

Examiners' Report  
June 2015

GSCE Geography B 5GB3H 01

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## Introduction

This was second year of this style of geographical decision making paper, formerly and still informally known as a decision making exercise. Without a pre-released booklet the test for candidates was to absorb information from the resource booklet about a clearly defined set of geographical concepts and contexts before moving on to make a choice about the best way of moving forward. Candidates can draw on knowledge and understanding gathered from both of the other exam units and use a grasp of fairly generic concepts based around sustainability but also other themes. The most important skill is the ability to deconstruct questions successfully, which includes the comprehension of the key terms. To be precise it is obviously helpful to know why differences of opinion occur and what vocabulary to use to examine this. Thus terms such as economic, social, political and environmental thread through this type of exercise and candidates who are confident in using them have a ready-made frame for answering several questions. Above all it is very useful to understand that almost all decisions are going to be compromises and that there will always be some who benefit more than others and always some who do not benefit at all. Even if not specifically asked to do so candidates would be well advised to consider, for example, whether short-term gains might be offset by longer-term losses, an especially significant debate for almost any political decision. Having practised on last year's paper and, perhaps, the Iceland sample paper many candidates produced sophisticated arguments in their extended answers, most notably on Question 4 but also on Questions 3 and 2(d). Even those who were less comfortable with the whole issue surrounding the aquifer were able to make some interesting comments about some of the other contentious issues.

## Question 1 (a) (i)

Much depended on getting this question right given how central the present and future state of the aquifer is to the theme of this geographical decision paper. Hence it was clearly defined in the Resource Booklet and simply required candidates to find the appropriate reference and transcribe it here. It was surprising how many failed to do this effectively, and even more surprising that whatever they might have written in their response to this question how quickly some of them forgot it in subsequent questions.

This response scored both marks.

**Answer ALL questions.**

1 Study Section 1 (pages 2, 3 and 4) of the Resource Booklet and answer the following questions.

(a) (i) Define the term **aquifer**.

(2)

a large area of rock containing groundwater  
under the water table.



**ResultsPlus**  
Examiner Comments

Sometimes it is best to keep it simple - a two mark question with two points to make and an answer with those two points made.



**ResultsPlus**  
Examiner Tip

Definitions are generally found in the Resource Booklet - why not highlight them as you read it through.

1 mark was awarded for this response.

**Answer ALL questions.**

1 Study Section 1 (pages 2, 3 and 4) of the Resource Booklet and answer the following questions.

(a) (i) Define the term **aquifer**.

(2)

A large area containing ground  
water, it helps water be  
sustainable and a reliable source.



**ResultsPlus**  
Examiner Comments

Some candidates offer explanatory information even though it isn't required. That sometimes, as in this case, is combined with a second descriptive point.



**ResultsPlus**  
Examiner Tip

If asked to define it isn't necessary to add explanatory detail.

### Question 1 (a) (ii)

The point of this question was to get candidates to focus on how this is a fossil resource that is not renewable, at least not in reasonable time frames. As with Question 1 (a) (i) the answer was explicit in the Resource Booklet and the majority of candidates found it, although once again, they often didn't all recollect this later when addressing the issues arising from the use of the aquifer. We also allowed generic explanations of how aquifers form.

This response did not score any marks.

(ii) Outline how the Ogallala aquifer was formed.

(2)

It was formed when to the west of the aquifer region, the Rocky mountains acted as a barrier, meaning that it became a rain shadow, so all the rain was stored rather than wasted.



#### ResultsPlus Examiner Comments

This was a common error - confusing the reason for the current dryness of the region and its unusual rainfall distribution with the past climatic regime that gave rise to the aquifer.



#### ResultsPlus Examiner Tip

Be careful over tenses - 'was' formed - not why it isn't recharged.

This response scored 2 marks.

(ii) Outline how the Ogallala aquifer was formed.

(2)

From the ice age, when temperatures were much colder, ice formed underneath the ground. As temperatures increased, the ice melted to form water that was trapped in the Ogallala aquifer.



#### ResultsPlus Examiner Comments

Although the history here isn't quite right it does have a logic and grasps the significance of past climate.

## Question 1 (b)

The description of a distribution is a very well signalled question and a fundamental geographical skill. There were very many excellent answers but sadly not all candidates were able to carry out this task; some practice in this area is highly recommended. The maps provided offered scale and compass points to help and most saw that there are very many settlements >20 000 in the east. A few referred to this as the 'right-hand side' and a worryingly large cohort described this as 'on the coast'. Some produced excellent answers referencing the unevenness of the distribution, its eastern dominance, the existence of anomalies and giving some data or detail to support.

This answer scored 3 marks.

(b) Study Figure 1a.

Describe the distribution of settlements in the Ogallala aquifer region.

(3)

Most settlements are occupying the lower parts of the region at 350m above sea level, so the amount of settlements decreases as the height increases with exception to Clovis and Cheyenne which are isolated higher up nearing 2,500 metres above sea level. The settlements are also trending to be closer to the motorways.



### ResultsPlus Examiner Comments

This is a good answer that adds some detail to a basic description and identifies particular places.



### ResultsPlus Examiner Tip

All maps offer scales and compass points - use them.

This response was awarded 2 marks.

(b) Study Figure 1a.

Describe the distribution of settlements in the Ogallala aquifer region.

(3)

The settlements in Ogallala aquifer region seem to be in the east part of it where the height of the area is the lowest also the settlements are quite close to the motorways and there mainly are in the North-East and South-East of the region.



**ResultsPlus**  
Examiner Comments

This is very much the same answer as in the previous example but without the local detail.



**ResultsPlus**  
Examiner Tip

If you can identify places from a map to illustrate a point then do so.

## Question (1) (c)

Success here largely depended on the correct interpretation of the command word 'Examine'. This required a description of the inverse and unusual relationship, with precipitation decreasing with height but also an explanation for that which, once again, was fairly explicit in the Resource Booklet. The vast majority of candidates recognised the relationship and many used data effectively to support their understanding. Sadly, a substantial minority stopped at this point and made no attempt to explain the relationship. These candidates who didn't go beyond description were self-limiting and too many fell short of what was designed to be a reasonably accessible 4 marks.

This response did not gain credit.

(c) Study Figures 1a and 1b.

Examine the relationship between height and precipitation in the Ogallala aquifer region.

(4)

The lowest height at the aquifer also has the lowest amount of precipitation. The highest height at the aquifer however is not the point where the most precipitation falls. The ~~at~~ vertical central line of the aquifer has the medium level of precipitation and medium height. Around the edge, precipitation level is low, but there are several different heights.



**ResultsPlus**  
Examiner Comments

A number of candidates found the maps difficult reflecting a general lack of map skills referred to elsewhere in this report. It is possible that this candidate wasn't using the correct resources.



**ResultsPlus**  
Examiner Tip

Practice map skills.



All 4 marks were awarded for this response.

(c) Study Figures 1a and 1b.

Examine the relationship between height and precipitation in the Ogallala aquifer region.

(4)

Areas which do have a large height, for example Cheyenne in Wyoming, have the least precipitation (300 mm). Areas such as Fremont in Nebraska, a low lying area (350 m) have high levels of precipitation (800 mm). The general pattern of the height/precipitation chart is that the further east you get, therefore the lower top you get the more rainfall there is. A possible explanation to this is the Rocky mountains to the west of the aquifer region. This may be acting as a weather barrier and leaving the region in a rain shadow.



**ResultsPlus**

**Examiner Comments**

This is a good answer that uses data and detail from the map very effectively and includes an explanation.



**ResultsPlus**

**Examiner Tip**

Only a few command words are used in these examinations - make sure that you know them. 'Examine' calls for a description AND an explanation.

## Question 1 (d)

The keyword in this question was 'dependent'. As the mark scheme suggests the key ideas here, in reality, are likely to be the possible alternatives available through higher rainfall and more available river water reducing dependency and the level of demand. But it is also possible to argue that dependency is also a function of an excess of water availability in the aquifer leading to greater use and so, arguably, higher dependency. It was at this stage that a lack of understanding of the whole nature of an aquifer and its role in a dry region was, for some, exposed.

This response scored 4 marks.

(d) Study Figures 1b and 1c.

rainfall, up to 800mm per year

Suggest why some states in the region are more dependent on the Ogallala aquifer than others.

(4)

One reason why some states are more dependent on the Ogallala aquifer is because there are large amounts of settlements exceeding 20,000 people. For example, Nebraska contains 7 settlements exceeding 20,000. This means that this state is more dependent as it requires a greater amount of water to support these cities which contain a lot of people. Secondly, more dependent on the Ogallala aquifer because they have less rainfall. All of the Western Side has less than 400mm of rainfall. Consequently, these western states are more dependent as they have less rainfall. They need a constant water supply which this aquifer gives them.



**ResultsPlus**

**Examiner Comments**

This is a very well structured answer. It makes two points and makes sure that they are identified - 'One reason...' and 'Secondly...' and draws a conclusion, 'Consequently...'. It also works on the data a little (e.g. it counts the number of 20000+ settlements in Nebraska).



**ResultsPlus**

**Examiner Tip**

If you can manipulate the data then do so - it shows that you understand it.

This response did not gain any credit.

(d) Study Figures 1b and 1c.

Suggest why some states in the region are more dependent on the Ogallala aquifer than others.

(4)

Some states in the region are ~~more~~ less economically developed than others. This ~~is because~~ means that some states in the region have to be more dependent on the Ogallala aquifer than more economically developed regions. They depend on it so that they can ensure that they will have enough water for living purposes.



**ResultsPlus**  
Examiner Comments

There is nothing about varied states of development in the Resource Booklet and whilst there will be variation in GDP per capita across the region it isn't clear why this would affect aquifer dependency. It is possible that, in common with others, this candidate has lost sight of the USA as the setting for this question rather than an LEDC case-study that they have learned elsewhere in their studies.



**ResultsPlus**  
Examiner Tip

Use the booklet - many of the answers are to be found there.

## Question 1 (e)

The Resource Booklet identified the likely changes so it was left for the candidates to make the link with the aquifer. As with 1(d) this exposed some fairly fundamental misunderstandings of the nature of an aquifer with, for example, evaporation of the aquifer itself regarded as a risk of rising temperatures and, for some, a very uncertain chronology - with the Ice Age, in particular, proving to be a moveable feast.

4 marks were awarded for this answer.

(e) Explain how future climate change might affect the Ogallala aquifer.

(4)

The levels of water in the aquifer will be diminished because of reduced rainfall and higher temperatures; this will increase demand for water within these areas and the aquifer will likely be over-extracted leading to its complete disappearance before the next century.



**ResultsPlus**  
Examiner Comments

This is a strong response which identifies an appropriate climate change and draws sensible inferences about aquifer usage before adding some detail about the time-scale. Oddly it omits to clarify that the changes in climate will also affect recharge rates because of lower rainfall but there is enough here for full marks.

This answer was awarded 1 mark.

(e) Explain how future climate change might affect the Ogallala aquifer.

(4)

When the water was originally there, it was at the last ice age. The climate was much wetter than today. Water wasn't needed as much as it is needed today. Rainfall could be relied on for growing crops but now ~~the~~ machines are needed to irrigate crops. Climate change could mean that more water is used up from the

(Total for Question 1 = 19 marks)

aquifer and the result is there will not be any more water.



**ResultsPlus**  
Examiner Comments

This response has a terribly muddled chronology and only gets around to linking climate with the aquifer in a meaningful way in the last sentence. In common with some other candidates they confused past climate with future climate.



**ResultsPlus**  
Examiner Tip

Highlight keywords and phrases, 'future climate change' in this case.

## Question 2 (a)

Any environment was allowable but most candidates concentrated on the changed biotic landscape as crops are now grown where natural grasslands existed before. However, there were other routes to two marks including changes to the hydrology.

This answer scored 2 marks.

2 Study Section 2 (pages 5, 6, 7 and 8) in the Resource Booklet and answer the following questions.

(a) Study Figures 2a and 2b.

Outline **one** impact of centre-pivot irrigation on the environment of Nebraska.

It could lead to over-<sup>(2)</sup>abstraction of the aquifer and lead to desertification making the environment more hazardous.



### ResultsPlus Examiner Comments

Despite the slightly uncomfortable phrasing evoking hazards there is an identifiable environmental change and a link to the irrigation systems.

No credit was given for this response.

2 Study Section 2 (pages 5, 6, 7 and 8) in the Resource Booklet and answer the following questions.

(a) Study Figures 2a and 2b.

Outline **one** impact of centre-pivot irrigation on the environment of Nebraska.

The ground will become <sup>(2)</sup>much drier and it could affect the river



### ResultsPlus Examiner Comments

This could be rescued if it was made clearer how this would happen. How exactly would the river(s) be affected?



### ResultsPlus Examiner Tip

Read back your answers to make sure that they are comprehensible.

## Question 2 (b)

As with Question 1 (b), this type of question is very well-known and certainly well signalled in both the Sample Assessment Materials and the 2014 paper. It is thus a little surprising that some candidates seemed very unconfident when reading data especially when presented as divided bar graphs, such as this one. Too many were disinclined to describe trends and changes preferring to present the figures and allow the reader to work out what the changes might be. So, rarely for GCSE students, it is a question of too much data and too little analysis of that data.

All 4 marks were awarded for this response.

(b) Study Figure 2c.

Describe the changes in the use of corn between 2001 and 2011.

(4)  
in 2001 most corn was used as animal feed around 1.4 - 1.5 billion tonnes used for it in 2011 only 1 - 1.1 billion tonnes is being used for that most now is being used for ethanol around 1.3 billion tonnes and around 0.4 billion tonnes is being exported compared to 2001 0.5 billion which was higher than 2011. Through out those 10 years the used of it did fluctuate.



### ResultsPlus Examiner Comments

This is a strong answer with lots of data supporting points that relate to changes as requested. It addresses general trends but also spots fluctuations in those trends.



### ResultsPlus Examiner Tip

There are a number of 'problem' words in these skills questions - this one is 'changes' - make sure that you know them and spot them.

This response was awarded 2 marks.

(b) Study Figure 2c. *The centre pivot rotates over a large place meaning that plants and animals will be killed. They have also taken up hectares or land which will destroy a large amount of them*  
Describe the changes in the use of corn between 2001 and 2011.

(4)

From 2001 and 2011 corn is being used more for ethanol fuel due to the increase in demand.

Corn is also being used less in animal feeding because it's ~~at~~ being used for ethanol fuel and exporting it to <sup>mostly</sup> make money.



**ResultsPlus**  
Examiner Comments

This type of question will always require use of specific data from the resource. Non-numerate candidates need to be reminded to use that data.



**ResultsPlus**  
Examiner Tip

If you have figures available then use them - remember that you cannot lose marks so don't be frightened to make mistakes.



## Question 2 (c)

There were some very good answers to this question which showed a sensitive understanding of just how profound the changes have been and were able to gather supporting evidence from the booklet and their own understanding of economic geography. The least visited area was the growth of industries based on the growing of industrial crops; an idea that had been sown in the previous question and elsewhere in the booklet. It was also an obvious opportunity for candidates to exploit their understanding of concepts such as the multiplier, which a few managed to do very successfully.

1 mark was awarded here.

(c) Explain the impact of irrigation on the economy of the region.

(4)

The economy  
~~Irrigation~~ largely depends on irrigation as it brings in \$20 billion a year, this is mainly through the exports from states, meaning everyone benefits. The government heavily subsidises much of the agricultural production, therefore it is tried to be used sustainable and correctly to benefit all. ~~the~~ Around 1.9 million people depend on it therefore greater profits - in the eye of a profit seeking government - are incoming, which can also help with the further production of the aquifer or used elsewhere.



### ResultsPlus Examiner Comments

This answer is typical of those candidates who haven't really absorbed the information available in the booklet, perhaps reading it as they go along and rather superficially at that, and thus offer some speculative comments instead with only a very partial use of offered information.



### ResultsPlus Examiner Tip

Read the booklet before you start answering questions to get an overview of the issues.

This answer was awarded all 4 marks.

(c) Explain the impact of irrigation on the economy of the region.

(4)

Firstly, irrigation has allowed arable farming to expand. New irrigation technologies have allowed crops to be grown to produce profit, generating around 20 billion USD every year. Because crops can now be grown on a commercial level, irrigation has led to the increase of ethanol (a biofuel) production. <sup>- As shown in figure 2c</sup> This creates more jobs in the ~~renew~~ renewable energy sector as well as ~~increase~~ increase in cars ~~use~~ using biofuel manufacturing. More jobs and increased revenue means the government collects more taxes therefore growing the economy of the region.



**ResultsPlus**  
Examiner Comments

This is a strong response from a candidate who appreciates that one thing might lead to another - in this case ethanol production.

No credit was gained for this response.



**ResultsPlus**  
Examiner Tip

There are some useful ideas for almost any conceivable decision making paper - the multiplier is one of those.

(c) Explain the impact of irrigation on the economy of the region.

(4)

The region where the irrigation takes place is not good looking can be an eyesore to some. It may be loud leading to noise pollution and causing a big disturbance. They also may begin to use too much water and it starts to run out quite quickly.



**ResultsPlus**  
Examiner Comments

This is a simple enough confusion between economy and environment.



**ResultsPlus**  
Examiner Tip

Make sure that you know your basic terms - economic, social, political and environmental causes and consequences - what are they?

## **Question 2 (d)**

Sustainability is at the core of this unit including the very many different interpretations and issues surrounding the concept. Candidates were obliged to apply their understanding of this idea in a wholly new context but they had a good deal of information available to them to help in that process. By far the most popular choice was 'sustainable' and this was often supported with a sophisticated understanding of the need for careful conservation to ensure the long-term survival of this resource. However, there were other answers which made a decent case for the two alternatives.

6 marks were awarded for the following response.

\*(d) Resources are defined as renewable, sustainable or non-renewable.

Which type of resource is the water in the Ogallala aquifer?

Explain your choice.

(6)

Type of resource Sustainable

~~I believe~~ ~~I believe~~ It can be seen that the water from the Ogallala aquifer is sustainable for a number of reasons. A sustainable resource is one that, if managed and maintained correctly, it will not run out and it will be ~~not~~ available for further use in the future.

I am of the opinion that this resource is sustainable because if the resource is continued to be exploited in such a way that it is currently the way soon the resource will no longer be available for use. Much like wood from trees (a sustainable resource), as long as the water ~~user~~ is extracted and used at a sensible rate, over time it will ~~not~~ ~~recover~~ ~~itself~~. ~~Although rainfall in this region is~~

~~declining~~  
Although rainfall in this region is declining, meaning that the water supplies in the aquifer will not be able to be replenished as quickly, I believe that if the consumption is managed, the resource will not run out. Furthermore, it is not non-renewable because ~~the water in the region will not~~  
disappear or run out.

**(Total for Question 2 = 16 marks)**

<b>Sustainable:</b> As long as it is maintained correctly, managed it will grow back, so water to be available.	<b>Non Renewable:</b> can not be replaced over a short period of time, must be used sparingly, it will run out.
	<b>Renewable:</b> can be replaced over a short period of time - non-renewable full declining, water supplies decreasing.



## ResultsPlus Examiner Comments

This is a strong answer but the candidate might have paid elsewhere for their rather convoluted writing style which might have made time short. This long answer could be trimmed by taking out the first sentence which is a truism and cutting the wordy 'I am of the opinion..' and a number of other redundant phrases. It's a good answer but could be much more succinct.



## ResultsPlus Examiner Tip

Don't repeat questions in answers - you might run out of time!

This answer was awarded 4 marks.

\*(d) Resources are defined as renewable, sustainable or non-renewable.

Which type of resource is the water in the Ogallala aquifer?

Explain your choice.

(6)

Type of resource Sustainable.

It is sustainable because if it is over used and exploited, it will run out. However, as long as the amount used is controlled, then it can be used sustainably. If it was constantly being refilled, it could be considered renewable. It also is not non-renewable because the water never disappears, and therefore cannot be renewed. While the aquifer ~~itself~~ can be refilled, it can take a long time (about 600 years).



## ResultsPlus Examiner Comments

This is a typical mid-level response that gets into a bit of a muddle about recharging - 'the water never disappears'.

### **Question 3**

This question stimulated some excellent answers in which candidates could show off their understanding of the complexity of the responses to the transformation of the region by irrigation. The most interesting and most highly rewarded answers came from those candidates who appreciated that self-interest might play a major part as would belief systems. Most concentrated on the varied economic motives and rather marginalised faith whether it be the 'environmentalist' or indeed the particular version of Christianity offered here.

The following is a Level 3 response.

\*3 Study Section 3 (page 9) in the Resource Booklet.

Explain why the attitudes expressed vary so greatly.

Different people have different needs therefore some need to use the aquifer more than others. For example, Jolene needs a lot of the water for the cattle in the feedlot she works at, therefore she does not care about the impacts as it is important for what she's doing. Clark is similar and they both don't care about others' needs. They both live on the east side so they get a lot of rainfall compared to the west so they don't feel the need to use the water sustainably. Nancy lives in Wyoming so she needs the aquifer the most, however she is an environmentalist therefore she doesn't want the land to be destroyed. Wayne is a local who doesn't benefit from it as big companies use it.

(Total for Question 3 = 6 marks)



**ResultsPlus**  
Examiner Comments

There are two different ideas here with just a hint of a third. Economic motives and geographic location are covered although the link with employment could be stronger. Some 'use the aquifer' more than others would be stronger if it became 'some jobs rely on the aquifer more than others'. Belief systems creep in with 'she is an environmentalist'.



**ResultsPlus**  
Examiner Tip

In these longer answers look to make at least two developed points with evidence offered.

This is also a Level 3 answer.

\*3 Study Section 3 (page 9) in the Resource Booklet.

Explain why the attitudes expressed vary so greatly.

People have very different views of what should be done because of the relationship they have with the aquifer. Clark is a business man and so he will benefit directly from the aquifer because it makes a lot of money for the economy, therefore he will want it to continue. This is the same with Idene. She works on a feedlot which is supplied with corn from the irrigation system, using water from the aquifer. If we stopped using the aquifer for growing corn and feeding cattle, Idene wouldn't have a job and wouldn't be able to provide for herself or her family - therefore she also benefits directly from the aquifer and so will want it to stay open and running. However Nancy is more detached - she is only seeing the ~~destruction~~ destruction the feedlots are causing to the Earth, however <sup>the aquifer</sup> ~~this~~ is not affecting her directly and so she doesn't care if the aquifer is closed because in her eyes it is a positive because it is raising the **(Total for Question 3 = 6 marks)**

environment. Religion also can have an affect on people's decisions as Idene thinks because God gave humans dominion, we can do whatever we want to the world. The decisions are mostly based on how they ~~all~~ benefit the individuals and also whether it is an economic benefit (Clark), or a social benefit (Idene and Wayne) or an environmental benefit (Nancy).





## ResultsPlus

### Examiner Comments

This is a more sophisticated response than the other exemplar used. It makes a very strong link with economic self-interest but also addresses belief systems well. Wayne's more ambivalent relationship with the aquifer is the only real omission.



## ResultsPlus

### Examiner Tip

Try to make your opening sentence eye-catching by making a clear statement.

## **Question 4**

With a tariff of 9 marks to which the possible 3 marks of SPaG could be added this final question carried a little under a quarter of the total marks available. Thus it was very pleasing that so many centres had obviously trained candidates well in making sure that they at least allowed enough time to answer it.

There were many fewer incomplete responses or even answers that showed signs of having been rushed.

It was also gratifying that most candidates responded to the command word 'justify' admirably so even when their actual logic let them down, they did at least give it a go in covering the weaknesses of the other options. Perhaps the weakest element in most responses was a tendency to pay too little attention to the 'people of the USA' and the 'environment of the Ogallala region'. Most wrote generally about the economy and the environment rather than exploring the possible tensions between national and local interests as well as the tensions between environmental sustainability and economic sustainability.

There are clear opportunities to practice these skills as Units 1 and 2 are delivered - helping students become familiar with the unevenness of positive and negative impacts both spatially and temporally. Occasional 'mini' exercises might help reinforce the need for clear deconstruction of this type of question. Conceptually the vast majority of 16-year-olds have no difficulty at all with the idea of uneven impacts but they can lose their nerve when trying to express it - it is in this area that most practice is needed.

Spelling, punctuation and grammar will be assessed in your answer to this question.

\*4 Study the three options for the United States government shown below.

**Option 1: Encourage further development of intensive agriculture in the Ogallala aquifer region.**

**Option 2: Prevent any further development of intensive agriculture in the Ogallala aquifer region.**

\* **Option 3: Replace intensive methods of agriculture with more traditional approaches such as cattle ranching in the Ogallala aquifer region.** \*

Select **one** option you think would be the best for both the **people** of the USA and the **environment** of the **Ogallala region**.

Justify your choice.

Use information from the Resource Booklet and your knowledge from Units 1 and 2 to support your answer.

(9)

Chosen option option 3

I have chosen option 3 because I think this is the only option which benefits both the people and the environment. From Figure 2a you can see that it is the agriculture which is using the most of the aquifer and affecting the environment the most. This is due to the centre-pivot irrigation because the vibration unsettle the habitats around the area causing animals to migrate leaving

a less biodiverse area. Therefore this is why option 1 is not as beneficial because it will disturb the environment even more than it already is. By replacing the intensive agriculture with more traditional methods will mean that the economy will not be affected as much because the food industry will not be changed. This is why I have not chosen option 2 because if the ~~equipment~~ agriculture is stopped all together there is a huge risk the economy will completely collapse ~~because~~. This will affect the people in the region because many of them could lose their jobs. This is why people like Clark is totally against option 2 because he is worried for his job. Although option 1 will benefit the economy and the people and option 2 only benefits the environment. Option 3 benefits both of these things. This is because as we can see from figure 2a cattle ranching doesn't use as

much space compared to agriculture therefore it is also not disturbing the environment as much as the agriculture does. Cattle ranching also benefits the people in the region of the aquifer because it has many job opportunities and allows the economy to stay stable. The cattle ranching and other more traditional methods use the aquifer less this means that it is more sustainable.



**ResultsPlus**

**Examiner Comments**

This mid-level response was typical of those who hadn't really grasped just how significant the change in land-use was and how the region had been transformed. There is also real confusion about the impact of adopting Option 3 which is seen by this candidate as delivering less change than Option 2. The candidate does try to justify their choice which is enough to raise this answer into the mid-band.



**ResultsPlus**

**Examiner Tip**

Write a quick plan to make sure that you cover all the key points.

Spelling, punctuation and grammar will be assessed in your answer to this question.

\*4 Study the three options for the United States government shown below.

**Option 1: Encourage further development of intensive agriculture in the Ogallala aquifer region.**

**Option 2: Prevent any further development of intensive agriculture in the Ogallala aquifer region.**

**Option 3: Replace intensive methods of agriculture with more traditional approaches such as cattle ranching in the Ogallala aquifer region.**

Select **one** option you think would be the best for both the **people** of the USA and the **environment** of the **Ogallala region**.

Justify your choice.

Use information from the Resource Booklet and your knowledge from Units 1 and 2 to support your answer.

(9)

Chosen option 3

I have chosen option 3, to replace intensive methods of agriculture with more traditional approaches such as cattle ranching in the Ogallala aquifer region. One reason <sup>is</sup> because ~~of~~ ~~it~~ it will benefit local ranchers more, instead of big corporations. Like Wayne said in Section 3, 'Ranchers... and local people don't benefit at all'. This is because the ~~no~~ big corporations, which could be TNC's, will spread their produce ~~to~~ nationally and world wide. This means that the local people who live on the aquifer aren't benefiting from it's use. Also another benefit is that the traditional ranching doesn't take as much water from the aquifer. Shown in figure 2a, the irrigation for intensive agriculture will take more water from

not just the aquifer water underground, but ~~it~~ from the ~~frank~~ underground area nearby. However ranching will only need water ~~for~~ for drinking use, from ~~extracting~~ extracting a small amount or from lakes and rivers nearby. Another advantage is the land won't be ruined from the feedlots. These are massive eye sores and are not good for the environment as a lot of cows are put into one small space. This means that a lot of water will be taken from the aquifer in that region, putting pressure on it. However, a disadvantage is corn through using the aquifer can provide a lot of people with food. 25 million tonnes of corn would feed 100 million people for 2 years which is a large amount.

I didn't choose option 1 because although, agriculture creates a lot of money, \$20 billion a year, it is extremely bad for the environment. For example the fertilisers used during intensive agriculture, can cause eutrophication. This is when the fertilizer nitrate ~~through~~ nitrate into the ground and through flow into the river creating algae blooms and stopping sunlight for photosynthesis, reducing the oxygen in the water. Also the irrigation uses a lot of the water from the aquifer which would cause it to sink very quickly. Seen in figure 2a, it doesn't just use water from directly under the land, but in a lot of the area surrounding. If it used up a lot of the water in the aquifer it could cause serious problems, as due to climate change, the rainfall will decrease, leaving very dry areas with

no water supply.

I didn't choose option 2 because although it would be good for the environment, because of letting it recover, it would take a long time to recover, meaning near ~~generating~~ ~~generating~~ it would take many generations for people to benefit, as it takes 60 ~~or~~ years to recharge completely. A lot of food is also produced using the irrigation. 20% of corn is produced for the total US production, for the population. With a rising population in the US, the production will need to increase too. If it doesn't ~~then~~ then, like Malthus' theory, the US could reach a crisis point where there isn't enough food to feed everyone. This could cause ~~major~~ ~~poverty~~ ~~and~~ a large number of deaths due to not being fed enough. It could also cause the prices to increase which will mean ~~that~~ many ~~of~~ lower paid people won't be able to afford to eat. It may also mean that more food needs to be imported, increasing the country's eco footprint and ~~is~~ causing more ~~per~~ pollution through food transport. However, it would mean the environment would look nice and not be riddled by feedlots, and it would reduce ~~such~~ algae blooms creating a healthier water supply. I did not choose this, however, because it would not be



Sustainable socially or economically.

In conclusion I think that my option would  
appear to be the most sustainable, but I know that  
it does have some problems as none of the  
options would be perfect. My option also  
helps more local people, more involving it  
be socially sustainable, taking a more  
bottom-up development approach.



**ResultsPlus**

**Examiner Comments**

This is a very strong top level response from a candidate who knows how to structure such an answer. One of its most obvious characteristics is the use of argument and counter-argument which culminates in a final paragraph which concludes that no option is beneficial to everyone - in other words it is a compromise. The references to the Resource Booklet are also notable.



**ResultsPlus**

**Examiner Tip**

Remember that all policy decisions are likely to have winners and losers so there will always be a debate.

## **Paper Summary**

The Making Geographical Decisions paper has a clear and predictable structure and a reasonably predictable set of questions. Of course there are nuanced differences in each paper and candidates need to be more than usually alert to those differences – the little words including trends, pattern, changes and distribution are vital. So too are the command words. The final question will not be a 'write all you know' about this issue challenge but will focus on making a case, defending it but also presenting the weaknesses of the chosen option as well as the alternatives. That skill is improving whereas other skills are not. Ironically map skills, in our satnav world, are withering on the vine whilst interpretation of photographs is also poor, rather more surprising given Snapchat and Instagram. The photographs in this Resource Booklet were largely ignored.

Geographical skills are highly valued and when well-developed they are powerful and adaptable tools for interpreting spatial variation. Whatever the context of the Making Geographical Decisions paper it is these skills that are being tested and not, of course, case-study knowledge and understanding which are addressed elsewhere in the specification. We all need to work on these skills with our students.

## **Grade Boundaries**

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

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

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