



**Eberswalde University
for Sustainable
Development**

Biosphere Reserves Institute

Land systems for sustainability



Week 1: April 15, 2025



“The Man Who Stopped the Desert”



<https://youtu.be/rwNzrgoZiWI>

Yacouba Sawadogo (1946 – 2023)

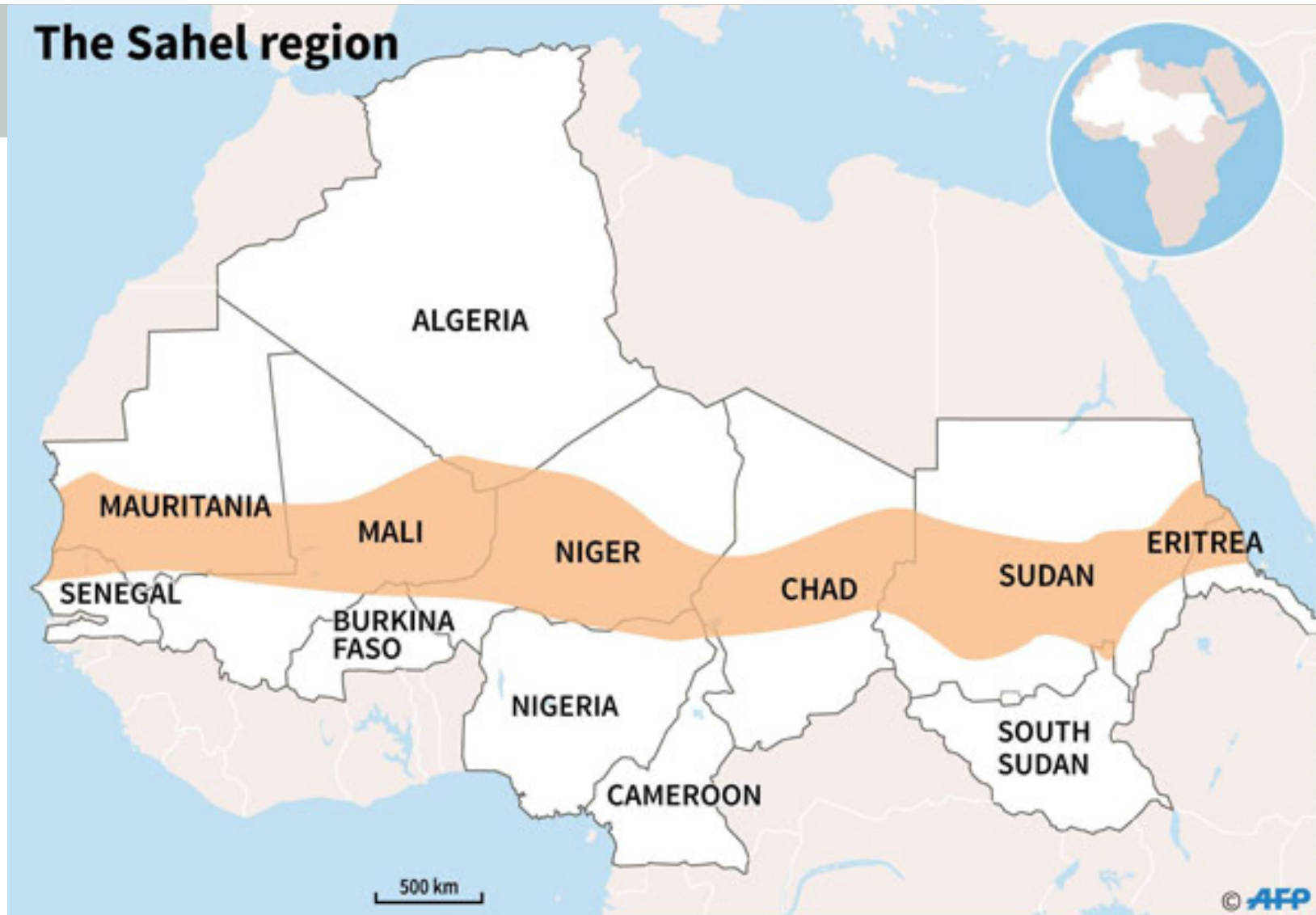
- A citizen of Burkina Faso
- Known as “the man who stopped the desert”
- Started in 1980 during a period of severe drought
- 40-hectare forest on formerly barren & abandoned land



Right Livelihood



The Sahel region



Description of the Sahel (UN 2022)

- Semi-arid
- Separating the Sahara Desert to the north and tropical savannas to the south
- One of the most youthful region: 64.5% of the population below 25 years old
- Up to 80% of its people living on less than €1.84 a day



Comparing €1.84



Funny-frisch

funny-frisch Linsen Chips Paprika

90 g

1,99 € 22,11 €/kg

In den Warenkorb

Lieferung innerhalb 1 Stunde

200+ Kunden kaufen regelmäßig

Kategorie:

Knabbereien, Salziges & Nüsse > **Chips & Flips**

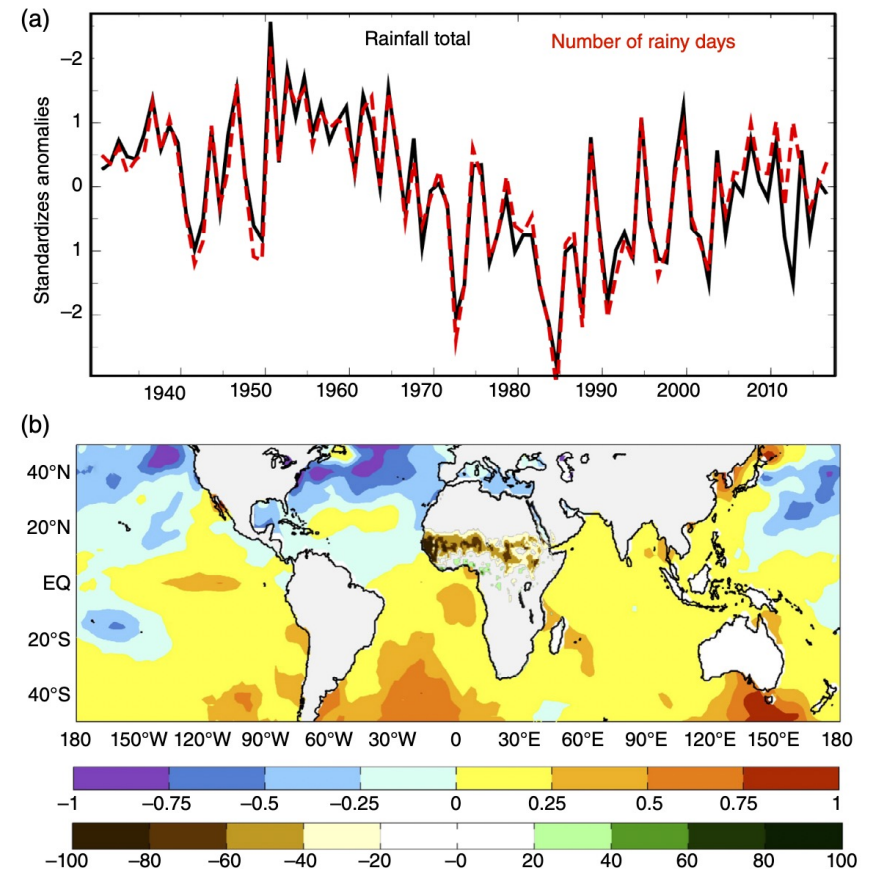
Herkunftsland: **Deutschland**

Challenges in the Sahel

- Poverty is more widespread in the Sahel than in most other parts of Africa
- Frequently struck by drought and food insecurity

Source: Biasutti 2018;
Harsch 2017

FIGURE 6 (a) Summer-mean (July to September) standardized anomalies in rainfall totals (black solid line) and number of rainy days (red dashed line) averaged over the region 10°N–20°N and 20°W–30°E (from the University of East Anglia Climate Research Unit gridded data set, TS4.1). (b) Linear trend in summer-mean African rainfall between 1940 and 1985 (brown and green hues) and in annual-mean sea surface temperatures over the same period (blue and orange hues) (Reprinted with permission from Biasutti (2011). Copyright 2011 Nature)



Challenges in the Sahel

- Projected to be one of the areas most severely affected by global climate change in the coming years
- Poor governance
- Armed insurgency and terrorism

Source: Harsch 2017





2022

Burkina Faso's military coup was the fourth in West Africa in 18 months, following two in Mali and one in Guinea, after a period of democracy that had raised hopes the region could shed its reputation as the continent's 'coup belt.'

- Reuters



2023



CONFLICTS | SUDAN

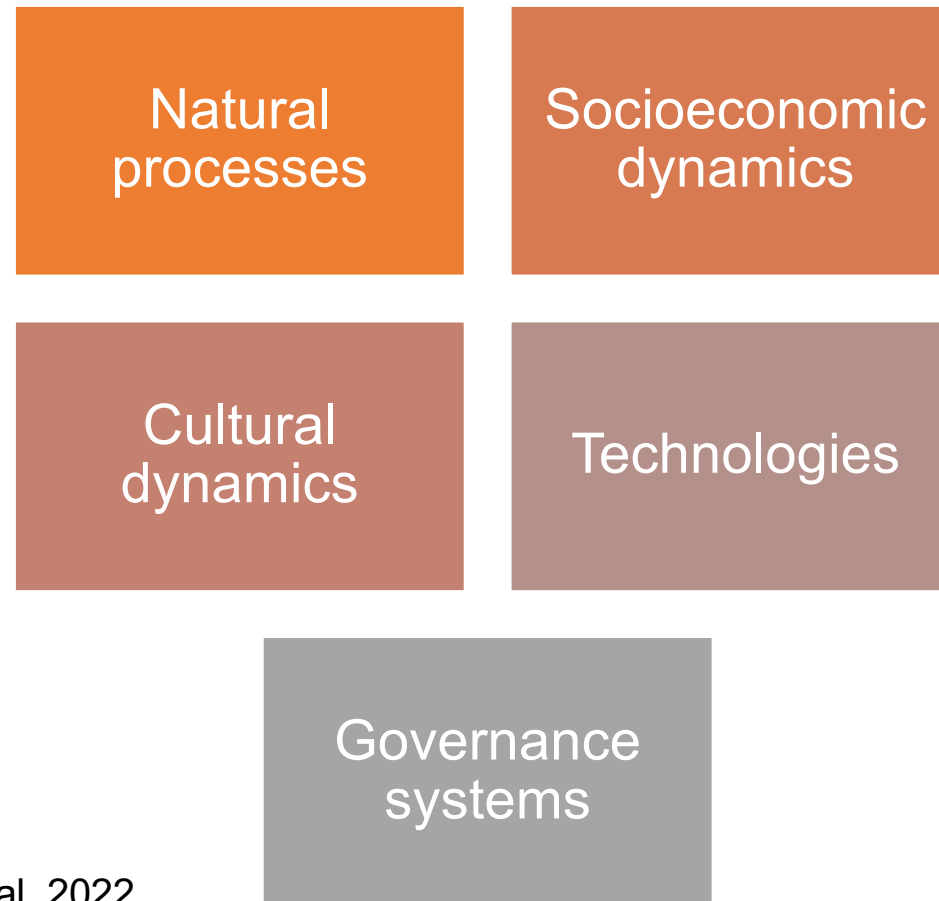
Sudan updates: Death toll rises as fighting continues

Published 16 hours ago | last updated 25 minutes ago

Gunfire and explosions could be heard in Khartoum on Monday as fighting continues between the army and the Rapid Support Forces (RSF). Doctors said the death toll has continued to climb. Follow DW for the latest.



(2) Land systems exhibit complex behaviors



Source: Meyfroidt et al. 2022



Scale mismatch between decisions & env'tal dynamics

Land sparing

sustainably intensified
agriculture and wilderness

Land sharing

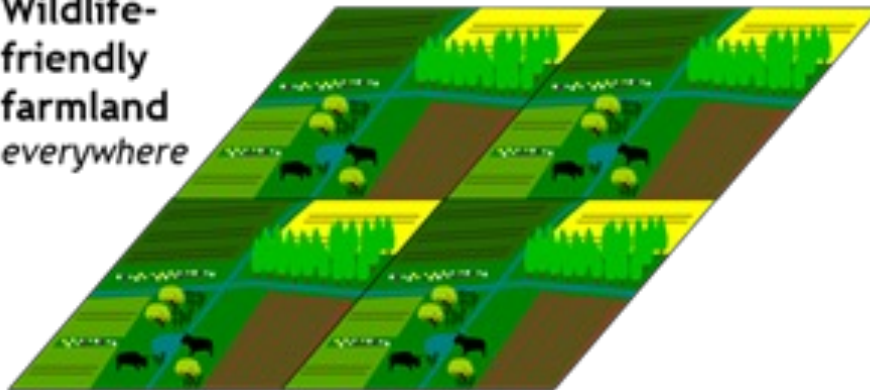
patchwork of low-intensity
agriculture incorporating
natural features such as
ponds and hedgerows

Source: Acton 2014



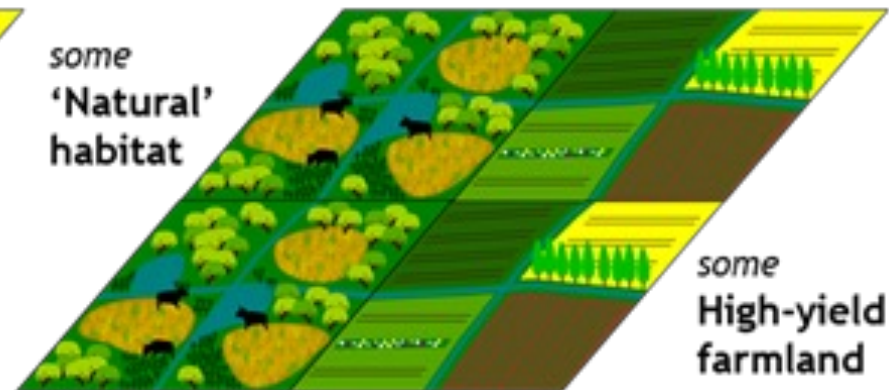
Land sharing

Wildlife-
friendly
farmland
everywhere



Land sparing

some
'Natural'
habitat



Source: Royal Society for Protection of Birds 2020



Land sharing and land sparing



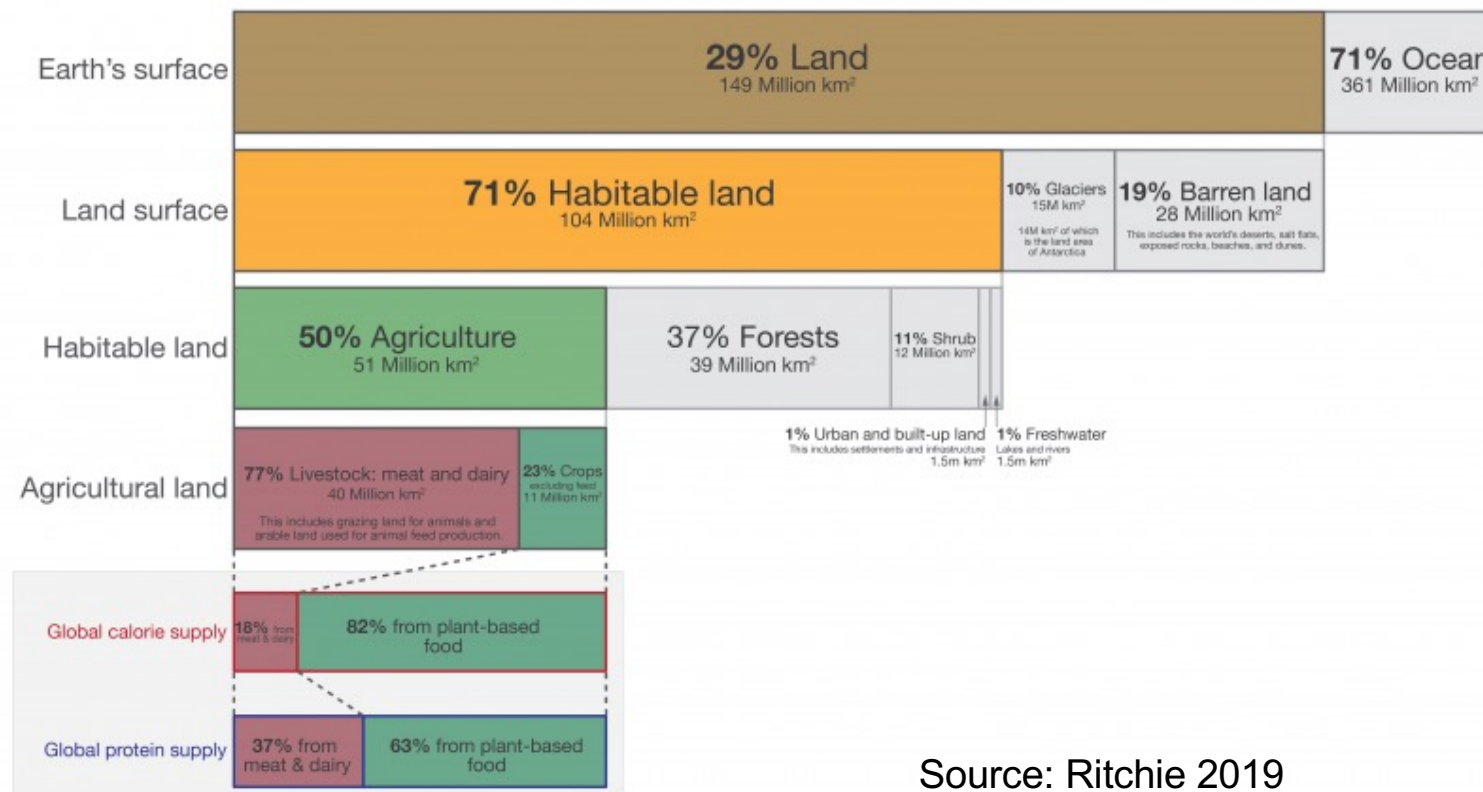
https://www.youtube.com/watch?time_continue=1&v=vQa3ZLO9A_8&feature=emb_title



(6) $\frac{3}{4}$ of earth's ice-free land is used or managed

Global land use for food production

Our World
in Data




Data source: UN Food and Agriculture Organization (FAO)
OurWorldinData.org - Research and data to make progress against the world's largest problems.

Source: Ritchie 2019

Licensed under CC-BY by the authors Hannah Ritchie and Max Roser in 2019.



Misconception

A large, solid grey circle is centered on the page. Inside the circle, the following text is written in a white, sans-serif font:

There is a misconception
that there is abundant land
available globally that is
"unused" or "uncontested"

Source: Meyfroidt et al. 2022



Multiple benefits of land

Transformed land

Narrow set of functions
(intensive cropland provides
food & income)

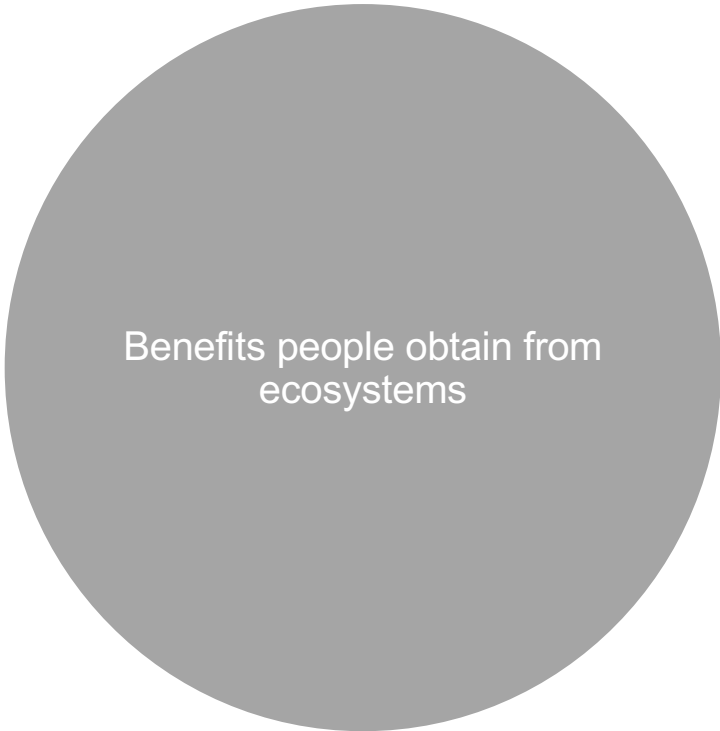
Crop or forestry production

Nature conservation
potential & provision of
ecosystem services

Source: Meyfroidt et al. 2022



Ecosystem services

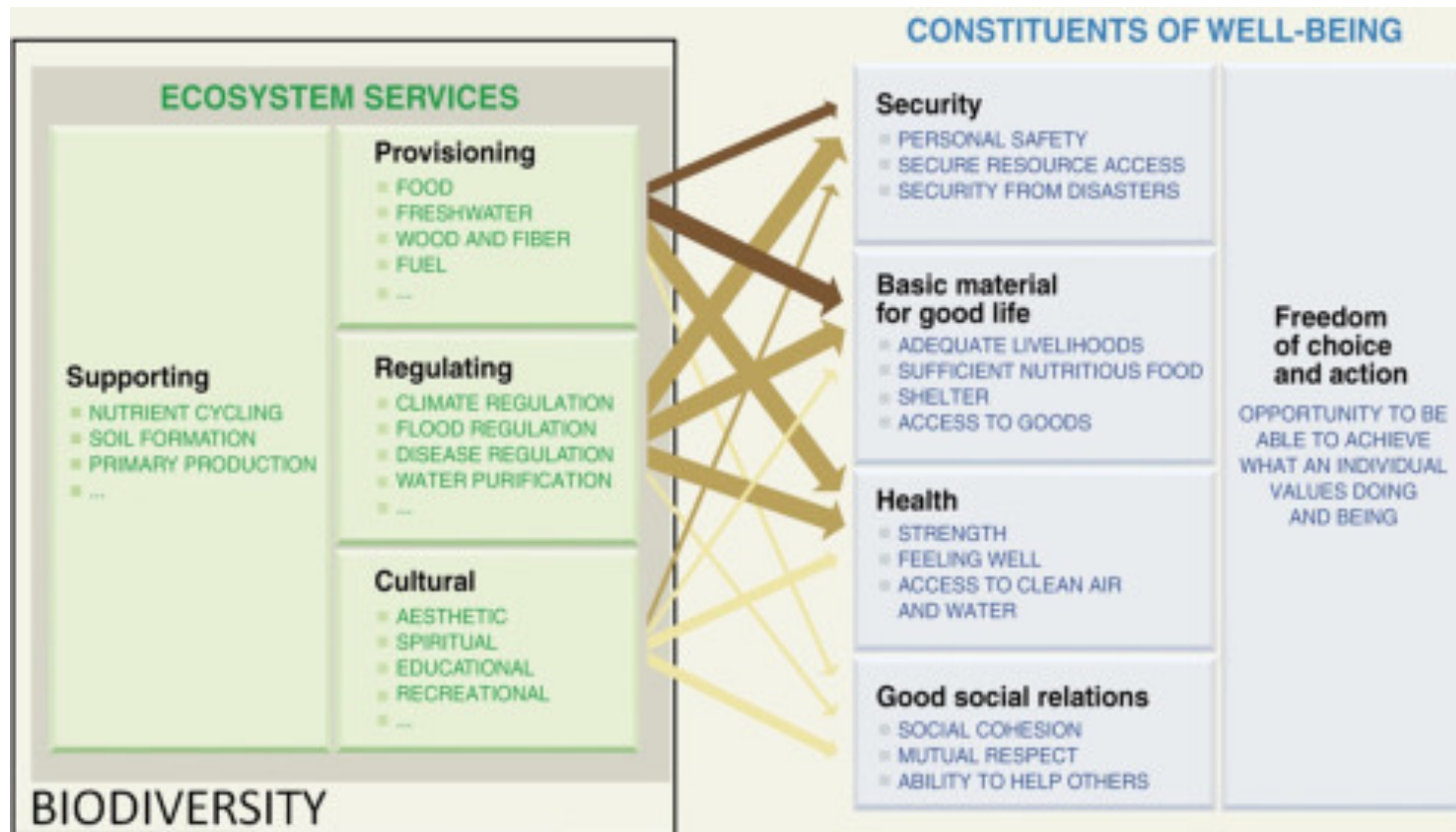
A large, solid grey circle is centered on the page. Inside the circle, the text "Benefits people obtain from ecosystems" is written in white.

Benefits people obtain from
ecosystems

Source: Millennium Ecosystem Assessment 2005



Ecosystem services



Source: Millennium Ecosystem Assessment 2005



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Protect half the land and sea

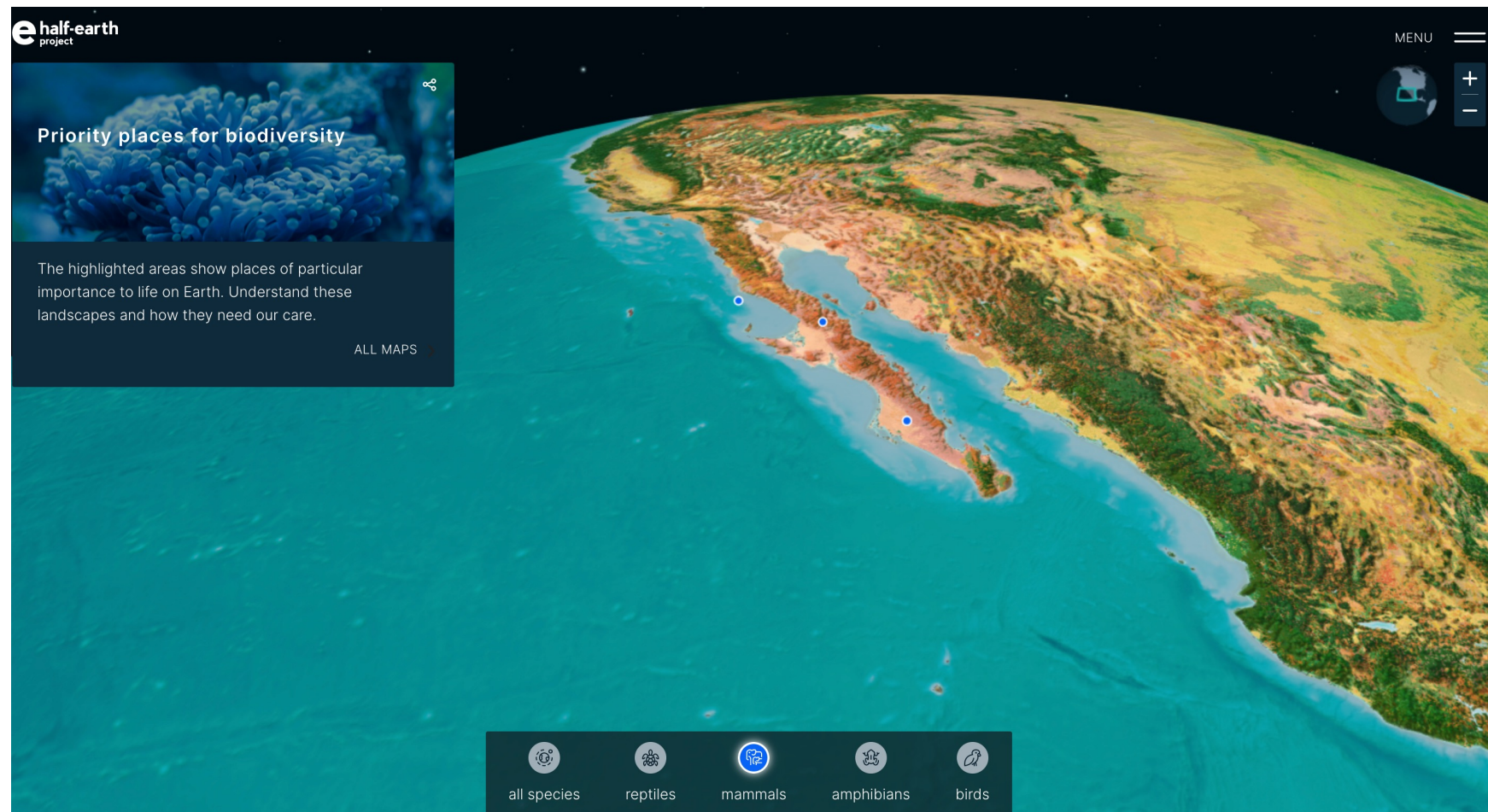


half the earth for the rest of life

www.half-earthproject.org



Map of Life





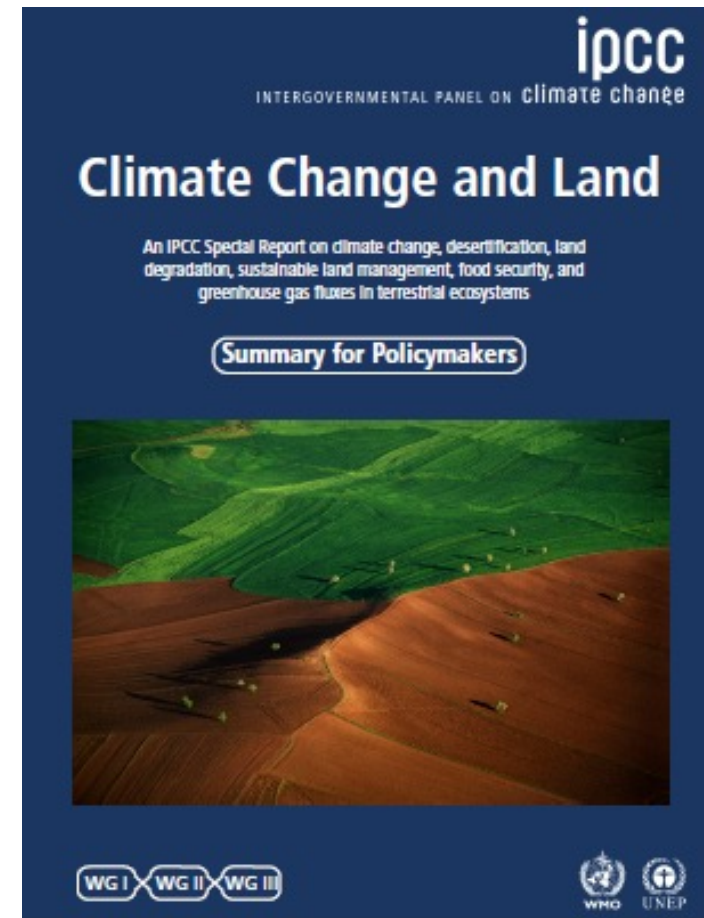
Conversion of land

What are examples of
conversion of land?




Definition of land degradation (IPCC 2019)

negative trend in land condition, caused by direct or indirect human-induced processes including anthropogenic climate change, expressed as long-term reduction or loss of at least one of the following: biological productivity, ecological integrity, or value to humans.





Definition of soil degradation (IPCC 2019)



Soil degradation refers to a subset of land degradation processes that directly affect soil.



(10) Multiple ideas of social & env'tal justice

Private governance
systems

Globalized supply
chains

Nation state as arbiter
of justice is challenged

Source: Meyfroidt et al. 2022

Nation-state as arbiter of justice?

| Forbes | | | | | | |
|---|--------------------------|---|-----|--|--------------------|-----------------------|
| The Richest People In The World | | | | | | |
| CHANGES IN WEALTH KEY: ▲ UP ▼ DOWN — UNCHANGED + NEW TO LIST ⚡ RETURNEE | | | | | | |
| <input type="text" value="Search this list"/> | | FILTER BY INDUSTRY <input type="text" value="Select"/> | | FILTER BY COUNTRY/TERRITORY <input type="text" value="Select"/> | | Filters |
| Rank | Name | Net Worth | Age | Country/Territory | Source | Industry |
| 1 | Elon Musk | \$342 B ▲ | 53 | United States | Tesla, SpaceX | Automotive |
| 2 | Mark Zuckerberg | \$216 B ▲ | 40 | United States | Facebook | Technology |
| 3 | Jeff Bezos | \$215 B ▲ | 61 | United States | Amazon | Technology |
| 4 | Larry Ellison | \$192 B ▲ | 80 | United States | Oracle | Technology |
| 5 | Bernard Arnault & family | \$178 B ▼ | 76 | France | LVMH | Fashion & Retail |
| 6 | Warren Buffett | \$154 B ▲ | 94 | United States | Berkshire Hathaway | Finance & Investments |
| 7 | Larry Page | \$144 B ▲ | 52 | United States | Google | Technology |
| 8 | Sergey Brin | \$138 B ▲ | 51 | United States | Google | Technology |
| 9 | Amancio Ortega | \$124 B ▲ | 89 | Spain | Zara | Fashion & Retail |

Source: Forbes 2025



Lowest country nominal GDP is \$40M (€36M)

| | | | | | | | |
|-----|--|---------------|------------------|--------|---------|----------|-------|
| 179 | Vanuatu | \$862,879,789 | \$863 million | 4.50% | 285,510 | \$3,022 | 0.00% |
| 180 | Samoa | \$840,927,997 | \$841 million | 2.70% | 195,352 | \$4,305 | 0.00% |
| 181 | St. Vincent & Grenadines | \$785,222,509 | \$785 million | 0.86% | 109,827 | \$7,150 | 0.00% |
| 182 | American Samoa | \$634,000,000 | \$634 million | -5.38% | 55,620 | \$11,399 | 0.00% |
| 183 | Dominica | \$496,727,000 | \$497 million | -9.53% | 71,458 | \$6,951 | 0.00% |
| 184 | Tonga | \$427,659,795 | \$428 million | 2.70% | 101,998 | \$4,193 | 0.00% |
| 185 | Sao Tome & Principe | \$392,570,293 | \$393 million | 3.87% | 207,089 | \$1,896 | 0.00% |
| 186 | Micronesia | \$336,427,500 | \$336 million | 3.20% | 532,899 | \$631 | 0.00% |
| 187 | Palau | \$289,823,500 | \$290 million | -3.57% | 17,808 | \$16,275 | 0.00% |
| 188 | Marshall Islands | \$204,173,430 | \$204 million | 3.60% | 58,058 | \$3,517 | 0.00% |
| 189 | Kiribati | \$185,572,502 | \$186 million | 0.33% | 114,158 | \$1,626 | 0.00% |
| 190 | Tuvalu | \$39,731,317 | \$40 million | 3.24% | 11,370 | \$3,494 | 0.00% |

Source: Worldometer 2022



(1) Recognition justice

(2) Procedural justice

(3) Distributive justice

(4) Intergenerational justice



(1) Recognition justice

WHY IS INDIGENOUS LAND ACKNOWLEDGMENT IMPORTANT?

“It is important to understand the longstanding history that has brought you to reside on the land, and to seek to understand your place within that history. Land acknowledgements do not exist in a past tense, or historical context: colonialism is a current ongoing process, and we need to build our mindfulness of our present participation.”

– [Northwestern University](#)

“When we talk about land, land is part of who we are. It’s a mixture of our blood, our past, our current, and our future. We carry our ancestors in us, and they’re around us. As you all do.”

– Mary Lyons (Leech Lake Band of Ojibwe)

Source: Native Governance Center 2019



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NORTHWESTERN SITS ON THE
ORIGINAL HOMELANDS OF THE
**COUNCIL OF
THE THREE FIRES**

(OJIBWE • POTAWATOMI • ODAWA)



Native American &
Indigenous Initiatives
www.northwestern.edu/native

N

Artwork by Brittany Tainter
(Lac Courte Oreilles Ojibwe)



Land ownership or designation





(2) Procedural justice



Source: Meyfroidt et al. 2022



(3) Distributive justice

The diagram consists of two large, light gray circles. The left circle contains the text 'Distribution of goods and harms'. The right circle contains the text 'Land ownership' and 'Access or rights to natural resources'.

Distribution of goods and
harms

Land ownership

Access or rights to natural
resources



Land grabbing



How to protect the bountiful asset of land? 4Rs

- **Recognize as pillars of sustainable land management:**

1. Rights

2. Rewards

3. Responsibilities





(4) Intergenerational justice





<https://fridaysforfuture.org/>





How about the role of gender in land use?

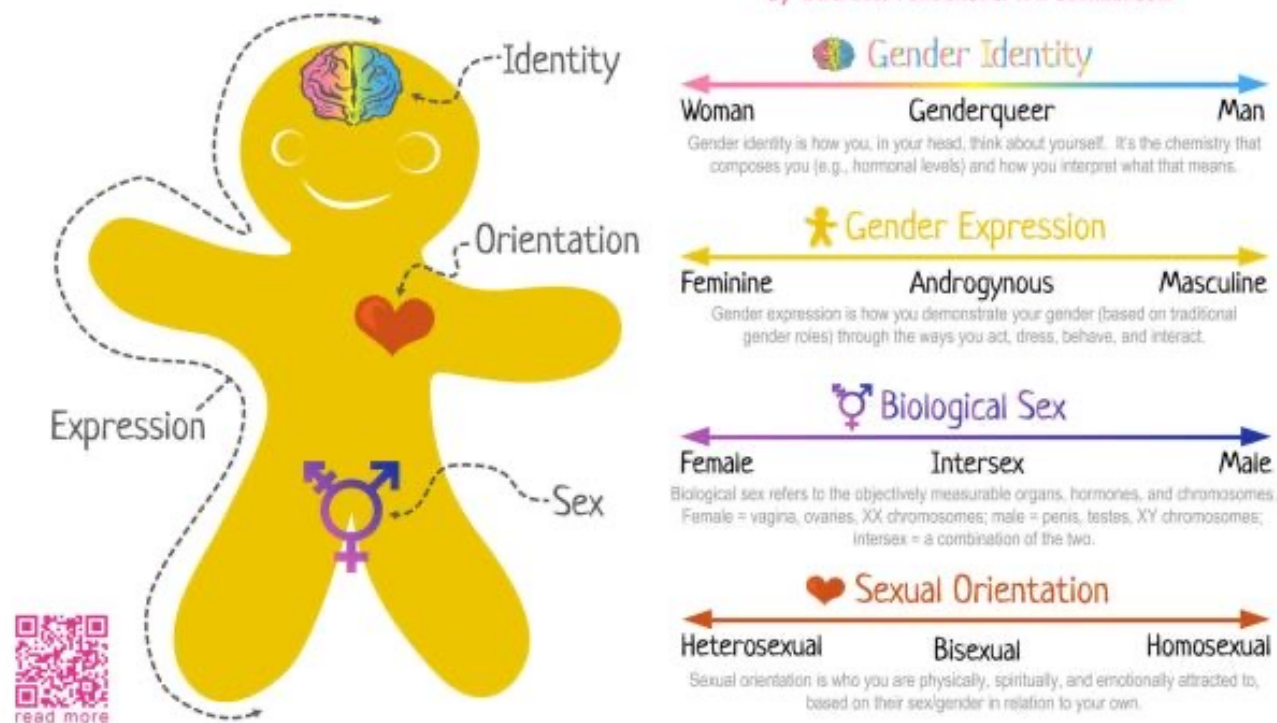
Land is a crucial resource for poverty reduction, food security and rural development. However, men and women do not always enjoy the same rights to land.

Remember that gender is not just about “women” and “men” but rather it is a spectrum



The Genderbread Person

by www.ItsPronouncedMetrosexual.com





Listening time

Where do we land up on gender equality?

Land UP!



<https://www.spreaker.com/user/15981317/landup-episode-2?>

Challenges for women's access to land

- Women are responsible for between 60 and 80 percent of food production in developing countries
- Yet they rarely own the land they are working on, have tenure security or control over the land.
- Often have limited decision making power and control over how to use the land or its outputs



Group work

What obstacles to land ownership were discussed in the three different countries?

What kind of justice do the cases discussed need?

For your examination work: Do you foresee any of these gender challenges in your MAB regional network?