

# Antarctica

Extended answers

# 20 Mark Question

One way students could structure their response:

- 10% – introduction
- 80–90% – main body
- 10% – conclusion

Students should:

- ensure, where appropriate, that there is a balance of discussion and use of evidence. Utilising data will potentially allow students to demonstrate detailed knowledge and understanding of concepts, processes and interactions, in particular case study data, which should underpin the response throughout
- engage with the command word, e.g. responses that ask ‘to what extent’ should have a clear decision on what extent the student agrees/disagrees with the point of view presented in their response
- write concisely to answer questions

## Introduction:

- Define key terms in the title
- Clearly state your intent

**Main Body:** Remember PEEL – **P**oint, **E**xplanation of point, **E**xemplification to support point made, **L**ink to the question. *Can you link your points to:*

- ***time or scale*** eg *Whereas x factor has a significant influence over a long time y factor is more influential in the short term.*
- ***Social, economic, environmental factors*** eg *Although has engineering approaches are criticised for their unsustainable impact on the environment they can be view has being a solution to provide economic sustainability.*
- ***Different stakeholders*** eg *Those working for the government may have very different and conflicting opinion's to the local community*

Supporting evidence x 2/3 points

Evidence against x 2/3 points

**Conclusion:** Summarise main points. Make insightful judgements to reach an explicit conclusion.

# EXAM PRACTISE: Breaking down an Essay title

1. Highlight terms you want to define

2. Annotate with key words

3. Think about your view point

Think of view point and give evidence to support that view. State your intent. Need terms like “partially agree” or “fully agree”

‘In a globalising world the use of the global common of Antarctica can never be sustainable.’  
How far do you agree with this view? (20 marks)

## Global commons:

Definition, give examples of how they are managed (economic and political interdependence)

## Antarctica

Give some brief facts and figures about Antarctica – show location knowledge, potential resources, threats

## Sustainable:

Define sustainability - what does a sustainable future for Antarctica look like?

AO1 – Knowledge and understanding of the various human threats to Antarctica and the way these are managed, including the growing levels of economic and political interdependence on a global scale.

AO2 – Application of knowledge and understanding to analyse and evaluate the extent to which sustainable use of the resources of Antarctica can be achieved in an increasingly globalising world.

# 20 mark question – expected content

## AO1

- The form and nature of globalisation, including environmental, political and economic impacts.
- Fishing in the Southern Ocean has been exploited for a variety of fish, such as Antarctic rock cod (now so depleted that it cannot be fished), icefish and more recently the Patagonian toothfish.
- Over-fishing and whaling are major threats to the region. Illegal, unregulated and unreported (IUU) fishing in the Southern Ocean threatens fish stocks and the seabirds and marine mammals that depend upon them.
- Whaling and sealing - early exploitation was far from sustainable, with species hunted to near extinction and no steps introduced to reduce or stop the exploitation until very late on, almost too late.
- Fishing limits are put in place (maximum sustainable yield) but these are exceeded and it is believed that actual amounts taken are 5 times the official figures. There is careful monitoring of Krill which is the staple of the marine ecosystem and if overfished has implications for the whole food chain.
- Tourism in Antarctica has seen significant increase in recent years with approximately 30000 arrivals per year. Most visitors arrive by boat and are taken ashore in limited numbers. It is an expensive destination, very little litter/waste is left and research suggests that seals and penguins are not affected by tourists. Of the landing sites 95% are not damaged.
- Marine pollution from tourist and other sources is a threat, for instance the sinking of the M/S Explorer off south Shetland Islands in 2007.
- IAATO guidelines are designed to manage impacts of tourism. However, membership of IAATO is not compulsory and so Antarctic and Southern Ocean Coalition (ASOC) suggest limiting the total number of tourists, method of arrival, no land-based development, no air travel allowed, for example.
- Pollution by tourists, fishing industry and scientist communities actually or potentially affects the Antarctic environment. Discarded plastic, fishing nets and hooks, organic waste, and sewage all contribute to environmental degradation. Other possible pollution sources include chemicals in the atmosphere, brought into the area by winds and sea currents, and damage to the upper atmosphere/ozone layer caused by CFCs or their successors.
- The role of the 'global commons' in relation to Antarctica and the role of international government organisations such as the International Whaling Commission and United Nations.
- The concept of sustainability in relation to Antarctica whereby the use of the area does not lead to irrevocable environmental damage, but leaves it for future generations to experience. So too is the potential for economic sustainability, dependent on the activity and is linked to careful management.

# 20 mark question – expected content

## AO2

- Evaluation of the effects of increased globalisation, with combined pressures of economic, technological, environmental, and other trends, and pressures for new initiatives to establish a regime for minerals exploitation and other forms of economic activity.

- Conversely globalisation may also result in dangers of greater levels of exploitation and environmental damage, including effects of climate change, which impinges on Antarctica.

- Analysis of the wider threats posed by climate change associated with human activity and affecting long term use and sustainability. Warming of the ice cap is leading to melting ice as well as disturbance to ecosystems. Floating icebergs present a threat to shipping and trade. If the atmosphere continues to warm, krill populations could be devastated, undermining the entire southern polar food chain, thus undermining environmental sustainability.

- Analysis of the distinction between renewable and non-renewable resources in the Antarctic region, suggesting that renewable resources can be sustainably managed whereas non-renewable cannot.

- Evaluation of the sustainability of fishing: this may be at more sustainable levels at present largely due to the break-up of the Russian fleet. Fishing is monitored in the Southern Ocean by the Convention on the Conservation of Antarctic Marine Living Resources. Fishing clearly has the potential to be sustainable – but the management of the resource is variable.

- Evaluation of the potential unsustainability of recent revival of whaling. While commercial whaling is prohibited in the Southern Ocean Whale Sanctuary, Japan has continued to hunt whales inside the Sanctuary for the purposes of scientific research.

- Evaluation of the sustainability of tourism: the need for caution due to the fragility of the Antarctic environment. The effectiveness of IAATO and ASOC guidelines are likely to feature here. These ASOC measures are more stringent – but may encourage more sustainable use of the area. Impact studies by Scott Polar Research Institute show that tourism largely positive, with excellent educational provision on board ships that are visiting. Tourism perhaps offers the best hope for sustainability of the more recent developments, although in a globalising world tourist pressures are likely to increase.

- Evaluation of balance between management and protection – allowing the area to be seen, visited, developed to a degree, but simultaneously protected from damage. The Antarctic Treaty and its role is likely to be investigated and its significance in offering protection from certain types of development, including mineral exploration. Credit the view that in a globalising world, word is spreading (through eg Greenpeace - an international organisation) just how fragile and important Antarctica is and therefore conservation is occurring.

- Analysis of the potential impacts of oceanic acidification (from extra dissolved carbon dioxide) on environmental sustainability, already leading to the loss of some marine snails thought to have a significant part to play in the oceanic carbon cycle. Breeding populations and ranges of some penguin species could potentially be altered irrevocably.

- Analysis of the effectiveness of international scale protection of Antarctica through frameworks such as the United Nations Environment Programme, and resource management such as the IWC Whaling Moratorium, and the extent to which they help to achieve sustainability. With increasing globalisation the issue of the protection of Antarctica becomes more pressing.

- Overall evaluation of the question, giving consideration to the various uses of and threats to the Antarctic region in a globalising world, the effectiveness of international agencies, reflecting emerging global governance in resisting the threats and attempts to achieve environmental and/or economic sustainability.

- Conclusion may recognise that whilst the main focus to date has been on relatively successful protection, conservation and scientific research, current controversies involving illegal, unregulated and unreported fishing, the Law of the Sea, tourism and whaling are likely to provoke serious challenges for the governance and sustainability of Antarctica.

# Peer Assessment

- When reading the 20-mark answer, use the following key in the margin or highlight parts of the text in different colours

AO1 – Knowledge and understanding of the various human threats to Antarctica and the way these are managed, including the growing levels of economic and political interdependence on a global scale.

AO2 – Application of knowledge and understanding to analyse and evaluate the extent to which sustainable use of the resources of Antarctica can be achieved in an increasingly globalising world

## **AO1**

- K & U knowledge and understanding of place(s) and environments
- C & P knowledge and understanding of key concepts and processes
- S & T awareness of scale and temporal change

## **AO2**

- A & E analysis and evaluation in the application of knowledge and understanding
- Links – links between knowledge and understanding to the application of knowledge and understanding in different contexts
- Conc – evaluative conclusion that is applied to the context of the question
- The distinction between ‘analysis and evaluation’ and ‘evaluative conclusion’ is that the conclusion should come to an overall judgement related to the steer of the question, e.g. as prompted by the command words ‘to what extent...’ and ‘assess the extent to which...’ etc.

## A01

### K & U

Knowledge and understanding of Antarctica and the threats to it and how to sustainability manage. Students should use specific names, threats with data to support. Generic information should be avoided.

### C & P

Knowledge and understanding of key concepts and processes related to globalisation, global commons, sustainability, etc.

### S & T

Awareness of scale and temporal change to the issues faced by Antarctica. The notes for answers have some good information regarding change over time, eg by climate change etc.

## A02

### A & E

Showing an understanding of the complexity of the issue and how different uses pose different sustainability issues etc. Discussion surrounding how the interconnections of the impacts, role of management etc.

### Links

This may include areas such as linking to their knowledge of the water and carbon cycle, when considering aspects like climate change. This is a synoptic element.

### Conclusion

A clear decision is made that is based on the evidence presented. There is no correct conclusion students are expected to reach.

**L4 - Reach an explicit conclusion. This may be a justification of your opinion or clear appreciation of the complexities/ different opinions of different stakeholders**

**Answering 20 mark questions**

- 20 marks = 25 minutes
- 2 pages of A4
- Make a plan of key points before

Level / Mark Range	Criteria / Descriptor
Level 4 (16 – 20 marks)	<ul style="list-style-type: none"> <li>• Detailed evaluative conclusion that is rational and firmly based on knowledge and understanding which is applied to the context of the question. Interpretations are comprehensive, sound and coherent. (AO2)</li> <li>• Detailed, coherent and relevant analysis and evaluation in the application of knowledge and understanding throughout. (AO2).</li> <li>• Full evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2).</li> <li>• Detailed, highly relevant and appropriate knowledge and understanding of place(s) and environments used throughout (AO1).</li> <li>• Full and accurate knowledge and understanding of key concepts, processes and interactions and change throughout (AO1).</li> </ul>
Level 3 (11 – 15 marks)	<ul style="list-style-type: none"> <li>• Clear evaluative conclusion that is based on knowledge and understanding which is applied to the context of the question. Interpretations are generally clear and support the response in most aspects (AO2).</li> <li>• Generally clear, coherent and relevant analysis and evaluation in the application of knowledge and understanding. (AO2).</li> <li>• Generally clear evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2)</li> <li>• Generally clear and relevant knowledge and understanding of place(s) and environments (AO1).</li> <li>• Generally clear and accurate knowledge and understanding of key concepts, processes and interactions and change (AO1).</li> </ul>
Level 2 (6 – 10 marks)	<ul style="list-style-type: none"> <li>• Some sense of an evaluative conclusion partially based upon knowledge and understanding which is applied to the context of the question (AO2). Interpretations are partial but do support the response in places.</li> <li>• Some partially relevant analysis and evaluation in the application of knowledge and understanding. (AO2).</li> <li>• Some evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2)</li> <li>• Some relevant knowledge and understanding of place(s) and environments which is partially relevant. (AO1).</li> <li>• Some knowledge and understanding of key concepts, processes and interactions and change. There may be a few inaccuracies (AO1).</li> </ul>
Level 1 (1 – 5 marks)	<ul style="list-style-type: none"> <li>• Very limited and/or unsupported evaluative conclusion that is loosely based upon knowledge and understanding which is applied to the context of the question (AO2). Interpretation is basic.</li> <li>• Very limited analysis and evaluation in the application of knowledge and understanding. This lacks clarity and coherence (AO2).</li> <li>• Very limited and rarely logical evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2)</li> <li>• Very limited relevant knowledge and understanding of place(s) and environments (AO1).</li> <li>• Isolated knowledge and understanding of key concepts, processes and interactions and change. There may be a number of inaccuracies. (AO1).</li> </ul>
Level 0 (0 marks)	<ul style="list-style-type: none"> <li>• Nothing worthy of credit.</li> </ul>

**L4 – relevant connections. Clear understanding of how one factor**

**All points supported by place specific evidence**

**Clear conclusions made in L3**

**Evidence must be present to move into L2**

**Consideration of both sides of the argument needed in L2**

## Student response 1

There are various views and opinions both supported with evidence with whether the use of Antarctica as a global common is sustainable or not. Firstly a global common is a resource domain that is not influenced by politics or part of any given country meaning it is open to use to all countries.

A view that supports the statement is the mass hunting of seals in and around the Antarctic and Southern Ocean in the 1960's. Seals were almost hunted to extinction which strongly supports that Antarctic use as a global common is unsustainable as the seals would not be available for future generations. However, seal hunting was banned under the Antarctic treaty and seal populations have returned to sustainable levels this reflects that due to treaties like the Antarctic treaty use as a global common can be sustainable if managed correctly and effectively.

A contrasting view that the Antarctic can be used sustainably as a global common is how long many countries have used Antarctica for scientific research with no or very limited adverse effects on the environment. Organisations like SCAR conduct research but also monitor their environmental impact on the continent suggesting that use of Antarctica scientifically has been and will continue to be sustainable, however, if scientific research was to increase potential environmental hazards like oil spills from boats will become increasingly likely and can only be managed to a limited extent due to the accidental nature. This could be seen to support the view as regardless of treaties, international law and regulations if Antarctica is used as a global common there will always be some kind of negative environmental impact.

Another main factor influence whether Antarctica can be used as a global common is climate change, due to rising temperature. Ice has melted and is continuing to melt exposing more rock and making access to potential natural resource deposits like oil accessible to countries any MNC's, in the long term. This could be argued that if exploited Antarctica can not be used sustainably, however so far due to regulation like the Antarctica treaty there has been no mineral exploitation and is followed properly will not be any for 50 years where the treaty will most likely be renewed, but this will be affected by a globalising world.

In conclusion, there are multiple viewpoints on whether use of Antarctica as a global common is sustainable, but the evidence supports that Antarctica can be used sustainably if regulations that are current are followed.

## Student response 2

Antarctica is a global common, a resource domain/area lying outside of political reach of any one nation state. The sustainability of Antarctica has been questioned in recent years due to the recent influence of globalisation throughout the world, threatening the sustainability of this common.

On the other hand the evidence against the statement has shown that: in a globalising world the use of Antarctica can be sustainable. Antarctica can be used for mineral extraction and resource extraction. It has been recently thought that there may be vast fields beneath the Ross and Weddell Sea as well as deposition of coal and minerals for example: copper and iron in the north. These resources could help as the demand for energy and fuel is increasing with the rapid globalisation however, even though this is the case Antarctica remains a sustainable place for short-term due to the Antarctic Treaty and Madrid Protocol (1998). Ensuring, Antarctica remains a sustainable place away from the threats of a globalising world, as the resources of Antarctica cannot be ruined for extracted as it would break the treaty. However, there is a time limit to this, the Madrid Protocol (1998) will be renewed in 2048 which may threaten the sustainability of the common, as world demand for resources increases due to globalisation where countries are becoming more interdependent with an increase in variety of cross-border transactions in goods and services as well as the underspread diffusion of technology threatening the common. Furthermore, the evidence does suggest that the global common of Antarctica can be used sustainably – this can be achieved through organisations for example the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) which as part of the Antarctic Treaty, aims to conserve Antarctic Marine species by setting catch limits which aims to keep in balance conservation to use of the resources to avoid depletion in fish stock. This means that even in a rapidly globalising world all countries have to abide by CCAMLR thus protecting Antarctica's sustainability. However, evidence supporting the view that Antarctica cannot be used sustainably in a globalising world suggests that even with these protective regulations in place (as well as ASOC part of the high sea's alliance working to conserve areas of the ocean that are out of nation jurisdiction as well as krill conservation programmes), the Antarctic common is still subject to over-fishing (particularly in the Southern Ocean for Krill and Antarctic Rock Cod). Illegal, unregulated and unreported fishing continues, Antarctica is not being used sustainably by all resulting in fisheries e.g. marbled rock cod fishery closing down as a result. It goes against Brundtland's definition of Sustainability (1987), while the needs (or greed) of present generation is being met, we are in-doing so, threatening and compromising the ability of future generations to meet their own needs.

On the other hand, the evidence supporting the statement agrees that Antarctica cannot be used sustainably in a globalising world for the reason that, as the world is in a process of globalisation the rate of diffusion of technology is increasing amongst countries this means that a larger number of tourists are able to access its commons 'safely' which can cause some environmental distress and disruption to breeding grounds. For example: Marine Pollution is a major threat from tourist ships. In 2007 cruise ship MS Explorer hit an iceberg and sank off the South Shetland Islands in the Southern Ocean, as well as Ocean pollution oil spills from the ships. Sources also suggest that Antarctica is being used as a 'playground' for rich tourists. However, contrary to this IAATO (1991) promotes safe and environmentally friendly travel to Antarctica. This is achieved through limited numbers taken ashore, conservation talks and leaving little waste behind. (95% landing sites are not damaged). Scientific research also suggests that penguins are not affected by tourists therefore, Antarctica is being used sustainably by tourists currently.

In conclusion, the evidence suggests that the use of Antarctica can be sustainable in a globalising world with the use of successful global governance (eg work with CCAMLR). However, evidence also suggests that the sustainability has a timescale – the global common can be used sustainably in the short-term (Antarctic Treaty and Madrid Protocol) however, its future sustainability is uncertain as the treaty will be revised and exploitation may be allowed in the area through

pressures from countries (eg Japan) as well as the overall pressure of meeting the needs of the globalising world. Unlike the short-term, the long-term sustainable use of the common is uncertain, this is due to the final uncertainty of the global governance of Climate change – putting sustainability of Antarctica into question with air temperatures increasing by 3 degrees Celsius as well as the ice sheet in western Antarctica becoming thinner as a result. In a globalising world, the use and sustainability of Antarctica is uncertain.