

Human Impact on a Biome| sample answer

Q: 'The development of economic activities can alter biomes. Discuss this statement with reference to appropriate examples that you have studied' (2011 Q18).

Biome- Tropical Rainforest.

4 aspects will be discussed.

- 1) Deforestation for logging; *logging activities are very poorly controlled and the industry is run by people who care more for profit than the environment and it is very damaging.*

Timber companies are given rights to remove forest and sell timber abroad. The Brazilian government receives a portion of the timber companies profits and uses to help pay off international debts.

In Brazil the timber industry raises about 3.5% of the country's GNP. This is a big industry. 80% of this logging is illegal because there are very few controls for the illegal loggers.

Globally, rainforests are disappearing at about 40 hectares per minute, day and night. The amazon is being depleted at 30 million cubic meters of timber a year. This causes a high rise of damage to the environment and conflict with indigenous tribes.

High levels of wastage has occurred as many low value trees have been cut down to access the few mahogany in a native forest. This has lead to species loss and wide scale extinction.

Loggers are only looking to cut down the valuable hardwood trees such as teak, mahogany and Brazilian but trees. These trees are the most sought after in the market- one tree could be worth up to €15000.

The biggest impact is to the soils. The latosols of the rainforest are very dependent on tree cover. Removal of the trees causes the soils to get leached into infertile brickstone within a few years. Without the soils the damage is irreversible.

Imported labour has brought dilution of the native culture and conflict with indigenous people. Also import of european diseases such as measles has had a devastating effect on local populations.

- 2) Agriculture; *with the growing population, there is an increasingly strong demand for clear land. This results in the clearing of rainforest and therefore the destruction of delicate habitats and soils.*

Demand for cheap food worldwide has lead to massive land clearance of the rainforest in many countries for cash crops such as soya.

Soya has been genetically modified to grow in the savanna climate. These monoculture plantations threaten to invade and reduce natural habitats.

Large tracts of land are being cleared for livestock grazing. In all, commercial and subsistence agriculture accounts for 34% of deforestation in the Amazon basin.

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Brazil is the number one exporter of cattle, with 165m cattle. This has resulted in mass clearance of the natural biome. So far 19% of Brazil's natural territory is pastures- this is growing as demand for beef increases.

Grass growth on latosols is poor and beef cattle do not thrive so ever more land is cleared to feed them. This leads to further loss of the soil and much of the soil is washed into the amazon river.

Increase use of agrochemicals and mechanisation in intensive agriculture has lead the soil to be compact and this ultimately means soil erosion.

Another impact of the land clearance is climate. The conventional rains depend on the trees to hold the water, without trees the local water cycle is disrupted and potential desertification could result.

Also population pressure has meant that the traditional slash and burn system of land clearance is not sustainable as the land has no time to recover. The land is also being cleared for coffee plantations.

3) Mining; *The Brazilian rainforest is undergoing severe damage due to the crude and intrusive mining techniques. Economically the region is not benefiting due to exporting the profits.*

The Brazilian government continues to open up the Brazilian rainforest to take advantage of its timber and mineral wealth. Government uses the profits from the mining industry to help pay off debts.

Many of the world's rainforests are still rich in minerals. In the past access was difficult but now with modern extraction methods miners are coming large numbers to search for metals such as iron ore and copper. South Bahia alone has produced 1/4 million tons of copper concentrate.

The mining methods are very crude and result in massive land clearance with no thought of preserving natural habitats. Sometimes water jets are used to wash the soil away, this results in huge soil erosion.

Many systems of mineral extraction use chemicals to get concentrate of ore eg the use of cyanide to get gold. These poison the local environment permanently.

Because miners are not local, the short term profits leave the area as soon as the ore is extracted. This means that little or no money is invested to repair damage to the biome.

The miners also build towns which impact negatively on the biome. It has been suggested that some local indigenous cultures have been murdered trying to resist mining operations.

4) Government schemes; *the rainforest is undergoing a lot of damage due to the rapid economic development of Brazil. Due to government policies more and more people are living and destroying the biome.*

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Because Brazil is a Newly Industrialised Country (NIC), it has undergone rapid and expensive industrialisation. Schemes such as the Import Substitution Industrialisation resulted in Brazil being in a lot of debt- for profit they looked to the rain forest.

The massive growth of the cities Rio and Sao Paulo has resulted in huge favelas. These are an embarrassment and the government have encouraged settlers to clear the forest and settle in rural areas.

The government also encourages people to move to the region of the Amazon. The settlers were granted a 100 hectare plot of land, six month's salary and easy access to agricultural loans.

The government scheme to improve access to the rainforest is called the Trans Amazonian Highway. It is 5,300km of road and has allowed massive development in the heart of the Amazon.

The construction of Brasilia during 1960s now has the population of 2.3 million people. Other urban developments at the rainforest is a result of a policy to bring development to the interior.

Construction of HEP stations on the Amazon has also had an effect. There are 125 schemes planned. This results in the flooding of large tracts of land and loss of the biome. eg Tucuruí dam flooded 2500 km sq of land, 8000 people lost their homes.

Avianca Brazil (Advance Brazil) is a plan made by the government in 2000- it cost €30 billion and its aim was to cover much of the Amazon with 10,000km of highways, HEP dams, power lines, mines, canals and other industrial developments.