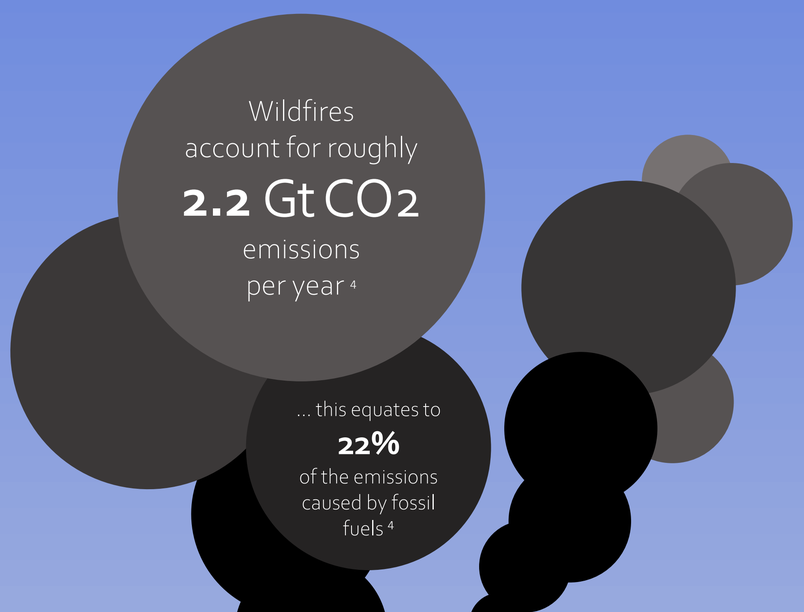
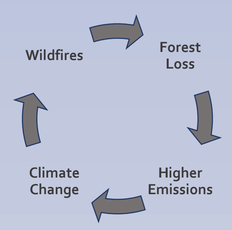
biophysical conditions

… and sociopolitical implications



Wildfire

- Climate change increases the risk of wildfires, inter alia through changes in the frequency and intensity of heatwaves, or due to changes in the occurrence of lightning strikes[10, 23, 25]
- in a more complex physical mechanism, wildfire occurrence is even connected to the decline of Arctic sea ice [26]
- Greenhouse gas emissions and forest loss from wildfires may lead to a **feedback loop** [25]



FORESTS IN INTERNATIONAL CLIMATE POLITICS

Biodiversity is key

- While forests cover around one third of the Earth's land area, they are home to **80% of terrestrial biodiversity** [1] – this is a value in itself, but forest biodiversity is also **linked to climate change**
- Biodiversity is a key factor for the **stability of forest ecosystems** [16, 20]
  - e. g. through the link between the canopy of different species and the forests' microclimate [9]
- Therefore, the role of biodiversity as a key in forests' resilience must be recognized as crucial for climate politics

An enormous carbon sink at its limits

- The carbon stock of all forests is estimated at roughly **400 Gt** [21]
  - if all released as carbon dioxide, this would equal to approx. **1,450 Gt**
- The continuing removal capacities of existing forests depend on their **saturation level** – research suggests that the tropical forest ecosystems' sink capacity may have peaked recently [13]
- Deforestation and other forest disturbances may turn forests into **net emittents**: While the **Congo Basin** still remains a stable net sink with net removals -0.61 Gt per year, the **Brazilian Amazon** is already a net carbon emittent of 0.22 Gt a year (Amazon forest altogether: net removal of 0.10 Gt per year) [12]
- **Boreal forests** have a special risk of becoming net emittents due to wildfires, as large amounts of historic carbon can be released through the combustion of the permafrost's **soil organic matter** additionally to the active biomass [24]

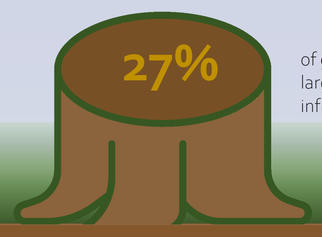
Silver linings?

Future prospects

- In the context of the predicted ongoing global urbanization, timber could be used as a **building material** more extensively, as it serves as a carbon sink and reduces the dependency on carbon-intensive materials such steel and concrete [5]
  - first steps are taken, e. g. within the EU's *New European Bauhaus* vision [22]
  - such policies are only helpful if backed by sustainable forest management practices
- Urban forestry holds an **untapped carbon sink potential** [2, 14] and can provide much needed cooling in ever hotter cities [17]
- Apart from the cities, 36% of intact forest landscapes are located within indigenous peoples' lands, with considerably lower deforestation rates [8]
  - indigenous perspectives on forest preservation thus deserve more attention and consideration

Money talks

- Many people depend on forests: Even though the term "forest-dependent people" is hard to define [19], it is estimated that **1.6 billion livelihoods depend on forests** [18]
- But neoliberal, commodifying forest protection instruments, such as the certification of timber or the sales of carbon credits, tend to **concentrate payouts on individuals** and may thus **intensify inequality and poverty** in local communities [15]



of **global forest loss** can be attributed to **commodity production** (i. e. large-scale agriculture including oil palm plantations, mining, or energy infrastructure) [7]

A disputed legal basis

- The basis of international climate law is the **United Nation's Framework Convention on Climate Change** (UNFCCC) adopted in 1992 – it established the annual « conferences of the Parties » (COP) and first recognised the need to act, but remained largely vague
- The **Kyoto Protocol** was adopted in 1997 and concretised the action through the formulation of individual targets and mechanisms – forests are explicitly addressed in the articles 2, 3 and 10
- The 2015 **Paris Agreement** formulates « results-based payments » as a way to preserve and enhance forest carbon stocks
- This approach materialises in the **REDD+** program which aims to reconcile forest preservation and financial interests
- The REDD+ program intervenes in existing local cultures across the globe – the conversion of forests into the single commodity of a carbon sink is a large-scale **societal experiment** – it interferes with local social structures and their traditional norms and values in profound ways with unpredictable outcomes [3, 6, 11]

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