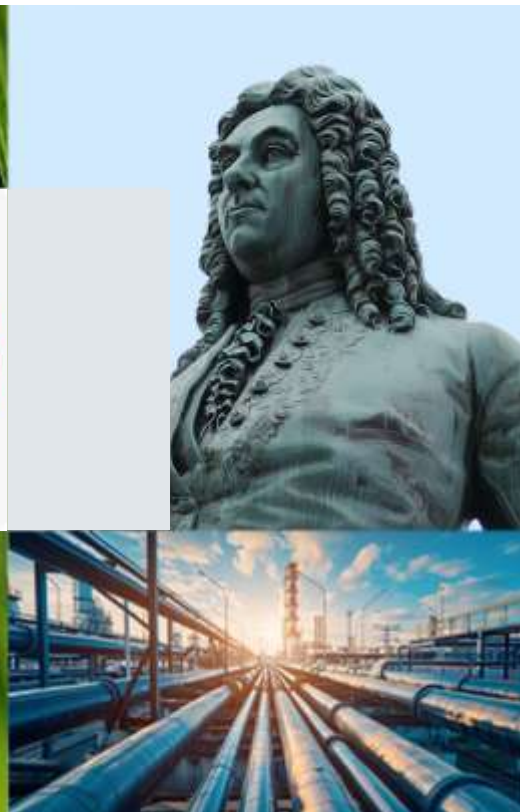


Current Status of National and International Bioeconomy Initiatives

Daniela Thrän, Matthias Welker
Helmholtz Centre for Environmental Research - UFZ

IBC25 - International Bioeconomy Conference 2025
18th of June 2025



Dynamic development of bioeconomy strategies worldwide

Globally, dynamic changing policy landscape on positive trajectory

When were bioeconomy-related policies/strategies last updated?

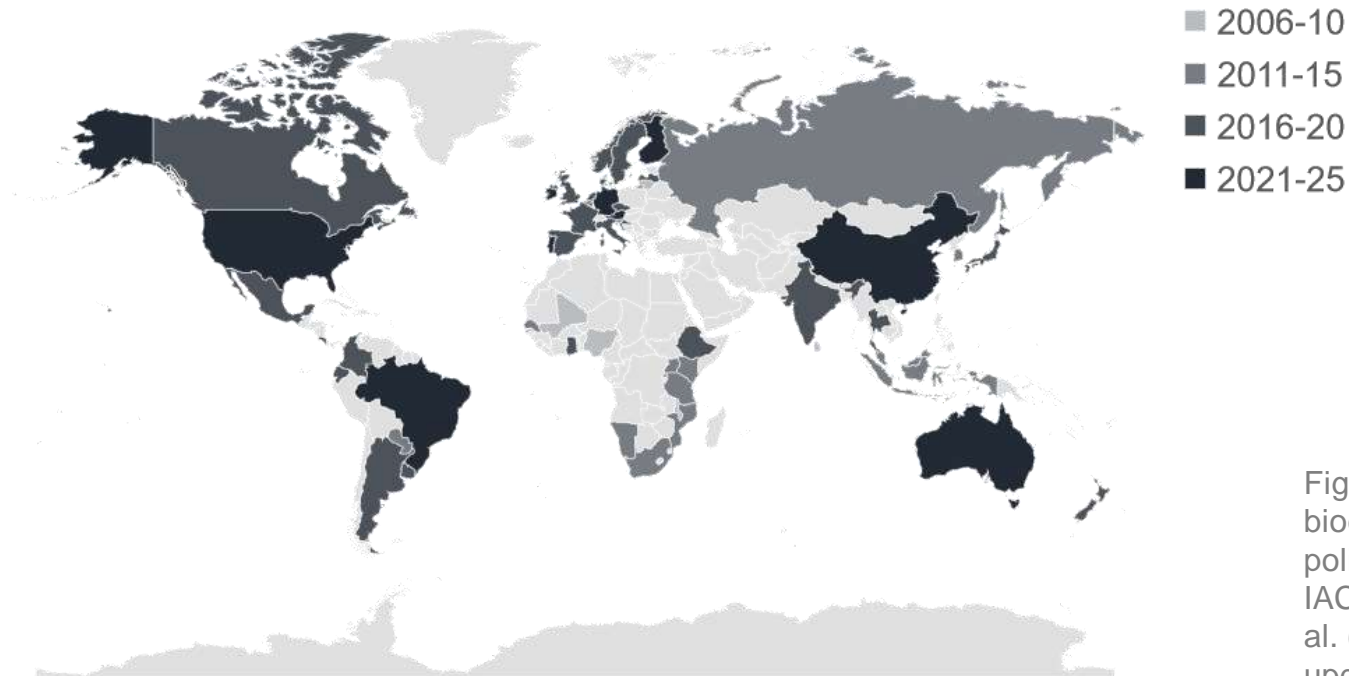


Figure: Last update to bioeconomy-related policies based on IACGB (2020), Dietz et al. (2024); partially updated, own depiction.

USA without streamlined policy initiatives, but with ambitious plans especially with regard to bio-technology and bioenergy

- No single bioeconomy policy or strategy
- Biden administration launched executive order focusing on biotechnology, biomanufacturing and bio-resource use
- USDA published resilient biomass supply report, a roadmap for expanding biobased fuels, plastics and other products
- DOE estimated in 2023 that the US could triple it's biomass production to 1 billion tons in 2050, with this bioenergy could cover 15% of future energy needs
- Trump Administration revoked executive order.

POTUS (2022). Executive Order 14018.

USDA (2024) Buildings a resilient biomass supply. Report.

DOE (2024) 2023 Billion-Ton report- Report



China applies encompassing definition, and shows high ambitions with regard to Bioeconomy in their 14th 5-Year-Plan and Bioeconomy strategy

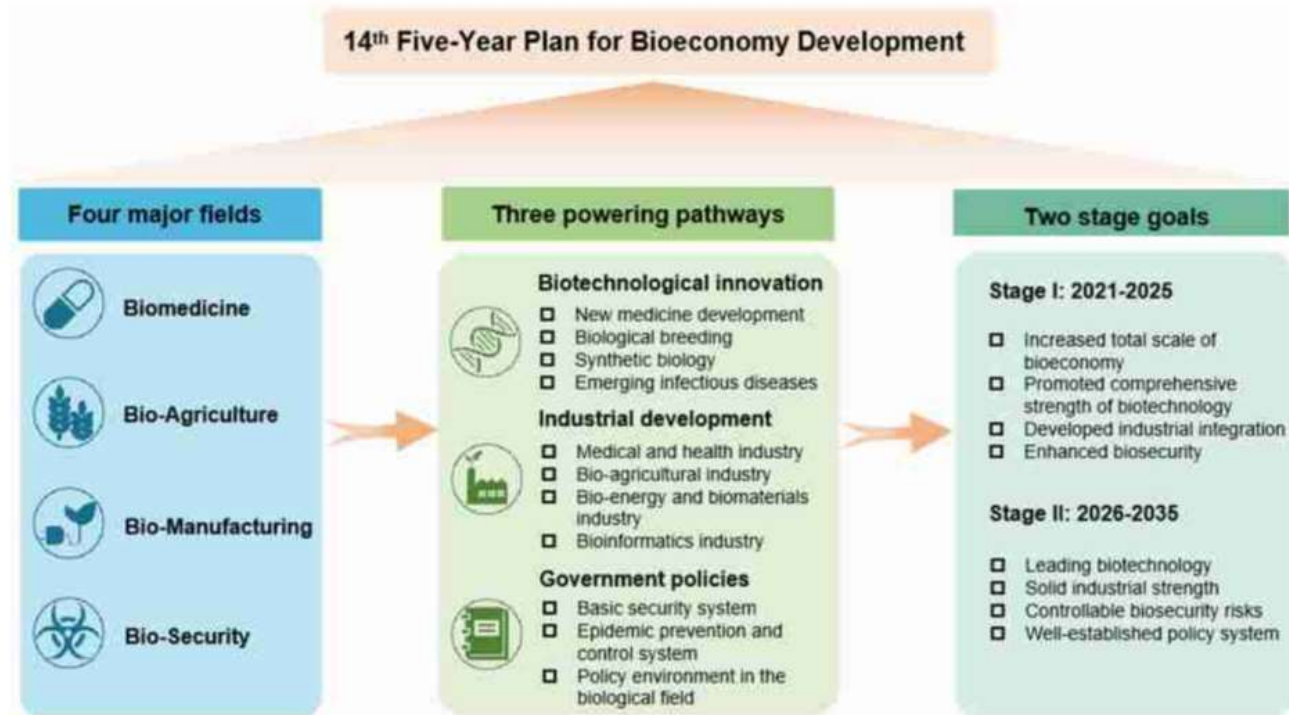
- 14th 5-year plan includes many references to bioeconomy and biotechnology
- In most pillars biotechnology, bioenergy, bio-based materials plays a major role
- CCP also released industry specific bioeconomy 5-year development plan, on i.e.
 - Focus on innovative biotechnology
 - Plant-breeding development
 - Development of high-yield oil crops for bioenergy



Market Figure

Bioeconomy value by 2025: 3.3 trillion USD,
18% of GDP (Source: World Bioeconomy Forum (2022))

China applies encompassing definition, and shows high ambitions with regard to Bioeconomy in their 14th 5-Year-Plan



Brazil launches Bioeconomy strategy, establishes relevant policy bodies and aims to streamline national and local efforts

- Launched national Bioeconomy strategy policy in 06/2024 aims to...
- ... streamline efforts of ministries of environment, industry and finance
- ... establish bioeconomy commission to formulate bioeconomy development plan and establish monitoring system
- Objectives are the conservation of biodiversity, decarbonization and bio-industrialization.

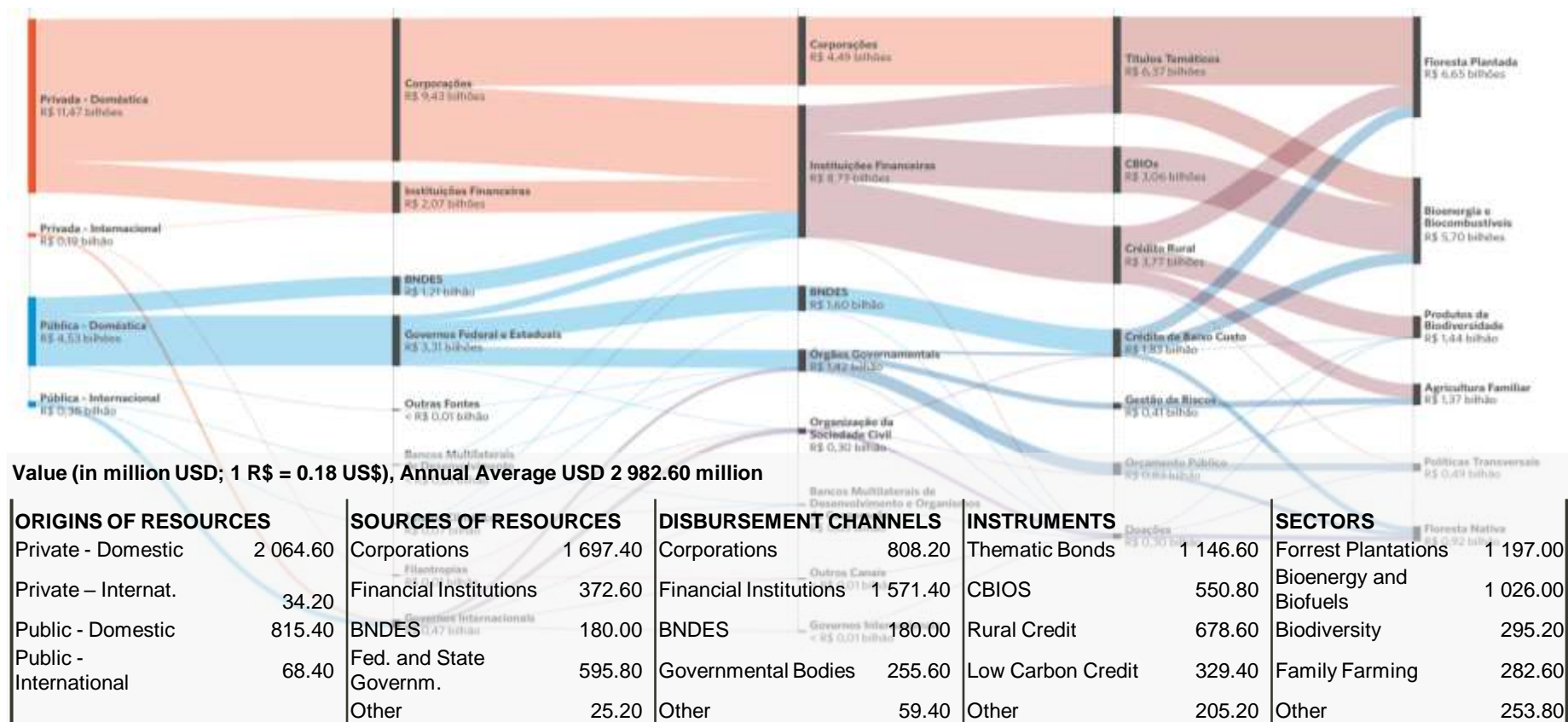


Market Figure

So far most BE related funding is spent on wood plantations and bioenergy (each approx. USD 1 billion/yr).

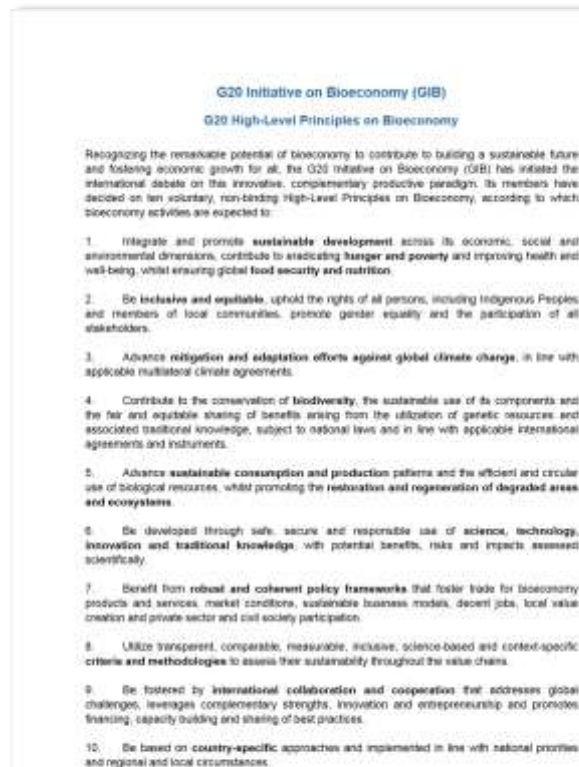
Brazil Restoration & Bioeconomy Finance Coalition (BRB Finance Coalition) aims to mobilize at least \$10 billion in public and private investment to fund restoration and bioeconomy projects.

Finance Flows in the Bioeconomy in Brazil, 2021-2023



G20 agreed on high-level, non-binding principles on Bioeconomy

- First ever multi-national Bioeconomy agreement with global relevance
- Focusses on sustainable use of ecological resources, with high emphasis on biodiversity, climate and ecosystems, as well as traditional knowledge
- Demands policy framework and sustainability assessment supporting this and delivering economic development
- Based on country-specific approaches



¹ The applicable multilateral climate agreements referred to in Principle 3 include, but are not limited to, the Paris Agreement. The applicable international agreements and instruments referred to in Principle 4 include, but are not limited to, the Kunming-Montreal Global Biodiversity Framework (KMGBF).



Changing Foci

The text share of Bioeconomy strategies dedicated to economic and environmental topics has been balanced out over time

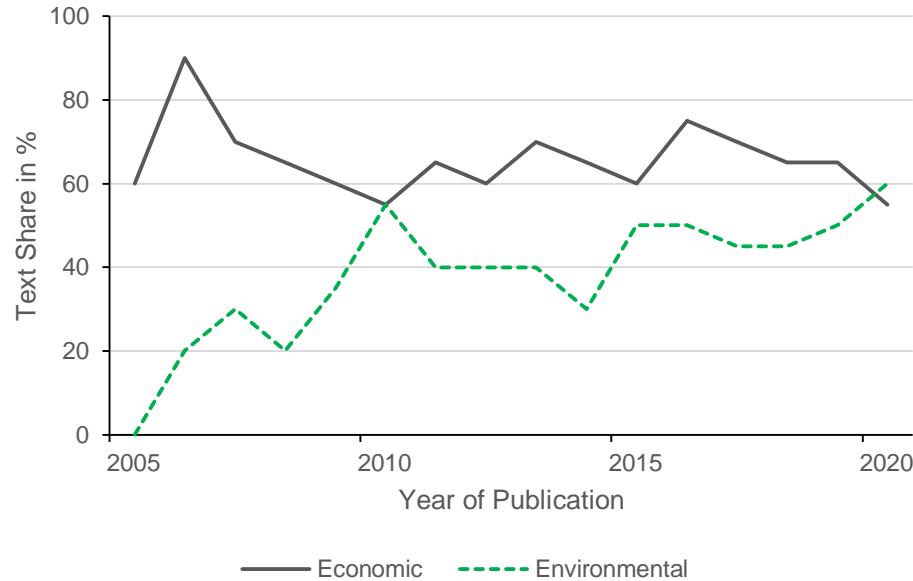


Figure: The relative text share of economic and environmental goals over time (in percent) from 78 bioeconomy policy documents from 50 countries

European Commission plans to update Bioeconomy Strategy

- "We have to make a collective effort *to build a thriving sustainable and circular bioeconomy.*" – Jessika Roswall, Commissioner for the Environment, Water Resilience and a Competitive Circular Economy
- Aims to align BE strategy with Competitiveness and Clean Industrial Deal
- Aims to align strategy with upcoming Biotech Act and Life Science Strategy



- **Timeline**

- **Until 23 June 2025:** Call for evidence
- **Q4 2025:** Release of new strategy



<https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/14555>

The status of the German bioeconomy strategy



- Joint research and policy strategy from BMBF & BMEL
- Specification with an implementation plan was foreseen
- Sustainable biomass provision is key
- Fundamental discussions on sustainable biomass supply and innovation in several stakeholder groups
→ changing focus or stagnation?



https://bioeconomy-science-hub.uni-hohenheim.de/fileadmin/einrichtungen/bioeconomy-science-hub/Positionspapier/25022025_Position_paper_Driving_the_sustainable_bioeconomy_now_optimiert.pdf



Bioeconomy strategies tend to oscillate between visions bio-technology and (environmentally cautious) resource use

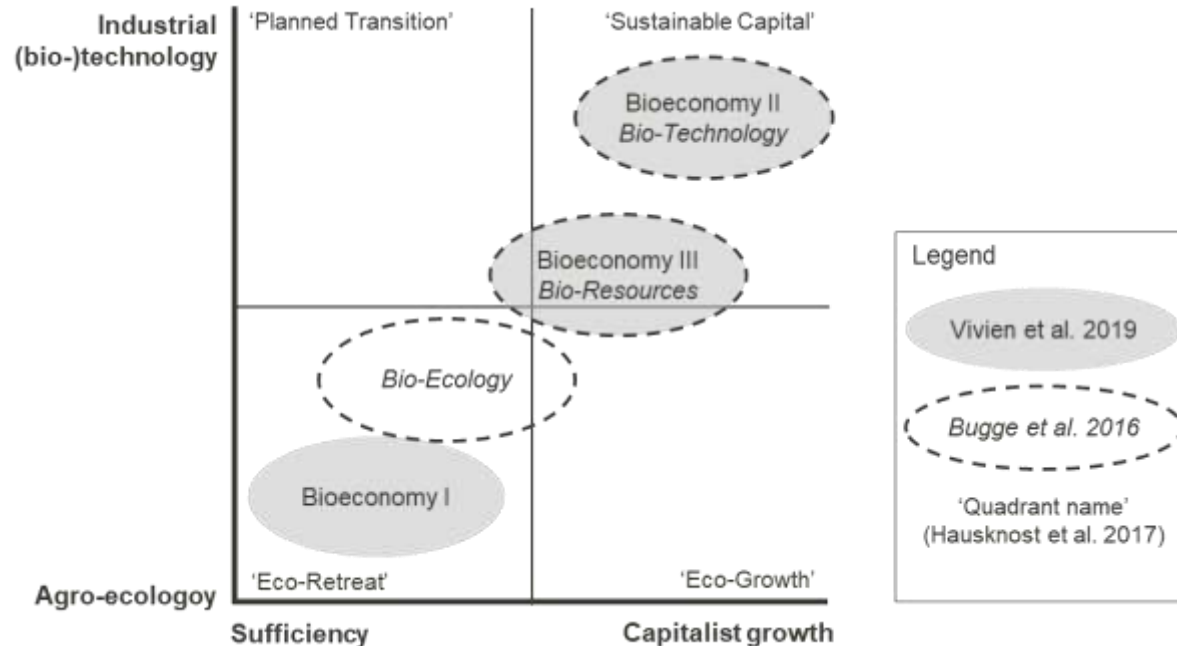


Figure: Bioeconomy techno-political option matrix combined with Vivien's historical Bioeconomy vision development (own graphical depiction).

Among only German stakeholders, differences in perception persist, but tend to cluster around bio-resources

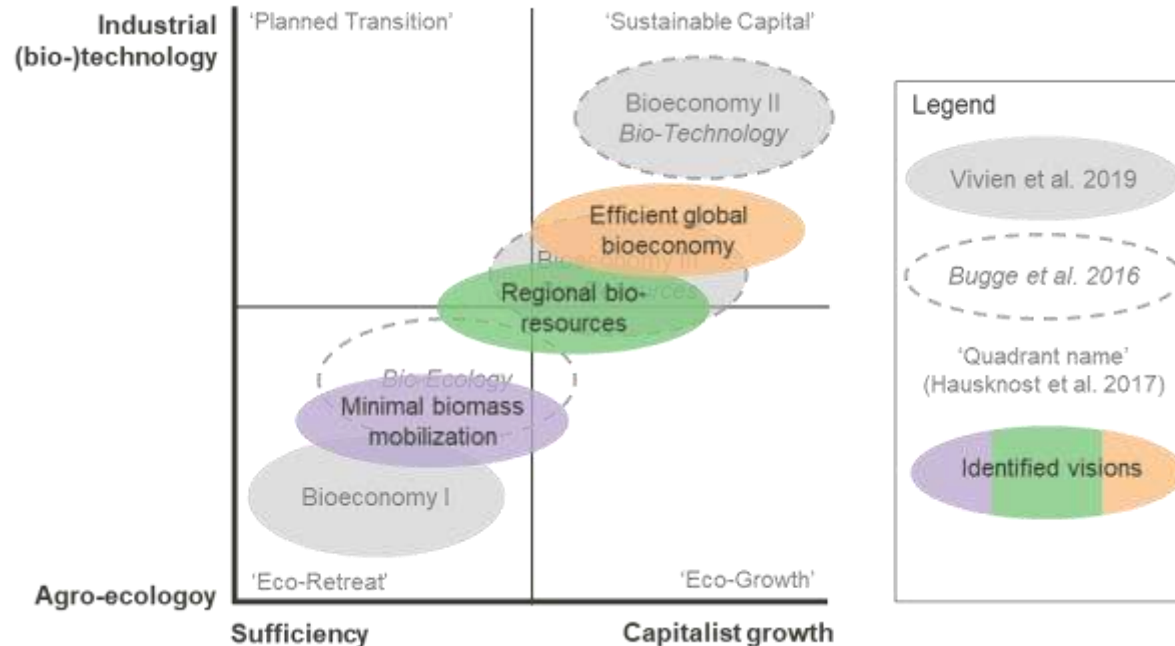


Figure: Mapping of identified vision to the previously presented visions.

Regional Bioeconomy Strategies

Regional strategies provide different aspects to the overall national bioeconomy

Which federate states have own bioeconomy strategy?

North-Rhine Westfalia:

- Climate-neutral industrial region
- fusion of production, bio-tech and IT

Baden-Württemberg:

- different rural/urban action fields
- further development of biogas plants

Brandenburg:

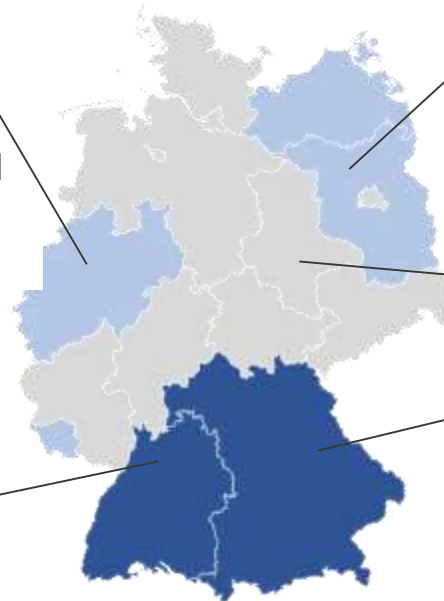
- regional synergies
- regional bioplastics

Sachsen-Anhalt:

Bioeconomy Cluster, DiP etc.

Bavaria:

- core industries and industrial biotechnology
- wood-based construction



■ yes ■ no ■ in progress

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Many regional plans have specific foci with regard to the Bioeconomy

Pará, Brazil:

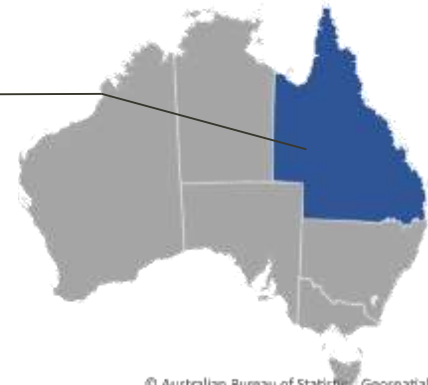
- traditional indigenous knowledge
- financing from small scale credits to payment for ecosystem services
- Emphasis biocosmetics



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Queensland, Australia:

- Biochemicals, Biofuels, Bioplastics
- Further develop SAF



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Conclusion

Conclusion

- Overall more policies and strategies related to Bioeconomy are published and investments are increased
- G20 might be able to set focus topics – currently they give high emphasis to sustainable resource use
- Diverging visions are a barrier for implementation
- Regional integration increase specificity and can reduce barriers
- Further development of European bioeconomy strategy is key – **your input is welcome!**
- Pará, Brazil, as conference host location, has potential to bring bioeconomy-related influence to COP30 agenda

Public consultation:



<https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/14555>

Thank you for your attention!

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