

CAIE Geography Pre-U

1A: Hot Arid and Semi-Arid Environments Case Studies



Desertification in the Sahel

Background information

The Sahel is the **transition zone** between the Sahara Desert to the north and the wetter, more tropical south-central Africa to the south. It stretches from the Atlantic Ocean to the Red Sea and it is home to more than **50 million people**.

Climate

It receives **200mm to 600mm of annual rainfall**, however, there are large fluctuations annually. Periods of intense rainfall in the Sahel bring little benefit due to little infiltration. During the **1980s** there was a **drought** where an estimated **1000 people a month were dying**.

Human causes of desertification

The population in the Sahel is increasing by 3% a year, whilst food production is only increasing by 2% a year. This is causing more intense farming methods to take place or farming on land which is fragile. Due to economic benefits or changing climate, traditional lifestyles are becoming **more sedentary**. Sedentary lifestyles are more degrading on the land due to increased water, food and resource consumption. This leads to over-cultivation, overgrazing, deforestation and overexploitation of water. There has also been an expansion of **slash and burn agriculture** which increases the rates of wind erosion by creating dry, barren landscapes.

Solutions to desertification

- **Dams, irrigation canals and wells** were built during the 1980s and 1990s. However, they were too small to combat drought and they also provided breeding grounds for insects such as mosquitoes which can carry disease.
- **High-yielding and drought-resistant crops** - In 1973, countries in the Sahel region joined to form an alliance to combat severe drought. This was known as **CILSS**. They invested in research for food security and aimed to fight against drought and desertification.
- The **Green Wall Sahara initiative of 2009** built a belt of trees across the Sahara transition zone. This helped to stop soil degradation, desert encroachment whilst also providing jobs and promoting ecotourism.
- **Diguettes** are the other name given to contour bunds in **Burkina Faso**. **Oxfam** worked with farmers to improve the traditional stone wall, aiming to increase food production. They managed to increase millet, the staple crop in Burkina Faso, **production by 50% on average**.

Tourism in the Valley of the Kings, Egypt

Background information

The Valley of the Kings is located in a wadi within limestone hills on the west bank of the river Nile. Since the discovery of the tomb of Tutankhamun in 1922, tourism massively increased especially since the start of mass air travel. Now, over 9000 tourists visit the Valley of the Kings each day during the high season.



Benefits

- Employment for local people
- Improved infrastructure
- Foreign earning

Negatives

- Coaches which bring tourists, emit exhaust fumes which cause air pollution
- Paved paths that have been constructed and lead into the tombs, act as conduits, so during rain, they channel water into the tombs

Masdar City

The building of Masdar City **began in 2006, but by 2016 only 5% has been built**. It was planned to be one of the world's most **sustainable urban communities**. The low-carbon development would contain clean-tech clusters, residential neighbourhoods and a business free zone. The water and energy demand of the city's buildings **would be 40% lower than the average** building in Abu Dhabi, the closest city to Masdar.

The free zone and the investment zone would attract foreign companies and they would also support research and the development of **sustainable technologies**. However, the completion date has now been pushed back to 2030 and the city is currently looking like a ghost town.

Explore of the Masdar City website to find more about what is currently happening with Masdar City using [this link](#).

Traditional Societies

Tuareg

They are **nomadic pastoralists** that live in the Sahara. However, climate change is increasing drought which is causing loss of livestock and they are also suffering from desertification and loss of soil fertility.

Tearfund is helping communities to establish 'fixation sites' which allows members of the Tuareg to develop social infrastructure and access education, training, health and pasture management projects.

Have a watch of [this video](#) about the Turaeg and the challenges they face.

Maasai

The Maasai live in **East Africa** in southern Kenya and northern Tanzania. They roam an area of **160,000 square kilometres** and there are **0.5 million** of them. They mainly rely on livestock for their income. However, they are losing land due to national parks and tourism. As a result of this loss of land the Maasai can no longer be nomadic and their numbers of cattle are also dwindling. **In the early 2000s, the Maasai lost 50% of their cattle due to drought.**



NGO-funded community centres are allowing members to settle onto small plots of land and being taught how to dig wells, rotate crops and install modern, efficient irrigation systems.

Fulani

They are believed to be the largest semi-nomadic group in the world- an estimated **25 million** people. They range across **west and central Africa**. However, as they herd their animals across vast areas they often **clash with farming communities**. **In 2014, this led to more than 1,200 people losing their lives**. This clashing is increasing due to smaller and smaller areas being fertile and more people adopting a sedentary lifestyle due to climate change which increases the numbers of sedentary farmers.

Oil extraction in the Gulf states

In 2011, oil exports accounted for **77% of the UAE's state budget**. However, it will likely run out in less than 50 years. Realising that their main income supply is running out, the UAE has now diversified its interest and assets enough so that now **95% of its income comes from tourism, property and music shops**. They also introduced a **5% VAT in 2018**. This has led to **initiative-driven investments** into infrastructure, education, renewables and healthcare. In 2018, it allocated **AED4.5 billion of the federal budget directly to social protection and healthcare**, which is the tenth globally.

