Mark Scheme (Results)

January 2025

Pearson Edexcel International Advanced Level in Geography (WGE04) Paper 01 Researching Geography

General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

Question 1- Prediction and forecasting are the most effective way of reducing the vulnerability of communities to tectonic hazards. Discuss.

Research the role of prediction and forecasting in managing different tectonic hazards.

Research a range of strategies used to reduce the vulnerability of communities to tectonic hazards.

Indicative content

The focus of this title is the relative effectiveness of predication and forecasting in reducing vulnerability. The research focus identifies the need to understand the role that predication and forecasting plays in reducing the impacts to communities in tectonic regions.

The framework chosen may be by the following.

1. **Types of tectonic hazard** – there are three main types – earthquakes, volcanoes and (secondary) tsunami – best approach would probably be case-study led.
2. **Different management techniques**– Before, during and after- prediction and forecasting techniques, mitigation and adaptation, level of development, governance and aspects of place
3. **Scale of disaster** – case-study led using various measurements of intensity/scale mapped against measurements of scale of disaster and the social, environmental and economic impact.

Key analytical points
- **A clear understanding the key term 'vulnerability' (the ability of an individual or group of people to anticipate, cope with, resist and recover from the impact of a tectonic hazard), is an essential pre requisite of a good report.**
- The Prediction and forecasting of tectonic hazards are key elements of any attempt at hazard management.

- Prediction refers to knowing when and where a hazard will strike on a spatial and temporal scale whilst forecasting provides a percentage probability of a hazard occurring.

- Some predictions are easy to make spatially, but difficult temporally (e.g. earthquakes typically occur on plate boundaries, but timing is unknown, making predictions challenging).

- Prediction and Forecasting are not always effective - Earthquake waves travel too fast to take effective action, however the L+S waves travel slowly enough to allow time for immediate action to be taken (e.g. metro system shut down in San Francisco) and for tsunami warnings to be issued.

- The tsunami that hit the western Pacific in 2009 caused relatively low impacts due to the warnings received from the Pacific Tsunami Warning centre.

- However, the Tohoku earthquake off Japan in 2011 generated a tsunami that although was predicted still overwhelmed the defences. The prediction was accurate but the magnitude of the event meant that some areas were simply overwhelmed.

- Some Earthquake scientists have worked out where to find stress points along plate boundaries where Earthquakes have recently happened, e.g. the North Anatolian Fault line. However, scientists currently lack an accurate pre-cursor which limits the effectiveness of this research.

- There are issues about the broadcasting of the prediction and forecasting information to communities which have little or no access to technology, or even knowledge of what to do if the warning issue has been received.

- Although Earthquake scientists can sometimes statistically forecast EQ events happening, they can't change the attitude of societies to disasters (e.g. Turkey's fatalistic approach).

- The type of attitude, level of governance and ability to communicate influences the effectiveness of management and can significantly impact upon the vulnerability of communities.

- Communities may therefore reduce their vulnerability to tectonic hazards by increasing their resilience as well as modifying the loss and the magnitude of the event.

- Some volcanoes produce many early warning prediction signs which are now well known to scientists. This then allows for early evacuation and the setting up of exclusion zones.

- Eyjafjallajökull eruption in Iceland caused no deaths or serious injuries due to prediction and forecasting technology, yet the ash cloud grounded international air travel for several days, causing substantial economic loss. So, whilst the prediction, forecasting and subsequent management in this case did not involve dealing with serious social impacts the level of vulnerability to European countries in economic losses were high.

- There are difficulties of using prediction and forecasting in remote and inaccessible communities, especially in developing countries where there is little investment in aseismic buildings, education and training of emergency services to reduce the vulnerability of communities to tectonic hazards.

- There are candidates who may discuss other ways in which communities reduce their vulnerability to tectonic hazards which may be more effective.

In summary

Prediction and forecasting should be considered a key factor in reducing the vulnerability to tectonic disasters. However, whether either or both will reduce vulnerability may depend on other factors such as the nature (whether prediction and forecasting are possible in physical sciences) location of the event, level of development and the capability of governance in tectonic prone areas.

Case studies used are likely to include:

1. Haitian earthquake, 2010 and 2021
2. Taiwan, South Eastern Region September 2022
3. Gorkha, Nepal 2015
4. Paktika seismic event, Afghanistan June 2022
5. Grindavik, December 2023 and Eyjafjallajökull volcanic eruption 2012
6. Asian Pacific 2009 and Japanese 2011 tsunami events.

Research the human factors that contribute to greater food security in contrasting countries.

Research a range of locations to examine how trade and commercial agriculture affect food security.

Indicative content

The focus of this title is the relative importance of trade and commercial farming in achieving food security in countries.

The framework chosen may be by the following.

1. **Different causes of food insecurity** across a range of countries at different stages of development
2. An approach that covers the question at a **range of scales** from global to local.
3. **A 'case-study' approach by area/region** with different examples illustrating a variation in the relationship between human factors and food (in)security.

Key analytical points

- A key issue to be resolved here is what constitutes food insecurity/security and how it might be measured to facilitate a reasonable understanding of the complexity of causes.

- Food (in)security is measured in several ways; one of the most useful is the FIES (Food Insecurity Experience Scale) survey which consists of eight questions designed to assess the adequacy of an individual's access to food. In 2017 27% of the world population were food insecure, roughly half of the people in low income developing countries with 10% in high-income countries.

- Trade, it could be argued is a critical component of food security, requiring governments to work together to increase food supply for all countries. Agriculture accounts for more than one third of export earnings yet subsidies and import tariffs by developed countries mean that some poorer countries are unable to compete fairly in international markets leading to supply issues.

- The global geography of food trade is dominated by Europe, The USA and Asia.

- Commercial farming, through TNCs, and the negative consequences this has on subsistence communities could have a significant impact on food security at both local and national scales.
- TNCs control the terms by which farmers can participate in the food system. They often favour large, capital intensive growers leaving small

producers marginalized and disadvantaged reducing food insecurity for some.

- The growing dominance of TNCs in food markets and global trading creates a lack of competition, consequently, lowering prices made to farmers for their produce and the prices consumers pay for food. This would impact the poorest nations who spend a high proportion of their income on food.

- In 2017, Sub-Saharan Africa had the highest prevalence of food insecurity (55 percent) and severe food insecurity (28 percent), followed by Latin America and the Caribbean (32 percent food insecure and 12 percent severely food insecure), and South Asia (30 percent and 13 percent). For the most part these regions are dominated by subsistence agriculture.

- The large scale land acquisitions (known as land grabbing) involves the buying or leasing of land in developing countries by domestic companies, TNCs, governments or individuals. Since 2001 there have been 80 million land deals. It is thought that land grabbing could increase production and allow exportation of crops through trade, however, it could lead to countries at risk of increased food insecurity

- Since 2008, land-rich nations have witnessed an unprecedented rise in land grabbing. China has acquired 2.8million HA of land in the DROC for biofuel production. This 'land grabbing' increases food supply for the investing country but leaves the target country, mostly developing countries in Africa at risk of losing access to the land.

- It is estimated that since 2018, 2.5m hectares of farmland in five sub-Saharan countries have been bought at a total cost of £563m.

- The Green Revolution is a set of agricultural practices aimed at increasing agricultural yields and providing food security. The Green Revolution encompasses biochemical changes, irrigation, drainage and terracing schemes and the use of machinery. Biochemical changes allow crops to be grown in a reduced timeframe and with an increased yield. The high yield variety of rice in the Philippines increased the yield sixfold at the first harvest. It means that a larger population can be supported with increased food security.

- In Saudi Arabia, irrigation, terracing and drainage schemes have increased the area of cultivable land, allowing for more water-intensive farming to take place making the land more suitable for commercial farming.

Summary
- The impact of commercial farming and trade on food insecurity is an important one. TNCs play a significant role in controlling food trade and

the consequences for some places can be detrimental . However, it could be argued that other factors such as land grabbing and The Green revolution allow larger yields for TNCs to then trade. Technical solutions to food supply has been increased but so too inequalities which challenges the idea that food security can be improved.

Case studies are likely to include:

- Food insecurity in the Sahel drylands and south Asia

- Land Grabbing in African countries by China, DROC,

- Qatar leasing agricultural land in Kenya

- UK based TNC 'Lonrho' in Angola

- The Green revolution, The Philippines

Question 3 – The increasing growth of connections between countries always results in greater cultural diversity. Discuss

Research the reasons why some countries and cultural landscapes are more connected than others.

Research a range of locations to explore how changing social, economic and political connectedness affect cultural diversity.

Indicative content

The focus of this title is a discussion on levels of connectedness and the impacts this may have on cultural diversity.

The framework chosen may be by the following.

1. **Case studies** of different societies/places with contrasting levels of connectedness.

2. **By level of development** and/or urban/rural contrasts within countries.

3. **A temporal approach** with discussions on how levels of connectedness have changed over time.

Key analytical points

- 'Cultural diversity' needs to be deconstructed to allow some assessment of how the variations of connectedness can be measured.

- Countries with higher levels of connections are likely to have more cultural diversity. Nonetheless highly centralised states which, in the past, have had a limited level of connectedness have a long history of establishing a dominant culture, through language rules, educational systems and, occasionally, genocide of traditional cultures – history of the young USA, attitudes to Aboriginals in Australia, sovietisation of the 'stans.

- China's open-door policy in 1978 and joining the WTO in 2001 changed levels of global connectedness for the country and it could be argued this changed cultural diversity at both a national and local level.

- The growth of global connections will allow the spread of dominant cultures through Americanisation and/or the movement of people that leads to greater ethnic diversity which may bring with it greater cultural diversity.

- In some societies there is relatively less cultural diversity (Iceland/Japan) even though there are high levels of connectedness. Government policy is likely to be critical in 'connections' here.

- There are significant rural/urban contrasts in many countries especially those with poor internal 'connectedness'. However, it is simplistic to assume that remote communities are largely homogenous e.g. cultural diversity in Afghan villages.
- Indigenous cultures are always changed by levels of connectedness, yet this is obviously driven by government attitudes to migration and to some degree tourism.

- Assimilation in connected places can lead to a loss of cultural diversity as local distinctive communities lose their language e.g. Koreans in Japan, Italians in the US – in these cases greater connections may lead to decline in diversity.

- Candidates may also use the connections between cultural landscapes in the and cultural diversity within and between places

- Manchester's "Curry Mile", an example of a cultural landscape with Britain's largest concentration of South Asian restaurants and takeaways. In the 1950s and 60s, it provided a meeting place for a vast number of Punjabi Pakistanis recruited to work in the region's textile factories and who lived in the cheap terraced houses.

Summary

It is mostly true that the growth of connections has led to high levels of cultural diversity but there are exceptions and variations in 'levels' of cultural diversity at different scales.

Case studies used are likely to include:

1. Japan

2. China

3. European integration

4. Ukraine

5. Iceland

6. London/Singapore

7. Afghanistan

8. Amish communities.

Research a range of programmes to manage health risks at global, national and local scales.

Research a range of locations to explore the varied success of communicable and non-communicable disease management.

Indicative content

The focus of this title is the **effectiveness** of global programmes in successfully managing health risk. The question suggests that global programmes are the most effective way to manage disease.

The framework chosen may be by the following.
1. **Different methods** of managing health risk and at global, national and local levels
2. **Different diseases** such as non-communicable, communicable and attempts at eradicating and managing them.
3. **Case-study led** report based on different attempts of managing health risk in places with different levels of development.

Key analytical points

- The management and eradication of disease is complex and needs deconstructing carefully as does the evaluation of 'effectiveness', and may include global, national and local programmes.

- The best, indirect, measures of success are linked to probably life expectancy and DALY's

- The only disease to be declared fully eradicated is smallpox which last known case was identified in 1977 in Somalia. It could be argued that this global strategy/programme was the only successful vaccination programme to completely eradicate a disease.

- However, there are variations and disparities within disease eradication and management. Measles, in general is a success story and has largely been eliminated in most developed countries, (deaths from measles across the globe have dropped by 75% since 2000) but the virus is still common in many developing countries, particularly in parts of Africa and Asia. More recently there has been a resurgence (more than 42,000 people were infected in 2023, compared to 941 during the whole of 2022) of measles cases in Europe.

- Some non-infectious diseases like cardiovascular disease and type-2 diabetes can be caused by lifestyle, and a "cure" might involve wholesale changes to people's behaviour rather than global programmes for vaccinations.

- There's also the continuing issue of investment required for global programmes to be effective. Since 1971 the US National Cancer Institute has spent over $90bn trying to find a cure. More than $1bn was spent on Ebola research in 2014 and Malaria funding has increased tenfold in the past decade but no eradication has occurred, questioning the 'effectiveness' of global programmes.

- Global management might also extend into economic policies to address poverty.

- Candidates may suggest that very many diseases need practical local solutions such as mosquito net programmes to have a real impact in managing the health risk associated with disease.

- Global Non-Governmental Organisations such as the Red Cross are active in providing drugs and equipment such as bed nets to malaria prone areas whilst recent trials in the World Health Organisation's vaccination programme for Malaria is underway and could prove more effective in the long term would it be successful.

Summary
Global programmes to manage disease are important (particularly in vaccination eradication involving infectious disease) but certainly not essential to managing/eradicating disease at all levels.

Case studies used are likely to include:

1. Global management of disease management – polio, smallpox, Covid by WHO

2. Local management of primary healthcare, e.g. mosquito nets

3. NGOs operating in South Asia and Sub-Saharan Africa

4. Ebola, Sierra Leone and the DRC. Malaria, Africa

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