

Write your name here

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Centre Number

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Candidate Number

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**Edexcel GCE**

# 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

**63**



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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 ►

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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)**

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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 in the box . 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

14 SecAC

You are advised to use this page to plan your answer and then begin your answer on page 4. 9 SecAQ

PLAN

Intro

"Currently drylands are the areas most vulnerable to the threat of food insecurity" discuss.

3.1

Drylands:

- Somalia → <sup>HU</sup> Nagle
- Zimbabwe → Witnerick
- Niger → <sup>HU</sup> Nagle

3.2

Non-drylands:

- ~~India~~ Bangladesh → Witnerick
- Haiti → Digby  
Guardian  
BBC

3.3

Dryland with no insecurity:

- Australia → F + F → Paul + Wain  
Dunn et al.



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"Currently drylands are the areas most vulnerable to the threat of food insecurity"

Discuss.

### ① Introduction

Food insecurity is a complex issue which cannot be brought down to an either drylands super more than non-drylands.

The "FAO" stands for food and agriculture organisation. They define a dryland as an area unambiguously classified as arid, semi-arid, subhumid or dry based on the length of the growing period of annual crops. <sup>\*please</sup> [look at end]

Food insecurity is defined by "Wetherick" as: a situation in which people do not have an adequate supply of food or when food supplies fluctuate annually or seasonally.

Dunn et al. define vulnerability as a high risk combined with the inability of individuals or communities to cope.

In this report I will be dividing it up into dryland and non-dryland case studies comparing the threats imposed on each.

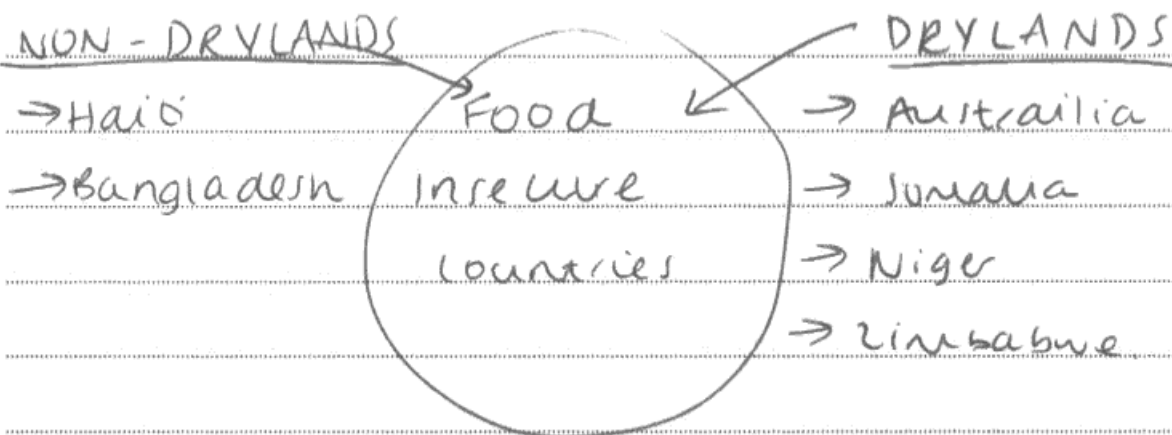
I will also be referring to the Maplecroft FSI system. FSI stands for food security index it was completed in 2010 so it is fairly recent ~~for~~ increasing in reliability. FSI is categorised into four regions: Extreme -



(0-2.5), High (2.5-5.0), medium (5.0-7.5) and low (7.5-10). They gather their data through four factors: Access to food stocks, stability of food stocks, availability of food stocks and the nutritious and health status of a country.

In figure one (below) it demonstrates a quick mindmap of countries I will be looking into:

Figure one



## ② Methodology

I used a wide range of resources for this report. The first source I used is Dunn et al's textbook Edexcel A2 Geography. I used this textbook as I believe it is reliable. I think it is reliable as Cameron Dunn is the chief examiner for Edexcel, thus this textbook was

written by accurate ~~and~~ geographers, for the purpose of teaching.

Another textbook I used is "Food & Famine" by Michael Witherich. This source is also reliable as Witherich is a civil examiner for 30 years. This book is solely on the topic of food and food insecurity, thus providing insightful information.

Another source I used is Geopiles. Geopiles are very useful as they supply useful and insightful information. The Geopile I used was researched by Garrett Nagle called "Global Hunger - An Update". <sup>Another geopile</sup> ~~another source~~ I used is Kim Adam and Paul Wrights "Feast or Famine". Although these articles are useful, the date of publish is unknown questioning their ability to relate to today, however I have cross referenced with online sources to check.

Media sources also became very useful. Mark Tran's article in the Guardian on Haiti's food insecurity after Hurricane Sandy is extremely useful. The BBC also had an article on Haiti's Hurricane Sandy effects which was also insightful and it was useful to complete the whole evaluation, comparing both articles.

A final source I used was "A2 Geography



for "Edexcel" written by Dignby et al. This textbook proved to be reliable as there is more than one author, reducing the chances of personal bias.

### ③ Analysis

#### 3.1 Drylands with food insecurity

##### 3.1.1 - Somalia

Somalia is located in Africa. It has an extreme FSI macrocore count and is an LDC.

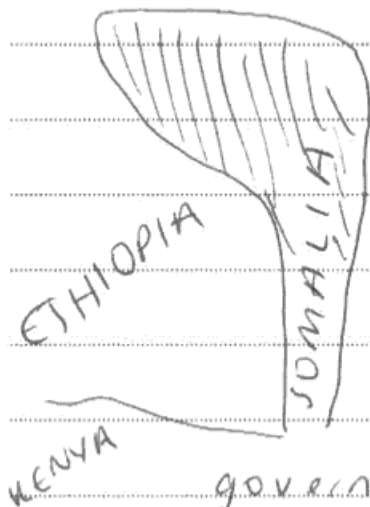


Figure 2 - shows a diagram of Somalia and neighbouring countries. Ethiopia is also food insecure, showing a lack of stability in the area.

Somalia has not had a stable

government since 1991. Wars fought overland, thousands were killed.

Al-Shabab is a zone leader. Minorities in Somalia are vulnerable as religion terrorist groups such as Al-Shabab's makes life more difficult and at a greater risk to food insecurity. This is because in his zone he rejects any aid given to Somalia. ~~Also preventing~~ This preventing people



who need the food from receiving it.

~~now we have discussed~~

Aid provision is also an issue big ~~country~~ <sup>nations</sup>

Such as USA do not want to provide aid in the form of money as it may not go to the people who need it and instead go to funding terrorism. Al-Shaabab would reject the aid either way.

The UN has declared 2 areas in Somalia as food insecure this Puntland and Somaliland.

According to Nagle 1.7 million people are in need of aid solely in the south. Nagle also ~~reports~~ looks at the effects of drought on the country. It is said that the 2011 drought caused 2.7 million people in desperate need for aid, whilst 60% of the rural communities were affected. ~~with~~

With poverty and population pressure Nagle states that Somalia is food insecure. According to the CIA World Factbook Somalia has the 4th highest birth rate in the world.

### Sub-conclusion

Somalia is a very example of a aidless nation suffering from the threat of food insecurity with a range of human and physical factors leading to its challenging





position.

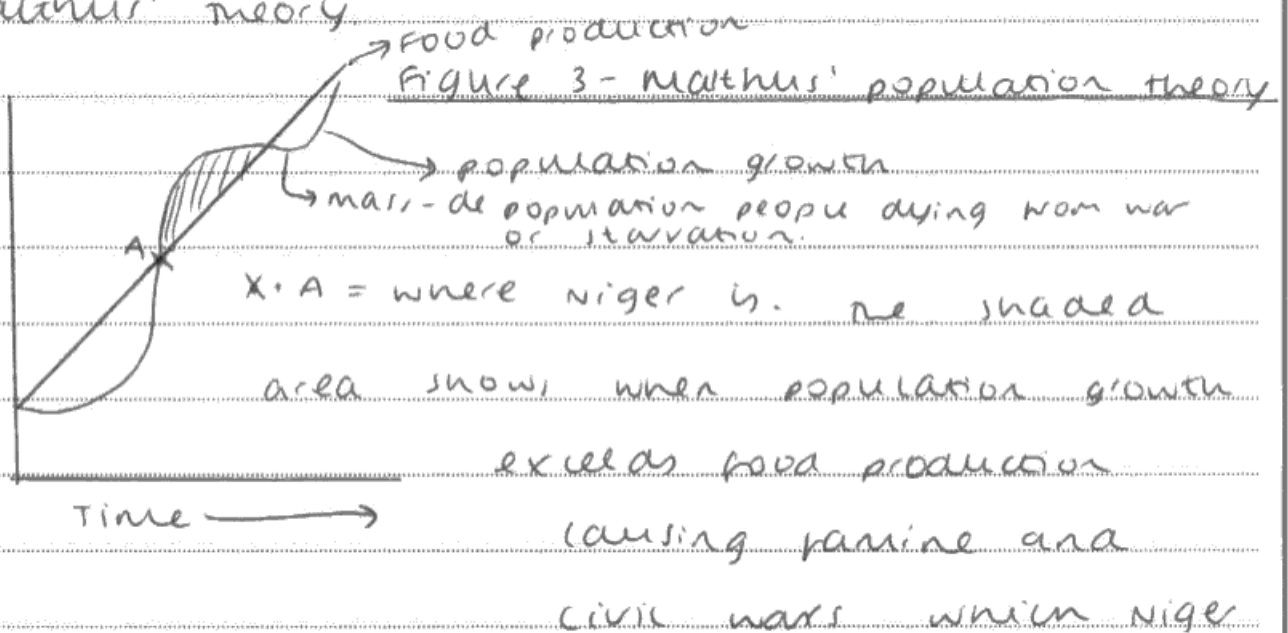
### 3.1.2 - Niger

Niger is a dryland LDC nation, with an extreme FSI according to Maplecourt. It has the highest birthrate in the world (CIA Factbook).

Niger has a faulty government. They hid Niger's true food insecurity from the rest of the world to "save face". Nagle took into what effects this had. As other LDC countries were unaware of the extreme food insecurity less aid was given, thus as the government prevented aid being supplied to those people who needed it this increased the food insecurity as <sup>food</sup> problems got worse.

The population pressure in Niger is a problem. As stated earlier <sup>they</sup> have the highest rate of births<sup>in the world (CIA Factbook)</sup>. This can be seen in Figure 3 (below).

Malthus' theory



might experience soon.

Another <sup>and physical</sup> human factor leading to Niger to have such food insecurity is the location. It is neighbouring to Nigerians and thus is encouraged to be a part of the Nigerian booming market. It is a human factor as the government allow the crop to be used for commercial purposes, instead of consumption. (Nague). Nague also warns, as the effect this has on food insecurity, it increases it by a significant amount.

The 2004 locusts from the rainy season caused ~~was~~ a crisis in the north, aid, crop and livestock areas were invaded by locusts destroying crops and killing livestock. This worsened the food insecurity issues as people had

little access to food. Hail stops to the rainy season also caused millet and sorghum grains not to till properly.

The Niger is a landlocked country, resulting in aid set to be a challenge. <sup>According to Nague 83% live in rural areas,</sup> Aid is transported through Benin and Nigerian ports and travels through unreliable roads. This means that aid should not be depended on.

Nague also warns as the decreasing amount of rainfall. He estimates 5-10mm decrease per year in rainfall. This increases the risk of food insecurity substantially.

\* decreasing over all yields, causing more food insecurity.



## Sub-conclusion

Niger being a dryland has caused more vulnerability. The decrease in rainfall, to the coasts, and population pressures have caused a huge multiply of <sup>negative</sup> impacts.

### 3.1.3 - Zimbabwe

Zimbabwe is a LDC dryland. It has an extreme FSI according to Maplecroft.

Widnerich looks into the state of change for Zimbabwe which was in 1980 when Mugabe's party ZANU were elected. He became prime minister and soon after in charge he placed the "Land Reform Act". Widnerich states that this was the most detrimental ~~effect~~ <sup>impact</sup> on food insecurity in Zimbabwe.

The Land Reform Act displaced white farmers and replaced them with supporters and friends of Mugabe. These new land owners had no interest in the land or keeping its economic use (Widnerich). After years the irrigation methods broke down due to lack of maintenance. By 2008 50% of Zimbabwe was food insecure. Widnerich states that food insecurity has never been so low from the farmland not being able to put to use, yields decreased.



## Sub-conclusion

Zimbabwe is a mini-case study to look at how political instability in drylands has such a large<sup>negative</sup> effect on food security for Zimbabwe.

## 3.2 - Non-drylands suffering from food insecurity

### 3.2.1 - Bangladesh

Bangladesh is an LDC non-dryland country with an extreme FSI of macrocrop

Irrigation methods in drier regions can cause environmental problems such as salinisation. Salinisation can cause contaminated water to flow into the crops and thus cause pollution to enter the human food chain. Salinisation also caused rice farming to be destroyed in Bangladesh. (Withey) It soon was replaced with drawn fishing which is less labour intensive meaning many people became unemployed and could no longer survive of low incomes, thus increasing food insecurity. Rice yield also decreased further pushing the food insecurity.

There is also population pressures. Dhaka is the fastest growing megacity in the world (Dunn et al) with 300,000 to 400,000 migrants arriving per year.



It has a population of 12 million but is said to increase to 20 million by 2020 placing large pressure on food resources.

Bangladesh is also forecasted to have global warming effects. Increases in cyclones and flooding is ~~estimated~~ <sup>predicted</sup> that the Ganges will flood due to it being a delta flooding can happen more easily. Land will also become more sterile and farmland will be inundated due to ~~the~~ weather.

### Sub-conclusion

Bangladesh is a new example of a non-aryland who is under threat to food insecurity as much as Zimbabwe, Niger or Somalia.

### 3.2.2 - Haiti

Haiti is a non-aryland LDC country with an FSI of extreme (according to Maplecroft).

Haiti's main factor leading to food insecurity is covered at by Digby et al. 2005 - food riots. 40,000 people died in Port-au-Prince, 100,000 displaced, crops destroyed and the government returned the World Bank state that some prices doubled, and some products' prices increased by 70%.

Kim Adam and Paul Wight look at the 2010 earthquake. It killed thousands in Port-au-Prince leaving 1.1 million food insecure. Adam and Wight look into how Haiti



was already in a precarious food insecure before the earthquake, their aid dependency and previous natural disasters caused this.

Hurricane Sandy in <sup>October</sup> 2012 is looked at in Mark Tran's article for the Guardian. He states 40% of crops destroyed, 70% of rice farming ruined. This caused great numbers of people in food security with 450,000 people afflicted with acute malnutrition (Tran)

### Sub-conclusion

Haiti is a prime example of a non-dryland ~~it~~ <sup>struggling</sup> ~~with~~ <sup>from</sup> the threat and co-existence of food insecurity.

### 3.3 - Dryland with no food insecurity

#### 3.3.1 - Australia

Australia is an <sup>MDC</sup> dryland which ~~is~~ is susceptible to desertification and has salinisation problems costing \$270 million a year (Dun et al), however also has a GDP of \$40,800 (CIA world factbook) which allows it to survive as a non-food insecure country.

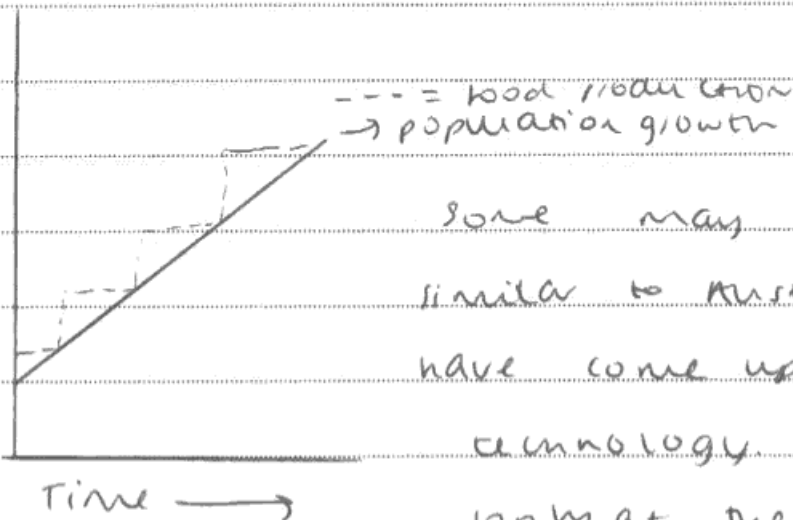
With 7.5% of <sup>households in Australia</sup> ~~the population~~ food insecure - developed <sup>welfare</sup> systems takes care of these



households and provides them with the adequate supplies they need.

Boisrup's ~~top~~ population theory (Figure 4 below)

Figure 4 - Boisrup's population theory



Some may say this is similar to Australia as they have come up with new technology. Dunn et al look at the GM crops which prevent Australia's crops

from ~~dying~~ drying up in drought environments.

Palm and Wright look at the Snowy Mountains water transfer system where ~~water~~ <sup>water</sup> deficit agricultural land is supplied with water from these mountains. The Murray-Darling Basin is an example of how irrigation methods can be improved through this method.

Queensland satellite monitoring system (adam and Wright) ~~prevent~~ ~~and~~ leads to changes <sup>in temperature the effects</sup> to prevent <sup>the effects</sup> turning irreversible like Haiti.

### Sub-conclusion

with wealth and technology Australia



has kept themselves <sup>very</sup> food secure with a low FSI count. This shows how drylands are not always threatened by the risk of food insecurity.

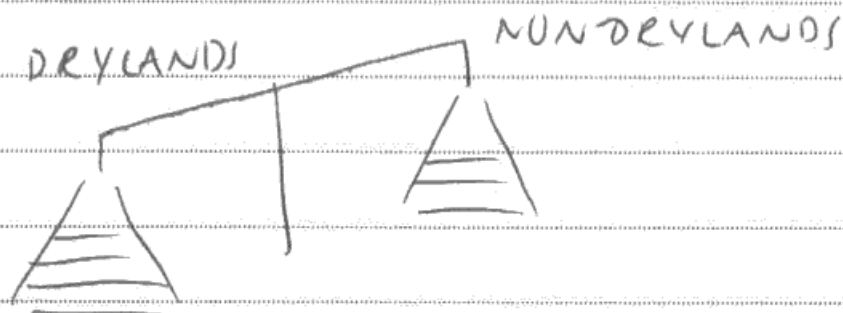
### (C) Conclusion

As stated at the beginning food insecurity is a complex issue. Drylands do suffer from them but who is to say more than non-drylands.

Somalia ~~provides~~ itself is an extremely food insecure dryland with drought, terrorism and poverty. Niger suffers from physical location, locusts, and unreliable rain. Zimbabwe - a potential food secure country became food insecure by political misrule.

Haiti shows <sup>effects of</sup> natural disasters and food prices increasing causing food insecurity.

Bangladesh has global warming and irrigation issues.



Australia shows how it is not fair to categorize all drylands as food insecure.





with the money and technology it pulled it self out of food insecurity and food reuse.

Considering all the factors I believe that drylands are not the areas most vulnerable to food insecurity. I believe that neither drylands or ~~the~~ non-drylands are more susceptible to it. I believe you are vulnerable to drylands with unfortunate factors such as poverty, natural disasters and political instability.

PLACED in introduction by definition of dryland

\* ① Drylands take up 41% of the world's surface with ~~37~~<sup>3</sup>7% of the population living there. (Dunn et al.) This means 2.761 billion people live in a dryland environment. (approx)



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**TOTAL FOR PAPER = 70 MARKS** **63**



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