

Write your name here

Surname CARRIGAN	Other names ABIGAIL
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Centre Number

Candidate Number

Edexcel GCE

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Geography

Advanced

Unit 4: Geographical Research

Wednesday 23 January 2013 – Afternoon

Time: 1 hour 30 minutes

Paper Reference

6GE04/01

You do not need any other materials.

Total Marks

65

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **ONE** question only.
- Answer the question in the spaces provided
– *there may be more space than you need.*

Information

- The total mark for this paper is 70.
- The quality of your written communication will be assessed in your responses
– *you should take particular care on this question with your spelling, punctuation and grammar, as well as the clarity of expression.*

Advice

- You are expected to write a report style essay with clear sections and referencing.
- You are advised to use the first page of the answer space on page 3 to plan your answer.

Turn over ►

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P 4 1 3 5 8 A 0 1 2 0

PEARSON

Answer ONE question only.

It is essential you use your own research to support your arguments.

OPTION 1: Tectonic Activity and Hazards

- 1** Assess the significance of plate margins in the spatial distribution of tectonic hazards.

(Total for Question 1 = 70 marks)

OPTION 2: Cold Environments – Landscapes and Change

- 2** Assess the importance of the values and attitudes of interest groups in determining how different cold environments are used.

(Total for Question 2 = 70 marks)

OPTION 3: Life on the Margins – the Food Supply Problem

- 3** 'Currently, drylands are the areas most vulnerable to the threat of food insecurity.'
Discuss.

(Total for Question 3 = 70 marks)

OPTION 4: The World of Cultural Diversity

- 4** Evaluate the relative importance of the different factors which contribute to the development of cultural landscapes.

(Total for Question 4 = 70 marks)

OPTION 5: Pollution and Human Health at Risk

- 5** To what extent is health risk strongly related to the level of economic development?

(Total for Question 5 = 70 marks)

OPTION 6: Consuming the Rural Landscape – Leisure and Tourism

- 6** Assess the reasons why different strategies are used to manage leisure and tourism in rural areas.

(Total for Question 6 = 70 marks)



Indicate which question you are answering by marking a cross . If you change your mind, put a line through the box and then indicate your new question with a cross .

Chosen Question Number:

Question 1

Question 2

Question 3

Question 4

Question 5

Question 6

10 SecAD

14 SecAR

18 SecAA

13 SecAC

10 SecAQ

You are advised to use this page to plan your answer and then begin your answer on page 4.

Plan

1. Intro - drylands, vulnerable, food, insecurity



mapcraft - 4 indicators

- structure ~~plan~~

- complex issue.

2. Method -

3. Drylands are most vulnerable

3.1 - The Horn of Africa - Somalia - GFS

3.2 - The Aral Sea. - GFS + vid

4. Drylands are not vulnerable

4.1. Australia - Adams + Wright

5. Non drylands are vulnerable

- Haiti - BBC, Digby, Geofilo.

- Bangladesh - fof, - Matthews

aid
rural-urban
poor
food prices
Gov → riots

6. Conclusion →



P 4 1 3 5 8 A 0 3 2 0

1. Introduction.

Many dryland areas are vulnerable to food insecurity. The FAO (Food and Agricultural Organisation) defines drylands as 'an area classified climatically as arid, semi arid or dry subhumid based on the length of the growing period for annual crops'. Many of these drylands are food insecure. Edexcel A2 Geography by Dunn et al states that ^{currently} 41% of the world's land is classified as arid, with 37% of the population living in these areas, therefore they could be vulnerable to food insecurity. Food insecurity is defined as 'a situation where ^{an} the people from a given area ~~is~~ cannot access ~~the~~ adequate food supply, or food supply fluctuates on a seasonal or annual basis' (Food and Famine by Witherick 2010).

However, some non-dryland areas are vulnerable to food insecurity too. Vulnerability is defined by Edexcel AS Geography by Dunn et al as 'a high risk combined with the inability of individuals and communities to cope'. I will be measuring the vulnerability of ~~my~~ my case studies using Mapcrafts A2 map. The map classifies the countries into four categories; extreme (0-2.5), high (2.5-5), medium (5-7.5) and low (7.5-10) vulnerability to food



insecurity. Maplecroft calculates each country's ~~the~~ Food Security Index (FSI) using four indicators: current health and nutritional status of the population, availability to food stocks, stability of food stocks and access to food stocks. If a country is vulnerable, then it has a threat to food insecurity.

I will discuss the factors which make drylands vulnerable by looking at The Horn of Africa and The Aral Sea. I will then look at drylands that are not vulnerable to the threat of food insecurity such as Australia. Finally, I will look at drylands that are vulnerable; Haiti and Bangladesh. This is a complex and multifaceted issue that needs in-depth analysis to see which areas are most vulnerable.

2. Methodology

I have used some textbooks to gather information on this report. I have used 'Food and famine' by Clithrick, written in 2009. This is a reliable source as Clithrick is a chief examiner and his textbook is supplied to schools. It has also been peer assessed and reviewed before being published. I have found useful information on



Bangladesh's administration here.

Another textbook I have used is Digby A2 Geography for Edexcel by Digby et al an information about Haiti's food riots. In here, there was an ITV news report by James Mates. It included dependable statistics and pictures which helped with the understanding of the case study.

I also used many factsheets when compiling information for this report. I have used the Factsheet by Gareth Nagle an information for The Horn of Africa. It provided clear information under sub headings. It is reliable as it was done by an academic researcher.

I have also used the Geofile 'Faster or Famine' by Adams and Wright for information on Haiti's natural disasters and Australia's investment schemes. Again this has been done by an academic researcher and therefore more reliable than perhaps an online blog which may have been biased.

The final factsheet I used was for The Arctic called 'The tale of two seas' written by Flint. It included clear and concise information relevant to my report.



3. Drylands are most vulnerable to the threat of food insecurity.

3.1 The Horn of Africa - Somalia.

Somalia is an LDC in The Horn of Africa. It is classified as a dryland and has a GDP per capita of \$600. It has extreme vulnerability to food insecurity according to the Maplecroft Index.

Many factors make Somalia vulnerable to food insecurity. Much of the population is dependent on food aid, they have an unhealthy addiction to it which means farmers no longer subsist for themselves. As the GDP of the country is so low, many families cannot afford to buy food so have to export it, according to Nagle.

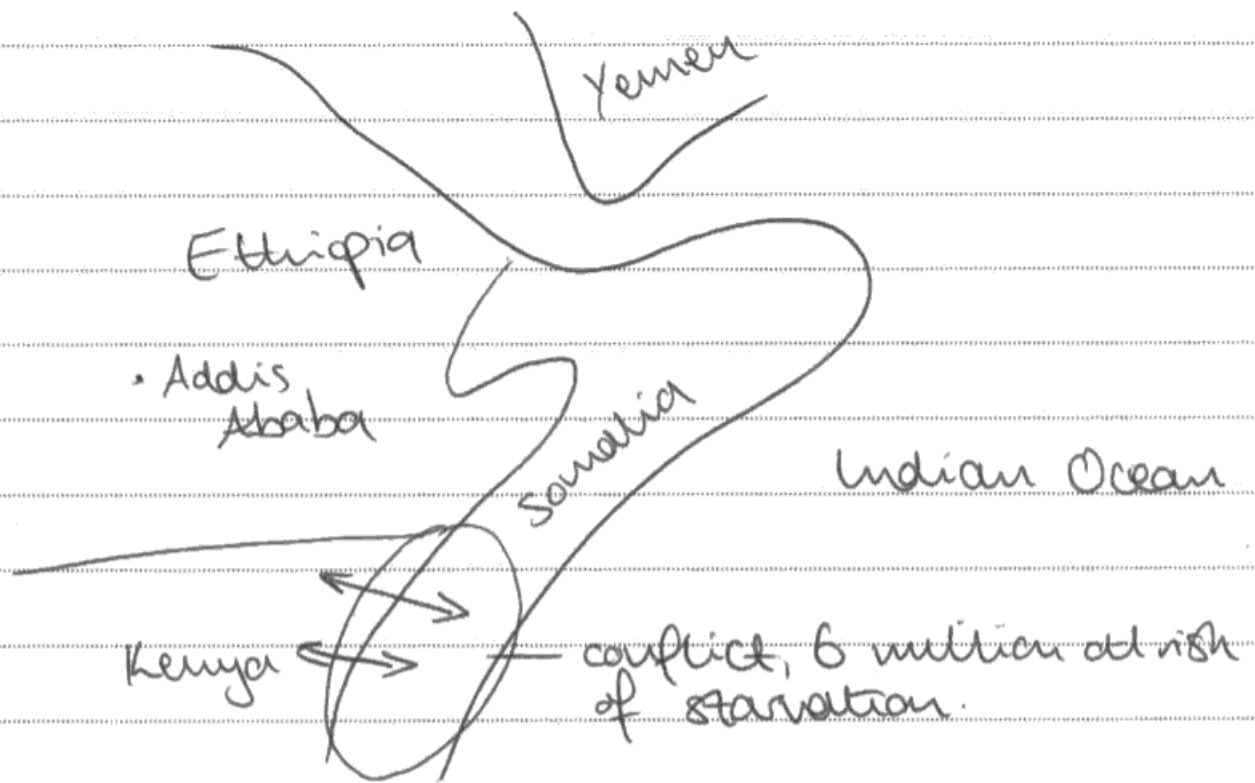
Also, the dictator in Somalia was overthrown in 1991. Rival clans fought against this and a large humanitarian crisis occurred after this, says the UN. Thousands of people died in the famine brought on by these food riots which means many people are vulnerable to food insecurity. Conflict is particularly bad in the borderlands of Somalia that lead to Kenya, a day goes by without cattle raids and a shoot out to a watering hole, states Nagle.



Another factor making Somalia currently vulnerable to food insecurity is overpopulation. Somalia has one of the highest fertility rates in the world. On average, Nagle states that an average woman in Somalia has 6-7 children. This is due to lack of contraception. Only 3% of women have access to contraception in Somalia, as opposed to 45% in Addis Ababa.

Drought is also another factor making Somalia vulnerable. In 2011, Somalia experienced its worst drought in more than a decade, according to Nagle. This means that many ~~This~~ was due to 5 unsuccessive rainy seasons. Nomadic herders and farmers were dependent on rain for the survival of crops and cattle. Without this, they have no income for food, leaving them with a food Availability Deficit. The Conservation International say that the main cause for drought is overgrazing and cutting down trees. US Famine Early Warning System state that drought occurs ever 2 years instead of every 8 years leaving little time for land, cattle and people to recover. This leaves people in a





Sub conclusion:

Somalia is at ~~rise~~ current risk to food insecurity due to the consequences of the drought and the increasing over population and conflict.

3.2. The Aral Sea.

The Aral sea suffers from high vulnerability to food insecurity according to the Maplecroft Index. It ~~has~~ lies ~~to~~ in Uzbekistan and Kazakhstan. Uzbekistan has a GDP per capita of \$3,300 and Kazakhstan of \$13,000. It suffers from ^{current} food insecurity due to irrigation.

Over-exploitation of The Aral Sea has led it to



decrease in size by ~~80~~ 80% according to Flint. In the 1970s many irrigation canals were built by the Russian Government from the Sea into the surrounding desert for cotton production. However, this led to much of the water leaving the lake, leaving many people with water insecurity. 70% of the water used for irrigation has evaporated, meaning the water content ~~is~~ continues to decline.

As the Aral Sea is decreasing the water is becoming increasingly saline and polluted. This is killing many fish. The Aral Sea used to employ 40,000 people in the fish industry, and now that fish numbers are decreasing, people are migrating away from The Aral Sea leading to a vicious spiral of decline in local services such as schools and shops in the area. Aralsh was one of the main fishing ports, but now that aquaculture has declined, many people are unemployed, meaning many people are unable to afford food.

Chemical residues are left on the surface of the sea bed. Pesticides, fertilisers are left with salt on the desert, huge toxic dust storms whip there up into clouds 400 km x 10 km big. This leads to many respiratory diseases such as TB and anemia, which reduces the quality of life for



many people. Dust storms also destroy land and therefore the ability to grow crops, leaving many people food insecure.

As the sea bed is exposed, it leads to hotter summers which further reduces rainfall in the area. ~~As a~~ according to Flint, many plants and animals have either died or migrated from the area leaving people without food supply.

Sub Conclusion:

Over-exploitation of water resources has led to the degradation of the surrounding biodiversity and therefore the ability to grow an adequate food supply for the population.

4. Drylands are not vulnerable to food insecurity

4.1. Australia.

As previously discussed, many dryland areas are food insecure. However, Australia's land is mostly ~~not~~ classified as arid according to the FAO's Soil Resources Map in 2003, but it is not food insecure currently. Australia has a low level of vulnerability in the FAO's PSI index.

Australia does suffer from drought. In 2003-2009, Australia suffered from a particularly bad drought. This faced many farmers with



problems such as acidity and salinity. However, Australia's GDP per capita is \$39,700 which means it is affluent enough to invest in schemes to produce adequate food supply. In the Goffe 'feast or famine' Adams and Wright talk about the Snowy Mountains Water Transfer Scheme in the Murray-Darling Basin. This scheme irrigates water ~~from areas~~ to agricultural areas with a water deficit, meaning they are able to produce crops for the population, therefore the people aren't food insecure.

Jayni Heinbuch says that Queensland has invested research into satellite monitoring systems in the rangelands. This lets experts change the land use practices before irreversible damage is done. Heinbuch also continues to say that Australia has invested in the research of genetically modified crops. This farming has produced crops which can withstand the drought conditions and harsh climate, thus producing enough food so there is no vulnerability to food insecurity.

Australia is currently suffering from bush fires in New South Wales. ~~But~~ However, these people are not at threat to these natural disasters as the Government has a welfare system where it can give aid and payments to the



people in need. Therefore there is a never a time when the population is at threat to food insecurity.

Sub Conclusion:

Even though Australia is a dryland, it is not at threat to food insecurity, unlike Somalia.

Australia is wealthy enough to always ensure its population has aid and it can invest in schemes to produce the highest possible yield for crops.

Therefore, currently, not all drylands are most vulnerable to the threat of food insecurity.

5. Non-Drylands are vulnerable to food insecurity.

5.1. Haiti

Haiti is an LDC with a GDP per capita of \$1,200. This is very low compared to the world average of \$11,300. Haiti is at threat to food insecurity, however it ~~is~~ is a non dryland. According to Maplecroft FSI Index, Haiti has an extreme vulnerability to food insecurity.

The Geofile by Adams and Wright says that even before the earthquake in 2010, Haiti suffered from famine due to its dependence on aid.



and rising food prices. In 2008, food prices rocketed according to Digby. Many people of Haiti were too poor to access the available supply of food, meaning they had a food ~~and~~ Entitlement Deficit. The price of food has doubled in the past 3 years, with the price of maize increasing by 70%. Food aid ~~and~~ agencies also suffered as they buy their food off world markets e.g. Oxfam.

The Democratically elected Government of Haiti was brought down by the rise of food prices. Food riots broke out because food supply wasn't being distributed evenly, meaning many people were vulnerable to food insecurity according to Digby.

Haiti also suffered from food insecurity due to the 2010 earthquake that hit Port-au-Prince, Haiti's capital. It displaced 10,000 people and killed 4000. Many people's land and houses were destroyed, leaving 1 million dependent on food aid. The land was devastated, meaning it was very difficult for people to grow crops, leaving them food insecure.

Another disaster struck in November 2012 when hurricane Sandy further destroyed people's crops. 40% of the harvest was ruined and 450,000 were left in a state of severe acute malnutrition according to the BBC article.



Further rainfall following this event ~~has~~ resulted in flooding.

Sub Conclusion:

Haiti is an example of a non-dryland which has an extreme threat to food insecurity currently.

This is due to a combination of natural disasters and conflict due to rising food prices. Therefore many people do not have the ability to cope.

6. Conclusion.

Currently, drylands are the areas most vulnerable to the threat of food insecurity. It is an invalid statement to some degree.

Drylands mentioned ~~the~~ Somalia and The Aral Sea are currently vulnerable to food insecurity due to drought, irrigation, conflict and population rise. However, it is shown in the case study of Australia that not all drylands are vulnerable to the threat of food insecurity. Australia is able to stay food secure due to its high GDP and investment in schemes and GM crops to produce food for its population, meaning that it is not food insecure.

Also, other than drylands, there are many non-



drylands which are also ~~the~~ vulnerable to the threat of food insecurity. Haiti is repeatedly struck by natural disasters ~~which can~~ and is badly affected by the rise of food prices which can lead to similar effects of drought → food insecurity. Both these physical factors mean ~~that~~ these countries find it difficult to produce crops for themselves, - leaving them with a food Availability Deficit and therefore food insecure. Food insecurity is a complex issue ~~that~~ and is caused by a number of human and physical factors. Both ~~rain~~ drylands and drylands are vulnerable to the threat of food insecurity.



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TOTAL FOR PAPER = 70 MARKS **65**



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