



2007 Geography

Higher – Environmental Interactions

Paper 2

Finalised Marking Instructions

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Instructions to Markers: General Notes

Procedure before Markers' Meeting

You are asked to make yourself familiar with the question paper and the marking instructions. Marking of scripts at this stage should be only tentative and none should be finalised or returned. Please note any point of difficulty for discussion at the meeting.

Marking

- 1 The maximum mark for Paper 2 is 50. Markers are encouraged to use the whole range of marks and to give a high assessment for an answer of high quality.
- 2 The total marks assigned by you for each complete question should be entered in the outer right-hand margin of the answer book. When a question consists of more than one part, the marks assigned to each part **MUST BE SHOWN SEPARATELY** in the column provided on the inner right-hand side of the book.

It is of great importance that the utmost care should be exercised in adding up the marks. Where appropriate, all summations for totals and grand totals must be carefully checked. Where a candidate has scored zero marks for any question attempted '0' should be shown against the answer.

The **TOTAL** mark for any paper as recorded in the box at the top right-hand corner on the front cover of the script, and as entered on the Mark Sheet, must be given as a **WHOLE NUMBER**. Where a fractional mark has been given in a total mark, you must round up the total mark to the next whole number. Thus if the candidate gains, say, 29 $\frac{1}{2}$, the mark 30 should be entered in the box on the front of the script **AND ON THE MARK SHEET**.

- 3 It is helpful in later procedures if points receiving marks are clearly indicated. In general a $\frac{1}{2}$ mark should be awarded for a short correct statement with a full mark being awarded for a developed point.
- 4 All mistakes **MUST** be underlined in red pen. A wavy line (~~~~~) should be used for something that is not quite right, a single line (-----) for mistakes which, though not very serious, are undoubtedly wrong, and a double line (=====) for gross blunders. These corrections are valuable when borderline cases and appeals are being considered. Where a page shows neither a correction nor a mark, a red tick **MUST** be placed at the bottom right-hand corner.
- 5 The marker should take the candidate's answers strictly as they are written; no attempt should be made to read into answers ideas which the candidate may have intended to convey but which have not been successfully conveyed. A caret (λ) should be used to indicate an important omission. A question mark (?) should be used to indicate that the marker cannot understand the meaning intended. The letter 'R' should be used to indicate that the candidate is repeating something already stated in the answer.
- 6 Care should be taken that no credit whatsoever is given to irrelevant parts of answers, however accurate the irrelevant passages may be. Irrelevant passages should be square-bracketed [].

It should be noted, however, that a fact or argument which is irrelevant in one candidate's answer may be made quite relevant by another candidate who has the ability to connect it to the question.

Rural Land Resources

Question 1

- (a) Assess out of 5 allowing up to 3 marks for descriptive points which could include references to there only being two National Parks in Scotland yet a high concentration in northern England (4) and in Wales (3). Candidates could also note the absence of N.P's in central and south-eastern England. Explanations for their location ought to focus on such points as the scenic diversity and differing attractions of the various National Parks as well as on accessibility and proximity to urban (catchment) areas.

Assess out of 5.

5 marks

- (b) (i) **Benefits** brought by an influx of tourists might include:
- new job opportunities for local people
 - increased business for shops, hotels and restaurants
 - more wealth generated in the local economy – “multiplier effect”
 - increased property prices
 - improved services (eg sports and leisure facilities) and transport links (eg up-graded roads, more frequent bus services)
 - less need for young people to leave the area
 - increased expenditure on conserving the amenities of the area.
- (ii) Tackling the **negative** effects of tourism could include mention of:
- attempted solutions to traffic and congestion problems such as the provision of more parking facilities; promoting park and ride schemes; improving and encouraging the use of public transport; building by-passes or ring roads
 - the role of visitor education through information centres, leaflets, improved signposting, promoting alternative attractions to reduce pressure on existing honeypots
 - ways of restoring or preserving footpaths – eg cutting steps into the limestone at Malham Cove to safe guard paths, laying “terram”, fencing off vulnerable areas to restrict access.

Assess out of 10 awarding up to 6 marks for either part.

Answers which fail to offer any evaluation of solutions attempted should score a maximum of 9.

Award up to 1 mark for authentic named examples, eg The Goyt Valley Traffic Management Scheme in the Peak District or the ‘Fix the Fells’ initiative in the Lake District (a £5million, 7 year project to fully repair 145 identified footpaths).

If more than 1 area discussed, mark the main one and bracket off the text.

10 marks

- (c) Candidates ought to be able to describe and explain the formation of a reasonable range of coastal landform.

These could include:

- headlands, cliffs, caves, arches, stacks, shore platforms (wave-cut)
- bays, beaches, spits, bars, dunes, salt marshes
- rias, fiords or sea lochs, raised beaches, fossil cliffs.

Avoid crediting mere lists of features. Named landforms require to be backed up by description/explanation/correct location before giving any marks.

Award up to 4 marks for fairly detailed references to any one feature.

Take care not to over reward the same processes.

Authentic examples of specific features such as The Old Man of Hoy (stack) or Hurst Spit (in Hampshire) could score up to 1 mark.

Answers without annotated diagrams should be marked out of 9.

It should be possible to score full marks with well annotated diagrams.

Assess out of 10 (award up to 1 mark for specific named examples).

Award a maximum of 8 for either erosion or deposition features.

10 marks

Total: 25 marks

Rural Land Degradation

Question 2

(a) The four main processes of erosion by water can be described as:

- rainsplash – the impact of raindrops on the surface of a soil
- sheet wash – the removal of a thin layer of surface soil which has already been disturbed by rainsplash
- rill erosion – small eroded channels, only a few centimetres deep and not permanent features, often obliterated by the next rainstorm
- gully erosion – steep sided water channels, several metres deep which can cut deeply into the soil after storms and are often permanent.

The three main processes of wind erosion can be described as:

- surface creep – the slow movement of larger (and heavier) particles across the land surface
- saltation – the bouncing along of lighter particles
- suspension – the lightest particles (dust) blown off ground for up to several hundred kilometres, dust storms.

Assess out of 5 marks with up to 3 marks for either water or wind erosion.

Avoid crediting materials from Reference Diagram

5 marks

(b) The human causes of land degradation may vary according to the locations chosen but may include:

For the **Dust Bowl**:

- use of techniques better suited to the moister east
- monoculture, especially of wheat or demanding crops (cotton), depleted the soil of moisture and nutrients
- deep ploughing of fragile soils (previously these had been held in place by natural grasslands)
- marginal land ploughed – particularly in wet years – leaving them in a fragile condition in dry years
- ploughing without due regard to slope
- farm sizes too small forcing farmers to overcrop – particularly when prices were low

For the **Tennessee Valley**:

- much of the area was cleared of its trees – this opened up the soil surface to erosion
- mining and farming also cleared the natural vegetation and led to soil erosion
- the farmers cultivated steep slopes which were ploughed up and down the slope
- overcropping had already weakened the soil
- the eroded soil was dumped in rivers and this caused them to flood, running soil further downstream

For **African north of the Equator** the following human factors might be included:

mention might be made of:

- overgrazing, overcropping, deforestation, monoculture, burning, farming cash crops

these should be carefully explained eg:

- deforestation for firewood/building
- bush fires to clear land for farming
- in some areas (eg Tigray) small farms have led to overcropping
- in some places peasant farmers have had to farm marginal land due to the best land being used for cash crops (eg in parts of Sudan)
- the drought may have caused nomads to move into villages where the land may now be over cultivated (eg in Burkina Faso)
- some candidates may make the general point that rapid population growth in the countries of the Sahel has contributed to this pressure on the land

For the **Amazon Basin**:

- deforestation – for eg Ranching/Mineral extraction/logging/road building/poor peasant farmers – detailed accounts of these processes can be accepted
- eg the impact of ranching: forest cleared, used for a few years until grass fails – move and clear a new stretch of forest and continue the process
- eg the impact of charcoal smelters associated in the early years of the Carajas iron-ore mine

Assess out of 8 with a maximum of 5 for either area

(Award up to 1 mark for specific named locations)

8 marks

(c) For **Africa north of the Equator** descriptions may include:

- crop failures and the resulting malnutrition leading to famine eg Sudan, Ethiopia and much of the Sahel
- migration on a large scale – usually into shanties on the edge of the major cities
- the collapse of the nomadic way of life due to the lack of grazing and water
- many nomads forced to settle in villages – with a consequent increase in pressure on the surrounding land
- the breakdown of the settled farmer/nomad relationship in places like Yatenga province in Northern Burkina Faso

For the **Amazon** basin answers may include:

- destruction of the way of life of the indigenous people eg clashes between the Yanomami and incomers
- destruction of the formerly sustainable development eg rubber tappers and Brazil Nut collectors
- clashes between various competing groups eg the violent death of Chico Mendez allegedly at the behest of ranchers
- reduction of fallow period leading to reduced yields with obvious consequences for the dependent population
- creation of reservations for indigenous people
- increase in ‘western’ diseases
- increases in alcoholism amongst indigenous population

Assess out of 5.

(Award up to 1 mark for specific named locations)

5 marks

If no named area or writes about N. America extract points relevant to areas asked for up to a max of half marks.

(d) For full credit candidates must mention four methods, with up to 3 marks for any one method. An example of an explanation which might receive credit is:

- shelter belts – on low lying land affected by strong winds shelter belts are rows of trees grown across the direction of the prevailing wind. They act as a barrier to slow down winds and protect the soil. The taller and more complete the barrier of trees the more effective the shelter.

Assess out of 7.

Care to avoid crediting material already on Reference Diagram.

7 marks

River Basin Management

Question 3

(a) For North American river basins:

- description should include reference to general patterns/numbers of rivers, and should refer to the directions of flow
- explanation should refer to the fact that drainage basins are determined by the location of the main continental watersheds and that major rivers rise in the main mountain ranges that have greater precipitation, eg the Rockies and Appalachians in North America.

Patterns within North America could distinguish between:

- west flowing rivers are fed from the western side of the continental divide. Rivers like the Columbia-Snake and the Colorado flow west in to the Pacific Ocean
- north-flowing rivers drain to the Arctic Ocean or to Hudson Bay and are fed from the Canadian Shield
- the St Lawrence system is fed from the Great Lakes areas and flows east to the Atlantic Ocean
- most of south-eastern USA is dominated by the Mississippi and its tributaries which are fed from the Rockies in the west and the Appalachians in the east and flow to the Gulf of Mexico.

Assess out of 5 marks with a maximum of 3 marks for either description or explanation.

5 marks

(b) Explanation of the need for water management in the Narmada River Basin and in Gujarat State might include:

- reference map Q3E indicates that the Narmada River has many tributaries and the river basin has a very high drainage density leading to unpredictability of river flow which is dependant on when and how quickly snow melts in surrounding mountain areas
- rapidly increasing population in India gives increasing demand for water for domestic, power, industrial needs
- increasing demands from farmers for irrigation water to try and feed increasing population
- rainfall graph for Ahmedabad indicates seasonal nature of rainfall – extremely dry from October to May but huge monthly figures for July/August – leading to flooding and also run-off of water that could be stored and used in dry months
- temperature graph for Ahmedabad indicates hot temperatures throughout the year leading to very high evaporation rates. Monthly maximum temperatures peak at over 40°C.

Assess out of 5 marks.

5 marks

(c) Political problems might include:

- river basins often cross state or international boundaries, causing difficulties in co-operation between states/countries
- sharing allocation of water rights often causes political strife
- water flow and water quality dependant on actions of upstream neighbours
- increased pollution and salinity downstream can lead to poor water quality and extra costs, eg desalination for downstream areas of river.

Assess out of 3 marks. Answers must use authentic examples from a chosen project.

3 marks

(d) Answers will depend upon the basin chosen. However, they might include:

Benefits

Economic:

- more reliable water supply allows for double cropping – surplus sale
- improves navigation links
- HEP and water for industry, creating jobs and industrial expansion.

Environmental:

- flood control
- reliable seasonal water flow
- increased fresh water improves health and sanitation
- improvement in scenery?

Social:

- improved water supply
- more food available
- less disease eg cholera
- larger population sustainable
- greater availability of electricity
- opportunities for tourism and recreation.

Problems

Economic:

- very expensive schemes
- rely on Foreign Aid, can lead to debt
- disruption of main communication links
- greater use of fertiliser increasing costs.

Environmental:

- water and industrial pollution
- silting up of reservoirs, soil erosion
- dams reduce fresh alluvial soil from renewing flood plain
- threat to wildlife habitats and historical/archaeological sites.

Social:

- local peoples forced to leave homes
- increase in water-borne disease such as Bilharzia.

Assess out of 12. Answers should be authentic for the chosen river basin. Candidates must refer to all 6 sections for full marks. Award to 2 marks for named examples. Reduce maximum by 1 for each part missed.

12 marks

Urban Change and Management

Question 4

- (a) Candidates ought to be able to pick out that 7 of the 10 largest urban areas (agglomerations) in the world today are in ELDC's whereas in 1957 the situation was reversed.

Explanations for this marked change should include references to the high birth rates experienced in ELDC's over the last 50 years (compared to declining BRs in EMDC's) **and** to the various "push" and "pull" factors which account for their high amounts of rural – urban migration.

The relative decrease in city growth in EMDC's may also be attributed to such factors as planning/environmental legislation designed to curtail outward development.

Assess out of 6 marks awarding up to 2 marks for descriptive points.

6 marks

- (b) (i) Social, economic and environmental problems ought to be related to the candidate's chosen city and might include:

- continued growth of shanty towns (*favelas*, *bustees* etc) in a range of locations in and around the city. These areas are characterised by home-made dwellings, overcrowding, inadequate water supplies, poor sanitation, disease, lack of amenities...and are often sited on fragile or unstable land liable to landslides
- unemployment/underemployment
 - growth of 'grey' economy and black market
 - drugs, crime, racketeering and prostitution
 - poor wages for unskilled jobs
 - lack of services, schools and hospitals
 - chronic traffic congestion and associated high levels of pollution.

- (ii) Again, methods used to tackle the problem ought to be authentic to the candidate's chosen city! For many cities these could include mention of:

- self-help schemes (such as those in Sao Paulo) where local authorities provide basic houses made of breeze blocks and roof tiles with local residents supplying labour and digging ditches for water, sewage pipes etc and for general 'finishing off'
- money saved can then be used to provide amenities such as electricity, a clean water supply, tarred roads, a community centre, even a school, perhaps
- erecting high-rise apartment blocks, mainly in the suburbs
- building new dormitory or satellite towns to relieve the pressure on the existing metropolis (eg Cairo's Sadat City or 10th. Of Ramadan City).

- (b) (iii) Some qualitative statement on the success/or otherwise of these schemes based on the candidate's chosen city is required to attain full marks. eg The advantages of self-help schemes are that costs are kept to a minimum so that more 'basic shell' houses can be provided; they can be built in stages and working together encourages a community spirit/shared ownership.

Assess out of 10 marks with up to 6 marks for part (i) and the balance for (ii) and (iii). All parts must be answered for full marks. Note that some candidates will provide a 'composite' response.

10 marks

- (c) (i) Answers will, obviously, depend on the EMDC city selected but land-use conflicts on the rural-urban fringe could be attributed to such factors as:

- pressures to release land for new suburban housing estates – conflict between farming interests and developers
- building new out-of-town shopping centres/retail parks/business and science parks also makes demands on existing land users
- by-passes, ring-roads and new motorways and their associated junctions and service stations require large areas of land around cities
- recreational uses such as golf courses and country parks are still needed by the urban population and try to resist being taken over
- Conservationists/Environmentalists are against further urban sprawl and have encouraged redevelopment of brownfield or gap sites within city boundaries.

- (ii) Candidates ought to be able to comment on the effectiveness of Green Belt strategies in being able to limit/control some of these demands/conflicts of interest in relation to their chosen city. Some may, in doing so, offer some comment on alternative strategies – “Green Wedges” which allow growth to take place in certain controlled directions whilst maintaining green areas close to the urban area itself have often been suggested as a compromise.

Assess out of 9 awarding up to 7 marks for part (i). Generalised answers which fail to make any specific references to an actual city will, clearly, be self-penalising but ought not to receive any more than 7 marks out of the 9 in total.

Bracket-off non-rural urban fringe conflicts.

9 marks

Total: 25 marks

European Regional Inequalities

Question 5

- (a) Candidates should note the increasing development (from Poland-Spain-France) with increasing life expectancy, health expenditure, GDP and urban %. Explanations could include the length of membership in the EU and subsequent financial aid with development. The location of the countries within the EU and ease of trade/connection to markets could also be made relevant.

Mark 2/3 or 3/2 for description/explanation.

5 marks

- (b) A number of indicators identify regional inequalities in Poland. Wealth shown by **GDP per capita** has province 7 (Mazovia) well ahead (31100 zloty) with provinces 3 (Lublin) and 9 (Sub-Carpathia) the lowest (under 15000 zloty). Wealth shown by % **private vehicles** – only provinces 7 (Mazovia), 12 (Silesia) and 15 (Greater Poland) are in double figures. **Electricity production** % shows two provinces 5 (Lodz), and 12 (Silesia) with 20% and 7 (Mazovia) next with 13%, three provinces have less than 1% (4, 10 and 14).

Province 7 (Mazovia), including the capital city Warsaw, is shown to be the most developed province in Poland using these indicators

Candidates could compare provinces and/or statistics but should use some form of comparative statement(s) covering all three indicators to get full marks.

6 marks

(c) Candidates should be able to illustrate their answer with reference to specific named locations. Credit specific named examples in (i) and (ii) up to a maximum of 3 marks.

(i) Candidates responses will vary according to the region studied but the description may include some/all of the following:

Social problems

- high levels of youth/long term unemployment
- chronic crime, drug abuse, cycle of deprivation, welfare dependency culture
- organised corruption
- depopulation, ageing population.

Economic problems

- low investment, high % of working population in primary/declining industry
- low skills base in working population
- poor infrastructure
- long term poverty.

Candidates could refer to both physical and human factors to account for these problems.

Physical factors eg more mountainous environments and harsher climates.

Human factors eg remoteness/isolation and poorer communications; distance from markets; decline of traditional industries/raw materials.

Mark out of 6 ensuring that all 4 parts of the question are dealt with.

6 marks

(c) (ii) Measures taken by national governments may include:

- government incentives: Regional Development status, Enterprise Zone status, capital allowances, training grants, and assistance with labour costs, rent free arrangements
- specific assistance to old industrial areas eg coal mining (in UK/ Belgium) or long established industrial areas eg San Sebastian area in Northern Spain
- government intervention: relocation of specific government departments (eg Civil Service jobs to Glasgow)
- government directions: state owned firms directed to invest in specific areas (eg former Britoil to Aberdeen or car firms such as Fiat to Southern Italy)
- government pressure/support: major multinational conglomerates (eg VAG/SEAT location in southern Spain).

Measures taken by European agencies may include:

- European Regional Development Fund (ERDF) – provides a wide range of direct and indirect assistance to encourage firms to move to disadvantaged areas eg improvements to local infrastructure, job creating investments, local development projects and aid for small firms
- European Investment Bank (EIB) – concentrates on providing loans for businesses setting up in disadvantaged areas
- European Social Fund (ESF) – promotes the return of the unemployed and disadvantaged groups to the workforce, mainly by financing training measures and systems of recruitment assistance
- Cohesion Fund – this is a special fund designed to assist the least prosperous countries of the Union (the 10 new Member States as well as Ireland (until 2003), Greece, Portugal and Spain). This fund co-finances major projects involving the environment and trans-European transportation networks.

The effectiveness of the measures will be dependant upon the country studied and the region chosen. Some measures of success in the UK for example with Enterprise Zone status, and the provision of training grants. Charleroi in Belgium has also shown evidence of regrowth thanks to robust government intervention.

Both national and European measures must be covered for full marks. If no mention of effectiveness of measures covered in answer mark out of 6.

8 marks

Total: 25 marks

Development and Health

Question 6

(a) **Social** indicators could include:

- infant mortality rate per thousand
- number of persons per doctor
- number of cars/TVs/telephones per 1000 people.

Economic indicators could include:

- gross domestic product per capital
- average income per head
- percentage of working population employed in, say, the Primary sector
- energy consumption per capita.

Mark up to 2 marks for appropriate indicators which are fully/correctly stated as a ratio. The rest is for the explanation.

4 marks

(b) Differences in the levels of development between Economically Less Developed Countries (ELDC's) may be due to:

- mineral reserves eg Saudi Arabia and similarly positioned Middle East countries have vast reserves of oil. They also have stable (if despotic) government regimes/monarchies that leads to the generation of huge wealth. This wealth can 'trickle down' to a wide sector of the population. Other countries may have no reserves of minerals in demand by the EMDC's (Economically More Developed Countries)
- political instability eg many have unstable regimes or are suffering from border wars and/or civil wars eg Sudan, Indonesia, Rwanda
- colonial links eg some Caribbean countries receive support from western countries because of their former colonial ties
- strategic locations eg South Korea and many Central American countries receive additional support
- encouragement of entrepreneurial skills and the ability to attract in major world companies eg by offering an educated, resourceful and relatively cheap work force (South Korea) and/or incentives eg 10 years rent free factory sites in Vietnam
- natural disasters eg Bangladesh (cyclones & floods), Indonesia (tsunami), Niger (recurring drought and associated famines) will limit progress.

Assess out of 5 allowing up to 2 marks for specific named examples.

Award a maximum of 3 marks for over-generalised responses that fail to make any specific/'authentic' references to named areas/countries or to only one country.

5 marks

- (c) Candidates responses will vary according to the ELDC they choose. Differences could include; North v South; poorer rural and relatively rich urban areas; within cities ie richer suburbs and shanty areas; subsistence farming v commercial farming areas; tourist 'honeypots' and remote interiors; areas rich in minerals and those with rural depopulation.

Award a maximum of 2 marks for over-generalised responses that fail to make any specific/'authentic' references to named areas of a specific ELDC.

If candidates comment about the differences within more than one country only give credit to the one gaining most marks.

Award up to 1 mark for named locations which are clearly and appropriately linked to explanation.

4 marks

- (d) (i) Answers will depend on the disease chosen but for cholera answers might include:

Physical factors

- High temperatures.
- Estuaries and marine coastal areas with sources of shellfish.
- Earthquakes/tsunamis or floods which might disrupt water and sewage services.

Human factors

- Poor sanitation.
- Use of unclean water.
- Sewage mixing with water supplies.
- Contaminated shellfish.
- Poorly cooked food, fruit and vegetables washed in contaminated water.
- Contaminated ice used in drinks.
- Overcrowding causing pressure on water supplies and sanitation.
- War and famine putting pressure on water supplies and sanitation.

- (ii) Strategies might include:

- scrupulous care over cooking and washing food
- scrupulous hygiene
- good education re food and hygiene – boil it, peel it or forget it!
- vaccinations
- treated water eg boiling water, adding iodine or chlorine, using bottled water
- Primary Health Care
- oral rehydration salts treatment (80 – 90% of patients) or intravenous fluids
- antibiotics
- avoid buying from street vendors eg fruit or ice/ice cream
- fly control and regulations for dumping waste
- max 1 for named examples of drugs or insecticides.

- (iii) The benefits of controlling the disease on a developing country might include:

- saving money on health, medicine, doctors, drugs etc
- reduction in the national debt
- healthier workforce and increased productivity
- longer life expectancy and decreased infant mortality rates
- scarce financial resources could be spent on other areas such as education or housing
- more tourists/foreign investment may be attracted if there was less risk of disease – leading to more job opportunities, foreign currency earnings, increased prosperity.

Assess out of 12 with a maximum of 7 for any one part.

12 marks

Max 10 if only 2 parts answered.

Total: 25 marks

[END OF MARKING INSTRUCTIONS]