



WORLD BIOECONOMY ASSOCIATION



The Global Bioeconomy Three Visions Shaping the Future

Jukka Kantola

Founder and Executive Chair at the World Bioeconomy Association

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Future of the Bioplastics



Global Bioeconomy Momentum

There is no Single Bioeconomy

The Three Visions Framework for the Bioeconomy

Global Bioeconomy Pathways

Implications for Bio-based Industries

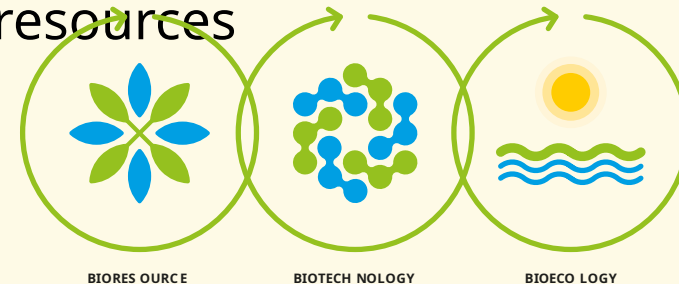
Key Takeaways

World Bioeconomy Forum

- **Founded:** 2018
- **Mission:** A global platform to drive the circular bioeconomy, focusing on sustainable solutions for climate change and resource preservation.
- **Four-Pillar Structure:**
 - The Bioeconomy: People, Planet, Policies
 - Corporate Leaders and Financial World
 - Bioproducts Around Us
 - Looking to the Future
- **Activities:** Online roundtables, conferences, and the **Annual Declaration** to outline future directions.



- **Founded:** 2023
- **Mission:** A hub uniting stakeholders to grow the bioeconomy across sectors and regions.
- **Bioeconomy concept:**
 - **Bioresource Vision:** Enhancing research and technology for biomass conversion from agriculture, marine, and forestry sectors.
 - **Biotechnology Vision:** Promoting biotechnology and biomanufacturing research for diverse industrial applications.
 - **Bioecology and Social Vision:** Optimising ecological processes to promote biodiversity, strengthen crops, and protect soil quality.
- **Activities:** Engages in knowledge sharing, public outreach, advocacy, and collaborative research to promote responsible use of global resources



The bioeconomy race is accelerating



- The shift from **globalisation to polarisation** could fragment the bioeconomy, making international collaboration more difficult and leading to more regionally focused bioeconomic strategies.
- **Rising divisions** threaten international collaboration, slowing progress on global challenges like climate change and biodiversity.

Did you know? Today's global bioeconomy is estimated to be valued at US\$4 trillion, with growth potential to US\$30 trillion

by 2050.

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3rd Industrial Revolution
Digitalisation

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4th Industrial Revolution
Biorevolution

Opportunities in the **Bio Revolution**:

- **Biotechnology advancements**, like genetic engineering and synthetic biology, are driving new markets and business models.
- **Ethical and regulatory challenges** may arise in a polarised world.

Success and growth in the bioeconomy hinges on navigating these global dynamics.

The world is investing in the bioeconomy



ARGENTINA Bioeconomía	AUSTRIA Bioeconomy Strategy for Austria	BRAZIL Missões, ações estratégicas e indicadores do Plano Nacional de Desenvolvimento da Bioeconomia - PNDBio	CHINA Bioeconomy Development Plan
COLOMBIA Colombia BIO	COSTA RICA Estrategia Nacional de Bioeconomía Costa Rica 2020-2030	ESTONIA Circular Bioeconomy Roadmap for Estonia (2023)	ETHIOPIA Ethiopian Bioeconomy Strategy
FINLAND The Finnish Bioeconomy Strategy. Sustainably towards higher value added	FRANCE La stratégie nationale bioéconomie : remettre la photosynthèse au cœur de notre économie	GERMANY Bioeconomy – Biogenic Resources and biological knowledge for a sustainable economy.	INDIA BioE3 Policy - Biotechnology for Economy, Environment and Employment 2024
IRELAND Ireland's Bioeconomy Action Plan 2023-2025	ITALY Bioeconomy in Italy	JAPAN Outline of the bioeconomy strategy	LATVIA Latvian Bioeconomy Strategy 2030
MALAYSIA National Biotechnology Policy 2.0 (DBN 2.0)	NAMIBIA The Namibia Sustainable Bioeconomy Strategy	NETHERLANDS Dutch vision on biotechnology 2025-2040	PORTUGAL Bioeconomía
SAUDI ARABIA The National Biotechnology Strategy	SOUTH AFRICA The Bio-Economy Strategy	SOUTH KOREA Bio Economy 2.0 Promotion Direction	SPAIN Bioeconomía
SWEDEN En hållbar bioekonomistrategi – för ett välmående fossilfritt samhälle	THAILAND BCG Economy Model		

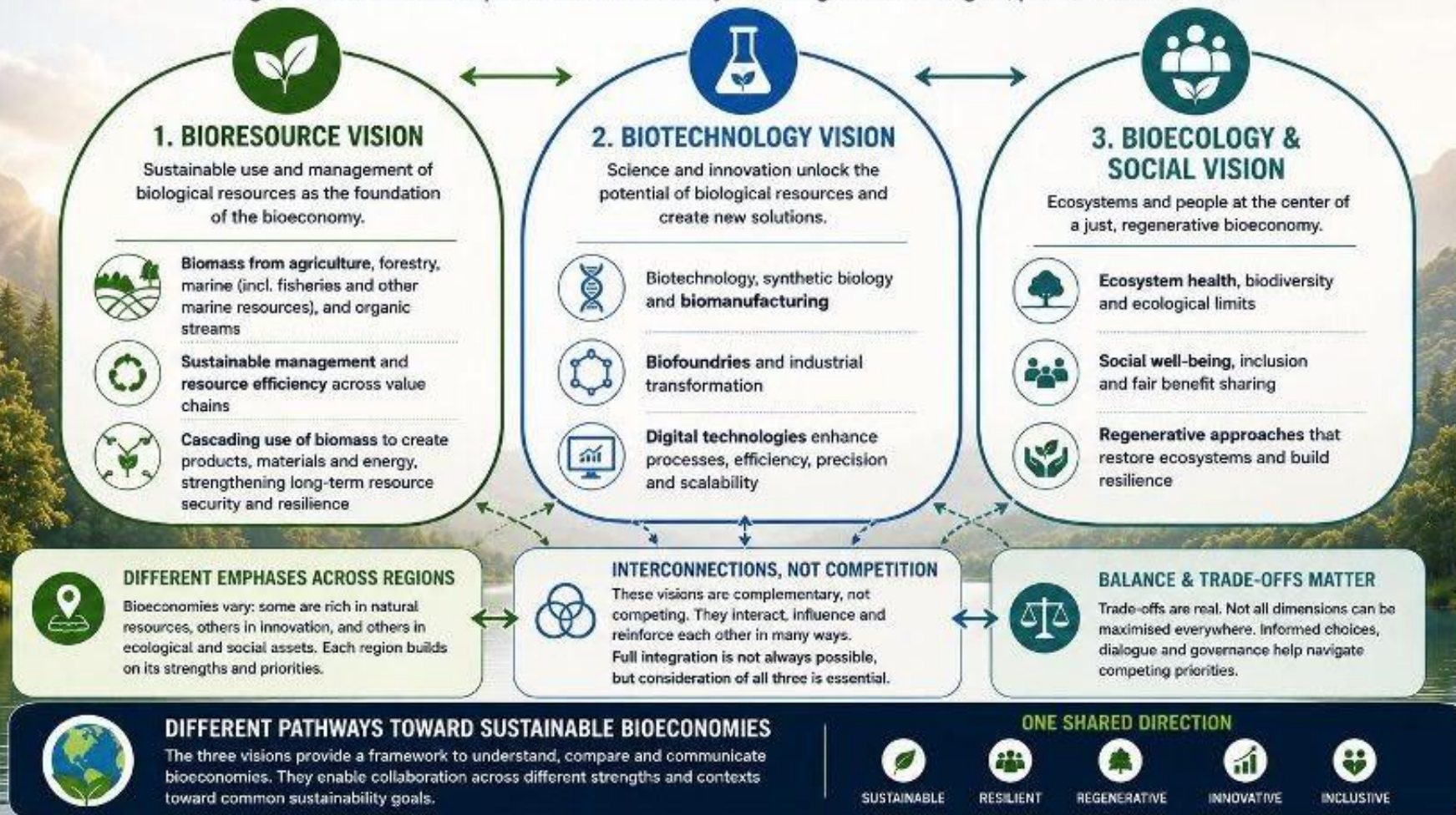
- Global economy ≈ US\$100T; bioeconomy ≈ US\$4T today → potential ≈ US\$30T by 2050
- **26 countries** have announced bioeconomy strategies - **6 more in a pipeline 2026**
- The biorevolution is moving from labs to industrial scale
- The focus is shifting from research to investment and scale-up

THREE CORE VISIONS OF THE BIOECONOMY

Different perspectives. Different strengths. Shared transformation.

The bioeconomy can be understood through three complementary visions.

Regions and countries emphasise them differently according to their strengths, priorities and contexts.



THE BIOECONOMY IS NOT A SINGLE MODEL. IT IS A DIVERSITY OF PATHWAYS GUIDED BY THESE CORE VISIONS TOWARD A REGENERATIVE FUTURE.

Bioeconomy is Rising on the Global Agenda

From principles to implementation – from dialogue to action

G20 High-Level Principles on Bioeconomy

A major milestone (Sept 2024)

Carried during the South Africa G20 Presidency in 2025



1

Promote sustainable development across its economic, social and environmental dimensions

2

Be inclusive and equitable, with a focus on Indigenous Peoples and local communities

3

Advance mitigation and adaptation efforts against global climate change

4

Promote biodiversity conservation and fair benefit-sharing

5

Encourage sustainable and circular use of biological resources, whilst promoting the restoration/regeneration of degraded areas

6

Be developed through safe, secure and responsible use of science, technology, innovation and traditional knowledge

7

Benefit from robust and coherent policy frameworks that foster trade for bioeconomy products and services

8

Utilize robust, science-based and context-specific criteria and methodologies to assess their sustainability

9

Be fostered by international collaboration and cooperation

10

Be based on country-specific approaches and implemented in line with national priorities and regional and local circumstances



Economic development



Social equity



Environment impact



COP30 Belém

Bioeconomy enters the climate mainstream



-  • First time on the official UNFCCC agenda
-  • Shift from commitments to implementation
-  • Launch of the **Bioeconomy Challenge (2025–2028)**
-  • Four workstreams:
Metrics | Finance | Trade & Markets | Socio-bioeconomy



Bioeconomy Challenge

Turning principles into coordinated global action



- What it is?**
- A global multi-stakeholder platform launched at COP30 until 2028
 - Aligns actors around the G20 High-Level Principles on Bioeconomy
 - Bridges climate, biodiversity, finance, trade and development agendas



- How it works?**
- Structured Working Groups:
 - Metrics (Coordinated by FAO)
 - Finance (IDB)
 - Trade (UNTD)
 - Socio-Bioeconomy (WRI)
 - Public-private collaboration
 - Action-oriented, time-bound deliverables



- Why it matters?**
- Moves from policy dialogue → implementation
 - Builds shared standards and investment frameworks
 - Accelerates market readiness and capital mobilisation



A coordinated platform to scale the global bioeconomy responsibly and inclusively.

Learn more: bioeconomychallenge.org/about-us

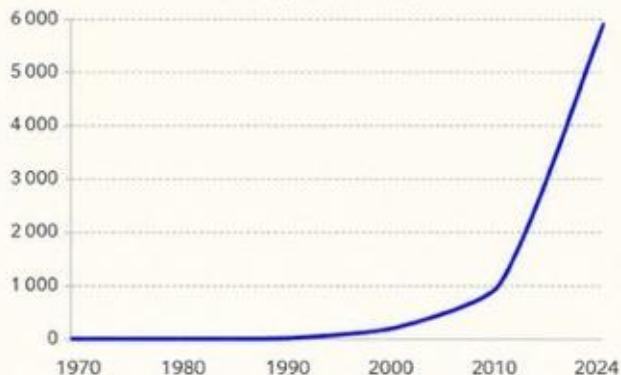
Financing is evolving — building the foundation for scale

From growing capital flows to investable bioeconomy solutions

1. Financing is growing

Growth of sustainable financing (1970s–2020s)

Value (Billions USD)



- Sustainable financing has developed significantly since the 1970s
- Primary focus on climate actions and biodiversity

2. The bioeconomy concept is evolving

Evolving Bioeconomy



No concrete global understanding






Missing metrics and harmonised standards



Financing largely on commercial terms

3. What makes bioeconomy investable?

Three pathways — one investment opportunity

	 Nature Intensive Bioeconomy	 Advanced Bioeconomy	 Hi-Tech Bioeconomy
DESCRIPTION	Utilizes biological resources, processes, and principles to produce goods and services. Encompasses agriculture, forestry, fisheries, food, and bioenergy. Aims for sustainable growth and reduced environmental impact.	Evolves traditional practices using innovative technologies and advanced biological processes. Provides sustainable alternatives to fossil-based products and enhances production efficiency and sustainability.	Focuses on high-value, specialized, and technologically sophisticated bioproducts. Characterized by advanced functionalities and higher market value.
STAGE AND LEVEL OF INVESTMENT	Mature stage, significant investments, linked to traditional industries.	Evolving stage, continuous innovation, increasing investments from public and private sectors.	Dynamic stage, substantial R&D investments, significant funding for cutting-edge projects from both public and private sectors.



Growing capital. Evolving concept. Stronger foundations.
The bioeconomy is becoming investable — and ready for scale.



Full report:

https://wcbef.com/wp-content/uploads/2024/09/financing-a-sustainable-global-bioeconomy-report_092024.pdf



Implications for bio-based industries

Markets will develop through multiple bioeconomy pathways

- **Bioresource Vision** → biomass, materials, forestry, agriculture and circular value chains
- **Biotechnology Vision** → biomanufacturing, precision fermentation, synthetic biology and high-value products
- **Bioecology & Social Vision** → regenerative systems, ecosystem services and nature-positive solutions

Success requires alignment with:

- Policy priorities
- Investor expectations
- Sustainability requirements

The most competitive bio-based solutions create value across multiple visions and markets.



Key takeaways

- The global bioeconomy is gaining strategic importance
- There is no single bioeconomy – different regions follow different pathways
- The Three Visions framework helps explain global differences
- Bio-based industries must navigate multiple market and policy environments
- The biggest opportunities lie in solutions that combine resource efficiency, biotechnology and sustainability outcomes



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Thank you!

Jukka Kantola

Founder and Executive Chair, World Bioeconomy
Association

jukka.kantola@bioeconomyassociation.org