



Threats and Opportunities for Tropical Forests and Associated Forest Products in the 21st Century

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Roadmap

A dirt road winds through a lush green forest. In the distance, a tall, thin tree stands prominently against a hazy sky. The road is flanked by dense vegetation and trees, creating a sense of a deep, natural setting.

1

**Introduce the
bioeconomy
of standing
forests**

2

**Review existing
threats to forests &
development**

3

**Describe potential
role of fruits and nuts
in a new bioeconomy
trajectory**

Roadmap

A dirt road winds through a lush green forest. In the distance, a waterfall cascades down a rocky ledge. The sky is overcast and grey. The road is reddish-brown and leads the eye from the bottom right towards the center of the image.

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DALL·E

Bioeconomy of the standing forest and flowing rivers:

A system of producing goods and services to support wellbeing and equity through the preservation of healthy, standing forests and flowing rivers, as well as the knowledge and communities that support this ecological integrity.

What qualifies as a bioeconomic activity?

- Restoration with native species
- Non-timber forest products
 - Rubber
 - **Nuts**
 - **Fruit**
 - Hearts of palm
- Sustainable aquaculture
- Nature and community-led tourism



Brazil nut



Cashew

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Açaí



Agroforestry with banana, cupuaçu, taperebâ, açaí, inga, mogno, andiroba, and parica

Source: SPA Report

What does not qualify as a bioeconomic activity?

- Deforestation for forest agriculture
 - Unsustainable timber harvesting
-
- **These threaten bioeconomy processes**



Coop in Rondonia
(Fruits, Brazil nut & hearts of palm)

Bioeconomy aspirations

1. Enable all people to create and enjoy prosperity
2. Promote equity (inter-generations, inter-genders, & more..)
3. Safeguard, restore and invest in nature
4. Support sustainable consumption and production, and
5. Guided by integrated, accountable and resilient institutions



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Introduce the bioeconomy of standing forests

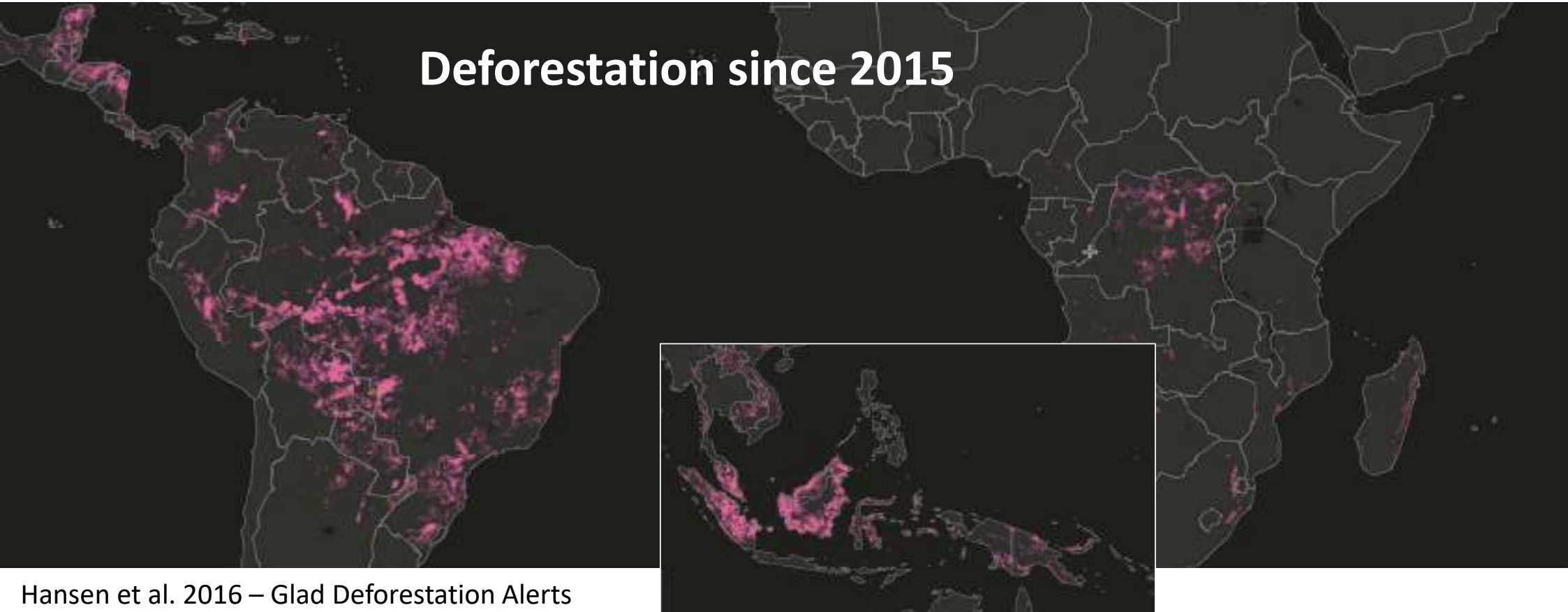
2

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Deforestation since 2015



Hansen et al. 2016 – Glad Deforestation Alerts

- Between 2000-2018 60 Mha of primary tropical forest has been lost (Source: *Global Forest Watch - Hansen*)

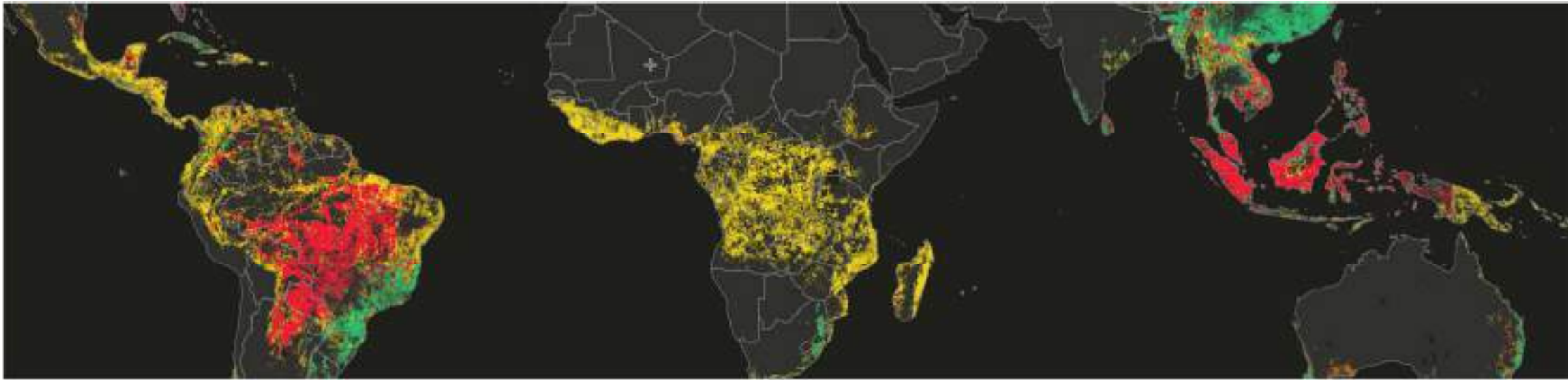
2.5 times the size of UK in tropical forest loss since 2000



- Including degradation accounts for ~18% of gross global CO₂ emissions
- More than all emissions than the EU

New agricultural areas account for ~72% of global tree-cover loss

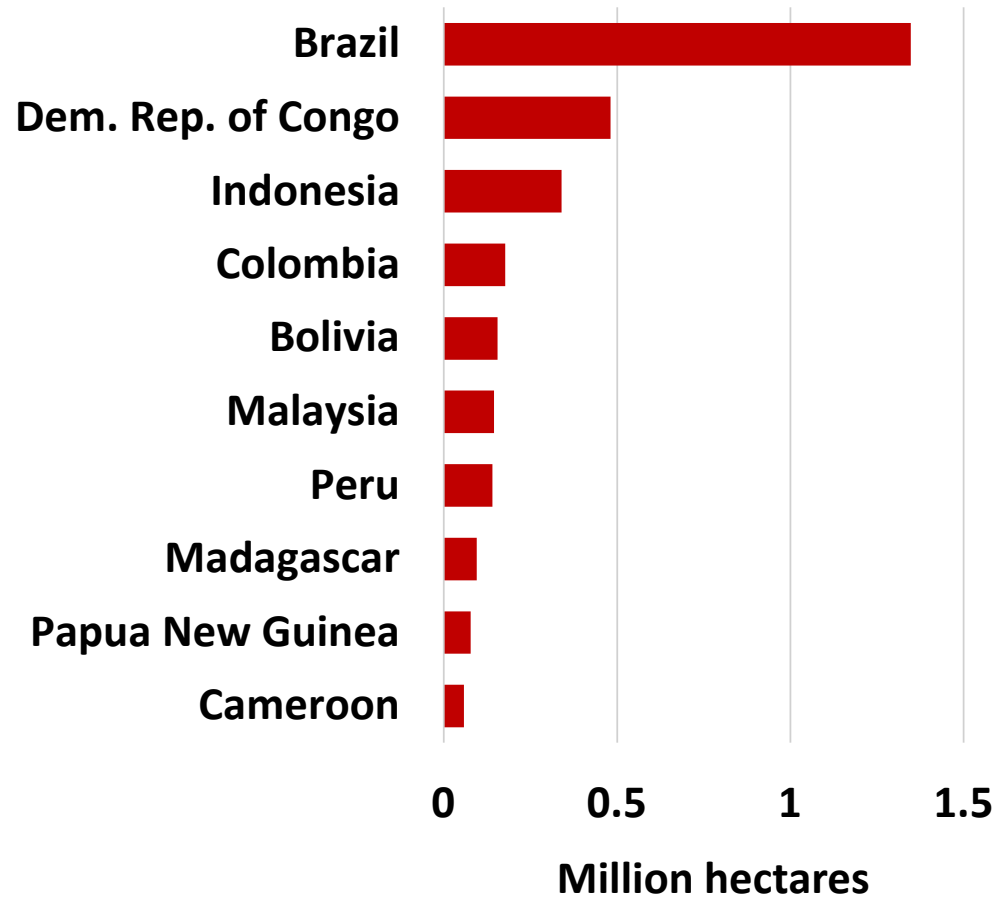
Pendrill et al. 2022 Science



- Primary forest
- Commodity agriculture
- Shifting cultivation
- Forestry

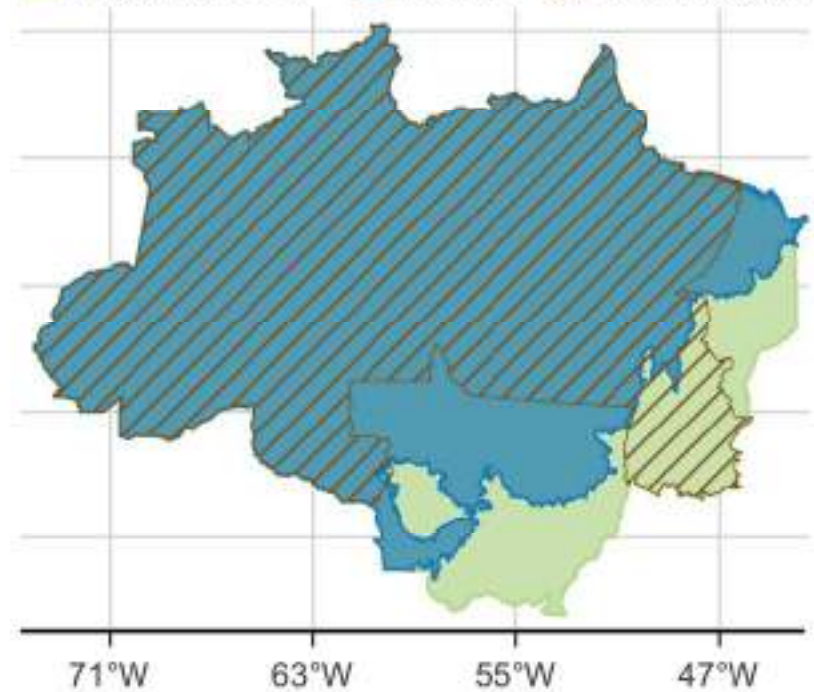
Sources: *Global Forest Watch; Curtis et al. 2018*

Tropical deforestation by country



h) Amazonian boundaries

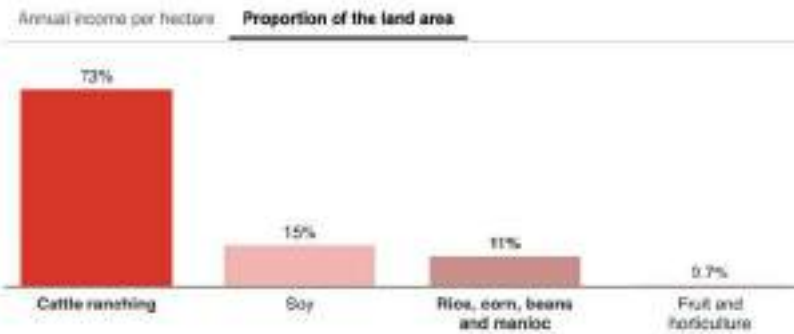
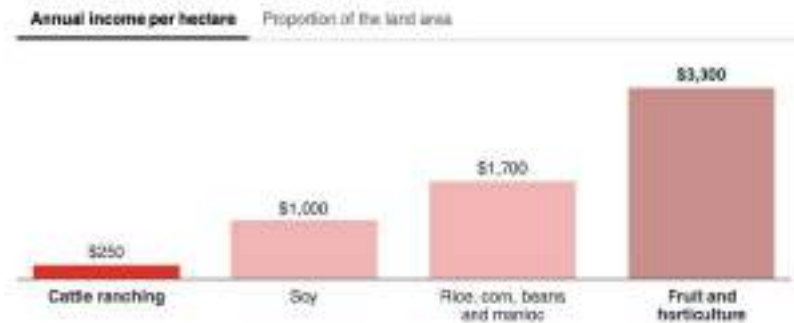
Legal Amazon Biome North region



A majority of the areas in Brazil occupied by extensive pastures when cattle generate such low income.

Farming in the rainforest

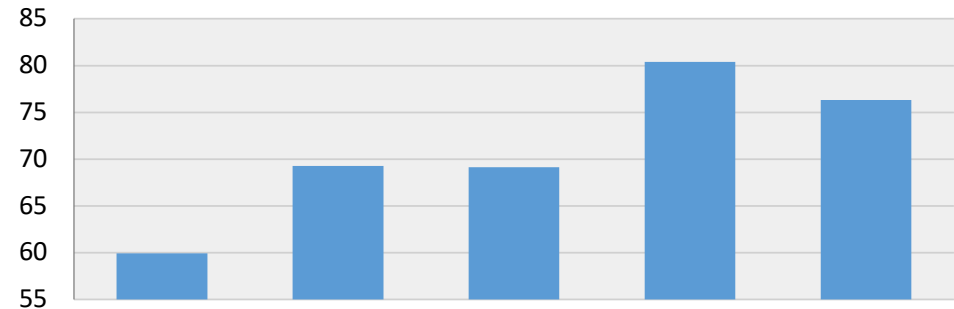
In the Brazilian Amazon state of Pará, cattle ranching is a land-intensive activity that earns farmers relatively little and often results in habitat degradation and deforestation. Less than 1 percent of the farmland in this region is used to grow more lucrative and sustainable crops like fruit.



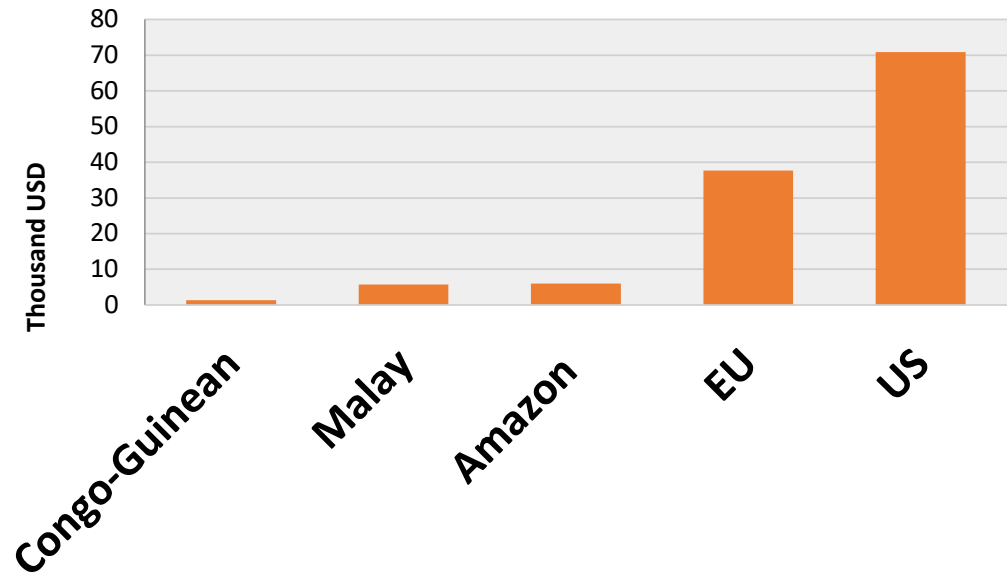
The Conversation, CC-BY-ND
Source: Ecology and Society (2017)

Current modes of expansion at the expense of the forest are not generating significant development.

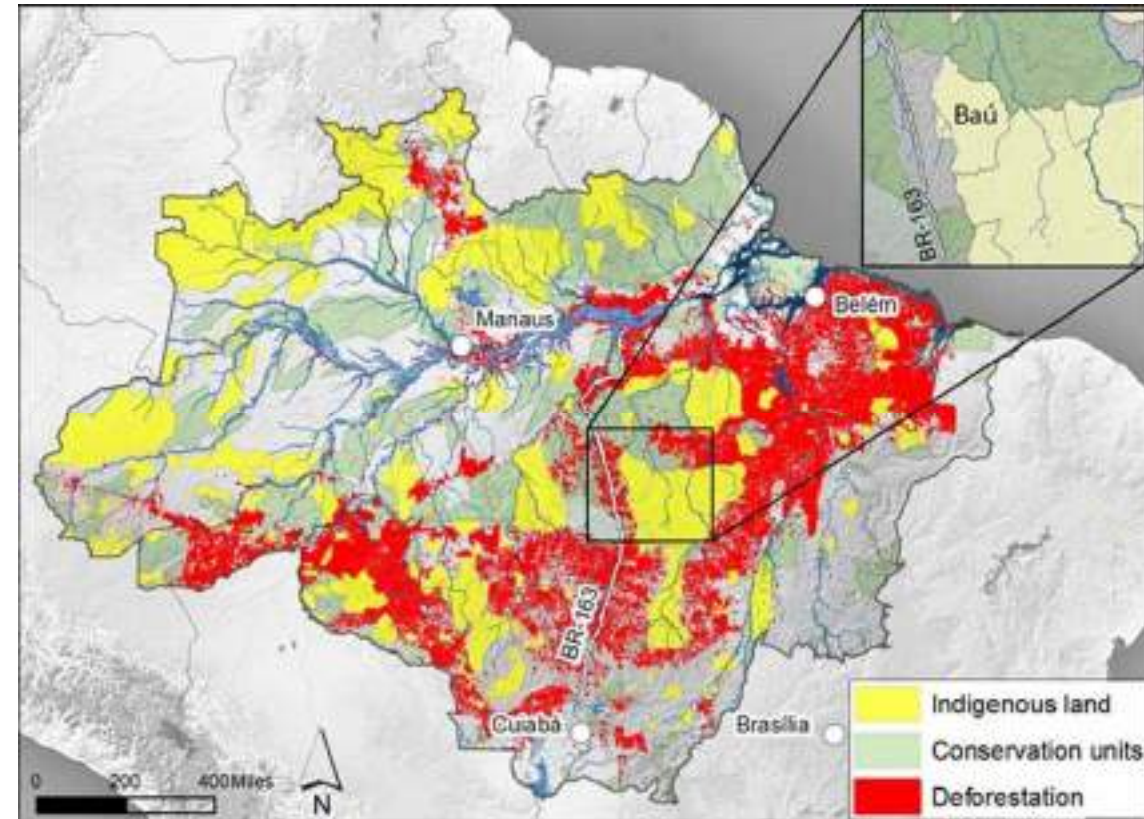
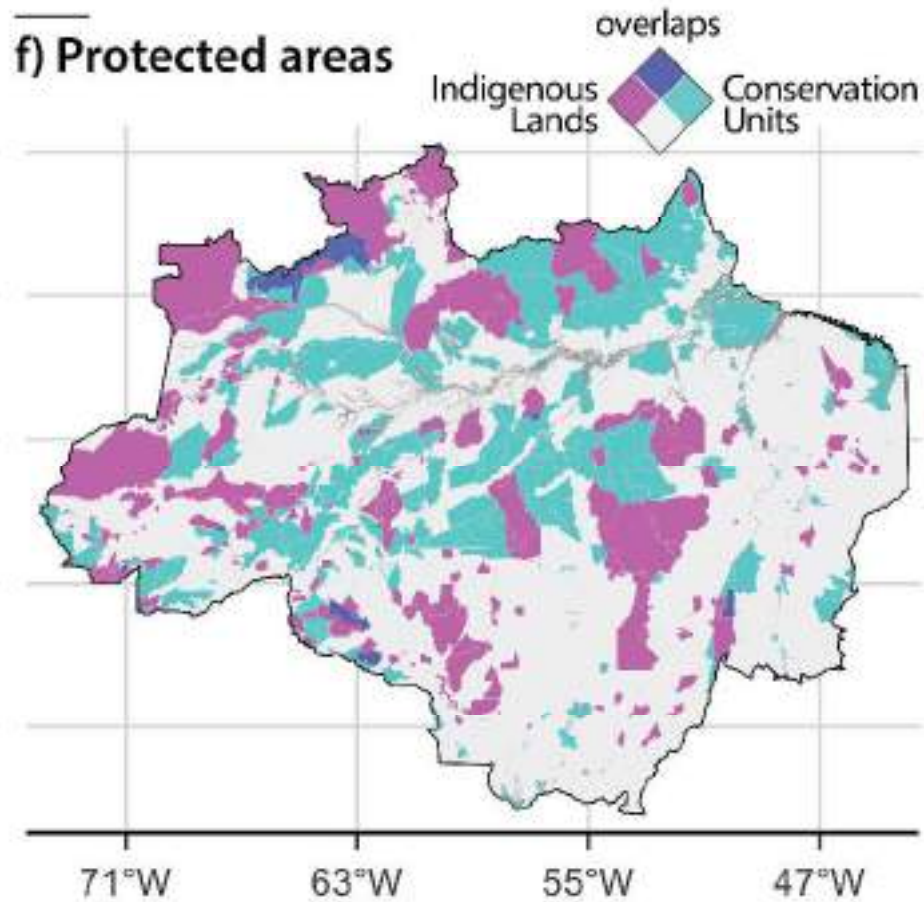
Life Expectancy - 2021



Gross National Income per Cap - 2021



Amazon home to thousands of indigenous people, but they are buffeted by threats from deforestation.

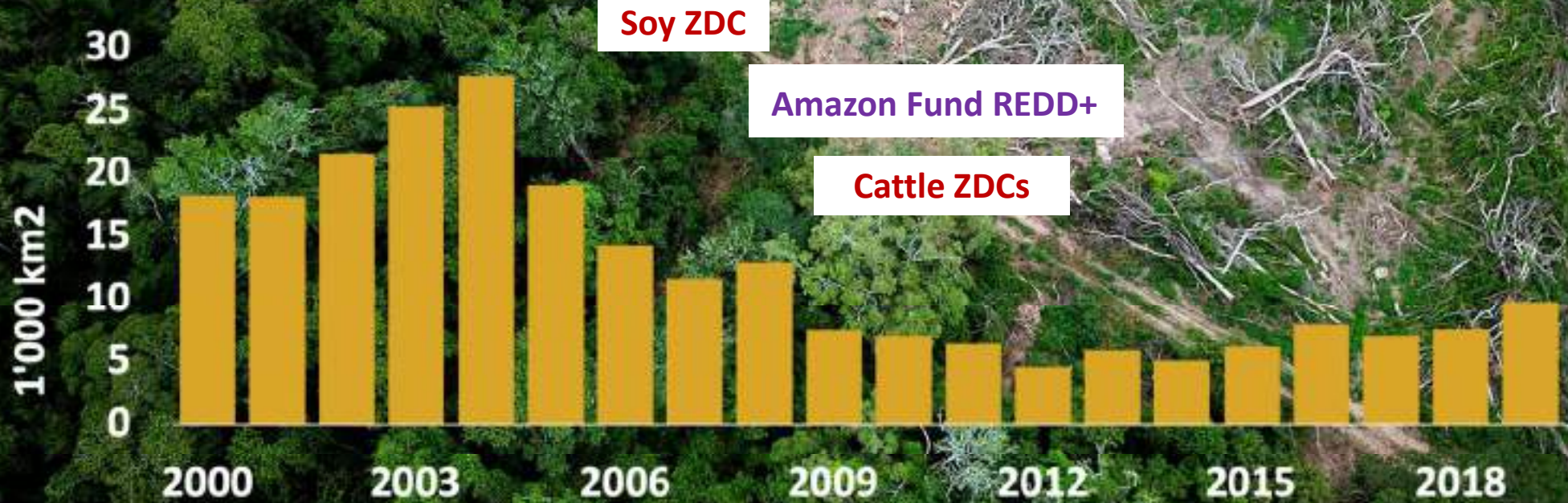


Credit: Mongabay

**Current solutions almost entirely
focused on deforestation control**

GOVERNMENT
PRIVATE SECTOR
INTERNATIONAL

Brazil Plan for the Prevention and Control of Deforestation
(↑ Protected areas, registration, monitoring, fines)



Annual Deforestation in the Brazilian Amazon

But control under significant counter-pressure is expensive and only minimally effective.

Inherent limitations of trying to just stop deforestation

- Even where supply chain policies are effectively implemented, they have **relatively small impacts** on global forest loss – leakage is likely

<2% of annual tropical deforestation

Inherent limitations of trying to just stop deforestation

- Often have intractable **effectiveness-equity tensions** (at least in the short-term)

Effectiveness is often prioritized. Negative impacts on most vulnerable actors is a problem in many contexts.

If equity considerations are taken into account, the policies may be very watered-down.

Can try to improved deforestation controls, and should, but need more ambitious actions

Deforestation control



Societal & economic transformation:

- Cultural & legislative change
- Development of equitable **bioeconomies**

Roadmap

A dirt road winds through a lush green forest. In the distance, a waterfall is visible. The sky is overcast. The road is reddish-brown and leads into the forest. The trees are dense and green. The overall scene is a natural, forested landscape.

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One
simple
example:
the mighty
Brazil nut





- Supports 60,000 families in the Brazilian Amazon
- Often indigenous
- Secondary forests can regrow into Brazil nut producers. After 10 years 2.4% of existing trees would be productive.

Bongiolo et al. 2020

The Brazil nut gatherers of the Amazon

Foraging for the native Brazil nut has next to no environmental impact, but investment is needed to expand capacity

EN 中文



- Sell an average of 40,000 tonnes of the native nut each year
- Exported to 60+ countries

Yet there is a long way to go (data from 2019)

Product	Export value (US\$ million)
Black pepper	108
Processed fruits	50
Brazil nut	28
Palm oil	27
Total export value of forest products in the Amazon	298

VS

Product	Export value (US\$ million)
Soy	9,800
Iron	9,500
Corn	3,500
Cattle	1,800
Total export value of non-forest products in the Amazon	39,000

Bioeconomic development could be a powerful tool for gender equity

- Women are crucial to the collection and sale of medicinal plants and other NTFPs, activities that are large contributors to household resilience (Schmink and Garcia 2013)



Positive developments

- Numerous social movements now exist across different vulnerable groups, including indigenous, riverine, and former slave communities, among others.



**Kenya - Green Best Movement
(Wangaari Matthai)**

Brazil – rural women’s movement



India - Chipko Movement

(see work by Bina Agarwal)



Some challenges:

- Poor coordination
- Lack of understanding of full range of opportunities
- Lack of incentives in the supply chain
- Phytosanitary standards
- Little value added
 - Especially in Brazil sold with little processing

Policies needed for a bioeconomy



1. Establish an inclusive and democratic bioeconomy planning process



2. Increase demand and finance for bioeconomy solutions



3. Enhance connections between actors at many scales to support knowledge sharing and value creation

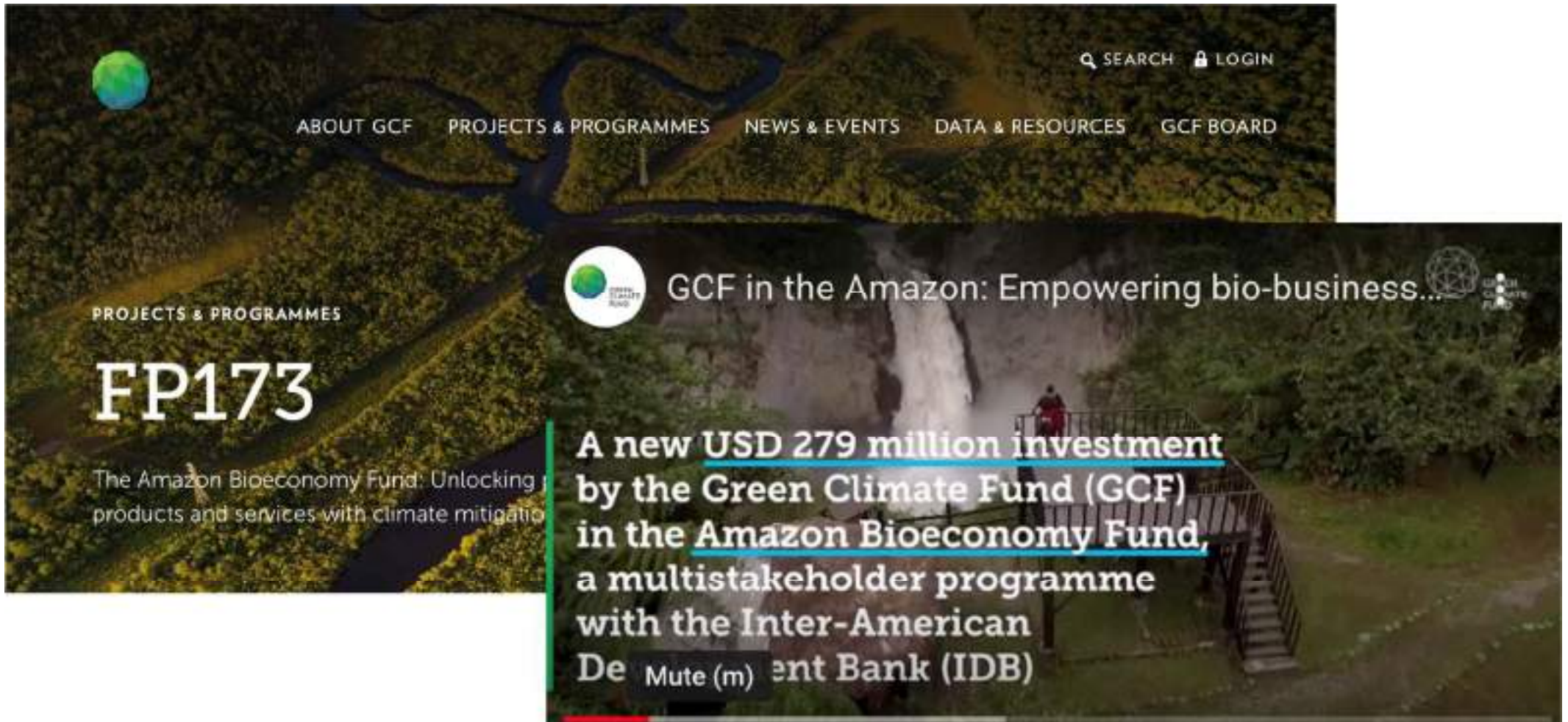


4. Put enabling conditions into place: infrastructure, land rights, knowledge, governance, and enforcement capacities



5. Establish safeguards to avoid risks and misuse of the bioeconomy

New finance on the horizon



The image is a screenshot of the Green Climate Fund (GCF) website. The background is a lush green Amazon rainforest with a winding river and a waterfall. In the top left corner, there is a small globe icon. The top navigation bar includes a search icon, the text 'SEARCH', a login icon, and the text 'LOGIN'. Below the navigation bar, there are several menu items: 'ABOUT GCF', 'PROJECTS & PROGRAMMES', 'NEWS & EVENTS', 'DATA & RESOURCES', and 'GCF BOARD'. On the left side, under the heading 'PROJECTS & PROGRAMMES', the text 'FP173' is prominently displayed in large white letters. Below it, the text reads 'The Amazon Bioeconomy Fund: Unlocking products and services with climate mitigation'. On the right side, there is a circular logo with a globe and the text 'GCF' and 'Amazon Bioeconomy Fund'. To the right of the logo, the text reads 'GCF in the Amazon: Empowering bio-business...'. Below this, there is a large text block with a green background that reads: 'A new USD 279 million investment by the Green Climate Fund (GCF) in the Amazon Bioeconomy Fund, a multistakeholder programme with the Inter-American Development Bank (IDB)'. At the bottom right, there is a small logo for 'GCF' and 'Amazon Bioeconomy Fund'.

ABOUT GCF PROJECTS & PROGRAMMES NEWS & EVENTS DATA & RESOURCES GCF BOARD

SEARCH LOGIN

PROJECTS & PROGRAMMES

FP173

The Amazon Bioeconomy Fund: Unlocking products and services with climate mitigation

GCF in the Amazon: Empowering bio-business...

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Takeaways

- Deforestation poses significant harm to the world via carbon emissions and biodiversity loss, without bringing widespread development.
- It is also a threat to the valuable nuts and fruits that depend on the standing forest



Takeaways



- **Deforestation control efforts always have mixed and limited impacts because the counter-pressure is so strong.**
- **Developing the bioeconomy can be the alternative – leading to more inclusive and equitable development based on the standing forest**

Takeaways

- Nuts and fruits are a key part of this vision.
- This sector can help facilitate the bioeconomy by:



Direct sourcing in equitable terms



Supporting capacity building (e.g. quality, safety) in producing communities



Lobbying the government for infrastructure, and



Supporting research



**Thank you for your
attention**

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contemp.solutions

