

# Mark Scheme (Results) Summer 2007

GCE

GCE Geography (6475/01)

## 6475 /01 Researching Global Futures

### Option 5.1 Environments and resources

1. 'Resource conservation can be a controversial issue.' Discuss.

**Notes for guidance of examiners**

The focus of the Option is: *Generalisation 4: Conservation versus exploitation: Alternative resource strategies; their merits/problems & consequences (social, economic, environmental) Key Questions: What are the resource use strategies for the future? What are the consequences of these strategies? Guidance: Issues in predicting reserves & future demand; & how resources may be conserved (eg govt policy) .Investigating alternative resource strategies, including conservation. New discoveries & advanced technologies e.g. in harsh environments, extreme climates, deep waters*

The essay is concerned with the issues surrounding the conservation of natural resources rather than their exploitation. These include often controversial decisions to use conservation strategies and the consequences of these decisions. Conservation, initially at least, means higher costs and possible reductions in personal choices & freedom.

By examining a range of case studies for example: the current nuclear expansion debate in the UK to aid reduction of greenhouse gases, longer term policies from e.g. India to conserve energy and use more renewable forms, or a focus on companies like RTZ who aim to exploit rather than conserve. Expect case studies selected from Alaska, N Sea, Bougainville, Siberia, Namibia, and anomalous examples like Curitiba. Sustainability & Local Agenda 21, especially recycling policies of local authorities, are relevant aspects.

Better candidates should identify the range of interested parties involved: from global to local scale, resource exploiters such as TNCs to conservation groups like FoE. They may consider whether conservation has to be contentious i.e. government policy and subsidy may reduce the contentious nature. They will use a wider range of case studies, possibly at a range of scales. Differences in MEDC/NIC/LEDC approaches should feature. Mention may be made to Millennium Development Goal (Goal 7: Ensure environmental sustainability Target 9: Include the principles of sustainable development in policies and reverse the loss of environmental resources)

<b>D</b> Introducing, defining and describing the question, problem or issue, and identifying the data/information required to answer it	<p><b>Definitions of:</b></p> <ul style="list-style-type: none"> <li>• resource(finite, recyclable, renewable)</li> <li>• resource conservation- the planned management, use and preservation of either mineral or energy resources or both</li> <li>• What is a controversial issue- i.e. different groups of people /organisations hold different views on the topic. This may lead into a:</li> </ul> <p><b>Justification of case study selection</b> perhaps categorised under less and more contentious, or by scale (global-local) or over time, or by type of resource.</p>
<b>R</b> Researching relevant sources, selecting appropriate case study material and using this knowledge in detail	<p><b>A balanced range of case studies</b> by scale, location and possibly over time, showing knowledge. MEDC/LEDC/NIC locations should feature and be contrasted.</p>
<b>U</b> Understanding of general concepts, case studies, attitudes and values, and the application of data and information to the	<p><b>Understanding of the key ideas</b></p> <ul style="list-style-type: none"> <li>• Understanding of different value sets/ groups of people</li> <li>• Understanding potential benefits to the environment &amp; society of a conservation based strategy, often outweighed by the desire for short term economic gain from resource use.</li> </ul>

question, problem or issue.	<ul style="list-style-type: none"> <li>• Understanding the difficulties of conservation strategies</li> <li>• Reference to sustainability concepts</li> </ul>
<b>C</b> Drawing appropriate conclusions on the basis of evidence, and on going evaluation	<ul style="list-style-type: none"> <li>• Should include a meaningful assessment of the title</li> <li>• Look for ongoing evaluations during essay</li> <li>• Should return to main case studies developed in the essay</li> <li>• Credit those who go beyond simplistic assertive viewpoint that conservation is contentious</li> </ul>
<b>Q</b> Quality of written communication, including the communication of knowledge, ideas and conclusions in a clear and logical order, and the use of appropriate vocabulary	As per generic mark scheme Specialist geographical terminology such as resource, stock, flow, recyclable, renewable.....

2. To what extent is future resource management likely to depend on technology?

<b>Notes for Guidance for examiners</b>
<p><b>The focus of the Option is: <i>Generalisation 4: Conservation versus exploitation: Alternative resource strategies; their merits/problems &amp; consequences (social, economic, environmental)</i> Key Questions: What are the resource use strategies for the future? What are the consequences of these strategies? Guidance: Issues in predicting reserves &amp; future demand; &amp; how resources may be conserved (e.g. govt policy) .Investigating alternative resource strategies, including conservation. New discoveries &amp; advanced technologies e.g. in harsh environments, extreme climates, deep waters</b></p> <p><b>The essay is concerned with the issues surrounding decisions on resource use strategies for the future (finite, recyclable, renewable), weighing up the use of technology compared with options centred around conservation (reduction, recycling, reuse, repair).</b></p> <p><b>By examining a range of case studies</b> either within one type of resource ( e.g. just finite minerals or energy resources) or across the resource range. The 4 Rs &amp; alternative energies are likely to feature, together with global strategies of sustainability: Local Agenda 21, Earth Summits and Kyoto. National government and local strategies should feature, with possibly a distinction between MEDCS / NICs / LEDCs. Expect a selection from Alaska, N Sea, Bougainville, Siberia, Namibia, fuelwood crisis in LEDCs, with anomalous examples like Curitiba</p> <p><b>Better candidates</b> will identify who/which organisation is creating future strategies, the range of technology available (high to low tech)and that conservation strategies rather than technologies may be used. In the 20<sup>th</sup> C, technology, especially high tech, dominated resource exploitation, but increasingly it is being used to develop alternatives, ranging from nuclear and wind power to energy efficient cars and industries. There should be a clear distinction between MEDCS / NICs / LEDCs to illustrate alternatives to technology. There are clear signs from some societies/organisations that environmental concerns and strategies designed to conserve resources outweigh short term economic gains. Mention may be made to Millennium Development Goal (Goal 7: Ensure environmental sustainability Target 9: Include the principles of sustainable development in policies and reverse the loss of environmental resources)</p>

<p><b>D</b> Introducing, defining and describing the question, problem or issue, and identifying the data/information required to answer it</p>	<p><b>Definitions of</b></p> <ul style="list-style-type: none"> <li>• Resource- finite, reserve, stock, renewable, alternatives</li> <li>• Management strategy</li> <li>• Technology</li> </ul> <p><b>Justification of case study selection</b> perhaps categorised by scale(global-local) or over time, or by type of resource</p>
<p><b>R</b> Researching relevant sources, selecting appropriate case study material and using this knowledge in detail</p>	<p><b>A balanced range of case studies with knowledge of specifics/depth &amp; range of selected &amp; appropriate case studies which might include:</b></p> <ul style="list-style-type: none"> <li>• High tech led discoveries of new geological resources</li> <li>• Extending existing stocks e.g. the 4 Rs( Reuse, recycle, reduce, repair)</li> <li>• New technologies e.g. alternative energy sources/strategies</li> <li>• Conservation strategies</li> </ul>
<p><b>U</b> Understanding of general concepts, case studies, attitudes and values, and the application of data and information to the question, problem or issue.</p>	<p><b>Understanding of the key ideas</b></p> <ul style="list-style-type: none"> <li>• Apply present/past strategies to future scenarios, possibly having actual future strategies of a country/organisation</li> <li>• Potential problems of changing consumer habits/attitudes based on a techno- centric attitude, especially the economic costs.</li> <li>• Discussion of role of technology compared with conservation</li> </ul>
<p><b>C</b> Drawing appropriate conclusions on the basis of evidence, and on going evaluation</p>	<ul style="list-style-type: none"> <li>• Should include a meaningful assessment of the title</li> <li>• Should return to main case studies developed in the essay</li> <li>• Look for ongoing evaluations during essay</li> <li>• Credit those who go beyond simplistic assertive viewpoint that technology is the only key to future resource management and address the concept of 'likely'</li> </ul>
<p><b>Q</b> Quality of written communication, including the communication of knowledge, ideas and conclusions in a clear and logical order, and the use of appropriate vocabulary</p>	<p><b>As per generic mark scheme</b> Specialist geographical terminology such as resource , stock, flow, recyclable, renewable, technocentric .....</p>

## Option 5.2 Living with Hazardous environments

3. 'Natural hazards are rarely the result of a single physical cause.' Discuss.

The focus of the Option is: *Generalisation 1 Causes of different types of hazard. Hazards have many causes, some have multiple causes. Tectonic, meteorological, climatic & geomorphic hazards require knowledge of physical process in order to understand their occurrence & their impact on people .Key Questions: What are the physical processes that cause hazards? What problems do these cause people? Guidance :Tectonic /Meteorological & Climatic /Geomorphic and the effect of these on people in different places and at different scales*

The essay is concerned with the multiple physical causes of hazards. Some hazards are more complex and have multiple physical causes (e.g. floods) whereas earthquakes have one main physical cause. Human presence and vulnerability turn geophysical processes into a hazard, so a mention is valid for this option. Dreggs model may feature. There is no restriction on the type of hazard- indeed a broad spectrum is needed to explore the title from tectonic /geomorphic / climatic

By examining a range of case studies from MEDCs /NICs/LEDCs and hazard types, candidates should explore the title. A decision is needed by the end of the essay as to the nature of the phrase 'single cause'. A variety of approaches is possible, but the emphasis should, however, be placed on **physical reasons** in this generalisation. For example a river flood is caused by a channel's capacity being exceeded by excessive inputs either on a short or prolonged term, aided by snow/ice melt with intensifying conditions (hydraulic geometry, basin characteristics, landslides...) Mention may be made to human intensification of the hazard: including increased human occupancy of risk areas, urbanisation, land use changes & even inappropriate flood defences plus longer term global warming due to pollution.

Some candidates may interpret question as multiple risk/hazard areas such as New Zealand or Philippines, rather than multiple hazards per se, if so mark positively for each **hazard** covered

**Better candidates will** have a balanced range of hazard types and may investigate short term/immediate causes(eg critical water temperature for hurricanes) and longer term/less direct causes eg global warming for storm and hurricane strength and propensity. They may consider hazards at different scales

<p><b>D</b> Introducing, defining and describing the question, problem or issue, and identifying the data/information required to answer it</p>	<p><b>Definitions of</b></p> <ul style="list-style-type: none"> <li>• Multiple cause(physical )</li> <li>• Natural hazard (and secondary hazard may be attempted eg tsunami, fire)</li> <li>• classification of hazard by cause(tectonic, geomorphic, climatic)</li> <li>• <b>Justification of case study selection</b> for example by type of hazard, or degree of 'multiple cases' or the extent anthropogenic causes are involved.</li> </ul>
<p><b>R</b> Researching relevant sources, selecting appropriate case study material and using this knowledge in detail</p>	<p><b>A balanced range of case studies with knowledge of specifics/depth &amp; range of selected &amp; appropriate case studies which might include:</b></p> <ul style="list-style-type: none"> <li>• the floods of the Mississippi and Boscastle ,Galtir avalanches and Aberfan landslide, earthquakes of Kobe, and Bam,2005 Asian e'quake, volcanoes of Mt St Helens and Pinatubo, The 2004 Asian Tsunami, Hurricanes Katrina, Wilma,Andrew, Mitch ...</li> <li>• Newer, topical or less standard case studies showing obvious personal research should be rewarded</li> </ul>
<p><b>U</b> Understanding of general concepts, case studies, attitudes and values, and the application of data and information to the question, problem or issue.</p>	<p><b>Understanding of the key ideas</b></p> <ul style="list-style-type: none"> <li>• Complex physical causes involved in most hazards, especially geomorphic and climatological. The secondary hazard of Tsunamis useful for multiple causes creating same basic effect(not just earthquakes but landslides &amp; volcanic eruptions)</li> <li>• Role of humans in creating a hazard (Dregg model)- quasi natural hazards</li> <li>• Discussion of hazards showing less complexity in origin( earthquakes)</li> </ul>
<p><b>C</b> Drawing appropriate conclusions on the basis of evidence, and on going evaluation</p>	<ul style="list-style-type: none"> <li>• Should include a meaningful assessment of the title</li> <li>• Should return to main case studies developed in the essay</li> <li>• Look for ongoing evaluations during essay</li> <li>• Credit those who go beyond simplistic assertive viewpoint that all hazards are due to a single physical cause</li> </ul>
<p><b>Q</b> Quality of written communication, including the communication of knowledge, ideas and conclusions in a clear and logical order, and the use of appropriate vocabulary</p>	<p><b>As per generic mark scheme</b> Specialist geographical terminology (depending on type of hazards chosen)such as quasi natural, tectonic, troposphere, global warming, El Nino, mass movement.....</p>

4. To what extent is a knowledge of physical processes vital in understanding the occurrence of natural hazards

**Notes for Guidance for examiners**

*The focus of the Option is: **Generalisation 1: Causes of different types of hazard**. Hazards have many causes, some have multiple causes. Tectonic, meteorological, climatic & geomorphic hazards require a knowledge of physical process in order to understand their occurrence & their impact on people. **Key Questions:** What are the physical processes that cause hazards? What problems do these cause people? **Guidance:** Tectonic / Meteorological & Climatic / Geomorphic and the effect of these on people in different places and at different scales*

The essay is concerned with primarily the causes of hazards. There is no restriction on the type of hazard- indeed a broad spectrum is needed to explore the title fully.

By examining a range of case studies from MEDCs /NICs /LEDCs and hazard types, candidates should explore the title. A decision is needed by the end of the essay as to the amount of truth in the phrase 'knowledge of physical processes' linkage to occurrence-we may know where a hazard may operate but not how often or when or even how severe it will be!. An indication of the range of people involved should feature: governments, individuals, NGOs, insurers with clear linkage to knowledge of physical hazard cause . It is **unlikely** a broad enough coverage can be achieved through only one type of hazard( ie one only of geomorphic, climatic or tectonic)

**Better candidates may identify:** Different scales of knowledge may occur even within the usual division of MEDC/NIC/LEDC. However much knowledge of the spatial occurrence of a hazard, they may not know temporal or frequency of occurrence.. They will effectively cover a range of hazard types, and probably not concentrate only on geomorphic, climatic or tectonic. Details of individual events will feature highly.

<p><b>D</b> Introducing, defining and describing the question, problem or issue, and identifying the data/information required to answer it</p>	<p><b>Definitions of</b></p> <ul style="list-style-type: none"> <li>• Hazard occurrence( where, when, frequency)</li> <li>• Natural hazard (and secondary hazard may be attempted e.g. tsunami, fire)</li> <li>• Classification of hazard by process i.e. cause(tectonic, geomorphic, climatic)</li> </ul> <p><b>Justification of case study selection</b> By type/process of hazard, size/extent / frequency/severity of hazard</p>
<p><b>R</b> Researching relevant sources, selecting appropriate case study material and using this knowledge in detail</p>	<p><b>A balanced range of case studies with knowledge of specifics/depth of selected &amp; appropriate case studies, which might include:</b></p> <ul style="list-style-type: none"> <li>• The traditional approach using the floods of the Mississippi and Boscastle ,Galtur avalanches and Aberfan landslide, earthquakes of Kobe, and Bam,2005 Asian; volcanoes of Mt St Helens and Pinatubo, the 2004 Asian Tsunami, Hurricanes Katrina, Wilma, Andrew, Mitch &amp; Charlie.....</li> <li>• Newer, topical or less standard case studies showing obvious personal research should be rewarded</li> </ul>
<p><b>U</b> Understanding of general concepts, case studies, attitudes and values, and the application of data and information to the question, problem or issue.</p>	<p><b>Understanding of the key ideas</b></p> <ul style="list-style-type: none"> <li>• Short onset and long onset hazards may pose differing challenges in understanding occurrence</li> <li>• Knowledge of hazard occurrence may not be matched with a useful knowledge of the timescale (especially earthquakes)</li> <li>• Vulnerability of people contributes to hazard occurrence</li> </ul>
<p><b>C</b> Drawing appropriate conclusions on the basis of evidence, and on going evaluation</p>	<ul style="list-style-type: none"> <li>• Should include a meaningful assessment of the title</li> <li>• Should return to main case studies developed in the essay</li> <li>• Look for ongoing evaluations during essay</li> <li>• Credit those who go beyond simplistic assertive viewpoint that a knowledge of the physical causes of hazards is vital in understanding occurrence</li> </ul>
<p><b>Q</b> Quality of written communication, including the communication of knowledge, ideas and conclusions in a clear and logical order, and the use of appropriate vocabulary</p>	<p><b>As per generic mark scheme</b> Specialist geographical terminology such as quasi natural , prediction and (depending on type of hazards chosen), tectonic, troposphere, global warming, El Nino, mass movement.....</p>

## Option 5.3 The pollution of natural environments

5. 'Pollution is an inevitable consequence of economic growth.' Discuss.

### Notes for Guidance for examiners

The focus of the Option is: *Generalisation 1: Pollution and economic development: Pollution is linked to economic development and may result from primary, secondary or tertiary activity. Some human activities are more likely to lead to pollution than others. Key Question: Why does pollution vary spatially & over time? Guidance: Identifying degrees & scales of pollution, from small to global scales. Investigating links between pollution & economic development e.g. extraction &/or use of mineral & energy resources, industrial processing & manufacture .Identifying activities which lead to increases in pollution e.g. traffic , excessive use of nitrates in agriculture, waste production& dumping.*

The essay is concerned with the **type of linkage** between economic development ( GDP/GNP or newer World Bank classification GNI) and pollution type, amount and impact( Generalisation 2). It involves management and future strategies (Generalisation 3 & 4) because there is evidence that with economic growth higher environmental awareness and public pressure develops to reduce pollution. Simple models may be used , e.g. based on the economist Simon Kuznets. Candidates are invited to investigate that development inevitably brings with it higher resource use, and hence waste- but not necessarily pollution. Economic and industrial restructuring and shifts have meant less land and water pollution in MEDCs but more consumer waste and transport emissions. Development itself needs to be defined; one possible definition is the "improving standards of living resulting from increases in economic prosperity". Increased development is not always linked to more pollution. In fact many of the most polluting countries in the world are 'less developed' , for example Poland, parts of China and the Russian Federation. Developing countries wishing to industrialise can "technologically leapfrog" some of the developed countries who have inherited older, dirtier factory processes (e.g. Malaysia) New industries in developing countries can be built to the latest and most efficient designs. The fact that some are built to poor designs (e.g. Union Carbide's Bhopal plant) is a reflection on poor management decisions in MEDCs rather than "inevitable" processes in development. There has been a reduction in the pollution haven concept as rapid industrialisation of NICs has been accompanied by increased demands for environmental quality& control of pollution, as seen in China especially.

**By examining a range of case studies** with a spatial economic component (MEDC/NIC/LEDC) Expect usual mixture of point and diffuse types: Bhopal, Chernobyl, Exxon Valdez , North Sea, Love Canal but with anomalies such as Curitiba & USA policy on Kyoto. Critically candidates must commit themselves to assessing inevitability.

**Better candidates** will go beyond the outdated Brandt line and introduce NICs and possibly World Bank groupings based on GNI. They may distinguish between point or diffuse sources and whether the pollution is accidental or operational - both of these have an impact on management of pollution and hence the "inevitability" of pollution arising from development. They may highlight the role of pressure groups such as Greenpeace & Friends of the Earth, Government agencies e.g. the Environment Protection Agency of USA & Environment Agency of UK and increased funding & technical assistance is being given to LEDCs by MEDCs to help them control & mitigate the worst pollution effects from economic development, as shown in the World Bank GEF.(Global Environment Facility) and Millennium Development Goal (Goal 7: Ensure environmental sustainability Target 9: Include the principles of sustainable development in policies and reverse the loss of environmental resources)

<p><b>D</b> Introducing, defining and describing the question, problem or issue, and identifying the data/information required to answer it</p>	<p><b>Definitions</b> of types of pollution &amp; economic growth and possibly the concept of 'inevitable'. <b>Justification of case study selection</b> to show that pollution is partly linked to economic growth but also is curbed by it. As a minimum expect MEDC/LEDC split. The essay may also be structured by using classifications: atmospheric/terrestrial/water types or diffuse and point</p>
<p><b>U</b> Understanding of general concepts, case studies, attitudes and values, and the application of data and information to the question, problem or issue.</p>	<p><b>Understanding of the key ideas</b></p> <ul style="list-style-type: none"> <li>• There is a whole spectrum of economic development &amp; pollution types.</li> <li>• There is a positive link between pollution &amp; economic development, but it changes to a negative link with public &amp; government commitment to abatement &amp; control as demands for a high quality of life increases</li> <li>• Anomalies exist- e.g. low economic development high pollution (e.g. indoor fuel use in Ethiopia or water pollution in Nepal) &amp; high economic development &amp; high rates pollution (e.g. USA &amp; CO2 air emissions) or a NIC like Brazil with Curitiba city having low rates.</li> <li>• Pollution is not inevitable, although case studies chosen in more simplistic answers may show this.</li> </ul>
<p><b>C</b> Drawing appropriate conclusions on the basis of evidence, and on going evaluation</p>	<ul style="list-style-type: none"> <li>• Should include a meaningful assessment of the title</li> <li>• Should return to main case studies developed in the essay</li> <li>• Look for ongoing evaluations during essay</li> <li>• Credit those who go beyond simplistic assertive viewpoint that pollution is inevitable as economic development proceeds.</li> </ul>
<p><b>Q</b> Quality of written communication, including the communication of knowledge, ideas and conclusions in a clear and logical order, and the use of appropriate vocabulary</p>	<p>As per generic mark scheme Specialist geographical terminology such as diffuse, point, incidents, GDP/GNP/GNI.....</p>

To what extent does either atmospheric pollution or water pollution vary from place to place?

**Notes for Guidance for examiners**

5.3 The focus of the Option is: *Generalisation 1: Pollution and economic development, Generalisation: Pollution is linked to economic development and may result from primary, secondary or tertiary activity. Some human activities are more likely to lead to pollution than others. Key Question: Why does pollution vary spatially & over time? Guidance: Identifying degrees & scales of pollution, from small to global scales. Investigating links between pollution & economic development e.g. extraction &/or use of mineral & energy resources, industrial processing &*

*manufacture .Identifying activities which lead to increases in pollution e.g. traffic , excessive use of nitrates in agriculture, waste production& dumping.*

The essay is concerned with the type of linkage between economic development ( GDP/GNP or newer World bank classification GNI) and pollution patterns and their development geographically, in types and quantities of emission. Water pollution will have physical constraints of water bodies, rivers, seas, unlike atmospheric pollution which is even more trans- boundary. Credit those who show by selected case studies that there are local, national patterns, related to economic activity. There is evidence that with economic growth higher environmental awareness and public pressure develops to reduce pollution. Simple models may be used , e.g. based on the economist Simon Kuznets. Candidates are invited to investigate that development inevitably brings with it higher resource use, and hence waste- but not necessarily pollution. Economic and industrial restructuring and shifts have meant less water pollution in MEDCs but more consumer waste and transport linked air emissions. Increased development is not always linked to more pollution. In fact many of the most polluting countries in the world are 'less developed', for example Poland, parts of China and the Russian Federation. Developing countries wishing to industrialise can "technologically leapfrog" some of the developed countries who have inherited older, dirtier factory processes (e.g. Malaysia). New industries in developing countries can be built to the latest and most efficient designs. The fact that some are built to poor designs (e.g. Union Carbide's Bhopal plant) is a reflection on poor management decisions in MEDCs rather than "inevitable" processes in . There has been a reduction in the pollution haven concept as rapid industrialisation of NICs has been accompanied by increased demands for environmental quality& control of pollution, as seen in China especially.

**By examining a range of case studies** with a spatial component probably linked to economic development(MEDC/NIC/LEDC) Expect usual mixture of point and diffuse types: Bhopal, Chernobyl, Exxon Valdez, Minimata, R Rhine & North Sea, but with anomalies such as Curitiba & USA policy on Kyoto. Critically only one type of pollution should be used and an evaluation of whether random patterns or distinct patterns result. Water pollution should include marine and fresh water.

**Better candidates** will examine a range of scales/locations and link these specifically to types of economic activity. They will have detailed knowledge of international and national & even local efforts to reduce pollution, which affects spatial patterns. They may choose, for example oil spills, which have less relationship to economic development to show complexity of the topic. They may distinguish between point or diffuse sources and whether the pollution is accidental or operational - both of these have an impact on management of pollution which in turn affects spatial patterns. They may highlight the role of pressure groups such as Greenpeace & Friends of the Earth, Government agencies e.g. the Environment Protection Agency of USA & Environment Agency of UK and increased funding & technical assistance is being given to LEDCs by MEDCs to help them control & mitigate the worst pollution effects from economic development, as shown in the World Bank GEF.(Global Environment Facility) and Millennium Development Goal (**Goal 7: Ensure environmental sustainability Target 9: Include the principles of sustainable development in policies and reverse the loss of environmental resources**)

<p><b>D</b> Introducing, defining and describing the question, problem or issue, and identifying the data/information required to answer it</p>	<p><b>Definitions of atmospheric/water pollution &amp; spatial patterns possibly linked to economic development types. Justification of case study selection to show that air/water pollution has patterns partly linked to economic growth but also curbed by it.</b> As a minimum expect MEDC/LEDC split. The essay may also be structured by using classifications: diffuse and point, small scale/global scale.</p>
<p><b>R</b> Researching relevant sources, selecting appropriate case study material and using this knowledge in detail</p>	<p><b>A balanced range of case studies with knowledge of specifics/depth &amp; range of selected &amp; appropriate case studies which might include:</b></p> <ul style="list-style-type: none"> <li>• Traditional case studies: Bhopal, Chernobyl, Exxon Valdez , Minimata, R Rhine, North Sea, but with anomalies such as Curitiba &amp; USA policy on Kyoto Ozone depletion(1987 Montreal protocol) and acid rain(1999 Gothenburg Protocol), control, may feature.</li> <li>• Credit obvious personal &amp; topical research eg on global warming &amp; post Kyoto or latest stewardship schemes in European agriculture linked to reduced water pollution. Credit reference to Millennium Development Goals</li> </ul>
<p><b>U</b> Understanding of general concepts, case studies, attitudes and values, and the application of data and information to the question, problem or issue.</p>	<p><b>Understanding of the key ideas</b></p> <ul style="list-style-type: none"> <li>• There is a whole spectrum of economic development which produces spatial patterns of water/air pollution.</li> <li>• Spatial means from local to national to global scale- not all may be covered in essay</li> <li>• There is a positive link between pollution &amp; economic development, but it changes to a negative link with public &amp; government commitment to abatement &amp; control as demands for a high quality of life increases. Spatial patterns hence affected by management( Generalisation 3&amp;4)</li> <li>• Anomalies exist- e.g. low economic development high pollution( e.g. indoor fuel use in Ethiopia or water pollution in Nepal) &amp; high economic development &amp; high rates pollution( e.g. USA &amp; CO2 air emissions) or a NIC like Brazil with Curitiba city having low rates.</li> <li>• Pollution is trans -boundary, especially air pollution often needing international management agreements which alter spatial patterns</li> </ul>
<p><b>C</b> Drawing appropriate conclusions on the basis of evidence, and on going evaluation</p>	<ul style="list-style-type: none"> <li>• Should include a meaningful assessment of the title</li> <li>• Should return to main case studies developed in the essay</li> <li>• Look for ongoing evaluations during essay</li> <li>• Credit those who go beyond simplistic assertive viewpoint that there is a spatial pattern but unsure what it might be!</li> </ul>

<p><b>Q</b> Quality of written communication, including the communication of knowledge, ideas and conclusions in a clear and logical order, and the use of appropriate vocabulary</p>	<p><b>As per generic mark scheme</b> Specialist geographical terminology such as diffuse, point, incidents, GDP/GNP/GNI.....</p>
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## Option 5.4 Wilderness Environments

7. 'The conflict between economic development and conservation in wilderness areas may never be resolved.' How far would you agree with this statement?

### Notes for Guidance for examiners

**The focus of the option : Generalisation 3: Managing conflict in wilderness areas.** The conflict between economic development (e.g. mineral development, tourism) and conservation may not be reconcilable. Some pressures can be more easily managed (e.g. eco tourism) than others in maintaining wilderness quality. **Key Question** How & why might protection constrain or conflict with economic development? How can such pressures be managed? By whom & with what effects? **Guidance:** investigating strategies used to protect wilderness areas at different scales (eg globally-World Heritage Coasts, nationally- national parks) by whom are they introduced, with what purpose,& with what effects. Identifying wilderness areas whose environments have been less successfully managed & assessing reasons for this(e.g. tourist pressure Himalayas).Identifying strategies which might be introduced to resolve conflicting demands(e.g. ecotourism) & assessing the effectiveness of such strategies

**The essay is concerned with managing conflicts** between development, often for areas outside the actual wilderness, and protection of the physical environment and possibly indigenous population. The key word is **resolvable**, i.e. can compromises be made by management strategies to reduce/stop the conflicts? **By examining a range of case studies:** to show **some pressures** may be more easily managed e.g. tourism/ecotourism in Peru or Australia, contrasted with resource exploitation of Amazonia or Sarawak which negates conservation efforts. Antarctica is the extreme case study of a moratorium on mining/development with restricted other economic development such as fishing & tourism. **Better candidates** may use different scales e.g. World Heritage sites. At national scale, National Parks may have been created to reconcile conflicting demands. Wildernesses often have strategies of zoning. The impacts of development on indigenous people may be considered, similarly conservation strategies which change their life style- as in Korup or Ngorongoro.

<p><b>D</b> Introducing, defining and describing the question, problem or issue, and identifying the data/information required to answer it</p>	<p><b>Definitions of:</b> type of conflicts, possibly on a time scale of long standing/new between development types and protection needs. Includes definition of wilderness, may refer to continuum model, or economic development spectrum. <b>Justification of case study selection:</b> where conflicts are/are not reconcilable, (resolved) possibly different scales or levels of economic development</p>
<p><b>R</b> Researching relevant sources, selecting appropriate case study material and using this knowledge in detail</p>	<p><b>A balanced range of case studies with knowledge</b> likely to range from: Amazon to Cairngorms, Alaska to Amboseli, Kakadu to Utah. Antarctica will probably feature. Where conflicts are not so easily reconcilable: Amazon, Ngorongoro Where conflicts are reconcilable: Antarctica, Kakadu Reward up to date information on the wilderness areas chosen</p>
<p><b>U</b> Understanding of general concepts, case studies, attitudes and values, and the application of data and information to the question, problem or issue.</p>	<p><b>Understanding of the key ideas</b></p> <ul style="list-style-type: none"> <li>• A range of possible outcomes: from mainly irreconcilable to more reconcilable</li> <li>• Some types of economic development are more compatible with tourism e.g. eco tourism.</li> <li>• If indigenous people are involved, strategies may be made to balance economic development with conservation e.g. Kakadu.</li> </ul>
<p><b>C</b> Drawing appropriate conclusions on the basis of evidence, and on going evaluation</p>	<ul style="list-style-type: none"> <li>• Should include a meaningful assessment of the title</li> <li>• Should return to main case studies developed in the essay</li> <li>• Look for ongoing evaluations during essay</li> <li>• Credit those who go beyond simplistic assertive viewpoint that all economic development is irreconcilable</li> </ul>
<p><b>Q</b> Quality of written communication, including the communication of knowledge, ideas and conclusions in a clear and logical order, and the use of appropriate vocabulary</p>	<p>As per generic mark scheme. Specialist geographical terminology such as wilderness continuum, carrying capacity, core-buffer zoning, Biosphere reserves....</p>

8. 'When trying to maintain wilderness quality, some pressures are more easily managed than others.' Discuss.

**Notes for Guidance for examiners**

The focus of the option: *Generalisation 3: Managing conflict in wilderness areas. The conflict between economic development (eg mineral development, tourism) and conservation may not be reconcilable. Some pressures can be more easily managed (eg eco tourism) than others in maintaining wilderness quality. Key Question How & why might protection constrain or conflict with economic development? How can such pressures be managed? By whom & with what effects? Guidance: investigating strategies used to protect wilderness areas at different scales (eg globally-World Heritage Coasts, nationally- national parks) by whom are they introduced, with what purpose, & with what effects. Identifying wilderness areas whose environments have been less successfully managed & assessing reasons for this(eg tourist pressure Himalayas). Identifying strategies which might be introduced to resolve conflicting demands(eg ecotourism) & assessing the effectiveness of such strategies*

The essay is concerned with the conflicts generated by contrasting pressures on wildernesses and how they might best be managed. The pressures chosen should range from for example resource extraction, HEP projects to tourism and possibly scientific research. Reasons centre around the type of pressure( tourism may have less irreversible effects than eg mineral development) The reasons for ease of management also depends on scale, accessibility, vulnerability of natural ecosystems, involvement of local people, finances and government stability and international efforts.

By examining a range of case studies at different scales and locations showing different management strategies eg Antarctica compared with Amazonia, possibly with a framework of successful/unsuccessful types/egs clearly linked to pressure and wilderness quality

Better candidates will investigate who are the managers, and the restrictions/opportunities for management strategies both positive and negative. They may use a framework such as economic, social and physical reasons for ease of management. They will see beyond the concept of 'easily managed'.

<p><b>D</b> Introducing, defining and describing the question, problem or issue, and identifying the data/information required to answer it</p>	<p><b>Definitions</b> of wilderness quality, pressures, management and easily (NB 'easily' not the same as successfully, although related) <b>Justification of case study selection</b> to show a range of pressures eg tourism in Antarctica or the Himalayas or Tsavo NP eg mineral extraction in Kakadu or Alaska eg needs/rights of indigenous people in Kakadu or Korup Alternatively justification may be by scale or preferably reason(economic/social/physical)</p>
<p><b>R</b> Researching relevant sources, selecting appropriate case study material and using this knowledge in detail</p>	<p><b>A balanced range of case studies with knowledge of specifics/depth &amp; range of selected &amp; appropriate case studies</b> which might include:</p> <ul style="list-style-type: none"> <li>• Antarctica, as the largest wilderness with unique international moratorium on development and a management strategy which although not easy to originally set up has lasted so far</li> <li>• Kakadu, active involvement of indigenous people + MEDC status so financial stability</li> <li>• Alaska, not easy to manage because of increasing pressures for minerals, and a variety of conservation areas like Denali.</li> </ul>
<p><b>U</b> Understanding of general concepts, case studies, attitudes and values, and the application of data and information to the question, problem or issue.</p>	<p><b>Understanding of the key ideas</b></p> <ul style="list-style-type: none"> <li>• Wilderness quality varies</li> <li>• Pressures and management solutions differ in scale, origin, longevity.</li> <li>• Ease of management includes practical, financial, sustainability concepts</li> <li>• Increasingly international pressures from globalisation, technology which have led to increasing numbers of management strategies from national to international scale</li> <li>• LEDCs/NICs may have differing pressures and strategies to MEDCs</li> </ul>
<p><b>C</b> Drawing appropriate conclusions on the basis of evidence, and on going evaluation</p>	<ul style="list-style-type: none"> <li>• Should include a meaningful assessment of the title</li> <li>• Should return to main case studies developed in the essay</li> <li>• Look for ongoing evaluations during essay</li> <li>• Credit those who go beyond simplistic viewpoint that some pressures are more easily manageable without explaining why or how.</li> </ul>
<p><b>Q</b> Quality of written communication, including the communication of knowledge, ideas and conclusions in a clear and logical order, and the use of appropriate vocabulary</p>	<p><b>As per generic mark scheme</b> Specialist geographical terminology such as wilderness continuum, carrying capacity, core-buffer zoning, Biosphere reserves.....</p>