. I also think it is unfair to only allow people into the country when another leaves as there may be a family wanting to come into the country but there is only a difference of 1 in the rate of immigration compared to the rate of emigration. So some of the family will be refused entry. I also think by doing this it would increase the number of illegal immigrants as they would not be let in to the country legally.*

Answers arguing against energy efficiency were rare and usually weak. Some candidates dismissed it because "people can't be bothered" or "people can't afford it". A few thought the house with all the green technologies illustrated in Figure 11 was "ugly and would put people off". Others said it would take too long for all the houses in the UK to be converted.

Paper: 1313 2F

As with Paper 1F, there was a deliberate attempt to make the paper more accessible for less able candidates in the target range. A greater use of basic questions such as those requiring completion of tables, sentences etc. meant that there was greater contrast between papers 2F and 4H than in previous years. As on Paper 1F, tasks and questions were still included to challenge abler students in the target range, and some questions were common to both Papers 2F and 4H.

As a result, the Paper generally seemed more accessible for the target grade candidates than in previous years, with only a few questions - B3(b), B4(a) i), C5(e)/C6(e) - posing particular problems. Some candidates did score high marks, and there were very few questions left completely blank. The basic questions were generally very well done, regularly enabling candidates to score full marks.

Section A
Question A1: Planning for Change

(a) i) This was straightforward for virtually all candidates.

   ii) The majority of candidates scored the full four marks; the final sentence was the most frequently incorrect answer.

(b) i) The table was often completed entirely correctly. A few candidates, however, appeared confused by the terms 'push' and 'pull', and identified all six incorrectly.

   ii) Most candidates correctly identified problems such as lack of employment and education (extending the information from the table in part (i)), although many went no further than mentioning 'poor living conditions'.

(c) i) Candidates generally managed to quote some relevant information from Figure 2 to obtain one or two marks at Level 1; only the best candidates were able to relate the information about increasing population, jobs and accessibility to an increase in commuting, tourist traffic etc., which would have taken them into Level 2.

The example below illustrates a straightforward answer which gained the full 4 marks at Level 2:

Example 1
> *Firstly, population has risen by 22%, meaning more people will have cars and more people will be in the city. It is a historical university city, which attracts tourists. More jobs have been on offer, and lastly, improved road and rail links have attracted more businesses, meaning more people will be using transport.*

   ii) Most candidates scored two or three marks for correctly identifying problems such as congestion, noise, and air pollution.

(d) i) and ii) The answers to these questions were very variable. The best answers were generally on park and ride schemes or congestion charging, where candidates were able to state clearly how the method works and its benefits. Answers dealing with improving public transport, cycle lanes and restrictions on car use were often less successful, since candidates either failed to explain how they work, or simply stated benefits in both parts of the question.

(e) Again, answers here were very variable, and although Level 2 was reached by some candidates, there were few at the top of the Level. This was generally due either to candidates' inability to refer to their chosen case study (most commonly Nike or Ford), or to the fact that answers focused on advantages for the *company* rather than for the *countrie*s.

The following example illustrates an answer at Level 1, which gained 4 marks for mentioning two general advantages and a couple of disadvantages for the country and its people.

Example 2

> *The factories create jobs for people, and let them have clothing,
> food and drink. There is sometimes transport from the factories to
> the towns for the workers to get to and from work.*
> *The factories cause pollution and visual pollution, and the people
> who work there do not get paid much and are not treated very well.*
> *The factories cost a lot of money to build and to keep running.*

The following example illustrates a good answer at Level 2 which scored 8 marks for mentioning a range of advantages as well as disadvantages for the country and its people

Example 3

> *The factories bring job opportunities, and facilities like education,
> healthcare, better water supply and electricity. They also attract
> other industries, and bring money to the area.*
> *However the factories cause a lot of pollution because they are
> unattractive and create a lot of noise. There can be leaks which can
> cause diseases like leukaemia. The workers are treated badly, with
> poor wages. Children are often used as workers, and they
> sometimes have to work very long hours with no breaks. The
> factories also take all the profits so that the area does not benefit
> at all.*

Question A2: Coping with environmental change

(a) i) Some candidates were clearly unable to use the map and key, and therefore failed to score the marks for sand and shingle.

  ii) Most candidates scored both marks.

(b) i) The majority of candidates scored the mark, but a few gave very vague descriptions which were insufficient for credit.

  ii) Nearly all candidates scored one mark for suggesting that groynes stop or combat longshore drift; many scored the second mark for going on to say that sand is trapped, or that groynes prevent loss of sand.

(c) As last year on Paper 1F, it was clear that many candidates are unsure of the difference between hard and soft engineering. Too many candidates gave 'sea walls' or 'rocks' as their method of soft engineering, thus gaining no marks for i) or ii); they were able to gain credit for iii), however, if they stated that soft engineering did not last as long / was not permanent. The best answers to i) and ii) unsurprisingly dealt with beach recharge – although even then, in part ii), some candidates focused on what was done, rather than the fact that a wider or higher beach would absorb wave energy or protect the coastline.

(d) This question was disappointingly answered, since it was apparent that many candidates did not make effective use of the map. It was commonly suggested that residents wanted protection to stop houses falling into the sea – yet grid square 1790 contains no housing at all! It was also regularly stated that conservationists were in favour in order to 'stop erosion', which was insufficient for credit, as the question asked for evidence from the OS map. There were, however, some good answers referring to the need to protect the nature reserve, beach, and National Trail, and suggesting that residents were against protection because there were no buildings needing protection, and that it would increase their taxes.

(e) Nearly all candidates correctly identified the River Stour in part (i). Most also gained credit in ii) for statements about the low or flat land, or for highlighting the closeness of the river to the built up area. A few candidates failed to gain credit, however, because they merely made general statements such as 'the river is likely to burst its banks in heavy rain'.

(f) The majority of candidates scored two marks in part (i) by correctly identifying possible damage to / loss of houses, possessions, roads and businesses. In part (ii), candidates frequently suggested building embankments / levees, or deepening the river, to gain 1 or 2 marks.

(g) As in question A1(e), answers were quite variable. A few candidates had well prepared case study accounts which scored highly, but many were too general to reach Level 2. The most common volcanic eruption case studies dealt with Montserrat or Mt. St. Helens, whilst Izmit (Turkey), Kobe and San Francisco were most frequent for earthquake studies. Some answers concentrated too much on purely environmental effects, when effects on people living in the area was the required focus; some answers also failed adequately to deal with how people coped after the event.

The following example illustrates an answer at Level 1, which just gained 4 marks for mentioning two general effects of the Kobe earthquake, and two points about how people coped after the event.

Example 3

> *The effects the hazard had on people were that many buildings were destroyed so that homes were lost and friends and family members died.*
> *The people coped quite well as they got basic food and drink at emergency shelters. They are going to make the foundations of buildings shockproof so that they won't fall down as easily in another earthquake.*

The following example illustrates an answer at Level 2 which was enough for the full 8 marks, due to its specific coverage of the Mt. St. Helens eruption.

Example 4

> *Mount St. Helens USA 1980.*
> *56 people died and many were left homeless and injured. Habitats were destroyed, as well as beautiful scenery and trees. Transport links were destroyed and there was nowhere to drive. Economic links were destroyed and jobs were gone and lost. There was steam in the air causing pollution and suffocation.*
> *They coped after the event by taking people out and by the government giving money as it is a rich country (MEDC). It brought people's jobs back and also people recovered from their injuries as they got medical care straight away. Transport and economic links were set up again as it was before.*

Section B
Question B3: Use and abuse of the environment (Water)

This question was more popular than question B4, suggesting that more centres teach this option.

(a) Many candidates scored full marks, but some confused lake and groundwater in part (i), and failed to give ice caps as the correct answer in part (ii).

(b) Part (i) of this question proved very difficult, with few candidates scoring the mark. Credit was available for any statement about rainfall 'which you can depend / count on'. Most candidates, however, referred to rainfall amounts or frequency rather than reliability. In part (ii), nearly all candidates scored one mark for correctly allocating low rainfall and low reliability to desert regions; fewer scored the remaining marks.

(c) Virtually all candidates scored the 2 marks.

(d) i) The divided bar chart proved a problem for a significant number of candidates, who clearly did not understand the concept of how such a graph works. Many did, however, complete it correctly, although some were carelessly done or untidy and failed to gain the third mark. (Nb. This point has been constantly highlighted in previous reports.)

ii) Many scored one mark for stating increased population as a reason; fewer scored the two further marks, however, since statements often failed to emphasise the *increasing / rising* demand from industry/ domestic use / leisure. It is insufficient to say that 'there is a lot of water used' – it is the *increase* which is asked about.

(e) Candidates were usually able to identify an appropriate lake or river, and there were many different examples chosen e.g. Thames, Ganges, Danube, Lake Windermere.
Level 1 answers were only able to outline very general causes of pollution, and equally general ways in which the pollution was (to be) dealt with. Eg:

Example 5
> *The Thames is polluted by factories dumping waste. People also throw litter and rubbish into the river causing more pollution. They are going to fine anyone caught dumping waste.*

The better, Level 2 responses, included more specific reference to polluting events; the example below scored 5 marks:

Example 6
> *The Rhine was polluted when a fire at a chemical plant in Switzerland caused tonnes of hazardous chemicals to be spilt into the river. This could be recorded 100kms down river. Another cause of pollution was the fact that the river flows through some of the most industrialised areas in four countries. In 1999, the four countries signed a contract to clean up the river and reinstate salmon to the northern part of the river. The industrial plants are now better equipped to fight fires and decrease the amount of pollution allowed to enter the river.*

Question 4: Use and abuse of the environment (Weather & Climate)

Fewer candidates answered this question in comparison to question B3.

(a) As in question B3(b), part (i) of this question proved very difficult, with few candidates scoring two marks. Credit was available for any statement about 'the period of time when the weather is suitable for growing crops'. Many candidates, however, referred to the time when crops 'grow best', and only a very few understood the specific meaning of the term. In parts (ii) and (iii), many candidates were able to gain credit for identifying the link between the type of farming on figure 6 and the corresponding length of growing season on figure 7.

(b) (i) As in question B3(d) (i), the divided bar chart proved a problem for a significant number of candidates, who clearly did not understand the concept of how such a graph works. Many did, however, complete it correctly, although some were careless or untidy and failed to gain the third mark. (Nb. This point has been constantly highlighted in previous reports.)

ii) Virtually all candidates scored the 2 marks.

iii) Many scored 3 or 4 marks by explaining how more / different crops might be grown, and how ice caps might melt leading to rises in sea level and flooding.

(c) Responses here were again quite variable, with some Level 1 candidates able only to describe and explain their chosen topic very generally:

Example 7
> *Acid Rain - Location of chosen study: USA*
> *Acid rain is when pollution in the air makes the clouds acidic. The rain affects our health and gets into water supplies.*
> *The main effects of acid rain depends on how strong it is. It burns away buildings and makes soil polluted and infertile.*

There were, however, some good Level 2 answers, such as the following examples which both scored 5 marks.

Example 8
> *Acid Rain - Location of chosen study: Scandinavia*
> *Pollution from cars and factories causes CO_2 and sulphur dioxide which are carried in clouds and released as rainfall over Scandinavia. Trees are killed and many lakes are declared "dead" as the pH value is too acidic and so no fish are able to live. Limestone and other rocks are eroded by acid rain and buildings can become unsafe.*

Example 9
> *Urban micro-climate - Location of chosen study: London*
> *London becomes hotter than the surrounding countryside in summer. It is milder at night, and winters tend to be warmer because of heat given out from buildings. Winds are channelled between buildings. There is more cloud and rain. Roads absorb heat during the day and give it out at night. More and more buildings have lots of glass which reflects light and heat making it warmer.*

Section C
Question C5: Use and abuse of the environment (Farming)

Very few candidates answered this question in comparison to question C6.

(a) In part (i), most candidates identified the difference in relief - flat land in photograph A, hills in photograph B, - but other differences were less well identified. As a result of this, and the fact that candidates did not properly give *differences* as the question required, 2 or 3 marks were not commonly scored. Part (ii) was much more successfully answered, with very few failing to score all 3 marks.

(b) Most candidates were able to suggest the destruction of wildlife / insects or habitats; fewer, however, gave answers about increased soil erosion resulting from hedgerow removal, or chemicals washing into rivers and the subsequent effects.

(c) The definition of GM crops was disappointingly rarely correct. Many candidates suggested that they were 'crops grown using chemicals', which gained no credit.

(d) Virtually all candidates scored the full four marks.

(e) Once again, responses here were quite variable. The opportunity to gain marks directly for describing the location of the chosen case study area, including a sketch map, was not taken by most candidates. Descriptions of location were generally poor and / or inaccurate, and sketch maps – rarely drawn – were of poor quality. In fact, candidates frequently produced illustrations which were nothing to do with location - suggesting that they did not understand what was being asked. In addition, failure to properly answer the question about what could be done to reduce the damage resulted in generally poor marks for this question; Level 2 answers were the exception. However, there were a few better answers, such as the example below, which scored 4 marks at Level 2.

Example 10
> *The Sahel - Desertification*
> *The Sahel is located in North Africa at the edge of the Sahara Desert. (Fairly accurate sketch map drawn.)*
> *Farmers in this area are reducing the amount of cattle they own so that there is less overgrazing, and they are leaving areas to recover for longer. They are also trying to catch water by building stone walls.*

Question C6: Use and abuse of the environment (Recreation and Tourism)

This question was overwhelmingly more popular than question C6, clearly indicating that most centres choose to teach this option.

(a) In part (i), the majority of candidates correctly identified the pleasant scenery / countryside, the hills / mountains or forests, or the peaceful / quiet appearance of the area, to score the 2 marks. In part (ii), virtually all scored 2 marks for suggesting two suitable activities.

(b) Very few failed to score all 3 marks.

(c)   In part i), most scored the mark for this question – but some failed to emphasise the fact that honeypots attract *many* or *a lot of* tourists, or are sites which are *very* popular. In part (ii), virtually all scored the full four marks – although a very few thought that longer local journeys was a good effect!

(d)   Most scored 1 or 2 marks for identifying basic impacts such as trampling vegetation and eroding footpaths; fewer, however explained fully how, for example, dropping litter would be dangerous for wildlife, or excessive walking over country areas would destroy wildlife / habitats.

(e)   As in question C5(e), responses here were once again quite variable. The opportunity to gain marks directly for describing the location of the chosen case study area, including a sketch map, was not taken by most candidates. Descriptions of location were generally poor (e.g. 'Africa') and / or inaccurate, and sketch maps – rarely drawn – were of poor quality. In fact, candidates frequently produced illustrations which were nothing to do with location – suggesting that they did not understand what was being asked. In addition, failure to properly answer the question about how *eco*-tourism affected the *environment / wildlife* resulted in generally poor marks for this question. Candidates often seemed to have little idea of the concept of eco-tourism, simply writing about destruction of wildlife and habitats – or about the beneficial impact on local people, which the question did not ask for.

Although Level 2 answers were the exception, there were a few better answers, such as the example below, which scored 4 marks.

Example 11

> *Chosen LEDC area - Zimbabwe*
> *Zimbabwe is located in the South of Africa, above South Africa. (No sketch map drawn.)*
> *The 'Campfire' project helps to protect endangered animals and teach tourists and local people how to live alongside them. Elephant numbers are being reduced by trophy hunting, which makes the environment less likely to be destroyed. The elephants themselves also benefit because there is enough food for them all.*

Paper: 1313 3H

The Resource Booklet contained a wide variety of materials: e.g. text, aerial and ground photographs, maps, statistics, a cartoon and various types of chart and graph. The overall demands of the paper were similar to previous years. Some tasks were included to challenge abler students (e.g. describing changes in oil production and comparing the environmental impacts of different energy schemes) whilst some of the more straightforward questions appeared on Paper 2F as well.

Generally candidates handled the resource materials skilfully, though describing the changes over time on a line graph proved too hard for some, and making explicit comparisons was a difficult technique for many. The paper proved to be very accessible for the target grade candidates, with very few unable to attempt all the questions. There was, however, evidence of a few able candidates abandoning question 6 and even 5 in order to devote more time (and extra sheets!) to Q7 which was often a counterproductive strategy since any extra marks gained in Q7 rarely compensated for those forfeited in Q5 or 6.

Question 1

(a) Defining the terms was proved difficult for quite a few candidates. "Net migration" proved more troublesome than "natural increase". Using the term migration rather than immigration or emigration was the main error.

(b) Most answered this correctly.

(c) This was challenging, even for the many who had successfully answered (a) and (b). Fewer than half correctly calculated the answer. 60,000, 150,000 and 90,000 were often chosen instead, and quite a few candidates curiously did not even hazard a guess. There were few scores of 4 marks for Q1 as a whole.

Question 2

(a) Most candidates scored at least 2 marks. Many ignored the instruction to include data, or did not do so accurately enough: for instance, some who quoted figures from the charts failed to include the units of measurement, i.e. "tons of oil-equivalent" or even the crucial "millions". The most concise way of answering this question was to use phrases like "coal consumption halved" or "the use of gas doubled" rather than to quote tonnages. Several candidates successfully calculated the % changes.

(b) Nearly all candidates successfully defined the term "renewable" and also ranked the energy sources accurately.

(c) Most candidates knew reducing greenhouse gas emissions would help to combat global warming and so scored at least one mark. Further marks could be gained by mentioning that the UK had a target due to its commitment to the Kyoto agreement; by explaining how greenhouse gases caused global warming; and/or by describing some problems that global warming would cause. On the whole the problems were better understood than the link with greenhouse gas emissions. The following answer did show excellent understanding of the latter and scored full marks.

Example 1

> *The government would like to reduce greenhouse emissions because they are causing global warming. Short wave radiation from the sun can penetrate through the layer of greenhouse gases allowing heat in, but long wave radiation, normally sent back out to space is being trapped, preventing heat from escaping. As our world heats up the ice caps will melt causing low-lying areas to flood. By reducing greenhouse gas emission we can prevent the problem getting worse.*

The next answer focused on the problems of global warming and it too gained 4 marks:

Example 2

> *The UK Government wants to reduce greenhouse gas emissions because greenhouse gases contribute to global warming, which is causing many problems for the environment, animals and even humans. For example, global warming is gradually melting the polar ice caps which is making sea level rise. This, in turn, could lead to the flooding of land and the destruction of major cities along the UK coastline. The UK wants to cut its emissions to keep to the agreement it made at the Kyoto conference less than a decade ago.*

However, confusing global warming with acid rain or destroying the ozone layer were quite common errors. Many candidates also quoted statistics from Figure 6 that were irrelevant to the question, or drew wrong conclusions from them (e.g. "The government wants to reduce greenhouse gases because the economy grows faster when they are reduced"). A few unfortunately did not grasp the irony in the cartoon and so claimed that global warming was causing wind farms to collapse.

(d) Most answered (i) correctly and scored 2 marks in (ii) by describing two relevant changes. Few however adequately explained how those changes had led to a reduction in greenhouse gas emissions. To gain credit it was necessary to be quite precise in this explanation: e.g. to state that hydroelectric power "produces no greenhouse gas emissions" or that natural gas "produces fewer emissions than coal". Most just said, for example, " more gas was used so greenhouse gas emissions were reduced" which was just repeating the phrase in the question.

Question 3

(a) Many candidates scored full marks by identifying the correct time spans of three major changes. The most obvious ones to choose were the rise from 1980 to 1985, the decrease from 1986 to 1990 and the subsequent rise to the peak in 1999, but others were acceptable. Quite common errors though included describing minor (year-by-year) changes; mistaking the natural gas graph for the oil one; describing both oil and natural gas production; or even comparing oil production with natural gas production. Some candidates tried to explain the changes in oil production instead of describing them. For Instance, in the answer below a well-informed candidate actually got no marks since not one change was described precisely enough:

Example 3

> *1.   There was a large rise in oil production around 1985 due to Thatcher' decision to change from coal to oil.*
> *2.   A dip in production between 1988 – 1993 due to white collar recession and fire disaster on an oilrig in 1988 – Piper Alpha.*
> *3.   A world surplus in 1999 and then slight decline before prices soared.*

The importance of carefully reading the question and studying the keys/captions to resources must be emphasised. Many students would benefit from practice at identifying and accurately describing trends on charts and graphs: e.g. some made vague, inaccurate statements like "oil production decreased in 1990" when they really meant it "decreased from 1986 to 1990".

(b) Only a minority of candidates knew a "net oil exporter" was a country that exports more oil than it imports. Very many simply said it was a country that had more oil than it needed or a country with a surplus of oil that it sold to other countries. A few thought it was someone who traded in oil on the internet. In Q3(b)(ii) many said producing countries such as Iraq were politically unstable but fewer explained how the security of supplies would be at risk. A few did write about a trade deficit in energy but vague answers such as "oil will cost more" or "there will be more pollution" were not accepted. Few scored both marks here.

Question 4

(a) Many answered (i) incorrectly through not reading the resource or the question carefully enough. Part (ii) proved more difficult still. Whilst many did recognise that electricity production from wind turbines would be intermittent, hardly any went further to state that another energy source would therefore be necessary as a back-up. However, nearly all candidates gave the correct answer to (a)(iii).

(b) This provided three easy marks for all except the few who omitted the units of measurement ("£" and, more curiously, "years") or who carelessly gave the cost of ten power stations rather than four.

Question 5

(a) Those who scored well often did so by giving a number of basic points (e.g. flat land, large amount of space, nearby sea/river) rather than develop such points into fuller explanations. Many suggested the sea would be used for dumping radioactive waste, though abler candidates did realise it provided the station with both water for cooling and an outlet for discharging waste water. Again, many candidates noted the lack of nearby settlement but usually added "so it won't be an eyesore" rather than "so it will be less hazardous in case of a leak". The hardness of the rock was rarely identified as advantageous but some able candidates did note that being next to the earlier Hinkley A power station had advantages (e.g. shared infrastructure).

(b) Most scored full marks for realising the hilltop site would mean exposure to strong winds. We did not accept as a locational advantage the frequent answer that "there are few people living nearby so visual pollution won't be a problem."

(c) This question was problematic in two respects. Firstly, most candidates referred to wind farms and nuclear power stations in general, rather than – as we intended - use evidence from the photographs to compare Rheidol and Hinkley B in particular. In retrospect the question could have been worded more clearly. Answers adopting the more general approach were accepted, but could not get beyond a Level Two mark. Secondly, many candidates wrote two separate accounts rather than make an explicit comparison, so their answer did not get beyond Level One. This is a matter of examination technique and many students need more practice in answering this style of question. Another failing was to ignore the environmental focus of the question and write irrelevantly about the costs or reliability of the energy sources.

The answer below was a Level One response, as it consisted of two separate descriptions and did not include any explicit comparative points.

Example 4

> *Nuclear power stations have radioactive waste which pollutes the environment and costs billions to make safe. They are ugly but they don't release greenhouse gases. Wind farms are noisy and kill birds that fly into them. NIMBYS (Not In My Backyard) say they are like giant toilet brushes to look at but I think they are OK. They help with global warming because they don't release greenhouse gases.*

The next example was a comparison but still in general terms, so it was a Level Two response.

Example 5

> *Nuclear power stations and wind farms don't release any carbon emissions into the air which means they have no effect on global warming. However nuclear power does produce radioactive waste which can have a massive effect on the environment. Also these power stations may contaminate the sea with hot water and small radioactive charges. Wind power also has problems. It creates noise pollution and also has a great effect on the bird populations of the environment who can get caught up in the turbines. In conclusion I would say nuclear energy has the greater effect on the environment but wind energy still has problems.*

The best candidates picked out relevant detail from the photographs such as the grassland (and sheep!) on the wind farm site in contrast to the tarmac car parks and roads at the power station; the size/shape/colour/number of the power station buildings compared with the wind turbines; or the contrasting scenic qualities of the flat mudflat coastline in Somerset and the wilder upland landscape in Wales.

Example 6 illustrates a Level Three response that made good use of photographic evidence. It scored full marks.

Example 6

> *Both the nuclear power station and wind farm have effects on the environment .Both create visual pollution as they are tall white buildings located in green countryside. The nuclear power station has more impacts on the environment however as the power station uses up a larger amount of land and has a sea wall preventing the sea from flooding and eroding the land naturally. The wind farm uses up little land as the turbines are built on polls. Photo B also shows that the power station has dug out a stream from the beach allowing water to pass out of it into the sea. This has caused a greater environmental impact compared to the wind farm which has not dug out lots of land.*

Example 7 also scored full marks at Level Three. This candidate used some evidence (about generating capacities) from the captions to the photographs as well as detail from the photos themselves. It is a very balanced answer.

Example 7

> *Both of these installations produce no greenhouse gases. However, the wind farm produces no waste of any kind while the nuclear plant produces highly radioactive waste. Disposing of this waste can cause severe environmental problems. The plant also creates thermal pollution by releasing heated water into the river which will disrupt its ecosystem severely. Both installations could be called an eyesore, although the huge nuclear plant is far more of a problem in that respect than eight thin turbines. However, it would take 508 Rheidol wind farms to generate as much power as the nuclear plant. If there were that many turbines, the amount of space used, and the noise and visual pollution, would make the wind farm very damaging to the environment.*

A few candidates had clearly carried out Environmental Impact Analyses on the photographs when they had the Advance Information Booklet. This helped some of them to appropriately focus their minds and therefore their answers, but others merely quoted their scores without explaining them and so gained little, if any, credit.

Question 6

(a) Virtually all candidates answered (i) correctly, but the concept in (ii) was very difficult to grasp and much less than half got it right. Curiously some candidates did not even hazard a guess.

(b) The answers were generally rather disappointing. Most chose the bio-fuel car but then many confused it with a liquefied petroleum gas one. The minority who chose the wood-fuel boiler usually did better. Most candidates scored low marks, usually by making a few general statements about green technology like "it is renewable" or "it is environmentally-friendly." More specific knowledge was usually lacking and many thought these energy sources produced no greenhouse gases. The carbon-neutral concept was only rarely mentioned or even alluded to. Here, however, is an example that did convey that idea. It scored full marks.

Example 8

> <u>Wood-fuel boiler</u>.
> *As a fuel, wood is renewable. We can simply plant more trees to replace those we use. Also, planting more trees effectively compensates for the CO_2 released by burning wood, since trees actively remove CO_2 from the atmosphere. This also means that CO_2 released by wood-burning was previously removed from the atmosphere by the tree you burn. Finally, the renewal cycle for wood can be as little as 30 years, compared to millions for coal and oil.*

However, the mark scheme allowed a very wide range of possible responses and it was not necessary to refer to carbon-neutrality to gain full marks. The next example illustrates this.

Example 9

Bio-fuel car

Bio-fuel cars are green technology because they reuse waste materials such as chip pan oil or sunflower oil instead of oil at the petrol station. It is green technology because by doing this it creates less petrol emissions into the atmosphere and saves valuable non-renewable oil for the future making it sustainable.

Question 7

The issue of future energy options in the UK was very topical and most candidates engaged with it enthusiastically. Some referred in their answers to very recent developments such as changes in UK government policy on energy and ongoing administrative problems at the Home Office.

The paper gave candidates the opportunity to express their own views and a variety was seen. However, wind farms and energy efficiency/green technology were certainly the most favoured ones. Nuclear power was less popular than expected and reduce the population was supported the least. Of course candidates' answers were judged on the reasons they put forward to justify their choices rather than the choices themselves. Most understood the options well, although a few did harbour major misconceptions (e.g. that the UK's population is now decreasing in size or that nuclear power stations are a major source of greenhouse gas emissions).

Wind power was usually advocated for its cheapness, renewable nature and/or lack of harmful waste. There was strong support for building offshore wind farms to harness the great potential there and to lessen the impact of noise/visual pollution. Many used evidence from Figures 9 and 12 to support their case.

Supporters of nuclear power usually cited its efficiency and lack of greenhouse gas emissions, with many arguing that these advantages outweighed problems of costs and waste disposal. Evidence from Figures 10 and 12 was often used effectively here.

Those favouring energy efficiency/green technology focused on the potential financial savings to be made from conservation, the environmental benefits and the advantages of some specific green technologies. Most relied on Figure 11 in the Resource Booklet for evidence, but some had also researched proposals for a carbon card or specific examples of new housing developments that incorporated green technologies. Vehicle tax incentives were often discussed but few candidates explored the possible use of property tax incentives.

The few candidates who advocated Option A usually stressed its cheapness and simplicity, and maybe pointed to beneficial side effects (e.g. reduced demand for land for new housing and preservation of greenfield sites). Relatively little use was made of the evidence available in Figures 1 and 2 to argue the case, perhaps because these were statistical and graphical resources rather than texts. It was noticed that hardly any argued for immigration to be stopped or the repatriation of immigrants.

When nuclear power was rejected it was usually on grounds of costs (building and decommissioning) and safety, with many candidates making use of material in Figure 10 or other knowledge (e.g. about Chernobyl). Effects of nuclear meltdown were sometimes described in gruesome detail.

Many of those rejecting Option A tended to focus on the child allowance proposals and argued rather curiously that it was an infringement of human rights to encourage (not force) people to have smaller families. Others argued more convincingly that it would take too long to have an impact; that the proposals on family allowances and contraceptives would be ineffective (often making good use of Figure 2 here) and that limiting immigration would be unwise. Some said the Home Office – recently officially declared not fit-for-purpose – would be incapable

of administering a quota system. There was a wide understanding of immigrants' contributions to the economy and especially in the context of the UK's ageing population. The terms "dependency ratio" and "economically active" were often used appropriately here.

Reasons for rejecting wind farms tended to focus on environmental issues (e.g. air and noise pollution) and sometimes on the intermittence of wind power (using data from Figure 9). Some also mentioned bird deaths or falling house prices.

Candidates often had difficulty arguing against Option D (Energy Efficiency). Many dismissed it simply because "people won't be bothered" or "it will be too expensive for people to do". Some argued that it would take too long to change people's attitudes or that improving energy efficiency would do nothing to reduce UK's dependence on other countries for energy.

The average score for all the answers to Q7 that were marked online was 6.9 out of 12, i.e. a solid Level Two response.

Some answers to Question 7 did not go beyond Level One. This was either because they were vague and thin on evidence, or because they merely repeated, without comment, material from Figures 13 and/or 14. The following example was a low Level One answer. It was rather vague and lacked factual evidence to support the stated opinions.

Example 10

> *Policies C and D*
> *I have picked policy D because by using more energy efficient houses and transport we help stop loss of energy and the more use if less energy to do more things. This policy is a cheaper method to the rest and creates less change to the environment. Plus if the government increase the grants then people will have more incentive to try this policy.*
> *Policy C was picked because could create a lot of energy for the future and would not in many harmful gases that could destroy the environment.*
> *I did not pick policy B even though it could create more energy because it would be a big eye sore and many people would be against it and for each wind farm there is no guarantee that there will be constant story wind to get high energy levels produced.*
> *I did not pick Policy A because I do not feel that reducing the population would decrease the amount of energy used and again there is no guarantee that the reduced population would use reduced amount of energy.*
> *I picked Policy C and D and as they were strong and believable policies and in the long run would work, and wouldn't be any doubts about it.*

Another example is given below. Most of it had been lifted from Figure 13 but a few vague reasons were given to support the candidate's viewpoint. This was a higher Level One response.

Example 11

> *Policies B and D*
> *I have chosen policy B, to encourage the development of more wind farms as it is cheap and can provide 20% of the UK's electricity by 2030 it will also not harm the environment will not take up much room.*
> *I have also chosen policy D, to encourage more energy efficient houses and transport. If we had more energy efficient housing less would have to be paid for the use of energy, a lot of money would be saved and houses would be more efficient.*
> *If transport is energy efficient, less carbon dioxide is produced. Transport would also cost 30% less to run.*
> *I did not chose to reduce population as I think people should be allowed to have as many children as they would like. By making contraceptives easily available will **not** reduce population. I think they are already available enough. Some people chose to not use them anyway.*
> *I did not chose to build more nuclear power stations as it would be expensive to build. They also take up a lot of room and are not good for the environment as there is a lot of waste produced. Unlike policy B the power stations will only provide 10% of the UK electricity by 2030.*

To reach Level Two, an answer had to include some "developed" points, where the candidate exemplified, explained or elaborated some of the basic points typical of a Level One. Alternatively the candidate might have reached their decisions by using a wider range of criteria, usually by drawing evidence from earlier sources in the Resource Booklet.

The following example was quite a good Level Two response. It included a few details in support of wind and nuclear power, but made weaker cases for rejecting the other two options.

Example 12

> *Policies B and C*
> *I have chosen Policy B because I think that wind farms are extremely helpful towards the environment and lowering green house gases. Wind energy is a renewable and sustainable source. Most of wind energy can be obtained from the coast or shore. Wind energy is constant and is a totally valuable source. Recent wind farms produce electricity at a lower cost with no greenhouse gas emissions produced. The wind turbines can last for at least 20 years. When they are broken they can be easily dismantled without any harm or threat to the surrounding environment. Wind turbines on shore are the cheapest at producing electricity compared to gas-fired power station, nuclear power and off-shore wind farms. If the building of wind farms is encouraged it can produce 20% of the UK's electricity by 2030.*
> *I also chose policy C because I think that it is a sustainable way of producing electricity for the UK. Only 4 new N.P. stations are needed to be built for 10% of the UK's electricity to be produced by 2030.*

much of the fuel (uranium) can be recycled and use again. Nuclear power stations can last for about 25 – 30 years, which is a very long time, some have lasted for 45 years. Nuclear power stations do not produce greenhouse gases / carbon dioxide. It cannot increased the level of global warming. I did not choose policy A because I think it will be extremely hard to induce a law / rule of reducing the population. Many families enjoy having many children or a large family. It is also harder to reduce the population when the intelligence and research of medicine is constantly increasing. Many people have also stated leading healthier lives.

I did not choose policy D because I also think it is extremely hard to encourage energy-efficient houses and transport. For a person or family to get a grant for the green technologies they need to have all the basics which will cost a lot in the first place.

The next example was also a Level Two response. Much material was lifted from Figures 13 or 14 and it was a little vague and unclear in places. However, it also included some quite strong developed points, particularly in favour of nuclear energy.

Example 13

Policies C and D
Nuclear power is the most sustainable ay of making a lot of energy at this moment in time. It produced 1220mw of energy at Hinkley point in Somerset since opened in 1978. Uranium can be imported from countries that are friends of the UK. Only a small amount of Uranium is needed, reducing the cost of transport, compared to fossil fuels. There are no Greenhouse Gas emissions when it is being dealt with and new research is going into ways to solve the problem with toxic waste. The safety record or previous nuclear power plants in Britain has been excellent. The threat of terrorism is unlikely as many of the best pilot have said it is almost impossible to fly a plane of so much weight at such a low altitude. Furthermore, if people began to be more energy sufficient in their homes it could reduce the amount of energy needed, working well with the amount of nuclear power stations to be built, putting the environment at less risk of being effected by radiation. The development of wind farms and reducing the population will reduce the speed of the UK's developing economy. Putting quotas to make sure the rate of immigration is not higher than the rate of emigration will effect the reputation of the UK. In addition encouraging people to have smaller families by giving child allowance only for the first and second child is taking away peoples freedom they may not be able to support another child without help from the government. Furthermore the development of wind farms will cause dispute due to the noise and location. People who are not for wind energy are called the NIMBVs (not in my backyard). People do not like the noise produced or the sight of the turbines. Even though its is a renewable source of energy, they are not good for supplying a large source of energy. The wind farms at Aberystwyth (for example) have only produced 2.4mw since 1997. the centre for strategic and International Studies believe that the immigration of young workers is essential for countries with an ageing population. Likewise the Royal Society believe that the UK will only meet its target for cutting carbon dioxide emissions if it builds nuclear power stations.

To reach Level Three answers had to show some of the following features:

- a substantial number of developed points
- consideration of several criteria
- balanced analysis – acknowledging faults in preferred options and benefits of rejected ones
- some well developed argument - linking ideas together in a sustained logical manner
- relevant additional information from personal knowledge/research

The example below argued for nuclear power and energy efficiency. This candidate concisely considered a variety of criteria, eg. the reliability and security of energy supplies as well as some environmental, economic and social impacts of the options. The answer included some well-developed points against the development of wind farms and particularly against immigration controls.

Example 14

> *Policies C and D*
>
> *I chose policy C because nuclear power provides 40,00 jobs in old agricultural areas and as it takes 12 years to build will provide jobs in all sectors. It has low carbon emissions which will not contribute to Global Warming. Also, the supply of uranium is plentiful and comes from politically stable countries which will ensure a guaranteed supply. It is easy to transport a lot of energy. I also chose policy D as it will lower the amount of greenhouse gasses as it encourages the use of green technologies though taxation. It also benefits households as they will save money through saving energy through the grants. Finally, it will set new standards and regulations in housing construction ensuring all houses are fitted with green technology as opposed t houses getting energy form unrenewable such as fossil fuels.*
>
> *I rejected policy B as wind farms are ugly and destroy areas of beauty. House prices near wind farms will lower a people called NIMBY's (not in my back yard) will not want to live near wind farms. Birds get killed flying into the turbines, and generally wind farms produce little energy. It is unreliable and in periods of little wind or extreme wind, the energy will have to be made from fossil fuels, which defeats the idea of wind power being a green technology. I also rejected policy C because it could be seen as racist – how would the government decide who gets to migrate to the UK and who does not? It would lower the UK's economy as many jobs in the UK are filled by migrants. UK would get a bad public reputation as it is known as a secure place for asylum seekers to go to, and with the policy they could not enter UK to seek refuge. It would also cause conflict between families with different numbers of children, and it is unethical as the government do not have a right to tell people how many children to have.*

The following example contained many developed points, an awareness of recent relevant events (e.g. Russia cutting off Ukraine's gas supply) and in places was very well argued. The candidate did not make much of a case against Option C and only this imbalance in the answer prevented it getting full marks.

Example 15

Policies B and D
Policy B will be a good idea because wind turbines do not give off emissions of greenhouse gases. They have the potential in the UK to produce 40% of the energy of Europe. It is cheaper electricity. Also, if t does not give off greenhouse gases, that means it helps the government reach its target with Kyoto, of reducing emissions by 5% of 1990 level by 2012, however, UK has its own target of reducing it by 20% of 1990 level 2010. this reduces threat of global warming which would result in ice caps melting, sea levels increasing etc, so wind turbines area good idea, (according to figure 6). Furthermore, if you look at figure 9, it shows that wind is very reliable in the UK and it has a lot of potential. We do not want to rely on unstable imports from LEDC countries, so this is again a good idea. Russia cut of gas to Ukraine so UK cannot risk this happening. Also, wind turbines in figure 12 look rather expensive, however, gas prices are increasing because north sea/ oil gas is running out, therefore in the long run turbines are among the cheapest. I chose policy D because, adding solar panels means you get a direct source of energy, therefore energy does not have to travel far, and so is not wasted. Nuclear Powers have to transport electricity through the National grid, and 65% of the energy is wasted. Also, this scheme will not result in ant emissions, and adding insulation to the home is easy, since the government may give grants, so it is cheap anyway (cavity wall insulating).
Also, as the population increases, demand for homes increases, also there are more divorces, ageing population. In 2031 population could have increased by 6.4 million. Therefore, houses could be built with insulation, and they are going to be built anyway. Also, for builders homes with green technology are selling points.
I did not choose policy A because family planning is already available in the UK, families are already small, and so this will no have an impact only in LEDC's. also, contraceptives are available. Migration brings new skills, reduce this, and it may interfere with the economy, it results in an increased dependency ratio since there are less economically active to support the dependents.
I did not choose policy C because nuclear power stations are too expensive.

Finally, Example 16 shows another good Level Three response. Although there was a strong focus on wind farms, comparisons with other options were explicitly made. It was very concisely argued and well supported with some detailed evidence obtained from a variety of sources in the Resource Booklet and from personal research. The quality of written communication (spelling, punctuation, grammar and use of geographical terms) was also high, allowing it to be awarded the top mark at Level Three.

Example 16

> *Policies B and D*
>
> *Policy B Is a renewable energy source - it will not run out. It produces no greenhouse gases. If the UK has 40% of Europe's offshore wind energy production potential it should make use of it. Compared to nuclear power stations, which take 135 years to decommission after reaching the end of their working life, wind turbines can be easily dismantled and the land restored quickly and cheaply. In 2003 onshore wind farms were the cheapest way of generating electricity in the UK. The European Wind Energy Association has said that the cost will continue to fall as the technology improves.*
>
> *Wind power is easy to maintain and a sustainable way to produce electricity, especially compared to nuclear energy, which produces radioactive waste that is a health hazard. There would also be added concern over nuclear meltdown like Chernobyl in 1986 and terrorist attacks.*
>
> *Policy B can produce twice as much energy as Policy C and the land around the turbines can be used for sheep grazing. The problem of birds being killed by turbines is unfortunate, but research at Altamont Pass wind farm in America has shown 100 million birds have been killed by household cats and far less by wind turbines. So to say wind farms should not be built because of the risk to birds is as silly as saying people can't have cats. Turbines can be painted which increases their visibility and reduces bird deaths.*
>
> *Policy D should be implemented because 30% of the UK's energy is used in the home and the 60% of this that is wasted should be reduced. Using energy more efficiently and reducing consumption alongside generating electricity from wind will reduce the need to burn fossil fuels and damage the environment through greenhouse gas emissions.*
>
> *Policy A will not work with an ageing population where 23% of the population will be over 65 by 2003. The immigration of young workers is essential to help pay for their pensions. Also Figure 3 gives evidence to show energy consumption is growing faster than population growth because of technology, so there is no guarantee that reducing the population will solve the energy problem. Green technologies like Policy B and D are the way forward, producing clean energy and reducing waste.*

Nb. It should be noted that all the examples given in this report were written in the spaces provided on the examination paper, i.e. none of the candidates had to use extra sheets.

Paper: 1313 4H

As with Paper 3H, the overall demands of the Paper were similar to previous years. Some tasks were included to challenge the abler students in the target range, eg. B3(b) / B4(b), C5(d) / C6(b) ii), although some of the more straightforward questions were common to Papers 4H and 2F.

Generally, the paper seemed accessible for the target grade candidates; indeed, some candidates scored very high marks, and there were very few questions left completely blank. There were only a few questions - B3(b), B4(a) i), C5(c) / C6(b) ii) - which seemed to pose particular problems.

Section A
Question A1: Planning for Change

(a) i) and ii) These were straightforward for virtually all candidates.

(b) i) Quite a few candidates did not adequately explain what push and pull factors actually are - simply repeating the question e.g. by saying 'push factors are factors which push you away from an area – which was insufficient for credit. The better candidates qualified this by explaining that push factors were problems / adverse factors causing people to move away from an area. Nearly all candidates, however, gave good *examples* of push and pull factors.

   ii) Most candidates scored 3 or 4 marks for describing appropriate problems.

(c) i) Virtually all candidates managed to quote some relevant information from Figure 2 to obtain one or two marks at Level 1; a significant number were able to relate the information about increasing population, jobs and accessibility to an increase in commuting, tourist traffic etc., which took them into Levels 2 and 3. The example below illustrates an excellent answer which easily scored the full 5 marks at Level 3.

Example 1

Transport problems are increasing because of outdated and underdeveloped transport infrastructure, and the growing population which is using it. Because the population has grown so rapidly (22%) in Cambridge between 1981 and 2001, the "old, narrow streets" cannot cope with the increased traffic and congestion is caused. The number of jobs has also increased, which also adds pressure to the city's transport with more people commuting to work. Tourists add to the problems as they come to see the historic university

   ii) Most candidates scored two or three marks for correctly identifying problems such as congestion, noise, and air pollution.

(d) Answers to this question were very variable. As on Paper 2F, the best answers were generally on park and ride schemes or congestion charging, where candidates were able to state clearly how the method works and its benefits for sustainability. Answers dealing with improving public transport, cycle lanes and restrictions on car use were often less successful, since candidates often failed to explain how they work, but simply stated benefits.

(e) There was a wide variety of responses to this question. Although Level 2 was often reached, there were relatively few really good Level 3 answers. As on Paper 2F, this was generally due either to candidates' inability to refer to their chosen case study (most commonly Nike or Ford), or to the fact that answers focused on advantages for the *company* rather than for the *countrie*s.

The following example illustrates an answer at Level 2 overall, which gained 5 marks; interestingly, the first part of the answer mentions four or five advantages, with some detail in the point about attracting other companies – just enough for Level 3, – but the second part of the answer is much weaker, at bottom Level 2 standard.

Example 2

> *Ford has set up and developed factories in LEDCs, where there have been several benefits. These include a vast opportunity for new jobs, and therefore income for the population and the country. Other companies may be interested in setting up factories alongside existing factories, which brings even more income. TNCs often offer schemes to countries where they have factories such as investing in schools or leisure facilities.*
> *Disadvantages for the country include pollution caused by the factories. They can pull employees from other jobs because of better wages; this is bad because it can damage the country's existing economy.*

The following example illustrates a good answer at Level 3 which scored 7 marks for mentioning a range of advantages as well as disadvantages for the country and its people, whilst clearly referring to a specific company and locations.

Example 3

> *Nike is one of the largest TNCs in the world. Its main headquarters is in the USA, and its factories are mainly in South East Asia, Japan and Thailand.*
> *It has created many jobs for the people in South East Asia. It is cheap labour, but the employees get a steady income so they can afford to send their children to school. The countries of South East Asia earn income by having Nike in their country, and gain economic growth.*
> *Some Human Rights Activists feel that Nike is exploiting the vulnerable workers by paying them poor wages, and making them work twelve hour shifts with no breaks in poor conditions. The countries themselves are also being exploited because the money Nike makes goes back to the USA.*

Question A2: Coping with environmental change

(a)   Some candidates were clearly unable to use the map and key, and therefore failed to score the marks for sand and shingle.

(b) i) Virtually all candidates scored one mark for suggesting that groynes stop or combat longshore drift; most scored a second mark for going on to say that sand is trapped, or that groynes prevent loss of sand; relatively few, however, gained the third mark by explaining how beaches cause waves to break before reaching the coastline, or absorb wave energy.

    ii) As last year on Paper 3H, it was clear that many candidates are unsure of the difference between hard and soft engineering. Too many candidates gave 'sea walls' as their method of soft engineering, thus automatically gaining no marks for the question. The best answers unsurprisingly dealt with beach recharge - although even then some candidates focused on what was done, rather than describing the advantage that a wider or higher beach would absorb wave energy or protect the coastline from erosion. Most at least were able to gain credit for saying that the method was not permanent / would not last long.

(c) This question was frequently disappointingly answered, since it was apparent that many candidates did not make effective use of the map. It was commonly suggested that residents wanted protection to stop houses falling into the sea – yet grid square 1790 contains no housing at all! It was also regularly stated that conservationists were in favour in order to 'stop erosion', which was insufficient for credit, as the question asked for evidence from the OS map. There were, however, some good answers referring to the need to protect the nature reserve, beach, and National Trail, and suggesting that residents were against protection because there were no buildings needing protection, and that it would increase their taxes.   The example below shows a good Level 3 answer scoring 5 marks which states clear arguments, and names relevant groups.

Example 4

> *Nature conservationists will want this area of coast protected. This is because there is a nature reserve, and also a National Trail which runs along the coastline. The general public will also want this Trail, the viewpoint and the beach protected from erosion. The local council might be against protection, because they will see it as a waste of resources to protect an area with no economic or industrial value.*

(d)   Virtually all candidates correctly identified the River Stour in part (i). The majority also gained credit in (ii) for statements about the low or flat land, or for highlighting the closeness of the river to the built up area.

(e) In part (i), most scored 2 or 3 marks by correctly identifying possible damage to / loss of houses, possessions, roads and businesses. In part (ii), candidates frequently managed to explain how building embankments / levees, or deepening the river to increase its capacity, would help to reduce the risk of flooding – thus scoring 2 or 3 marks.

(f)   As in question A1(e), answers were quite variable. There were some rather weak, very general answers at Level 1, but there were also some very well prepared and detailed case study accounts which scored highly. The most common volcanic eruption case studies dealt with Montserrat or Mt. St. Helens, whilst Izmit

(Turkey), Kobe and San Francisco were most frequent for earthquake studies. A few answers concentrated too much on purely environmental effects, when effects on people living in the area was the required focus; some answers also failed adequately to deal with how people coped after the event.

The following example, dealing with Mt. St. Helens, illustrates an answer at Level 2, which gained 5 marks.

Example 5

> *The effects the hazard on people in the area were great. An ash cloud descended on Washington, blocking out the light. Mud and ash flows destroyed houses and crops, and people obviously lost their lives. After the event, people had to build new houses, plant new crops and they had no clean water. All the scenery was destroyed so the tourist industry was badly affected so the people had to find other ways of providing their economy.*

The following example, dealing with the Kobe earthquake, illustrates an answer at the top of Level 3. It offers correct facts, covers a wide range of effects, mentions how people coped after the event, and offers detailed explanation of how people plan to cope with future earthquakes – making it easily worth the full 8 marks.

Example 6

> *On 17th January 1995, Kobe was struck by an earthquake measuring 7.2 on the Richter Scale. It caused water, gas and electricity to be cut off. Many people lost jobs or were left homeless due to 200,000 buildings being destroyed. The 1km stretch of the expressway was destroyed, and the injured could not receive help quickly enough as transport links were covered in rubble. In all there were 5,500 deaths.*
> *People were provided with basic shelter, food and medicine after the earthquake, and solutions were found in order to prevent such mass destruction ever again. Schools now teach a fire and earthquake drill. Buildings are now installed with steel frames which allow the buildings to sway. Foundations are made deeper, avoiding clay, and shutters prevent broken glass from falling onto people below. An earthquake warning system is also now installed so people can get to safety in time.*

Section B
Question B3: Use and abuse of the environment (Water)

This question was more popular than question B4, suggesting that more centres teach this option.

(a) Virtually all candidates scored the 2 marks in part (i), but too many gave oceans rather than ice caps as their answer in part (ii).

(b) This question proved difficult, with very few candidates reaching Level 3. Many candidates wrote about rainfall amounts or frequency rather than reliability, and few really showed an understanding of how rainfall varies from one place to another.

The following example illustrates an answer at Level 2, which gained 4 marks; although reliability is not specifically mentioned, the candidate clearly has some understanding of variations in regularity and reliability of rainfall, and refers to specific places.

Example 7
> *In Britain we know we are going to get rain regularly so we can rely on it coming. We very rarely go more than a week or two without any rain. However in places like India, they experience drought when they receive no rainfall for months on end, then suddenly they receive lots all at once (monsoon) which can ruin crops and cause flooding.*

(c)   i) The divided bar chart proved a problem for some candidates, who clearly did not understand the concept of how such a graph works! Many did, however, complete it correctly, although some were very slapdash or untidy and failed to gain the third mark. (N.B. This point has been constantly highlighted in previous reports.)

ii) Most scored one mark for stating increased population as a reason; fewer scored all the three further marks, however, since statements often failed to emphasise the *increasing / rising* demand from industry / domestic use / leisure. It is insufficient to say that 'there is a lot of water used' – it is the *increase* which is asked about.

(d) Candidates were usually able to identify an appropriate lake or river, and the most common examples chosen were the Thames, Danube, and Lake Windermere.
It was disappointing to see so many answers only scoring Level 1 marks - these merely outlined very general causes of pollution, and equally general ways in which the pollution was (to be) dealt with. Candidates also often wrote about the effects of the pollution – which the question did not ask about.
The following example scored 2 marks at the top of Level 1.

Example 8
> *The pollution of the Thames is due to the dumping of rubbish. It has polluted the water, and killed animals and fish.*
> *People have dealt with the situation by cleaning up the river, and putting the rubbish in proper sites, but other people still continue to dump more rubbish. Animals which are affected are looked after by local sanctuaries.*

The better, Level 2 and Level 3 responses included a range of sources of pollution, or reference to specific polluting events; the example below scored the full 5 marks at Level 3.

Example 9

A large number of factories and sewage works are situated along the river Rhine. They dispose of a lot of waste which goes directly into the river. Fertilisers from farmland also wash into the river, and domestic rubbish can be a problem. Spillages of oil from boats add to the pollution, and a leak from a fire at a chemical factory in Switzerland caused a major pollution event in 1986.

There are now regular monthly checks on the river, and there are limits set on the amount of waste factories can dispose of. Some factories have been fined, or even banned from dumping waste in the river. International agreements now exist, as the Rhine flows through several countries.

Question B4:Use and abuse of the environment (Weather & Climate)

Fewer candidates answered this question in comparison to question B3.

(a) Part (i) of this question proved quite difficult, with relatively few candidates scoring two marks. Credit was given for any statement about 'the period of time when the weather is *suitable* for growing crops'. Many candidates, however, referred to the time when crops 'grow best', and only a very few understood the specific meaning of the term. It was clear where centres *had* taught their candidates about the relevance of temperature levels, since all these candidates scored 2 marks.

In part (ii), most candidates scored 1 or 2 marks for identifying the decrease in the length of the growing season from south to north, or by contrasting the longest season in the SW with the shortest season in the NW.

(b) Many candidates were able to reach Level 2 for 3 marks by identifying the links between the types of farming on figure 5 and the corresponding length of growing season on figure 6, although relatively few reached Level 3.

The following example was a good response, with enough detail to score 5 marks at Level 3.

Example 10

> *The longer the growing season, the more crops can be grown. In the south west there is horticulture, but in northern Scotland where the growing season is short only grass will grow so there is sheep farming. Some plants and fruit can only be grown in certain conditions, which is why there are only small areas of horticulture in the south. Dairy cattle occurs where the growing season is 5-8 months, because they do not need particular requirements. Arable farming is mainly in the south east where the growing season is 5-8 months because crops need time to ripen.*

(c) (i) As in question B3(c) (i), the divided bar chart proved a problem for some candidates, who clearly did not understand the concept of how such a graph works! Many did, however, complete it correctly, although some were very slapdash or untidy and failed to gain the third mark. (N.B. This point has been constantly highlighted in previous reports.)

   ii) Most scored 2 or 3 marks by explaining how more / different crops might be grown, and how ice caps might melt leading to rises in sea level and flooding.

(d) Responses here were again quite variable, with most candidates scoring at Level 1 or Level 2. Candidates generally suggested appropriate human activities, but failed to describe *how* they contributed to acid rain.

The following example was typical of a Level 2 answer, scoring 3 marks.

Example 11

> <u>*Acid Rain - Location of chosen study: The UK*</u>
> *Human activities like factories and cars emit gases like carbon dioxide and sulphur dioxide. Power stations and car exhausts are the main contributors.*
> *Acid rain affects wildlife like fish in rivers by making the water too acidic for them so they die. Trees also die because the pores in the leaves are blocked by acid rain. Buildings are also corroded.*

There were some very good Level 3 answers, such as the following examples which both scored 5 marks.

Example 12

Acid Rain - Location of chosen study: Europe

Sulphur dioxide and nitrogen oxides from car exhausts, burning fossil fuels, and other pollution from industry causes releases into the atmosphere. These combine with water vapour to form weak sulphuric and nitric acid to be rained down.

Acid rain disintegrates monuments and buildings made of limestone, such as our local town hall and war memorials. Acid rain travels across the sea to Scandinavia, where trees die and pines are losing their needles as acids are taken up by the roots. The acid also harms pond life such as fish.

Example 13

Urban micro-climate - Location of chosen study: London

London is warmer than surrounding areas because of the heat island effect. This causes London to be as much as 10 degrees C warmer, especially at night. Tall office buildings also funnel the wind in some places, but shelter other areas. There is less snow in winter because of the heat island effect, but there are more thunderstorms due to the hotter air.

The warmer conditions are caused by heat being absorbed by roads and buildings in Central London during the day, and being released back into the air at night. City offices also give off heat from central heating systems. Traffic exhaust fumes also help to trap heat in the city, which melts any snow quickly in the winter

.

Question C5: Use and abuse of the environment (Farming)

Very few candidates answered this question in comparison to question C6.

(a) Most candidates identified the difference in relief - flat land in photograph A, hills in photograph B, - but other differences were less well identified. As a result of this, and the fact that candidates did not properly give *differences* as the question required, 4 marks were rarely scored.

(b) Most candidates scored at least 3 marks for this question, although relatively few scored the full 6 marks. Hedgerow removal and using chemical fertilisers were usually dealt with quite well, with frequent mention of the destruction of wildlife / insects or habitats, and fairly regular explanation of increased soil erosion resulting from hedgerow removal, or chemicals washing into rivers and the subsequent effects. The effects of repeated ploughing was less well answered, however.

(c) The definition of GM crops was disappointingly rarely correct. Many candidates suggested that they were 'crops grown using chemicals', which gained no credit.

(d) There were some varied answers to both parts i) and ii). The most common responses were those dealing with increased yields in part i), and with health risks in part ii).

(e) Once again, responses here were quite variable. The opportunity to gain marks directly for describing the location of the chosen case study area, including a sketch map, was not taken by many candidates. Descriptions of location were often poor and / or inaccurate, and sketch maps – rarely drawn – were of mediocre quality. In fact, some candidates produced illustrations which were nothing to do with location – suggesting that they did not understand what was being asked. In addition, failure to properly answer the question about what could be done to reduce the damage meant that some candidates scored very poor marks for this question; Level 2 answers were reasonably common, but good Level 3 responses were relatively few.

The example below was typical of a Level 2 response overall, and scored 3 marks. It describes the location well – enough for a comfortable Level 2 mark, although the information about climate does not gain credit; the second part of the answer is really only Level 1 standard, however.

Example 14

> *The Amazon - Deforestation*
> *The Amazon rainforest is situated in Brazil in South America, beneath the equator. It has a hot climate with frequent rainfall. (Basic sketch map drawn.)*
> *The local government could impose limits on the amount of forest cleared for farming. They could enforce a rule that whenever a tree is taken down, another is planted.*

There were some good Level 3, 5 mark responses, as this example illustrates.

Example 15

The Sahel region, Africa - Deforestation
The Sahel region goes through the centre of North Africa, approximately 10 degrees North of the Equator. In includes much of Senegal and Mali, for example. (Accurate sketch map drawn.)
Arable farmers can be encouraged to use crop rotation to stop the land becoming devoid of nutrients and eroding away. Bunds can be built to trap surface runoff. Plastic sheets can be used to cover fields to stop evaporation. New trees can be planted to stop soil erosion. Silver iodide can be put in clouds so there is more rainfall in the area.

Question C6:Use and abuse of the environment (Recreation and Tourism)

This question was overwhelmingly more popular than question C6, clearly indicating that most centres choose to teach this option.

(a) In part i), virtually all candidates correctly identified the pleasant scenery / countryside, the hills / mountains or forests, or the peaceful / quiet appearance of the area, to score the 2 marks. In part ii), virtually all scored 2 marks for suggesting two suitable activities.

(b) In part i), most scored the mark for this question – but some failed to emphasise the fact that honeypots attract *many* or *a lot of* tourists, or are sites which are *very* popular. Part ii) was sometimes answered very well, with candidates easily scoring 3 marks for suggesting factors such as increased leisure time / income / car ownership and increased accessibility / better roads. A number of candidates failed to realise what the question required, however, and struggled to gain any credit. In part iii), many scored the 4 marks easily by suggesting increased jobs and income, and increased noise and litter. It was refreshing to see some answers, also gaining 4 marks, dealing with other reasons such as improvement to local infrastructure, and locals being unable to afford houses due to price increases.

(c) Most scored 1 or 2 marks for identifying basic impacts such as trampling vegetation and eroding footpaths; fewer, however explained fully how, for example, dropping litter would be dangerous for wildlife, or excessive walking over country areas would destroy wildlife / habitats.

(d) As in question C5(e), responses here were once again quite variable. The opportunity to gain marks directly for describing the location of the chosen case study area, including a sketch map, was not taken by many candidates. Descriptions of location were often poor (e.g. 'Africa') and / or inaccurate, and sketch maps – when drawn – were of mediocre quality. In fact, some candidates produced illustrations which were nothing to do with location – suggesting that they did not understand what was being asked. In addition, failure to properly answer the question about how *eco*-tourism affected the *environment / wildlife* resulted in some poor marks for this question. Candidates sometimes seemed to have little idea of the concept of eco-tourism, simply writing about destruction of wildlife and habitats – or about the beneficial impact on local people, which the question did not ask for.

Although Level 2 answers were reasonably common, there were relatively few good Level 3 responses. The example below was one which fully answered the question, combining an excellent description of the location (including an accurate sketch map) with a good explanation of the impact of eco-tourism on the environment / wildlife; it easily scored 5 marks.

Example 16

Chosen LEDC area – The Amazon rainforest, Brazil
The Amazon rainforest is located in Brazil in South America. It occupies the majority of the North and East of Brazil. (Detailed, accurate sketch map drawn.) Eco-tourism in the Amazon involves tourists staying in lodges which have no polluting effects, without electricity, and built with only natural products. They are allowed to observe wildlife under controlled conditions so that the animals are not disturbed. All food, water etc. is locally obtained, and local people are employed; the money from eco-tourism is used in conservation schemes and to provide the eco-tourist facilities.

Coursework

Overall standard

As in 2005, there were many examples of excellent coursework. Many teachers had openly shared the assessment criteria with their students, as per *Assessment for learning* principles which helped candidates to produce more coherent studies. Candidates understood how to maximize their marks on each criterion.

The most popular topics have, once again, been studies of CBDs and river channels. However, there have been an encouraging number of excellent and well-structured studies based on tourist honey-pots. It is clear that physical studies necessarily generate less data than human studies. There were fewer "week away" and "Cooks' Tours" style studies again this year.

There were still some problems with some coursework based on data collected at residential centres. Close liaison with residential study centre staff to clarify assessment criteria is always beneficial. It is therefore extremely important that school staff plan and structure their own studies around a question or hypothesis and facilitate their candidates' collection of relevant data in order to address this problem.

To allow candidates to do their best, it is important that centres follow the current specification in detail.
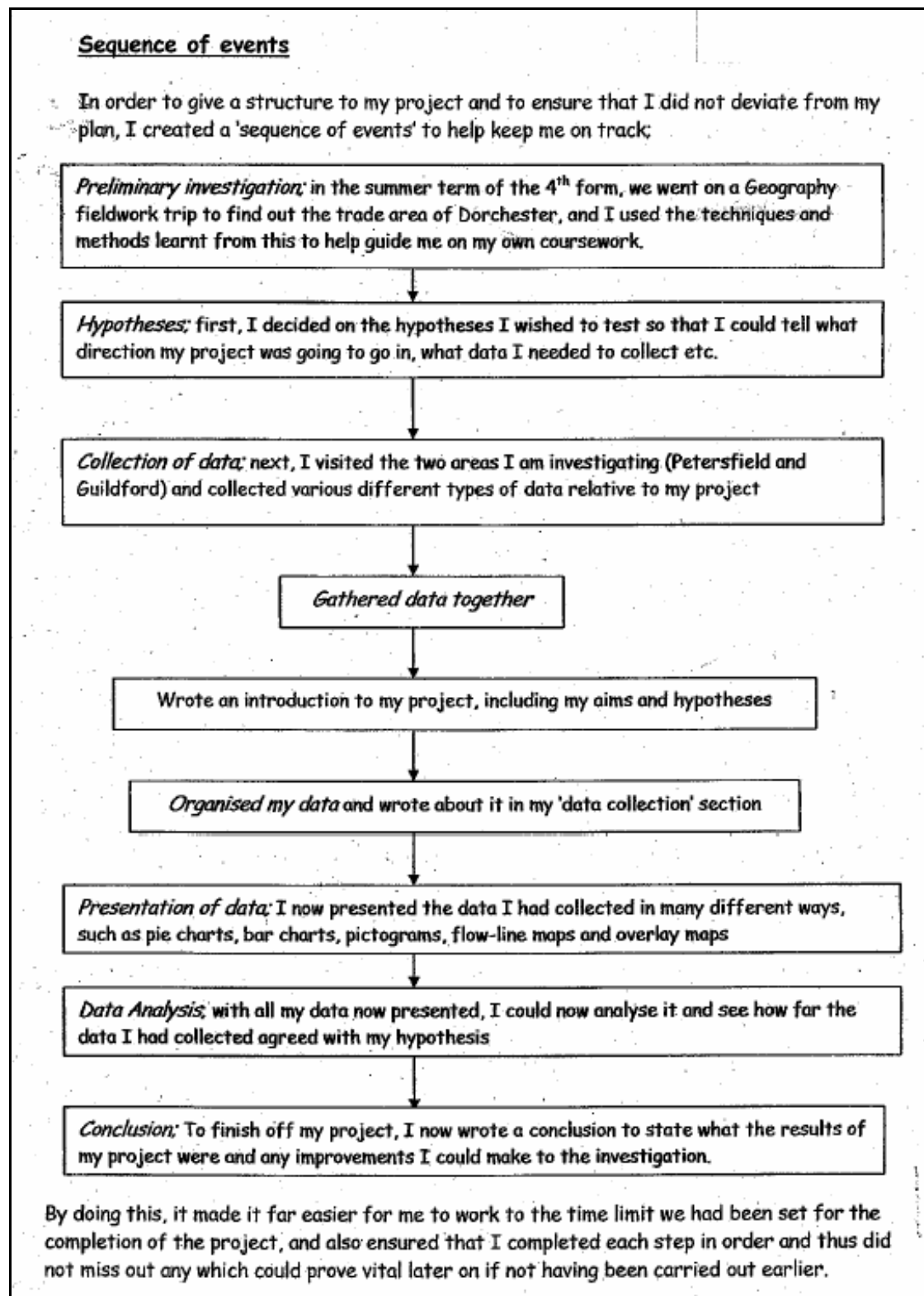
Criterion 1

There was a vast improvement in location of studies and many candidates used maps from the internet to good advantage. Some of the best locational maps were annotated using ICT.
ICT can also be used to produce good flow diagrams, mind maps and tables. These help candidates to clarify their proposed sequence for investigation (as shown in Figure 1).

Some studies included large amounts of extraneous background material which does not gain any marks. Candidates should always state a clear aim and adhere to it throughout the investigation.

Many centres chose Landscape Management but it is sometimes difficult for candidates to cope with such a broad topic. It is essential for candidates to focus on the management objectives in their introductions so that any primary evidence they gather can be evaluated against these. Studies based on National Parks were far more tightly focused than those based on coastal management.

Figure 1

Sequence of events

In order to give a structure to my project and to ensure that I did not deviate from my plan, I created a 'sequence of events' to help keep me on track:

Preliminary investigation; in the summer term of the 4th form, we went on a Geography fieldwork trip to find out the trade area of Dorchester, and I used the techniques and methods learnt from this to help guide me on my own coursework.

Hypotheses; first, I decided on the hypotheses I wished to test so that I could tell what direction my project was going to go in, what data I needed to collect etc.

Collection of data; next, I visited the two areas I am investigating (Petersfield and Guildford) and collected various different types of data relative to my project

Gathered data together

Wrote an introduction to my project, including my aims and hypotheses

Organised my data and wrote about it in my 'data collection' section

Presentation of data; I now presented the data I had collected in many different ways, such as pie charts, bar charts, pictograms, flow-line maps and overlay maps

Data Analysis; with all my data now presented, I could now analyse it and see how far the data I had collected agreed with my hypothesis

Conclusion; To finish off my project, I now wrote a conclusion to state what the results of my project were and any improvements I could make to the investigation.

By doing this, it made it far easier for me to work to the time limit we had been set for the completion of the project, and also ensured that I completed each step in order and thus did not miss out any which could prove vital later on if not having been carried out earlier.

Criterion 2

The methodology matrix helps candidates focus on how they plan to collect their data. For more able candidates the methodology matrix can be a constraint unless accompanied by written explanations.

Many candidates successfully used photographs to enhance their data collection. Photographs should be well annotated with good comments to help explain how data was collected.

Use of questionnaires was once again a frequently used method of data collection. An increasingly popular trend was to annotate a copy of a questionnaire, either by hand or by using ICT, to explain why particular questions had been included. Figure 2 shows a very useful table produced by a candidate to justify the content of a questionnaire. Coursework should be based on at least thirty questionnaires in order to obtain meaningful results. Candidates can pool results from a group questionnaire, to produce powerful statistics, which can then be complemented by individually collecting other types of data.

When discussing problems with their methods, many candidates concentrated merely on the physical problems of collecting data, which only gained them credit up to Level 2. In order to gain Level 3 marks, candidates should be focussing on how the particular methods they are using will help them to address their aims and objectives.

Figure 2

What will the questionnaire show me?

Question	What will it show me?
Age	This is relevant as I need to gain the opinion of the local residents as to how they view the tourism trade. This needs to be done for people in different age cohorts as young and old people have their different views on tourism which I need to address.
Are you? A resident/visitor…	This question gives me a representation of the different selection of people in Ambleside. From this question I can then understand the number of people who are a resident in the area and the number of visitors who have arrived here.
Do you think that tourism brings a lot of good jobs to the area?	This question is aimed at local residents so they can voice their opinion as to how they feel Ambleside's economy has grown.
Tourism and the second home market has made it difficult for local people to buy homes	this question enables me to comprehend from a local perspective if they feel that they are being 'pushed out' of Ambleside as a result of increased house prices due to tourism.
The benefits that tourists bring to the Lake District are greater than the problems they cause	This is probably the most significant question as the assignment that I have to complete is to decide if the 'benefits brought by tourism outweigh the negative impacts'. Therefore by gaining the local perception, this will assist me in answering the question.
How often do you visit the Lake District?	This question is very important as with this information, I can then understand why there is so much traffic congestion because of the frequent visits tourist make to the area.
Do you think the Lake District is …unspoilt/has many problems/ has some problems with tourism?	I find this question appropriate as then I can gain an incentive from both local residents as well as tourists if they feel that the tourist trade is to blame for the damage to the Lake District environment.
What are the main problems you have seen?	I think that this question is very suitable as the people that I questioned can give an opinion as to the improvements that can be made to Ambleside so that the problems can be resolved. In many ways this can be more useful than a secondary source of information as this is the opinions of people who have witnessed the problems in Ambleside and understand the cause of it.
Would you consider looking for a family home here?	This is a very direct question which asks tourists if they would consider a second home here. The outcome of this question is relevant as it shows a clear picture as to why there are problems for local residents in the housing market due to the demand from tourists.

Criterion 3

There has been a pleasing increase this year in the number of candidates using located graphs to present their data on maps and profiles. There were many other excellent examples of statistical mapping, including isolines and flow lines. Good use of overlays was also evident. Several centres had extended their techniques, to include use of aerial photographs from the Internet customised to show their findings across an area.

Studies once again included many excellent photographs, although annotations were not always as explanatory as they should be. There were a number of excellent field sketches this year that had been well annotated and integrated successfully into the body of the study.

The majority of centres were able to facilitate their students' use of ICT for data presentation. However, some students were limited, possibly on the grounds of cost, to printing in black and white. I would advise that, where colour printing is not possible, the use of coloured pencils could help to distinguish between several grey zones on graphs. Alternatively, different types of shading techniques could be used, rather than shades of one colour.

Whilst urban studies tended to provide sufficient data to produce a wide variety of presentation methods, physical topics necessarily provided a narrower range of methods. Centres should be aware that good quality and appropriate techniques on physical coursework justify Level 3 marks on Criterion 3.

Candidates must provide appropriate justification of presentation techniques to access the highest marks on Criterion 3. This needs to be more than "it is a clear and effective technique" to gain such credit.

Criterion 4

Most candidates made some comment about the data. However, these were often descriptive rather than analytical comments. There was a reluctance to quote actual figures to support arguments. Some candidates did this well, however, and were able to cross-reference between different sets of data, to come to a valid conclusion related to their aim.

Candidates often find it easier to analyse their findings by writing about graphs and tables as they draw them. This can help weaker candidates to reach the middle of Level 2.

River studies were particularly problematic this year. It was obvious that many students did not understand the aim of their work and then found it difficult to work with statistics that stretched beyond their mathematical skills. This meant that the analysis of graphs and other data was at best superficial. Techniques such as Spearman should be reserved for candidates who can comprehend the underlying mathematical principles. It is often useful to provide a structure, particularly for weaker candidates to help with their analysis. In many cases this can enable candidates to access Level 2.

Conclusions in general were very brief. Where studies had been based on a clear aim, conclusions tended to be meaningful. In other cases it was difficult for candidates to draw the threads of their studies together.

Most candidates made some attempt to evaluate their work. However, this was often limited to how they could have collected more data or how they might get better results at different times. To reach Level 3, on Criterion 4, students must reflect on the structure of their investigations and evaluate the investigative process.

Criterion 5
There was a pleasing reduction once again in the number of over-length studies in 2006. Studies are tending to be shorter and more concise.

It was noted that some centres had paid slavish attention to the specification criteria and had written their studies in five separate sections. This can sometimes lead to a break in the flow of the study. The most coherent studies were those which contained a clear aim, good analysis of data and a solid conclusion which returned to the original aim. Cross-referencing between sets of data helped students to access Level 3 marks.

Many candidates across the ability range did not provide a bibliography. Centres should note that bibliographies should include details of computer packages used as well as all sources used.

ICT

There was a notable improvement in the use of ICT across the entry this year. This included using the internet to download maps and using digital photographs and manipulating them (to include arrows, annotation, etc) successfully using ICT.

However, many studies continued to show indiscriminate use of the Microsoft Excel package. Graphs need to be appropriate and legends must be customised.
Figure 3 shows a composite bar graph, which at first glance looks impressive. However, it's legend has not been adapted; it has been left as Series 1, Series 2 etc. In addition, the vertical axis has not been labelled with units.

Figure 3
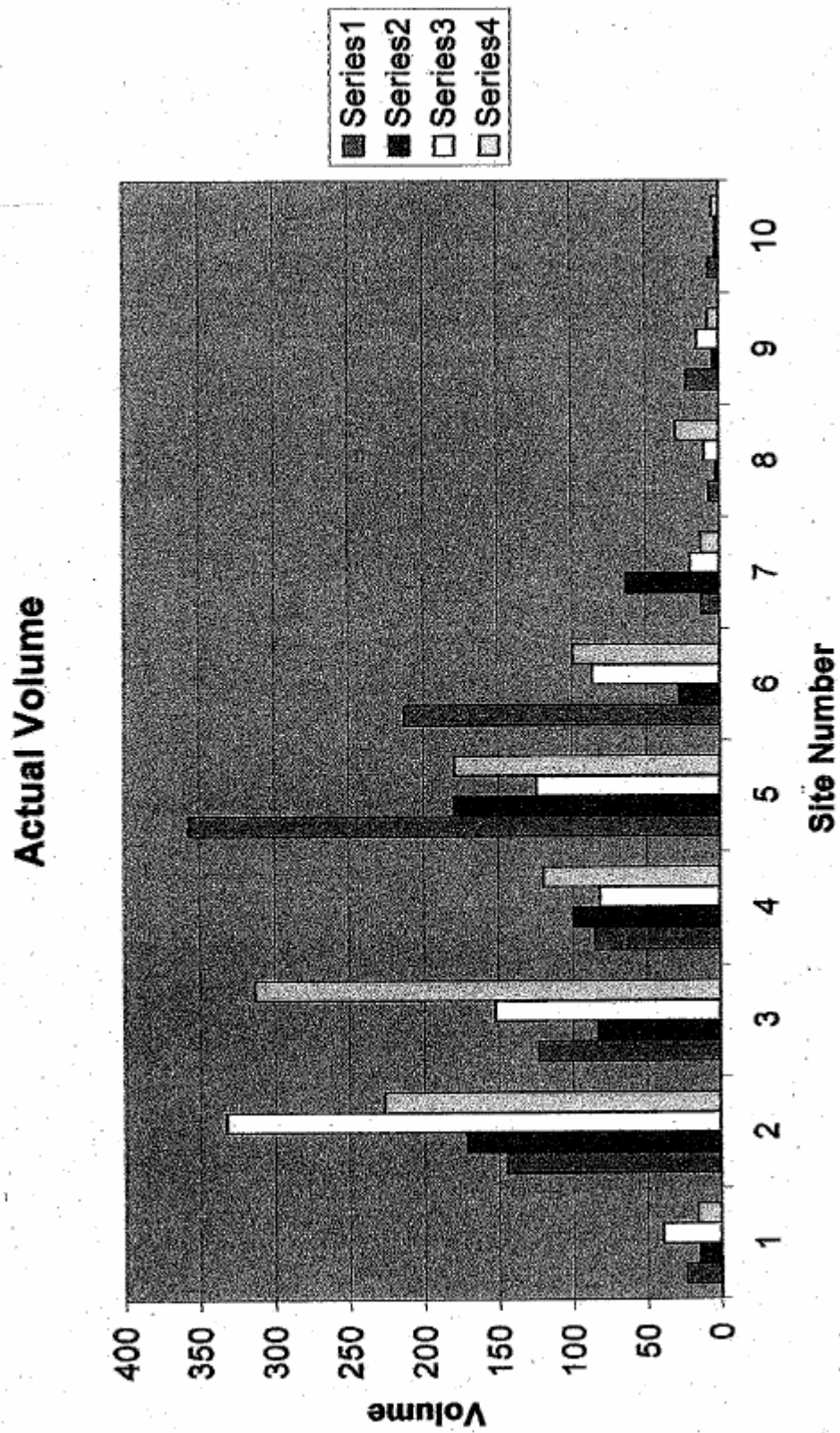
Marking and administration

Centres were once again, on the whole, very prompt in sending their samples to the moderators. The majority of centres applied the assessment criteria well and internal standardisation was better carried out this year.

Please take note of the following points:

• About twenty percent of centres were still using the old ICRS form. This meant that they awarded inappropriate criterion marks for their candidates.

• There were several cases of suspected plagiarism. Some of these concerned individual candidates who had clearly copied work. Such cases were referred to Edexcel. There were some centres, however, where there had been too much teacher direction of the work and this made it difficult for moderators to assess whether plagiarism had taken place.

• Some centres continue to use heavy folders and poly-pockets. These are unnecessary and make samples difficult to handle. Other work arrived with no names or candidate numbers, making it difficult to check, especially if it became separated from its ICRS form.

1313 Statistics

Mark Ranges and Award of Grades

1313 Foundation Tier

Grade	Max. Mark	C	D	E	F	G
Overall Subject Grade Boundaries	100	59	48	38	28	18

Paper 1F Grade	Max. Mark	C	F
1F Raw Mark Boundaries	60	42	23

Paper 2F Grade	Max. Mark	C	F
2F Raw Mark Boundaries	100	57	25

1313 Higher Tier

Grade	Max. Mark	A*	A	B	C	D	E
Overall Subject Grade Boundaries	100	77	69	61	54	47	43

Paper 3H Grade	Max. Mark	A	C	D
3H Raw Mark Boundaries	60	40	31	27

Paper 4H Grade	Max. Mark	A	C	D
4H Raw Mark Boundaries	100	72	53	49

Coursework

Grade	Max. Mark	A	C	D	F
Coursework Raw Mark Boundaries	63	45	36	29	16