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Surname <b>SHINGLER</b>	Other names <b>MOLLY</b>
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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

**61**



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## 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 ►

**P41358A**

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1/1/1



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)**

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**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)**

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**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)**

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**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)**

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**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)**

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**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)**

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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

9 SecAD  
14 SecAR  
17 SecAA  
13 SecAC  
8 SecAQ

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

Drylands are the areas most vulnerable to the threat of food insecurity. Discuss.

1. Intro =

• word map  
• phys + human

• define drylands, define food insecurity, define vulnerability

• NOT solely drylands also non-drylands too

2. Methodology

• geojie, food & famine, Hathi food sec outlook

3. Analysis

3.1. Drylands

arable pay

• Aru sea (medium FSI) → phys water level

• Somalia (extreme) POP pressure -- water or UNH

• Australia (low FSI) = g, d, r, f, l, c, i, n

3.2. Non-drylands

a, u, g, m, w, c

Myn, Hathi, Bow

LN, H, C, F



## 1. Introduction

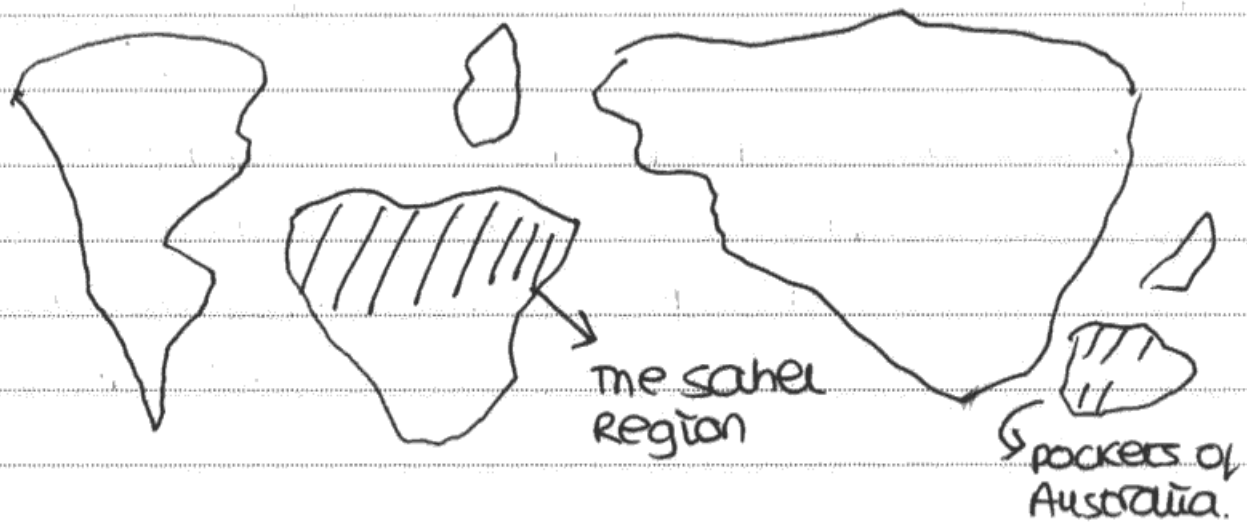
Throughout this report I will be exploring whether currently, drylands are the areas most vulnerable to the threat of food insecurity. I will focus in particular on how levels of food insecurity vary in dryland and non-dryland regions, due to a disparity in human and physical factors. Thus, I will take a systematic approach to this structuring my report according to dryland and non-dryland regions, and within that by the Maplecroft index. Ultimately, the Maplecroft Index examines the risk of food insecurity in 162 countries and is formed by four sub-indicies: the nutritional and health status of the population, availability of food stocks, stability of food stocks and access to food stocks. Therefore, I will start by looking at those countries with extreme levels of food insecurity in dryland and non-dryland regions such as Somalia and Haiti, and then those with lower FSI scores such as Australia.

The definition of food insecurity, as defined by the FAO is when "people don't have enough food to meet daily caloric needs". However, a lack of food isn't the main issue. As the International Federation of the Red Cross states, "there is not a lack of food globally but poor distribution."



Figure 1 shows now there is a poor distribution.

Figure 1) A world map  
/// - those areas suffering from food insecurity



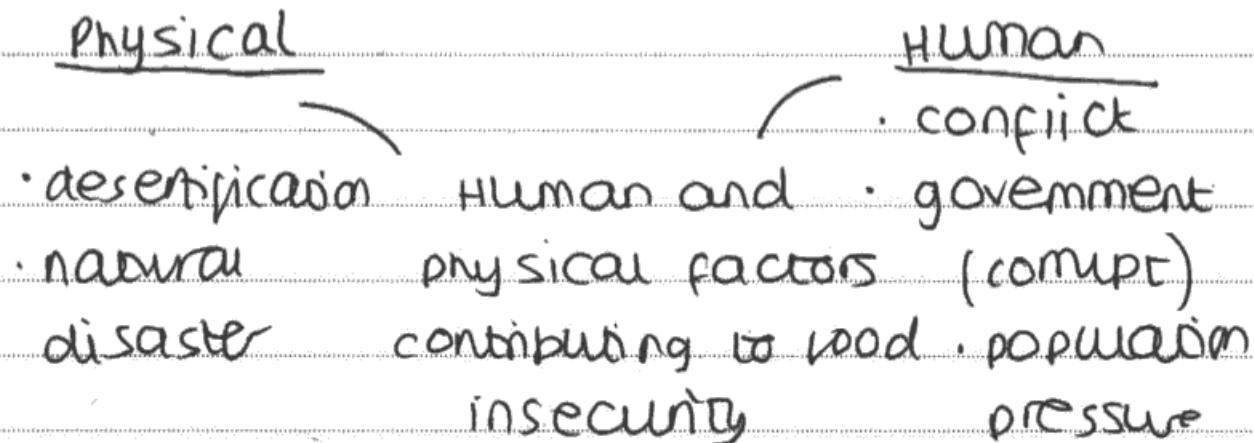
As figure 1 shows, there is an irregular distribution of food supplies. Thus, with 37% of the world's population living in arid and environments, and 925 million people suffering from hunger globally, it is debatable whether only arid lands are the most vulnerable to the threat of food insecurity.

Arid lands is defined by the FAO as "those regions classified climatically as arid, semi-arid or dry-subhumid", and vulnerability is defined by Dunn et al as "a high risk combined with an inability of individuals and



communities to cope.

there are a range of physical and human factors which contribute to food insecurity in dryland and non-dryland areas, ranging from population pressure to conflict, as Figure 2 shows:



Thus, the proposed question is a complex, multi-faceted issue and needs careful, in-depth analysis in order to grasp whether drylands are the areas most vulnerable to food insecurity - something which I plan to answer by the end of this report.



## 2. Methodology

For this report, I used a variety of topical resources which thus enabled me to gain a large spectrum of information.

I firstly chose to use the "AS/A2 Geography Food & Famine textbook" by Michael Witherick, as it is a reliable source written by geographers. Furthermore, it has been edited by chief examiner Sue Wain which indicates that the information is both up-to-date and credible.

I have also used articles from "GeoFile" such as "Global Hunger - an update" by Ganesh Naqu, "A tale of two seas - the ~~east~~ ~~west~~ Aral sea" by David Flint, and "Feast or Famine" by Kim Adams. These articles are from a trusted educational publisher "Nelson Mome" thus the information is not only relevant but has been peer-reviewed by a number of professionals before publication. Another article which I supplemented ~~information~~ information from was a PDF which I found online named "Haiti's Food security outlook" by the United States Agency. Interestingly, USAID is passionate in ensuring that all countries can feed their people, therefore the



Information is both insightful and relevant as it is sourced from a range of experts. I've also used pages from the "Edexcel Geography A2 textbook" by Dun et al, a well-respected unbiased source written by geographers. It has also been peer reviewed by a range of professionals before publication, deeming the information conveyed as both authentic and resourceful. Food insecurity in Somalia appears to be an extensive issue, details of its causes were researched by the BBC an up-to-date source in a podcast called "Aid access to Somalia is difficult" by Dr Unni Karunakar a trusted academic researcher. However, some points were based on opinion as oppose to facts so I was careful which bits of information I extracted, as there were some biased elements.

Similarly, I watched a current video ~~on~~ on the BBC by Andrew Harding called "Somalia's famine one year on". It explored other contributors to food insecurity in the region such as disease, which Dr Unni Karunakar didn't exploring; deeming this source highly relevant.





### 3.1. Drylands

#### 3.1.1. Somalia

Somalia is an LDC situated in the continent of Africa and according to the Maplecroft Index it is one of the most food insecure ~~regions~~ part of the world with an FSI score of 0.96. Garet Nagle expressed however, that "human factors are a key contributor to food insecurity in the region" with 2.1 million people reliant on food aid.

Somalia is food insecure also, due to the influence of physical factors. ~~30 years ago~~ F severe droughts in 2011 alongside famine meant that 750,000 people died as they didn't have any access to food supplies. The Bay region was the 6th area to be declared a famine zone and Grainne Maloney a UN adviser expressed how "malnutrition among children reached 58%".

Furthermore, as the drought cycle in Somalia has shrunk from once every 8 years to once every 3 years communities are more regularly coming to terms with the impact of food insecurity. Human factors however,



have played a major role in the issue. Dr Unni Karunakar expressed how "conflicts and drought meant that humanitarian agents couldn't access the worst parts of Somalia." Thus, with help limited population pressure has also heightened the issue. Somalia has the highest birth rates in the world with women expected to have 6 or 7 children. MIS means that there are more mouths for mothers and fathers to feed, resulting in food insecurity within families. Furthermore, conflict has meant that 'breadwinners' in families have died, who usually play the role in finding for their families and providing substantial food resources. 1.3 million people are reliant in aid in southern Somalia and this is partly due to not only population growth but land degradation. Overgrazing ~~has meant that~~ for fuel and charcoal has damaged tree roots which provide succumb for soil, thus making it more prone to erosion, <sup>greater inability therefore to grow crops</sup>

sub-conclusion  
Andrew Harding describes the issue in Somalia as "2 federal enemies, conflict and drought". This proving one or ~~conflict~~ ~~has~~ food insecurity is further stimulated by both factors



### 3.1.2 Aral sea

The Aral sea has been described by the mail foreign ~~sent~~ service as "one of the most shocking environmental disasters". According to maplecroft it has high levels of food insecurity, and this dryland is particularly prone to the issue due to a variety of human and physical factors.

30 years ago the aral sea was at normal water level, however in 2009 high salinity meant fewer fish could survive in the lakes. This had a direct impact on food supplies, as fishing was both the main source of employment and food source in the region, with 200 tonnes of fish being caught a day. However, people began to see their food supplies deteriorate and thus ~~to~~ gradually became more food insecure. Furthermore, with the hot climate and the area being a dryland the sea has significantly shrunk which has left masses of industrial pollution behind and caused many locals to be ~~to~~ water insecure. Furthermore, the sea bed has been exposed which has effected the local climate with summers becoming hotter, the amount of



dried desert is set to advance by another 20% in the forthcoming years, with 45,000 sq km of dried desert remaining. This means that the land will be unsuitable for agriculture, and highly contaminated due to salinization that food insecurity will manifest the region. Furthermore, there are a number of human factors which have resulted in food insecurity in this dryland. The creation of a human engineering scheme meant that the land was irrigated for cotton farms since Uzbekistan (a bordering country) exported cotton in 1960. However, as more irrigation canals were built, 70% of water either leaked out or evaporated, diminishing the local water source for many people. This further worsened food insecurity as people were unable to grow healthy crops for a healthy diet, nor were they able to maintain hydration levels. Another human factor is ~~land degradation~~ ~~overgrazing~~ ~~as~~ ~~meant~~ ~~that~~ ~~trees~~ ~~are~~ ~~being~~ ~~cut~~ ~~down~~ ~~for~~ ~~food~~ ~~and~~ ~~energy~~. However, the impact of chemical residues, chemical pesticides from farmers have



contaminated the surrounding land destroying crops and valuable rice production.

Sub-conclusion =

To conclude, the Aral sea is a prime example of a dryland susceptible to food insecurity. Physical causes have been exacerbated by human factors and thus account for the widespread food insecurity which exists among its 3 million inhabitants.

### 3.3 Australia

Australia's food insecurity prevalence is estimated at 5%, and the Australian Institute of Family Studies argues that indigenous people are most vulnerable to food insecurity (24%) followed by the unemployed (23%).

Despite having a low FSI physical factors have contributed significantly to food insecurity. Geographical location has meant that food supplies are often limited to a "general store" which is often far away and ~~exp~~ expensive. Mus, ~~with 25%~~ with 24% of the population living in remote locations, pockets of food insecurity exist in Somalia as some people cannot access



Supplies. Furthermore reduction in biological diversity in dryland environments has also contributed to food insecurity as farmers are finding it difficult to obtain varying food sources to sell such as Fish.

~~the~~ Food producers also face constraints due to acidity and salinization which can affect the volume and quality of crop yields. Despite this, the government is in a state of stability and has adequate food supplies and infrastructure to distribute it to those in need.

Human factors have also contributed to the issue such as unsustainable land use and the impact of European settlement. Individuals and agencies have recently developed large houses on valuable land which could otherwise be used for agricultural means. ~~Furthermore~~, nevertheless, ~~that~~ welfare payments have been distributed to those in need to ensure they can afford food ~~supply~~ supplies, and company's such as Adam & Wright have developed a snary maintain water transfer system to recone irrigated land in the most affected regions.





sub: conclusion:-

To conclude, Australia is an example of a dryland where food insecurity is a minor issue, however it highlights how vital wealth and government stability is to ensure food security.

### 3.2 Non-drylands

#### 3.1.2 Haiti

Haiti is situated in North-America and according to the Maplecroft index it is the most food insecure country in the Western hemisphere. This is due to both physical and human factors.

Natural disasters have contributed to food insecurity immensely. In 2010 an Earthquake hit the capital city of "Port au Prince" and this left 10 million people without a food source or shelter.

Furthermore, 1.5 million people were in emergency need of food aid however the degree of damage meant agencies found it difficult to access the most severe regions. ~~Furthermore~~ Furthermore, Hurricane Sandy also heightened food insecurity in the region on the 23rd October 2012. 40%.



of harvests were destroyed and 450,000 people suffered severe acute malnutrition. This meant that individuals watched their crops and food sources deteriorate momentarily ~~and~~, thus having severe impacts as prior flooding also washed away local supermarkets.

Human factors have also contributed to the issue such as the corrupt government.

The democratically elected government was a victim of the disaster, and was ~~brought down~~ brought down by food riots. This meant distribution of food was irregular and minute, forcing many to starve.

Sub-conclusion =

Haiti is a key case study to understand how in fact ~~the~~ human factors are exacerbated by human factors





### 3.1.3 Bangladesh

The IMF describes Bangladesh as the most food insecure country in South-East Asia, and as the 13th poorest country in the world.

The geographical positioning has meant that the area suffers from climate change.

Global warming has not only affected crop seasons, but surged flooding and washed crops away.

Human factors such as inheritance laws mean that food insecurity is un-avoidable for many as when the husband dies many women can't claim their right to land.

Furthermore, gender disparities have meant that food distribution is unequal.



#### 4. Conclusion.

Thus, to conclude it is evident that drylands are not the only areas vulnerable to food insecurity, but non-drylands too. Areas such as Haiti appear to be significantly affected by food insecurity, not only due to the nature of the climate but because of the corrupt government. Furthermore, there appears to be a recurring theme prolonged in the issue of food insecurity which is government stability without a stable government, both dryland and non-dryland regions appear to be ~~stuck~~ succumb to the issue of food insecurity, apart from Australia where the government is stable. Thus, figure 3 shows weighing scales which are symbolic of vulnerability to food insecurity in drylands and non-drylands. Due to the proposed analysis, I believe in favour of the question that drylands are more vulnerable to food insecurity than non-drylands, as some drylands don't appear to be receiving nor accepting much help to overcome the issue which seem vital. Figure 3)



TOTAL FOR PAPER = 70 MARKS **61**



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