

## The Living World: The Malaysian Rainforest

### Malaysia

Malaysia is a country in **Southeast Asia** with a **tropical rainforest climate**. **67% of Malaysia's land** is covered by rainforest.



(Source: [Photographer's Choice/Getty Images](#))



### Deforestation in Malaysia

Deforestation is the **permanent** and usually **large-scale removal of trees**.

In Malaysia, deforestation has been occurring on a huge scale for commercial purposes. Malaysia has the highest tropical deforestation rate in the world. Between 2000-2013, Malaysia lost **14% of its total forest cover**, which totalled an area **larger than Denmark**. Deforestation is a huge **threat** to the delicate **tropical rainforest ecosystem**.



(Source: [Shutterstock](#))



(Source: [www.spott.org](http://www.spott.org))

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## Causes of Tropical Deforestation In Malaysia

There are many reasons why deforestation has been occurring on such a huge scale in Malaysia:

Cause of deforestation	Where it is evident in Malaysia
<p><b>Subsistence Farming</b></p>  <p>(Source: <a href="http://cleanmalaysia.com">cleanmalaysia.com</a>)</p>	<p>Subsistence farming is where farmers only produce enough food for <b>themselves and their families to eat</b>, rather than growing <b>surplus</b> food for <b>profit</b>.</p> <p>Subsistence farmers usually clear land using <b>slash-and-burn</b> (areas are <b>cut down</b> and then <b>burnt</b> to remove the vegetation).</p> <p>Population growth has led to higher levels of <b>unsustainable land clearing</b> as demand for land among new farmers is increasing.</p> <p>Furthermore, less time is being left for the rainforest to <b>fully recover</b>, and controlled fires can lead to <b>wildfires</b> if they grow out of control.</p>
<p><b>Commercial Farming</b></p>  <p>(Source: <a href="http://National Geographic">National Geographic</a>)</p>	<p><b>Commercial farming</b> is agriculture with the direct intention of making <b>profit</b> from the produce.</p> <p>Malaysia is the world's <b>largest exporter</b> of palm oil, and vast areas of Malaysia have been <b>deforested</b> and converted into commercial <b>palm oil plantations</b>, as seen in the image to the left. Plantation owners receive <b>10-year tax incentives</b> for producing palm oil, which has encouraged the <b>growth of the palm oil industry</b>.</p> <p>This <b>large scale, unsustainable method of deforestation</b> has destroyed habitats for animals such as <b>orangutans</b>.</p>
<p><b>Logging</b></p>  <p>(Source: <a href="http://AFP">AFP</a>)</p>	<p>Logging is the process of <b>cutting down trees</b> for timber or to be processed into other products.</p> <p>Malaysia was the <b>top exporter of tropical hardwoods in the 1980's</b>. High demand for these expensive hardwoods meant that <b>clear felling</b> took place in Malaysian forests.</p> <p><b>Clear felling</b> (or clear cutting) is a form of logging where <b>all the trees in an area</b> are cut down, including young trees. This method is more <b>profitable</b> as it can be done quickly, but has major negative effects on the environment.</p>
<p><b>Road Building</b></p>  <p>(Source: <a href="https://wrm.org.uy">https://wrm.org.uy</a>)</p>	<p>Roads are built in tropical rainforests to <b>provide access</b> to areas, to transport <b>goods</b>, and to allow <b>heavy machinery</b> into areas for <b>construction, logging</b> and <b>mining</b>.</p> <p>Large stretches of land are <b>deforested</b> to make room for road construction. Many animals are <b>killed on roads</b>, and <b>chemicals</b> from the roads can be <b>washed into the tropical rainforest ecosystem</b>, causing <b>environmental damage</b>.</p> <p>These roads can also run through areas where <b>indigenous communities live</b> and cause tension between communities and developers, seen in the image to the left.</p>



### Mineral Extraction



(Source: [www.bbc.co.uk/news/world-asia-35340528](http://www.bbc.co.uk/news/world-asia-35340528))

Tropical rainforests have vast reserves in **metals, gemstones** and **fossil fuels** which are extracted by **mining** and **drilling**. Malaysia has high reserves of bauxite, and extraction of this mineral has been taking place here for years.

Large areas of land need to be cleared for **roads and mines**, which causes severe environmental degradation. The rainforest ecosystem is unlikely to quickly recover from this level of damage and deforestation, leaving vast areas of tropical rainforest bare for hundreds of years.

### Energy Development



(Source: [www.hydropower-dams.com](http://www.hydropower-dams.com))

**Hydroelectric power** is a rapidly growing form of **energy production** in **Malaysia**, as the large rivers and huge drainage basins generate a lot of **water movement**, which can be harnessed and converted into electricity.

The construction of the Bakun Dam (seen to the left) flooded **over 700km<sup>2</sup> of land**, and several more dams are planned. Dam construction deforests large areas of land, destroying **terrestrial habitats** and **displacing indigenous communities**.

### Population Growth



(Source: [www.delcampe.net](http://www.delcampe.net))

Malaysia's rapidly growing population in the 20<sup>th</sup> century caused overpopulation in urban areas. The Malaysian government responded by sponsoring **transmigration programs**, encouraging city dwellers to migrate to tropical rainforests. From 1956 to the 1980s, over **15,000 square kilometres of rainforest** was converted for settlers.

Many migrants set up **plantations** to **earn a living**, which required the land to be cleared (often in an **unsustainable way** as migrants were not educated in sustainable methods of land clearing).

## Impacts of Deforestation in Malaysia

Deforestation in Malaysia's rainforests have had a range of impacts on the **forest** and on **society**.

### Contribution to Climate Change

One of the most **serious impacts** that deforestation has is its influence on the levels of **carbon dioxide in the atmosphere**.

Malaysian rainforests are estimated to absorb **over 30% of the carbon dioxide produced in the country**. Trees **take in carbon dioxide** during photosynthesis and **store the carbon** for hundreds of years, overall **reducing atmospheric CO<sub>2</sub> levels**.

When trees are felled, **more CO<sub>2</sub> is left in the atmosphere**, contributing to the **enhanced greenhouse effect**.

Furthermore, evaporation in trees (known as **transpiration**) both **cools the air** and **releases moisture**, but **deforestation** is having effects on this. Without trees to regulate moisture and temperature, the climate in tropical rainforest areas can become increasingly **hotter and drier**.



*Cleared land in Malaysia.* (Source: [Reuters](http://Reuters))



## Soil Erosion

Deforestation also has major impacts on **soil structure and fertility**. Tropical rainforests soils are very **infertile**, and hold the **majority of their nutrients** in the thin organic top layer.

When trees are removed, the **heavy, persistent rain** typical of tropical rainforests quickly washes away the **nutrients on top**, leaving the infertile soil beneath **exposed**. Without tree roots **binding the soils together** and vegetation litter collecting on the floor, the soils become **loose** and quickly **erode away**.



*The Cameron Highlands, Malaysia.*

**A lot of carbon** is also stored in **soils**, and soil erosion **releases the stored carbon** back into the atmosphere, which will eventually act as **greenhouse gas** and enhance global warming.

## Economic Development

Deforestation is mainly **always** carried out for **economic profit**. In many ways, deforestation can lead to **economic development** in a country:

- Mining, farming, hydroelectric power and logging provide **jobs** to locals, which increases **incomes**. It also provides **valuable goods and services** to the country in the form of construction materials, energy and food, which **generate profits** and help **development**.
- Products produced from tropical rainforests (palm oil, rubber, tropical hardwoods, soy etc) can be used in **trade** with other countries for **profit**.
- **Companies** that work in tropical rainforests have to pay **taxes**, which, in turn, support public services and develop the country.
- Better **transport links** to tropical rainforests helps the **tourism industry** and connects rural areas to urban areas, increasing the opportunity for further development.

However, in the **long-term**, deforestation can have vast economic **costs**:

- **Environmental degradation**, such as soil erosion, costs a lot to fix, meaning environmental impacts of these activities may be very **costly in the future**.
- **Pollution of water sources** through mining and other industrial activities can be costly.
- **Climate change** brought by deforestation will have more **damaging effects on the forest**. **Yields** of produce may decrease due to the hotter, drier climate, influencing trade and the economy.
- The **tourism industry** may be negatively affected as areas become **less biodiverse**.
- As a way of encouraging **sustainable development**, some countries may **impose sanctions** or refuse to pay out **loans** in countries that are not properly managing their rainforests, which has negative effects on the economy.

