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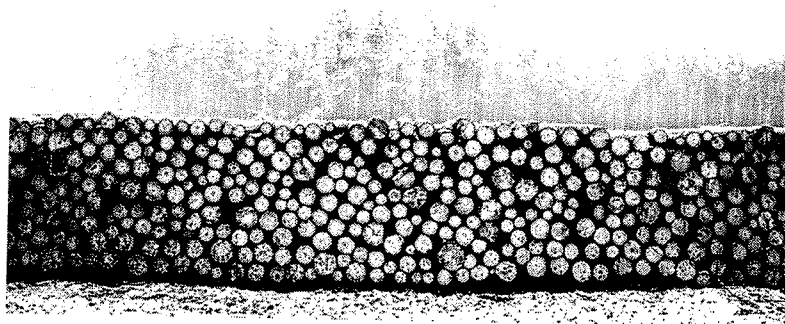
IB ESS

8.2 Resource Use in Society

Significant ideas:

The renewability of natural capital has implications for its sustainable use.

The status and economic value of natural capital is dynamic.



Natural Capital

1.

a) Define renewable natural capital.

can be generated and/or replaced as fast as it is being used
Include living and non-living resources.

b) Define non-renewable natural capital.

is either irreplaceable or can only be replaced over
geological timescales (e.g. fossil fuels)

2. Describe examples of sustainable and unsustainable natural capital.

Sustainable use

Using global resources at a rate that allows natural regeneration
and assimilation of pollution
e.g. ecotourism, replanting forests.

Unsustainable use

Using global resources in such a way that they become
degraded (depleted or polluted) so that future generations
cannot continue to use the resource e.g. extracting groundwater.

3. Explain, with reference to examples, how the extraction process of renewable natural capital might make its use unsustainable.

If the standing stock (how much there is) is taken at a
greater rate than can be replaced by natural rate
e.g. logging, extraction of groundwater or it pollutes the resource.



Mismanagement of Natural Capital

1. Outline an example of renewable natural capital that has been used unsustainably.

Water is renewed through the hydrological cycle. Humans extract water from the hydrological cycle at a variety of points - from rivers, groundwater, rainfall capture and oceans (desalination). We use that water and it returns to the cycle. If rivers become polluted that cleansing will not happen. If we over-extract water from groundwater reserves then they do not refill in time. This makes the use unsustainable. Another example is the depleting of stratospheric ozone.

2. Outline an example of non-renewable natural capital that has been mismanaged.

Hint: think about a resource we have which is finite, but which could have lasted for many more generations had it been managed more carefully.

2 good examples to use here are oil and soil.

Soil degradation in sub-Saharan Africa

cause: traditional farming methods that allow time for soil to recover have been abandoned, rapidly growing population, farmers cannot afford fertilizer to replenish the soil, natural habitats being cleared.

solutions: Bring Green revolution to Africa - better education for farmers, road networks, credit to buy fertilizer and seeds, better irrigation.



The Dynamic Value of Natural Capital

1. Cork trees once had significant value to humans as cork was used as a stopper in wine bottles. More modern alternatives made of plastics and rubber are now more common, and so cork is not as valuable a form of natural capital as it used to be.

Using your own examples as well as extra research, describe examples of the dynamic nature of natural capital.

Lithium was first discovered in 1800 by a Brazilian chemist. At the time it was of no use to anyone. It was not until WWII that a use for it was discovered. Now it has several industrial applications such as in lithium batteries which are widely used. This means that lithium has now become a valuable resource. Global consumption rose from 150,000 tons in 2012 to 300,000 by 2020.

On the other hand flint has been seen as economic natural capital since the Stone Age. It had multiple uses including raw materials for weapons, an ignition source for gunpowder and a building material. Now it has very limited value because it is no longer a significant natural resource.

Technology makes a resource more or less valuable to humans.

2.

a) Distinguish between "use valuation" and "non-use valuation" in the context of natural capital.

Use valuation - natural capital we can put a price on eg. economic price, ecological function or recreational function. Non-use valuation - natural capital that we cannot put a price on.

b) Using examples, explain why it is impossible to put a value on some natural capital.

It may have intrinsic value (the right to exist) eg. 'ugly' species. There may be future uses that we do not yet know eg. years ago lithium was not regarded as valuable.

It may have existence value by its value being based on the right of future generations to access the resource eg. National Parks.



3. In your opinion, should the Amazon Rainforest be categorized as **use valuation** or **non-use valuation**?

You must present a balanced argument, but come to a firm conclusion.

Use valuation

- carbon sink
- biodiversity
- tourism
- medicinal plants

Non-use valuation

- existence value
- many species yet to be discovered
- home to indigenous people
- value for future generations.

The World Bank conducted a research project to map the value of preserving the rainforest.

blogs.worldbank.org/developmenttalk/valuing-preservation-amazon-rainforest

It states that the most fundamental dilemma for conservation policy - why should we value the Amazon rainforest has two opposing views - A conservation view to assume that the rainforest should always be protected and a development view which implies that the rainforest should be converted to alternative use when such conversion implies clear and readily measurable financial gains.

To resolve these different points of view focusing on the use valuation is a more convincing argument and is more likely to result in the conservation of the area.

