

Drought in Brazil

Usual rainfall versus 2014-2015

- Usually, moist air from the South Atlantic encounters the **Andes mountain range**. This forces its southward, creating a **flow of moisture around the basin**.
- In 2014-2015, **high pressure systems** diverted moist air **further North**, causing heavy rains in Bolivia and Paraguay but **dry air over Brazil**.

Impacts

- Water rationing for **4 million people**.
- Brazil relies heavily on **HEP** for its power, so the drought caused **power cuts**.
- Increased groundwater abstraction.
 - In Brazil, there are **high fees** to drill wells. This has led to a vast number of illegal wells. Infact, **70% of wells are illegal**. Illegal wells are **shallower and polluted**.
- The **Arabica Coffee bean crop reduced**, which drove **global coffee prices up 50%**.
- By 2015, main reservoirs had **reached 5%** of their capacity.

Impacts of drought in the Amazon

- Rainforests **recycle ½ of their rainfall**, so deforestation could trigger a **positive feedback loop** causing further drought.
- A drying forest means **reduced soil water storage and evapotranspiration**. It also means that **uncontrolled wildfires** are much more likely to occur.
- Prolonged drought causes **forest stress**, which could lead the Amazon to a **tipping point** (a sudden change from which it could never return).
- The Amazon intakes **20 billion tonnes of water vapour**, which is mostly released over Brazil as rain.

World-wide impacts

- Loss of a carbon sink.
- Wildfires.
- Changes to ENSO.



The Pantanal – South America (Brazil and Upper Paraguay)

Value

- The Pantanal is a **significant freshwater ecosystem** for birds and aquatic wildlife.
- The river floodplain is vital and relies on **seasonal rainfall**.
- When the seasonal rainfalls come, **80% of the Pantanal is flooded**. The wetlands retain 60% all year round.

Impacts of 2014/2015 drought

- The drought tested the **resilience of the ecosystem**.
- There was an increase of **tree mortality**, which reduced habitats.
- There have also been **more wildfires**, due to routine grass burning by cattle farmers igniting the dry forest.



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