**Biodiversity Summary**

**Definition**

Biodiversity refers to the range of wild and cultivated species in a biome.

Biodiversity can include:-

* Species diversity
* Genetic diversity
* Ecosystem diversity

**Distribution**

Biodiversity is highest in areas which have warm moist climates (eg Tropical Rainforests)

**Hot Spots**

Biodiversity hot spots are areas around the globe where the greatest numbers of species are under imminent threat. *These 34 areas occupy 2.3% of the land area yet are home to 50% of all known vascular plants and 42% of land vertibrates and 92% of the worlds amphibian species (according to IUCN\*)*

These areas also include a large number of endemic species (plants or animals only found in one particular area or region and nowhere else on earth) Eg Sundaland hot spot which includes Borneo, Sumatra and Peninsular Malaysia.

Many of these hot spots are in LEDCs.

**Reduction**

The period since the emergence of humans has displayed an ongoing biodiversity reduction and an accompanying loss of [genetic diversity](http://en.wikipedia.org/wiki/Genetic_diversity). Named the [Holocene extinction](http://en.wikipedia.org/wiki/Holocene_extinction), the reduction is caused primarily by human impacts, particularly habitat destruction.

According to the IUCN (International Union for Conservation of Nature) Red List of Threatened Species there are a total of 15 589 species of animals and plants) considered to be at risk of extinction.

**Habitat destruction**

* Reasons for clearance: Agriculture, Logging, Quarrying, Reservoirs, Settlement (see table you created in groups on deforestation in Borneo)
* Underlying causes: development needs, population growth/shortage of space (synoptic links)

*Be able to give specific facts and figures here (eg rate of rainforest destruction, rate of population growth, GNP figures to show development gap between LEDCs and MEDCs)*

**Importance/Value od Biodiversity**

* Biodiversity supports complex interactions between plants animals and people. If species are removed the whole system can be effected. Eg Orangutans importance in dispersing seeds, bees are important for pollination (see: [www.washingtontimes.com/news/2008/sep/21/study-calculates-value-of-bees/](http://www.washingtontimes.com/news/2008/sep/21/study-calculates-value-of-bees/))
* Genetic Biodiversity can help to control ecosystem resistance to pests/diseases. Important for agriculture. Also Genetic Biodiversity is now being used to help develop GM crops.
* Biodiversity provides essential goods and services. E.g. food, medicines, raw materials. Bioprospecting of these valuable resources could earn valuable income not just from selling the raw materials, but also for claiming royalties on the final products see: <http://rainforests.mongabay.com/1007.htm>
* Biodiversity is important for recreation and can help promote tourism e.g. Kinabatangan or Sundarbans (give specific evidence mentioning biodiversity in these areas) Eco-tourism is best as ecosystems are protected from damage by tourists.

LEDCs: Need sources of income, but rather than destroying/damaging ecosystems to create revenue (short term gains) Sustainable use of ecosystems could ensure long term economic and social benefits.

Biodiversity needs to be protected, as there is much still to learn about the potential value of the huge variety of plants and animals in biodiverse ecosystems. It is also important for MEDCs to learn from the knowledge of indigenous groups who live in these areas and are aware of the useful properties of these species. Eg The Penan in Borneo. At the same time MEDCs have the finance and expertise to carry out further research.

**Conservation Initiatives**

* The Convention on Biological Diversity (CBD), known informally as the Biodiversity Convention, is an international legally binding [treaty](http://en.wikipedia.org/wiki/Treaty). (1993)

The Convention has three main goals:

* + conservation of biological diversity (or [biodiversity](http://en.wikipedia.org/wiki/Biodiversity));
  + sustainable use of its components; and
  + fair and equitable sharing of benefits arising from genetic resources
* United Nations Millenium Impact Assessment:set up to assess the effects of ecosystem change and to conserve ecosystems to benefit humanity. (Makes a link between poverty and environmental degradation)
* 2010 International Biodiversity Conference, Ecuador
* 2011-2020: United Nations Decade on Biodiversity.

UNEP (United Nations Environment programme) states:-

“The importance of biological diversity to human society is hard to overstate. An estimated 40% of the global economy is based on biological products and processes.”

Also See: Heart of Borneo’s ecosystems and biodiversity and the current economy

<http://www.hobgreeneconomy.org/downloads/mainreport/heartofborneo_investing_nature_green_economy_part2.pdf>