

Governance of the bioeconomy: comparing national bioeconomy strategies

Bioeconomy – from pathways to practice,

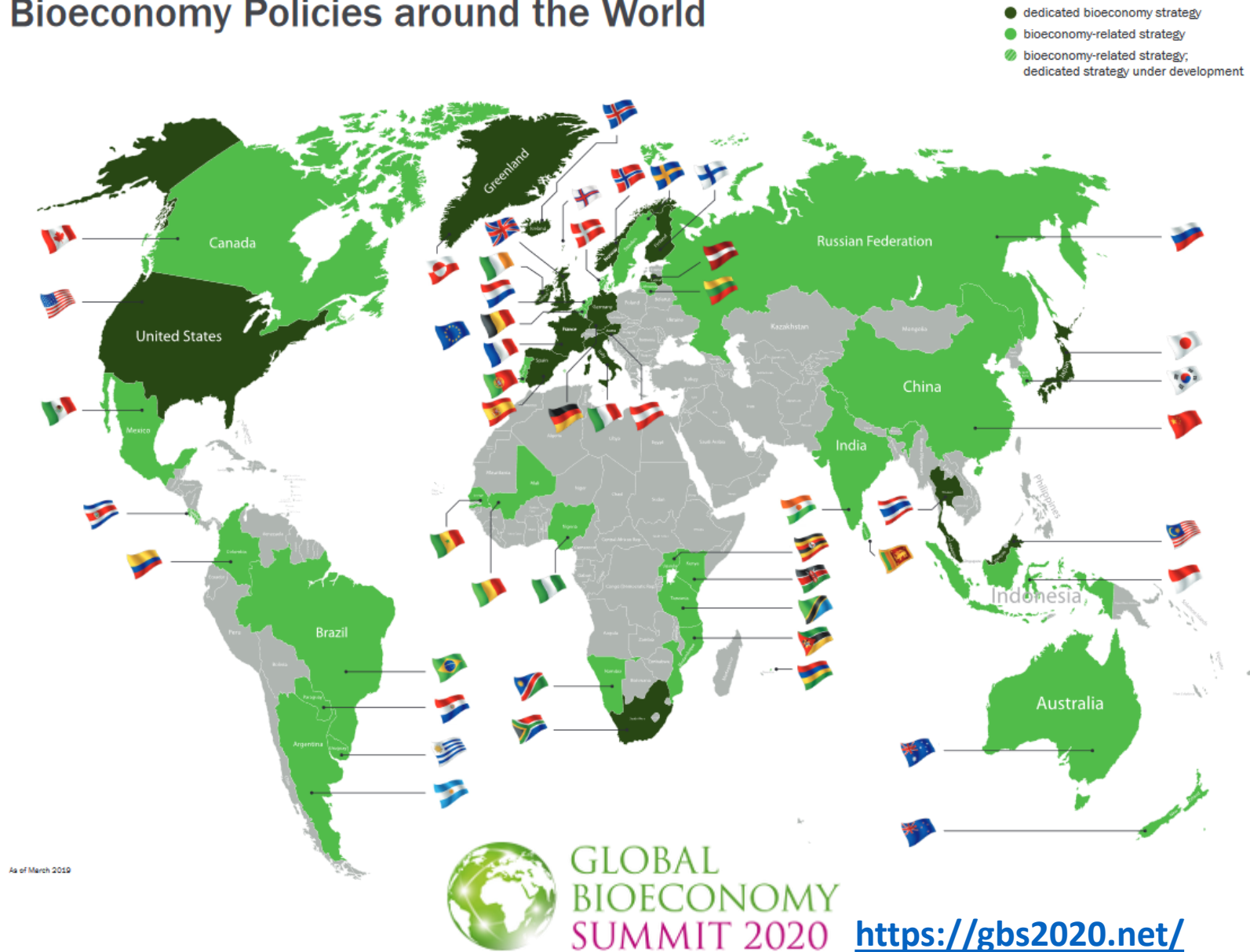
KSLA June 9, 2021

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Bioeconomy Policies around the World

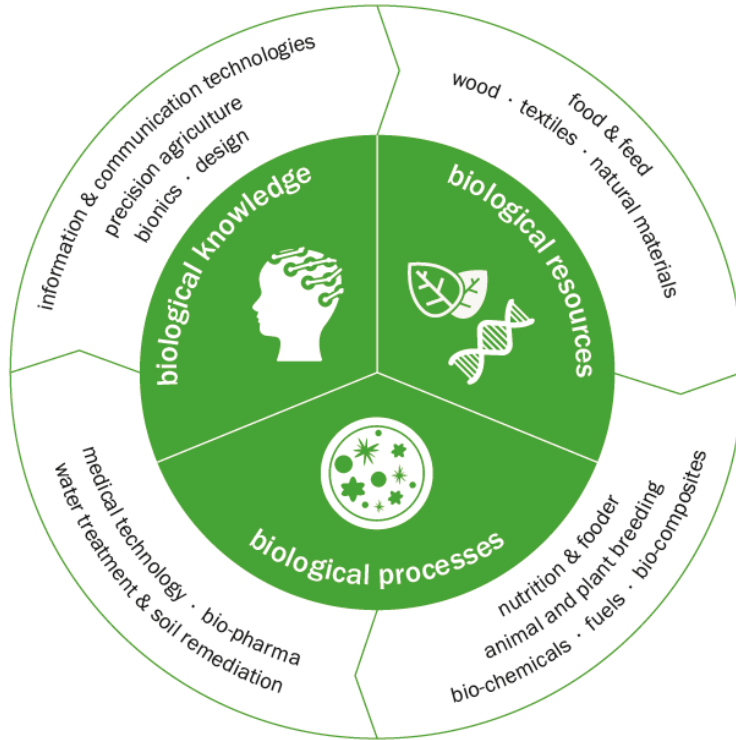


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Ramon Mateo Ponsa.com (flag), Jan_21, Ponsa.com (word mark)

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Source: German Bioeconomy Council (bioekonomierat.de, as of March 2019)

Comprehensive understanding of bioeconomy



- Knowledge-based production & utilization
- of biological resources,
- innovative biological processes & principles
- to sustainably provide goods and services across **all** economic sectors.

Building blocks of theory of bioeconomies' evolution, structures, and governance

Theories of

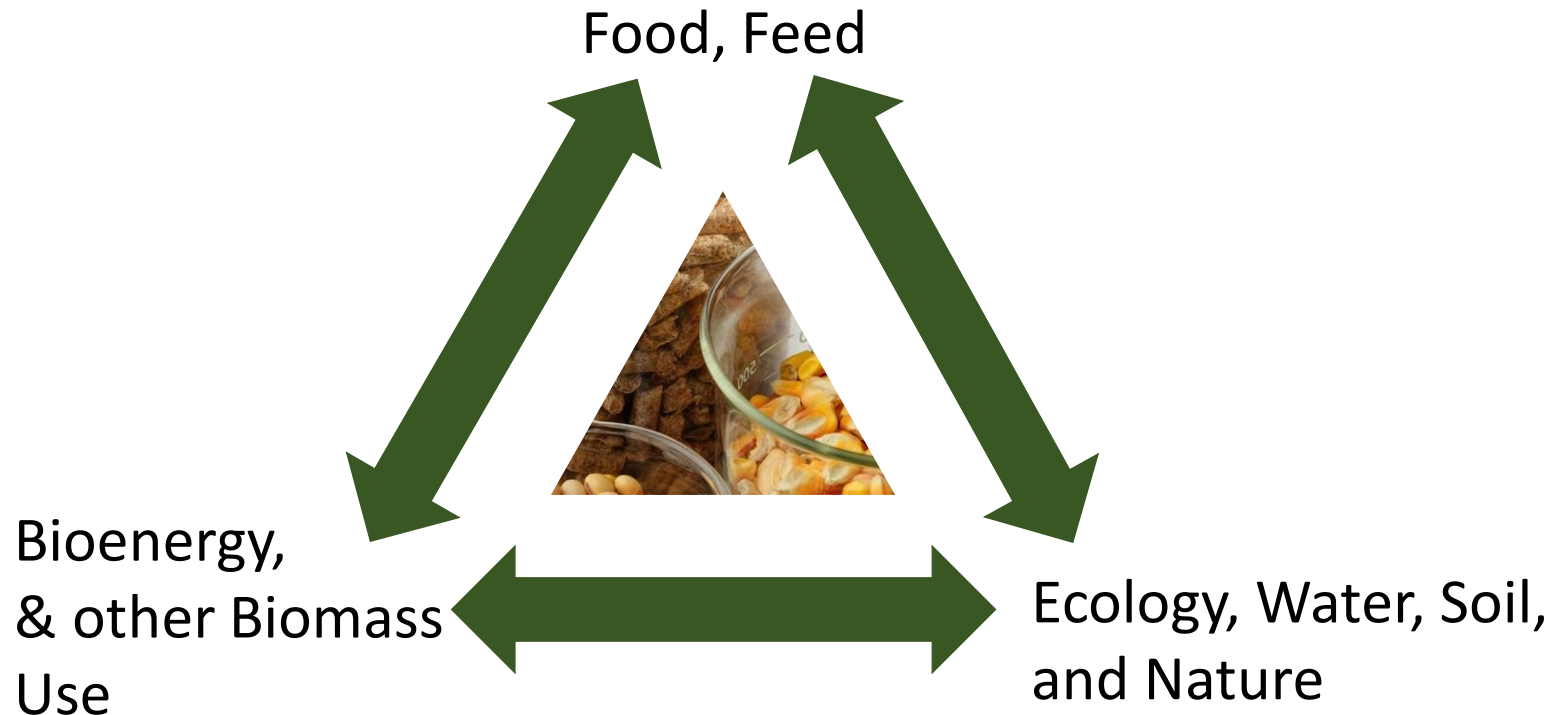
- Economics
- economic geography
- Innovation systems
- Preferences
- Systems
- Institutional economics
- Political economy

Governance?

“... the process by which societies adapt their rules to new challenges - what are the rules? how are the rules developed? how are the rules implemented and enforced? (Stone-Sweet)

“ . . . the sum of the many ways individuals and institutions, public and private, manage their common affairs... formal, informal ...(Commission on Global Governance)

Conflicting Goals in Systems Transformation



How to resolve systems conflicts?

Through legitimate political processes with support by science providing options

Transformation Pathways (TPs)

TP1: increased oil prices, subsidies, and environmental policies.

TP2: technological innovation

TP3: Innovation in downstream sectors; biomass use and waste stream recycling;

TP4: Biological principles and processes used largely independently of biomass streams' industrial applications, such as in the case of enzymatic synthesis and “biomimicry”

Thomas Dietz, Jan Börner, Jan Janosch Förster and Joachim von Braun. (2018) Governance of the Bioeconomy: A Global Comparative Study of National Bioeconomy Strategies. Sustainability. 2018, 10, 3190;
<https://doi:10.3390/su10093190>

What Governance Instruments?

Enabling governance: political support measures

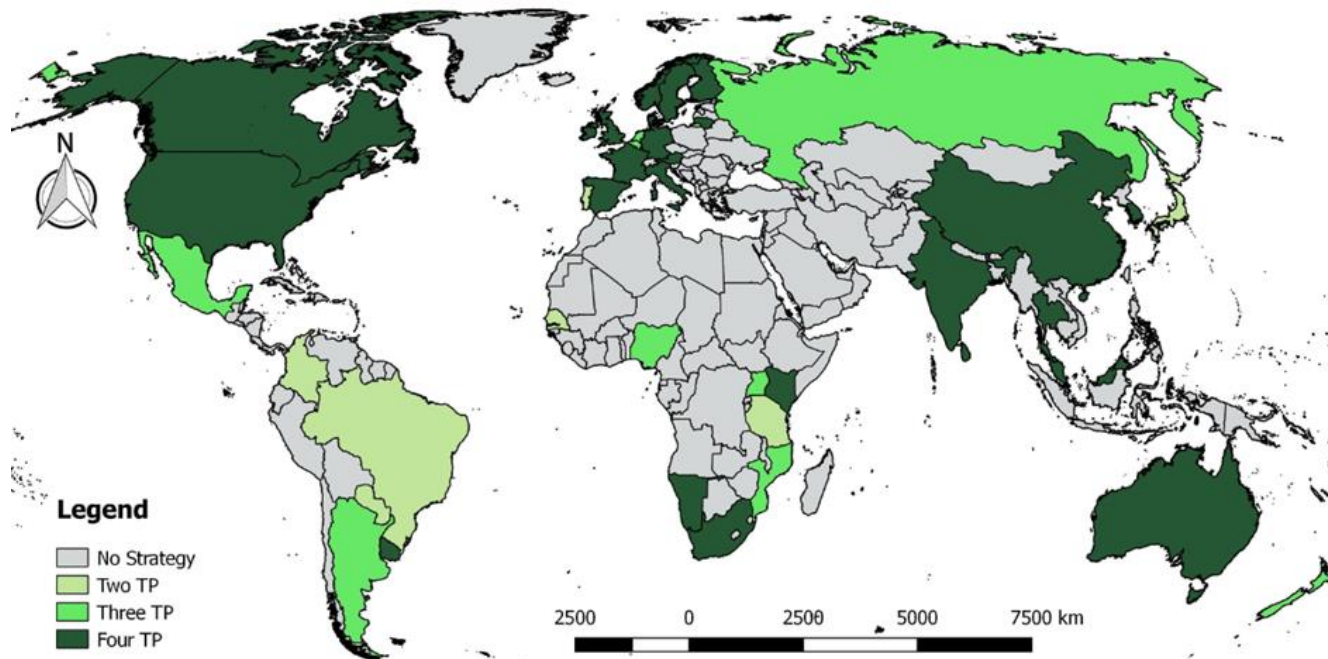
Constraining governance: regulatory tools

Framing questions

- 1. Type of bioeconomy:** Which of the four bio-based transformation pathways or combinations of transformation paths are individual countries pursuing in their strategies?
- 2. Enabling governance:** Which means of governance do countries employ in their political strategies to overcome problems of path dependencies in the development of a sustainable bioeconomy?
- 3. Constraining governance:** Which goal conflicts in the development of a sustainable bioeconomy have the individual countries identified in their strategies, and which political means have the individual strategies used to regulate these goal conflicts and reduce resulting risks?

Which transformation pathways do countries strategically pursue?

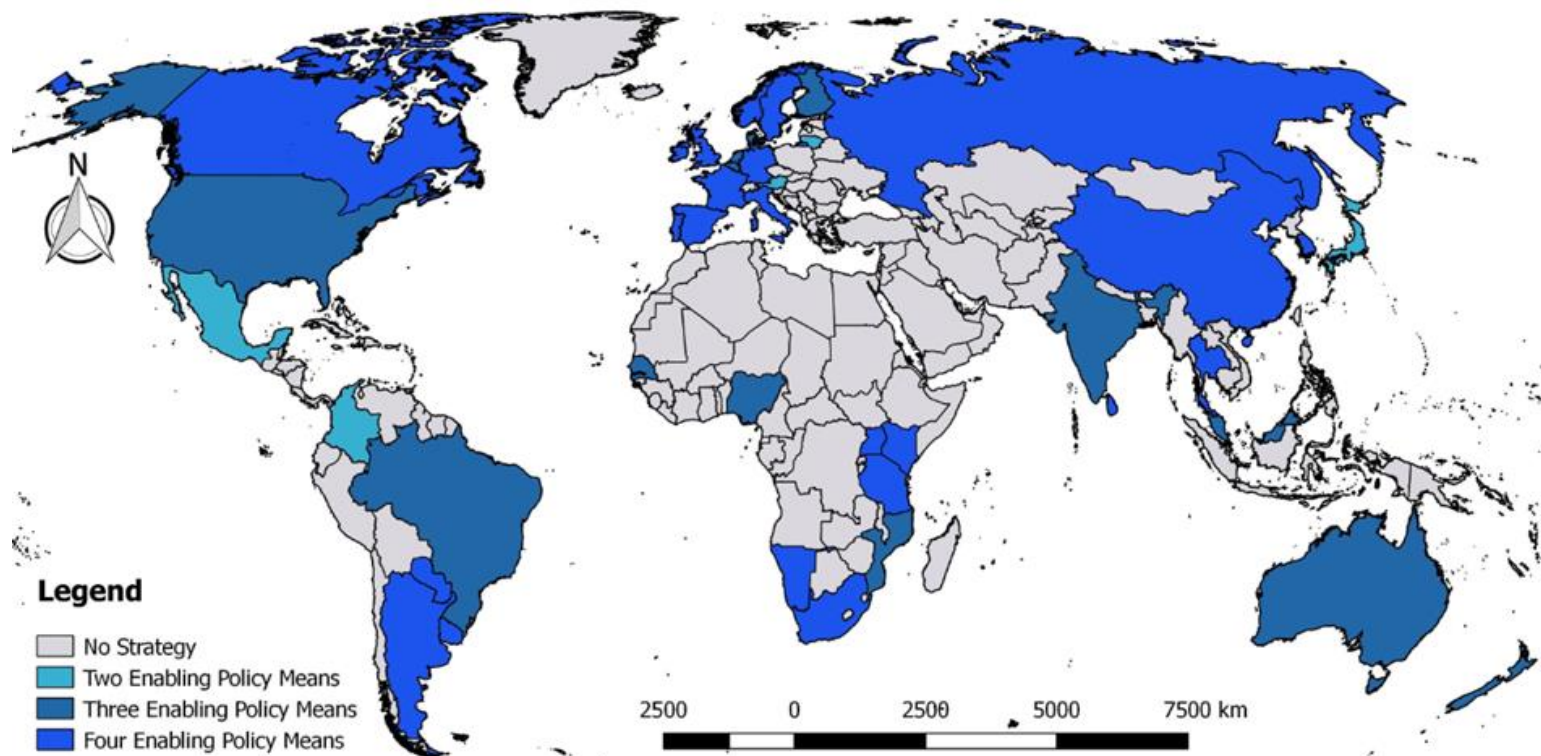
- High-Tech bioeconomies adopt strategic goals for all four transformation pathways (TP)
- Almost all strategies rely on substitution of fossil resources by biomass
- Comparative advantages matter for strategic direction: e.g., large and bio-productive countries promote productivity in primary sectors, small and populated countries emphasize efficiency in biomass use



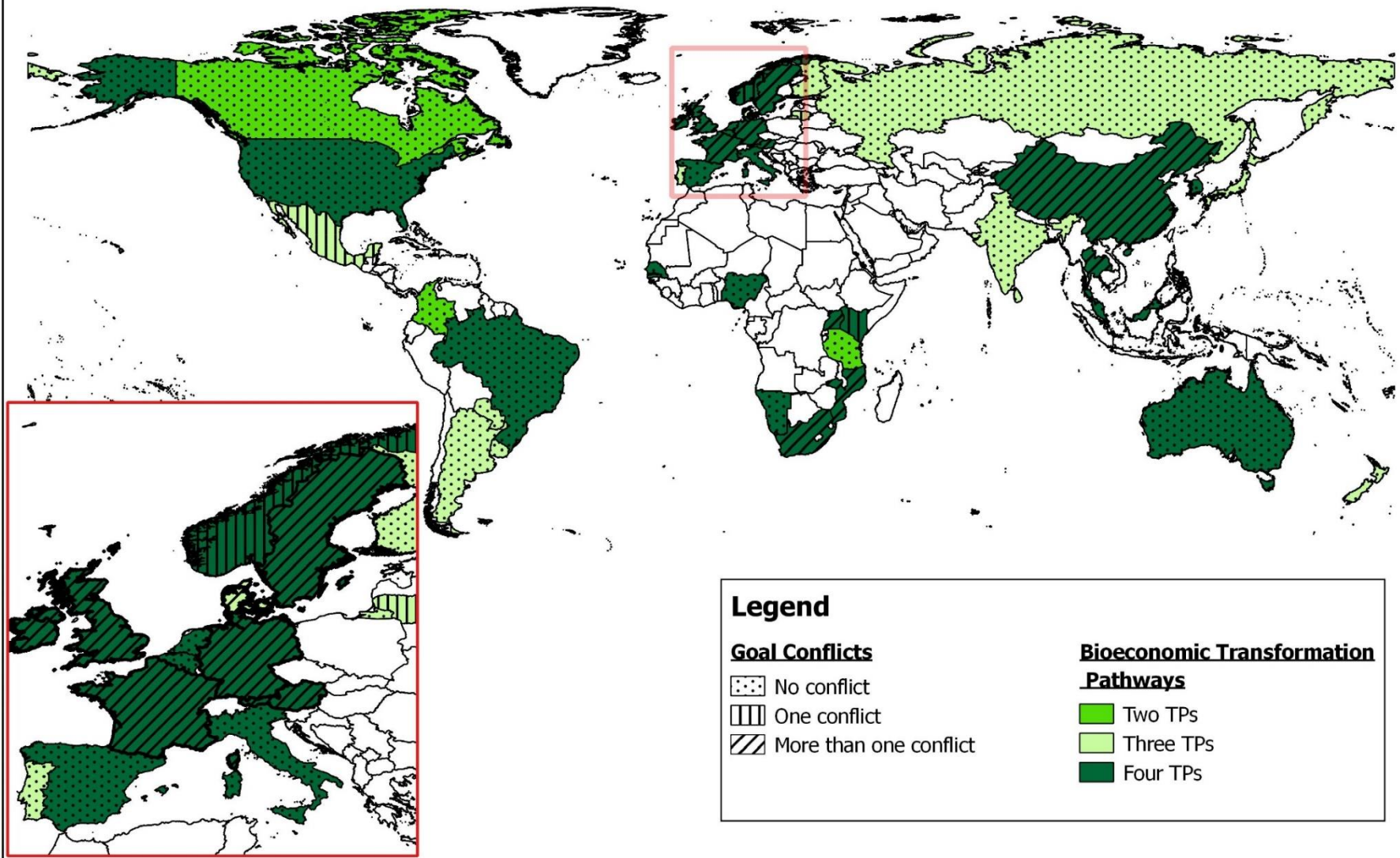
What Enabling Strategies are Followed?

Enabling Governance

- Most use at least three types of measures
- Often R&D, subsidies, PR, skills and education



Transformation Pathways and Conflicts in National Bioeconomy Strategies



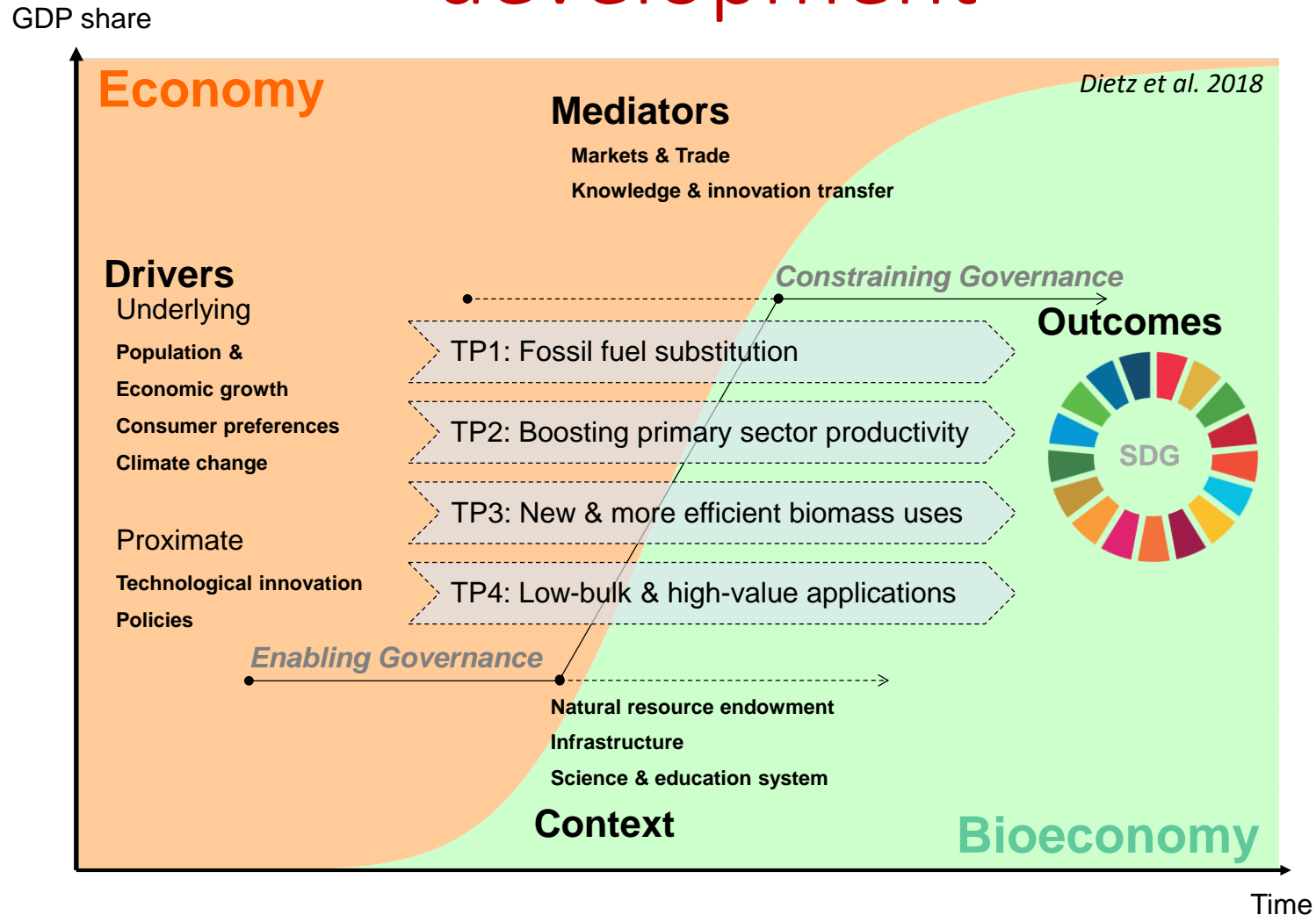
Measurement and attention to „Green Washing“ Investments

A prerequisite for creating effective governance arrangements is the development of comprehensive approaches for **measuring and assessing the bioeconomy**. Inadequate monitoring and a lack of impact assessment could otherwise lead to over- or under-regulation of the bioeconomy

- consider the bioeconomy as being of a pervasive nature; it is not a sector
- Outcome measures rather than sectorial measurement or product (bio-) content measurement (carbon emissions and sustainability of water, soil, and biodiversity improvements, well-being outcomes, health)

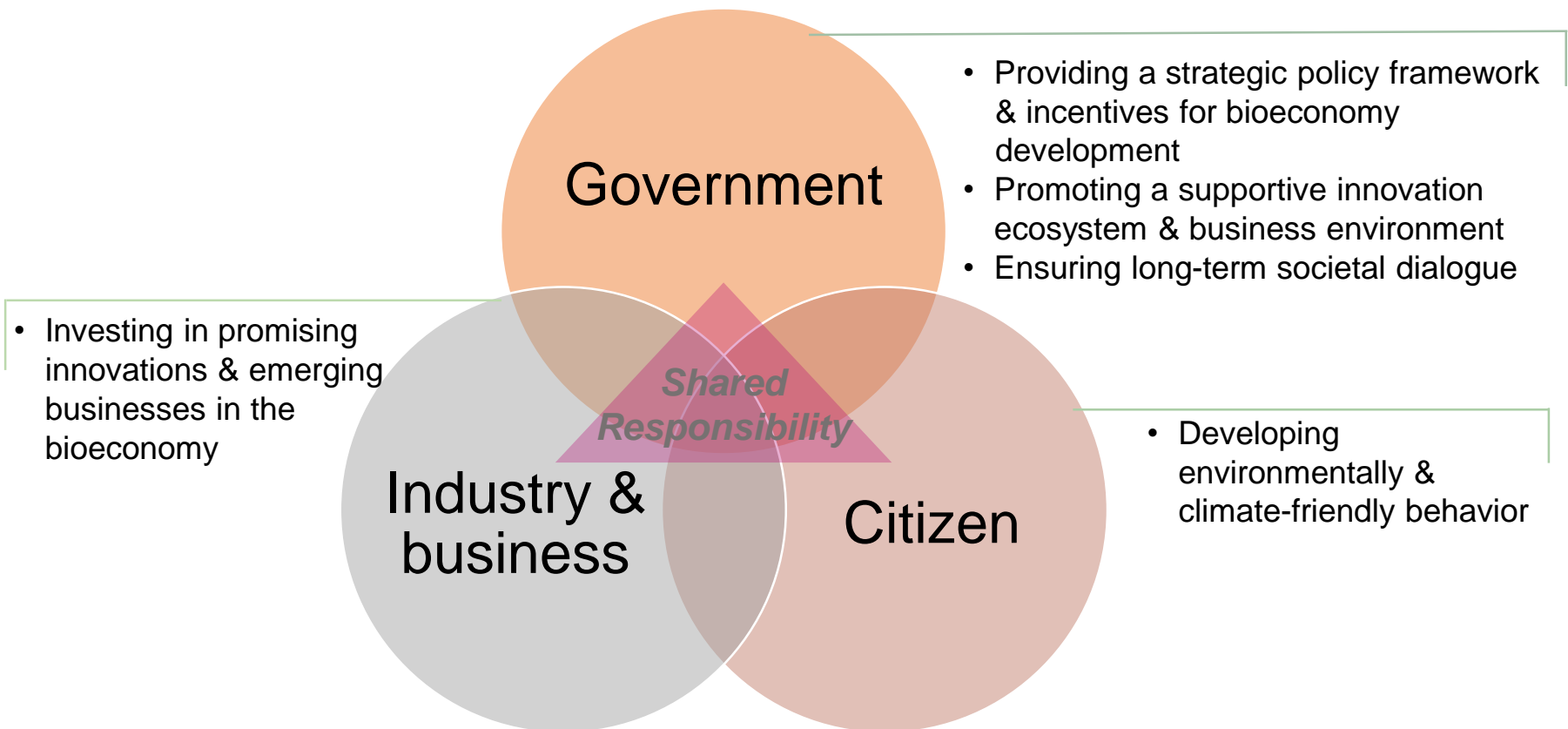
Wesseler, J.; von Braun, J. Measuring the Bioeconomy: Economics and Policies. *Annu. Rev. Resour. Econ.* **2017**, 9, 275–298.

Bioeconomy, governance, and development



Dietz et.al 2018

Inclusive governance of bioeconomy development requires...



Sources of presentation

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von Braun, J. (2018) Bioeconomy – The global trend and its implications for sustainability and food security, [Global Food Security](#), [Volume 19](#), December 2018, Pages 81-83
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Bioeconomy in Art



Tali Teper
„Bioeconomy“ 2017