Blue Bioeconomy – Economy and Policy Strategies

2nd SUBMARINER Conference

Better Off Blue – Creating synergies for a bio-based society

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1. **Understanding & economic relevance of the Bioeconomy**
2. Marine bioresources & challenges in the 21th century
3. Policies fostering sustainable blue bioeconomy
4. Industry Perspective in Germany

Comprehensive definition of bioeconomy

Plants, Microbes, Animals, Biodiversity,
Biotechnology, „C“ in CO_2, biological knowledge

Sustainable production and use of biological resources, processes and principles to provide products and services in all economic sectors.

Agriculture/Forestry/Fisheries, Food, Paper, Textiles, Chemicals,
Pharma, Building & Construction, Paper, ICT, …

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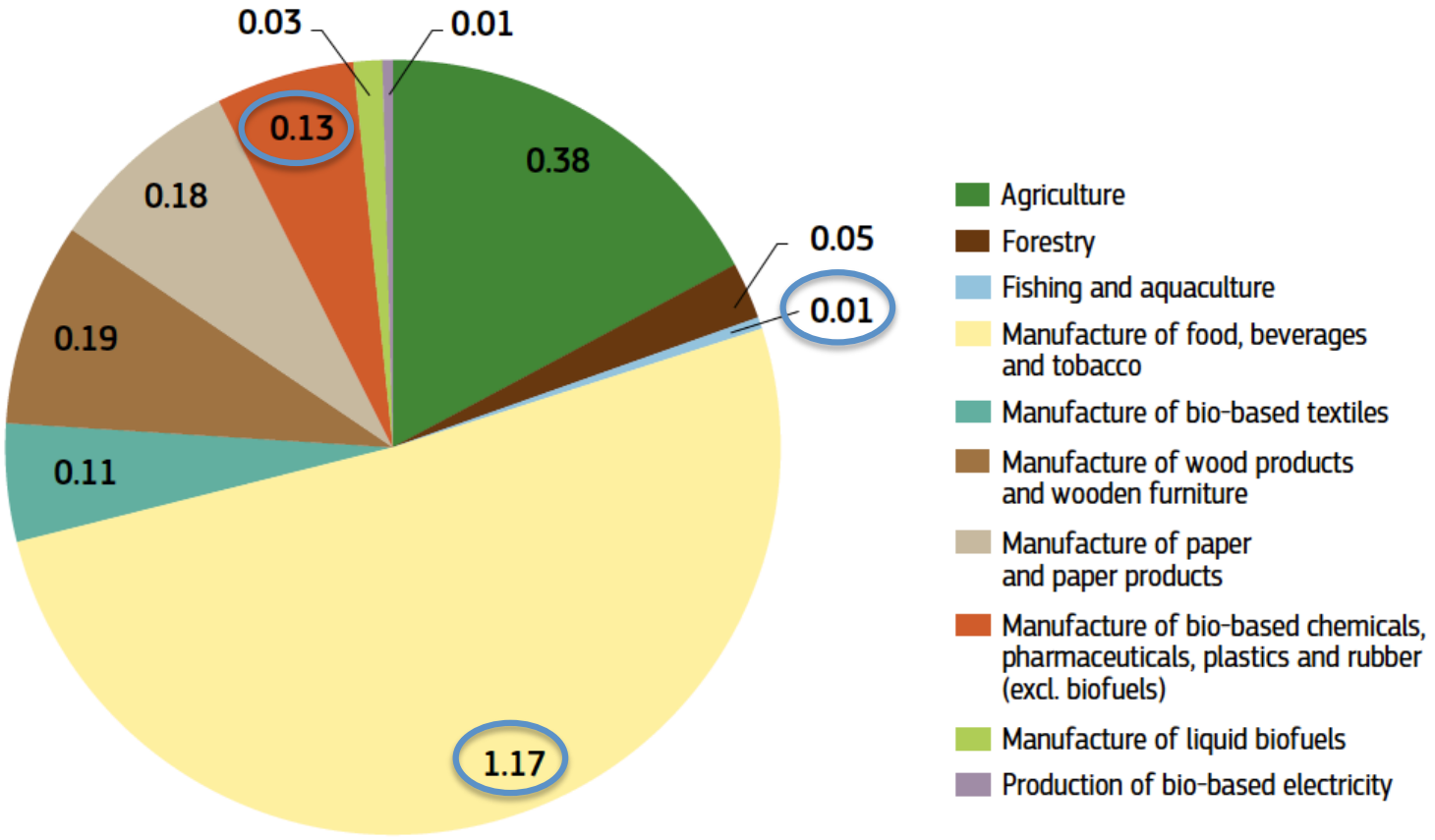
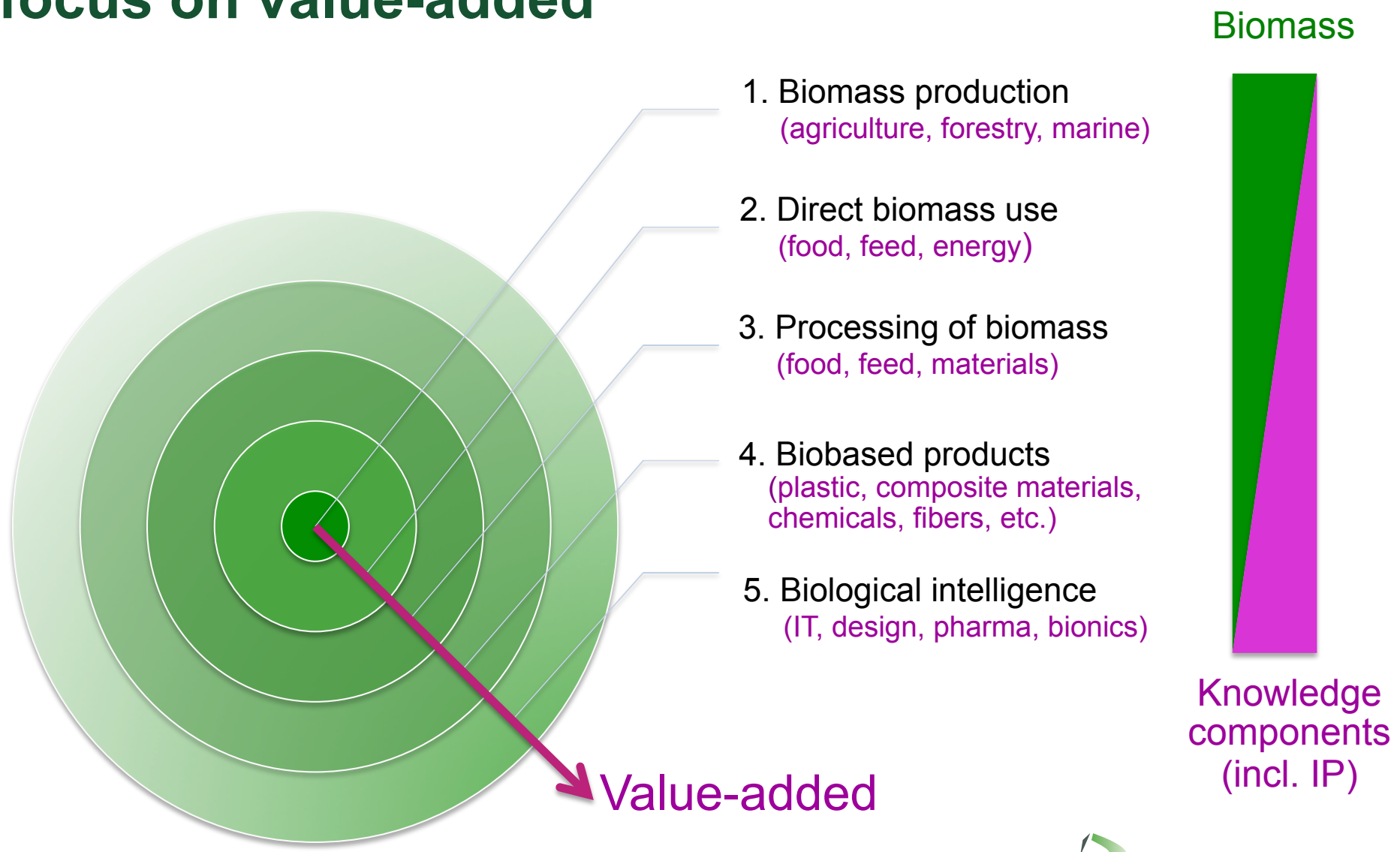
Turnover in the bioeconomy sectors of the EU (2014) (trillion EUR)



Source: JRC Science for Policy Report: Bioeconomy Report 2016. Available on https://biobs.jrc.ec.europa.eu/sites/default/files/files/JRC_Bioeconomy_Report2016.pdf

Knowledge-based bioeconomy: focus on value-added



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Marine bioresources as basis for the blue bioeconomy

Seafood

Aquatic Microorganisms

Marine by-products and residues

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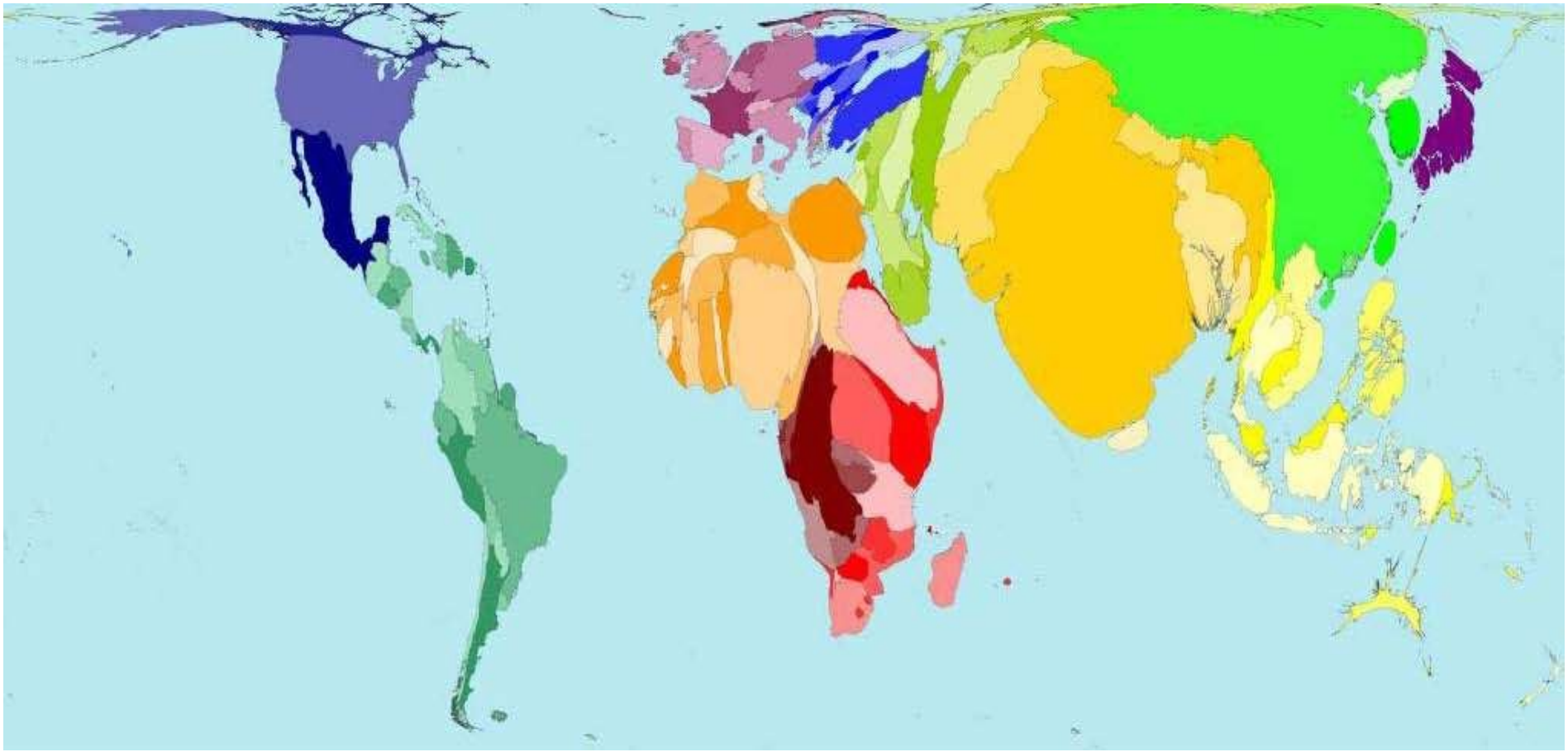
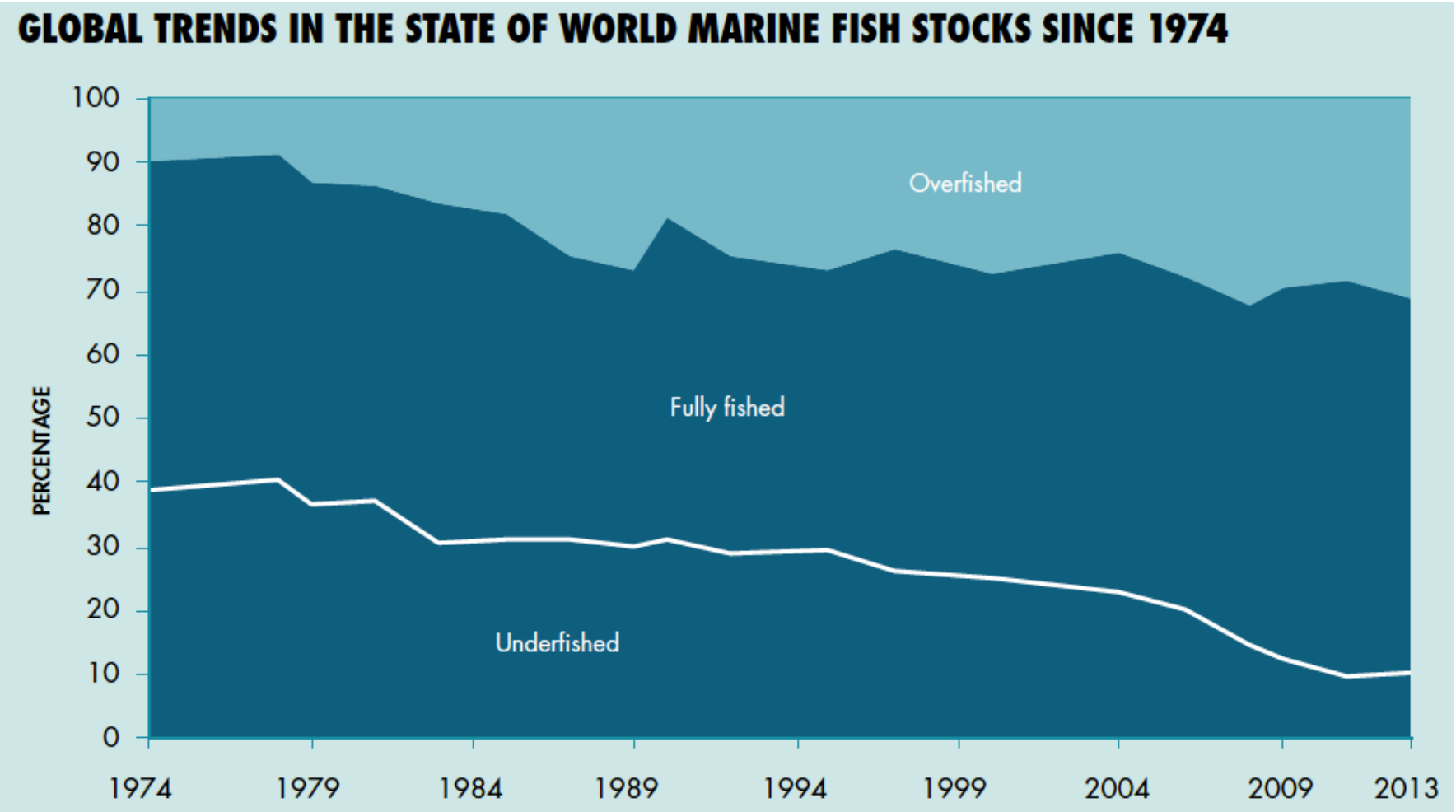
In 2050, world population of 9 bn will consume the equivalent of 12 bn



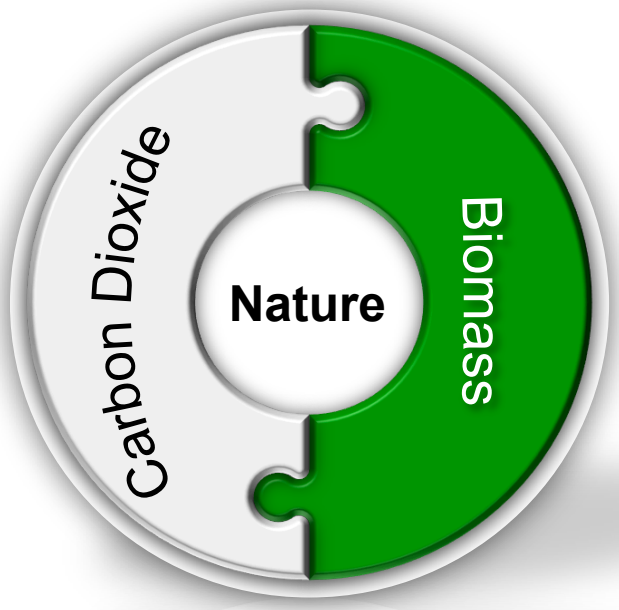
90% of fish stocks are over or fully fished



Source: FAO. (2016). Available on http://www.fao.org/3/a-i5555e.pdf

Vision of a sustainable bioeconomy

Reconciling human living with nature



Bioeconomy aims at:

- restoring natural capital & ecosystems
- innovation & green growth
- inclusive & healthy societies

Ensuring the future of marine bioresources

- **Sustainable living** –
  behavior changes, societal agreements
- **Sustainable production** –
  technology, regulatory frameworks, incentives

➔ **Sustainable blue bioeconomy**

- in harmony with nature and the environment
- knowledge-based, innovative
- with circular use of (renewable) resources

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How does blue bioeconomy contribute to sustainability?

- Food security & nutrition
- Health & well-being
- Clean water & sanitation
- Affordable & clean energy
- Economic growth
- Industry, innovation & infrastructure
- Responsible consumption & production
- Climate action
- Life below water (aquatic resources)
- Life on land (terrestrial resources)

Source: World Resource Institute. Available on http://www.wri.org/blog/2015/09/sustainable-development-goals-setting-new-course-people-and-planet

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Changing perspective on bioeconomy policy

2005	2017
"Peak Oil"	New explorations, availability
Prices will steadily increase	low, volatile prices
Substitution of fossil fuels	Digitization, converging technologies
	Paris climate agreement: CO_2 neutrality by 2050
Renewable Resources!	**Innovation for sustainable development!**

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Blue bioeconomy policies in Germany

National Research Strategy BioEconomy 2030

“Blue” part:

- industrial use of marine resources (e.g. for pharmaceuticals)

→ marine biotechnology

Research needs identified:

- marine resources (bioprospecting)
- sustainable concepts for fisheries
- sustainable aquaculture
- economic and social implications

Blue bioeconomy policies in Germany

National Policy Strategy on Bioeconomy

“Blue” part:

- industrial use of marine resources

→ marine biotechnology

- sustainable fisheries
- sustainable marine aquaculture & polyculture

Priority areas identified:

- cultivation of algae resources
- biorefinery development

Blue bioeconomy policies in Germany

Regional Masterplan:
Marine Biotechnology Schleswig-Holstein

Focus:

- industrial use of marine resources

→ marine biotechnology

Measures:

- research on marine biotechnology
- developing process technologies for scaling marine raw materials
- strengthening the economic landscape
- capacity building & education
- dialogue & communication

Bioeconomy policies in the Baltic Sea Region

Example: Related policies in Norway

- National Bioeconomy Strategy Norway (2016)
- Marine Bioprospecting Strategy Norway (2009)
- Strategy for an environ. sust. Norwegian aquaculture industry (2009)

Focus:

- sustainable production, extraction and use of marine bioresources
- development of innovative marine bioindustries
- utilization of marine by-products and residues
- avoiding potential goal conflicts
- regulations for marine bioprospecting

Bioeconomy Policies in the Baltic Sea Region

Example: Related policies in Finland

Related Polices:

- National Blue Bioeconomy RoadMap (2016)
- The Finnish Bioeconomy Strategy (2014)

Focus:

- blue production
- nutrition circulation and industrial symbiosis
- sustainable & efficient use of aquatic ecosystems
- value-added aquatic bioproducts
- blue well-being and tourism
- new business concepts and services
- regulation of natural resources policies

German Bioeconomy Council Recommendations on further development of the "National Research Strategy BioEconomy 2030"

Recommendations related to blue bioeconomy:

- ensuring synergies and connectivity of blue bioeconomy strategies in Europe
- greater emphasis on the aquatic bioeconomy in Germany
- reducing the resource footprints and emissions in production
- promoting sustainable biobased consumption
- considering circular approaches (e.g. tech. innovations for processing wastes and residues)
- ensuring the supply of high-quality proteins for food & feed (e.g. from marine organisms)
- measuring the external effects of using renewable resources
- developing biorefinery concepts
- preserving biodiversity and ecosystem services

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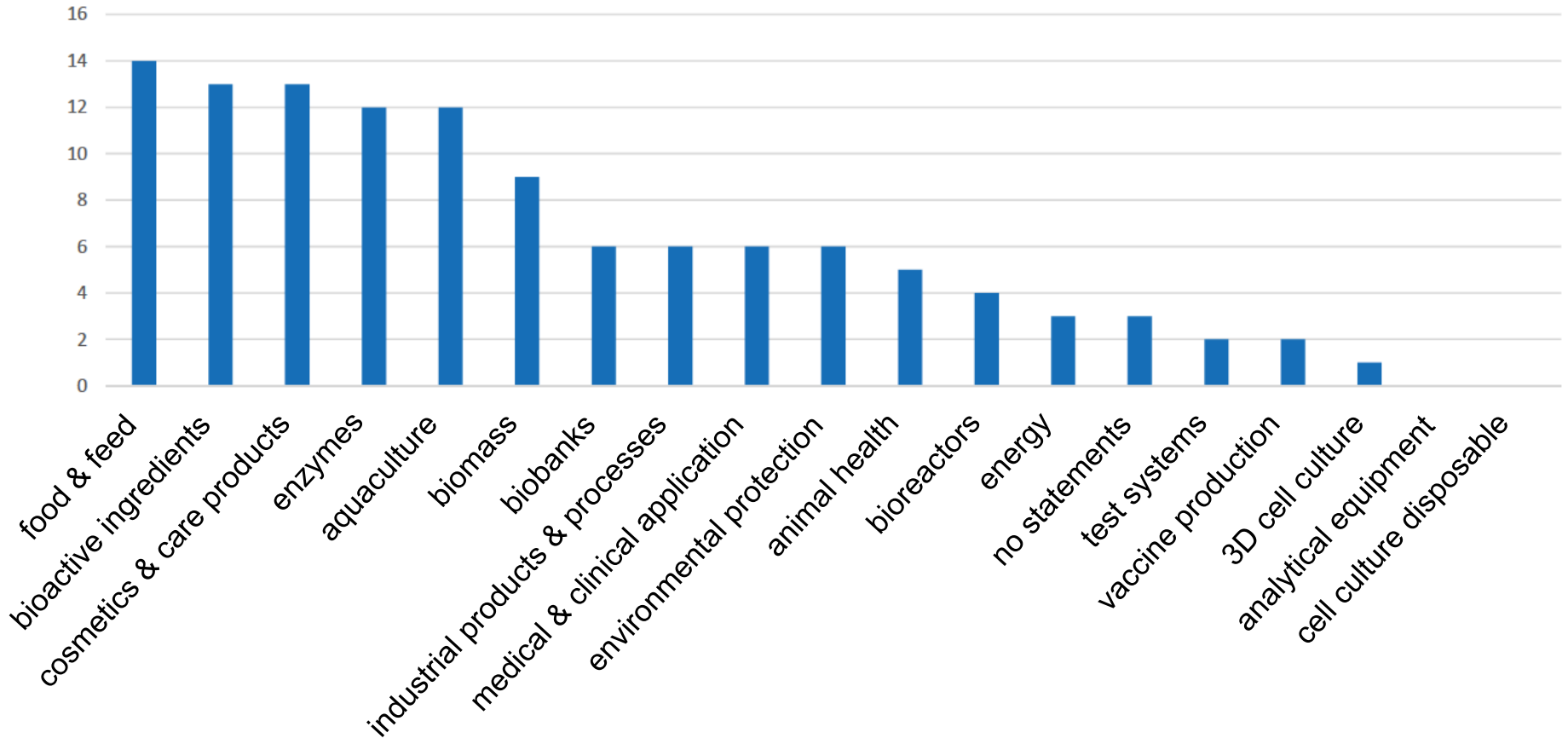
Promising markets for marine biotechnology in Germany

Results of an industry expert survey (2017)



Source: BIO Deutschland, 2017.

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Further action needed

Results of an industry expert survey (2017)

Political will & regulatory framework
- environmental protection & sustainability
- utilization of residues
- technology exports
- competitive prices
- access to sea and biomass
- simplified approval procedures

Measures identified
- policy strategy blue biotechnology
- information & dialogue

Networking & exchange
- technology transfer
- increased cooperation
- partnering for commercialization
- access to new technologies

Measures identified
- Information platforms
- Thematic conferences & events

Public funding
- success stories/ precedences
- competitiveness of sustainable products

Measures identified
- funding for cluster & consortia
- funding for R&D
- funding for information & dialogue

Promoting innovation
- investing into processes & facilities
- increased venture capital
- growth of existing businesses

Measures identified
- reducing registration hurdles
- protection of IP rights and licenses
- targeted SME support
- tax incentives for R&D investment

Save the Date

http://gbs2018.com

Thank you for your attention!

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