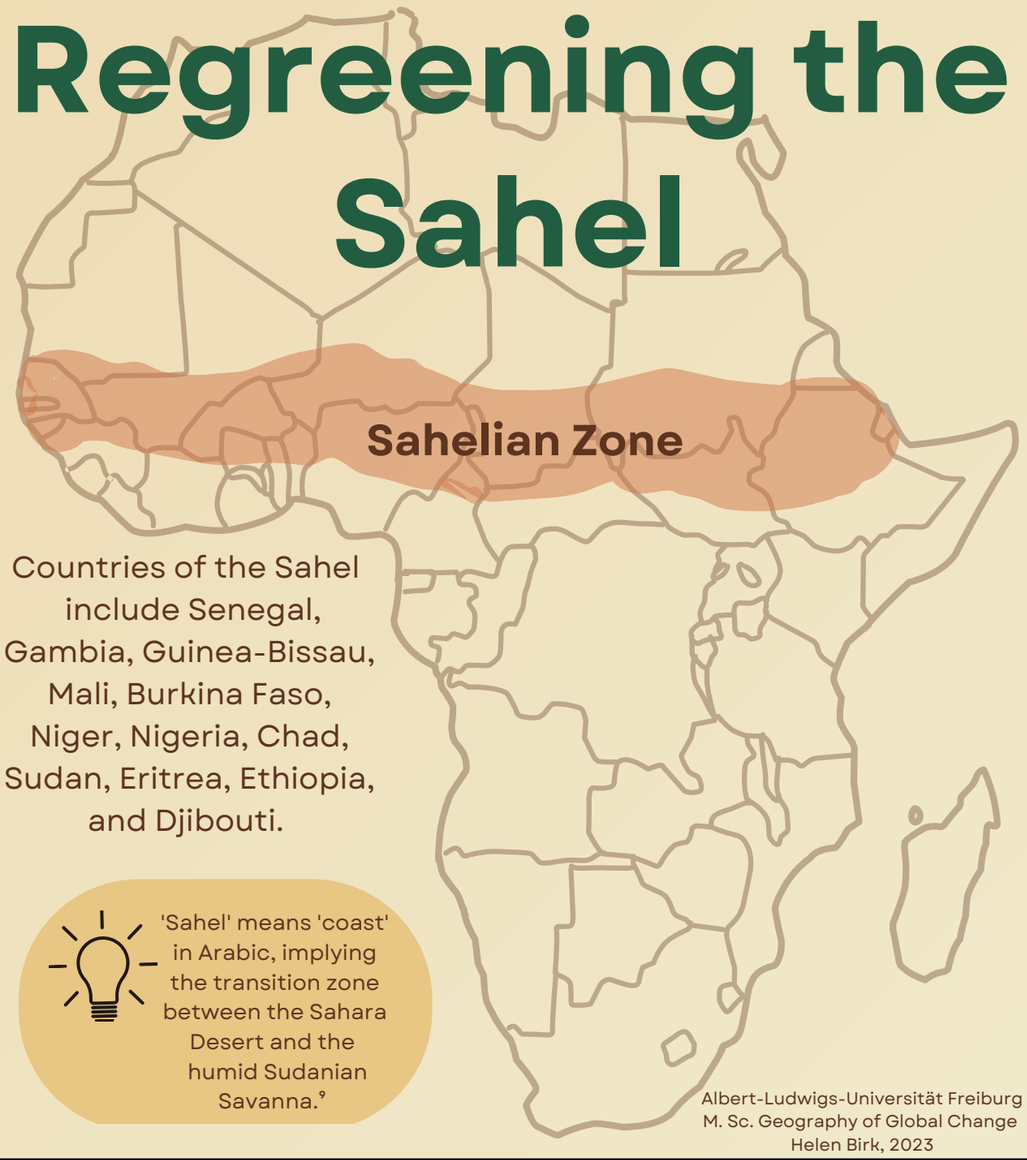
Regreening the Sahel



Countries of the Sahel include Senegal, Gambia, Guinea-Bissau, Mali, Burkina Faso, Niger, Nigeria, Chad, Sudan, Eritrea, Ethiopia, and Djibouti.

'Sahel' means 'coast' in Arabic, implying the transition zone between the Sahara Desert and the humid Sudanian Savanna.[9]

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M. Sc. Geography of Global Change
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BACKGROUND

The Sahel refers to an ~ 5400 km long **semi-arid** land stretch, reaching from Senegal on the Atlantic Ocean to Eritrea on the Red Sea.
Climate extremes dominate this region, ranging from severe **droughts** and strong winds to **fluctuating precipitation** and anomalous **floods.**[1]

These harsh environmental conditions impede land productivity and thereby **challenge** millions of livelihoods.[1] Subsistence agriculture, fisheries, and animal husbandry are the main sources of employment.[2]

An estimated 40 % of Sahelians are subject to **food insecurity**.[3]

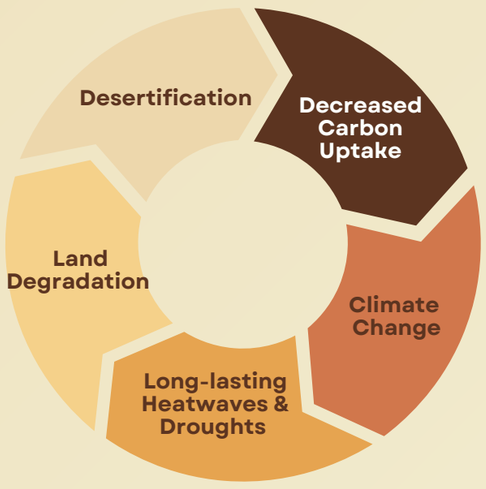
DESERTIFICATION...

..."means land degradation in arid [...] areas resulting from various factors, including climatic variations and human activities." UNCCD. [4]

The Sahel zone is considered to be among the most threatened by desertification in the world. Drastic **population growth** and **extreme climatic conditions** are two main causes that contribute to associated land degradation.
Land degradation implies " [...] the reduction and **loss** of the organic or economic production capacity of **production lands**." UNCCD. [4]
Anthropogenic activities exacerbate soil conditions, e. g. through mismanaged land and irrigation, increased livestock density, and overgrazing as well as through land exploitation and land clearing.[1]

Consequences include **water scarcity, soil erosion,** and further **land degradation**. This exacerbates the living conditions of communities, that face **famine, conflict** over resources, and **insecurity**. Many people are forced to migrate in search of better living conditions.[3]

IMPACTS OF CLIMATE CHANGE



A simplified example of positive feedback further contributing to climate change.[8]

The inhabitants of the Sahel belong to the most **vulnerable** to climate hazards.[5] These complex repercussions affect various areas, including **food insecurity**, **biodiversity loss**, and **health deficiencies**. Collateral impacts further affect the political, economic, and societal sectors, giving reason to the need for **multidimensional approaches** to combat environmental fragility.[6] [7]

SUSTAINABLE DEVELOPMENT GOAL

"By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world." SDG Target 15.3.[10]

SDG Icon 15.3 [11]

SOLUTIONS

GREAT GREEN WALL INITIATIVE - A MOSAIC OF GREEN

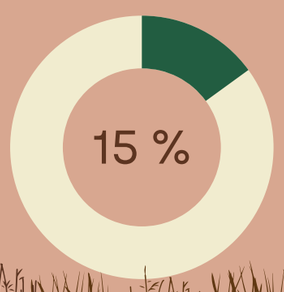
GREAT GREEN WALL (GGW)

8000 km — long regreened stretch, halting the expansion of the Sahara Desert.

11 countries — are involved.

100 mio ha — of degraded land are to be restored.

250 mio tons — of carbon are to be captured. [12]



So far only 15 % has been revegetated. [13]

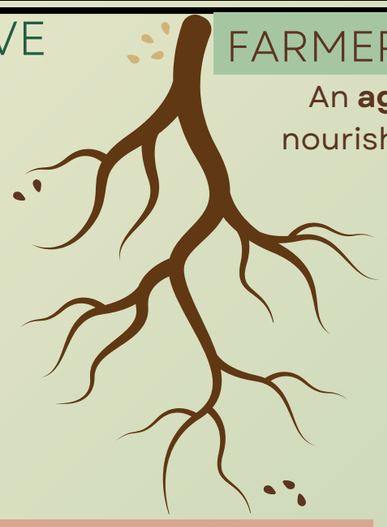
The GGW initiative was implemented in 2007 by the African Union to directly **oppose** land **degradation** and **desertification** in the context of ongoing climate change.[12] In the process, socio-economic co-benefits are aspired. Albeit global awareness and international support by stakeholders, actors, and NGOs, the ambitious **goals** of the agreement have **not** yet **been fulfilled** in the least. The idea of a green 'wall' made of planted trees failed quickly, instead, a feasible **mosaic** of adequate **land use** and **management** methods has replaced the vision, such as agroecology practices.[14]

SUSTAINABLE LAND MANAGEMENT (SLM)

SLM focuses equally on **ecosystem functions** and **productivity** while ensuring the **sustainable use** of these resources.[15] Locally adapted, innovative, and participatory SLM approaches and technologies are being promoted in individual projects as part of the GGW Initiative. **Farmer managed natural regeneration** (FMNR), a **community-based** example of SLM technology, is already being implemented in Ghana, Kenya, Uganda, and Niger.[15]

FARMER MANAGED NATURAL REGENERATION

An **agroecological regreening** method relying on the nourishment of **existing tree stumps, roots, and seeds**[16]



BENEFITS [14]

- **Low cost** and low technology methods
- **Resilience** to climate extremes
- Improved **food security** (e.g. sorghum and millet)
- **Income** source (e. g. crops, firewood, medicine)
- Higher survival rate of vegetation and trees by aiding the sprout of prevailing **native** species
- Reduction of local conflict through **cooperation** between farmers and pastoralists

LONG-TERM TARGETS [12] [13]

- Water Security
- Food Security
- Soil Fertility
- Decreased poverty
- Conflict Aversion
- Climate Resilience
- Less Migration
- Gender equality
- Economic Opportunities
- Sustainability
- Improved Health
- Biodiversity

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