**TASK: CASE STUDY Part 2 – Sustainable Management**

1. **Holderness Coastal Flood Risk and Erosion Management**

**Defending Holderness – the challenges of sustainable management?**

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**Watch part 3 & 4 of the video: Defending the coast (11.49 min +):** [**http://estream.godalming.ac.uk/View.aspx?ID=4586~4x~8zS48MtV**](http://estream.godalming.ac.uk/View.aspx?ID=4586~4x~8zS48MtV)

1. Mappleton – give the two main reasons why coastal protection is present here?
2. Who has benefitted from coastal defences and how long is this guaranteed?
3. Name other justifiable reasons for defending the coast
4. Summarise the impacts on the rest of the coastline
5. How much does East Riding Council spend on maintenance of defences?
6. Why is building and maintaining coastal defences not a sustainable long-term strategy?

**Sustainable approaches to coastal flood risk and coastal erosion management along the Holderness Coast**

The Flamborough Head to Gibraltor Point SMP is a plan for managing coastal flood and erosion risk for stretches of coastline in the short term (up to 2025), the medium term (2026 – 2055) and the long term (up to 2105). The main aim of the SMP is to develop a sustainable management approach (actions that do not cause problems elsewhere – **see 4 main options below**) for the shoreline that takes account of the key issues and achieves the best possible balance of all the values and features that occur around the shoreline over the next **100 years**. This needs to recognise the strong relationship **with social, economic and environmental activities** around the shoreline.

**Four options** are outlined:

* **No active intervention (monitor and review)** – There is no planned investment in defending against flooding or erosion, whether an artificial defence has existed previously. Let nature take its course.
* **Managed realignment / retreat** – Allowing the shoreline to move naturally but managing the process to direct it in certain areas. This is usually done in low-lying areas but may occasionally apply to cliffs.
* **Hold the (existing defence) line** – An aspiration to build or maintain artificial defences so that the position of the shoreline remains (often using hard engineering methods).
* **Advance the line** – New defences are built on the seaward side. Extending the coastline out to sea, e.g., encouraging the growth of beaches.

Shoreline management plans try to decide the most appropriate scheme in discussion with all interested parties:

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**Decisions can be taken using various types of assessments:**

* **Cost-benefit analysis** considers the social and economic aspects of a strategy. The benefits of a scheme (new businesses or jobs and savings in lives and property) are divided by the costs of building and maintaining it.
* **Environmental impact assessments** try to assess the effects upon an area.
* **Feasibility studies** look at the technical merits of a particular scheme and site. Is the engineering planned suited to the local geology or coastal processes?
* **Risk assessment** involves taking decisions in the light of the likely recurrence interval and what is at risk.

**Diagram

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**What might the challenges of a sustainable approach, such as a SMP, to coastal management be? Find out by completing the decision-making exercise!**

**Holderness Sustainable Coastal Management: DECISION MAKING EXERCISE**

**The Holderness Coast is threatened by the process of erosion and in addition the beach areas, which are important for tourism around some locations, are being depleted at an alarming rate. Land has been reclaimed in the Humber estuary and this is now being used for industry; a key location as it will boost the local economy and marks the edge of the river and the beginning of the coastline.**

**The aim of this exercise is for you to develop ideas for a Shoreline Management Plan for whole of the Holderness Coast whilst considering:**

1. existing coastal defence and the use of the land being protected
2. coastal processes in operation along the whole of the coast
3. current research into sediment movement along Holderness

You have been allocated one of the seven sites along the Holderness coast, where coastal management is taking place. You have to choose the best option for the future. **You need to put forward your recommendation for managing the coastline in the future to the council at the next meeting choosing from one of the four management options. You will do this after completing the following 3 activities:**

1. Information Sorting – get the information together for your allocated section of coastline. Classify into: social, economic, environmental considerations and summarise them for your bit of coastline

A picture containing map

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|  |  |
| --- | --- |
| **Factors** | **Summary sentence of key points for your coastline** |
| Social / Socio-economic |  |
| Economic |  |
| Environmental |  |

1. **For each of the 4 main management options, carry out a cost-benefit assessment using the key points below to complete your matrix. Use the key or devise your own.**

|  |  |
| --- | --- |
| **MAIN points to consider:** | **KEY:** |
| **Technically possible** – is it practically possible to put the defence plan into operation? E.g. will it interfere with existing operations like ship navigation or access? | **Y or N** |
| **Costs** – Is it financially viable? How much does it cost – cheap or expensive solution? Is the land cost worth protecting? | **£= cheap, ££ = expensive** |
| **Built environment** – impact on local economy – will it affect tourism, land use or industry? | **+, - or neutral (+/-)** |
| **Natural environment** – damage to natural environment or conservation? | **+, - or neutral (+/-)** |
| **Coastal processes** – impact on sediment flow and erosion rates – does it work with nature? | **+, - or neutral (+/-)** |
| **Other sites** – where erosion is prevented, there is a lack of sediment from the cliffs that may be transported along the coast to protect other sites? | **+, - or neutral (+/-)** |
| **Sustainable** – economically sustainable or will it deplete financial resources elsewhere? Environmentally sustainable – can it protect whilst enabling nature to have its way? | **+, - or neutral (+/-)** |

Table

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Note: The 3 extra points in the matrix above may or may not be relevant to your site…

1. **Group Presentation: Final Recommendation**

You will need to discuss your allocated section of coastline and state which of the 4 management options (or a combination) you would recommend for your area based the evidence and your cost-benefit assessment.

Which **one approach or a combination of options**? Why? What costs are involved? Why not other options?

**STATEMENT:**

**EXAM STYLE QUESTIONS: APPLYING YOUR KNOWLEDGE TO ESSAY QUESTIONS**

***Use the Holderness scan.pdf (pages 129-131 of the scan)***, and Google satellite, investigate the **downdrift impacts** of coastal defences on beaches and cliff erosion.

**9 mark essay questions to answer:**

1. Explain how a variety of coastal features may form to create a distinctive coastal landscape **[9 marks – tutor 2 u]**
2. **ASSESS the economic and social losses faced by people along the Holderness coastline. [9 marks]**
3. **To what extent will global warming affect the Holderness coastline? [ 9 marks]**

Include in your answer:

* + Consider the possible impacts on coastal process and landforms
  + Impact on the sediment cell
  + Impacts on people
  + A conclusion – what are the greatest impacts going to be? What should be done with the Holderness coastline in terms of coastal management.

**20-mark essay questions to have a go at planning:**

* ‘No amount of coastal intervention by people can halt the natural processes which continue to present potentially serious risks to coastal communities now and even more so in the future.’

To what extent do you agree with this view? **[20 marks]**

* Human activity always has a negative impact on the development of landforms of coastal deposition.’ To what extent do you agree with this view? (AS 2019) **[20 marks]**
* How far do you agree that human activity has a greater role than natural processes in shaping coastal landscapes? (AS 2017) [**20 marks]**