

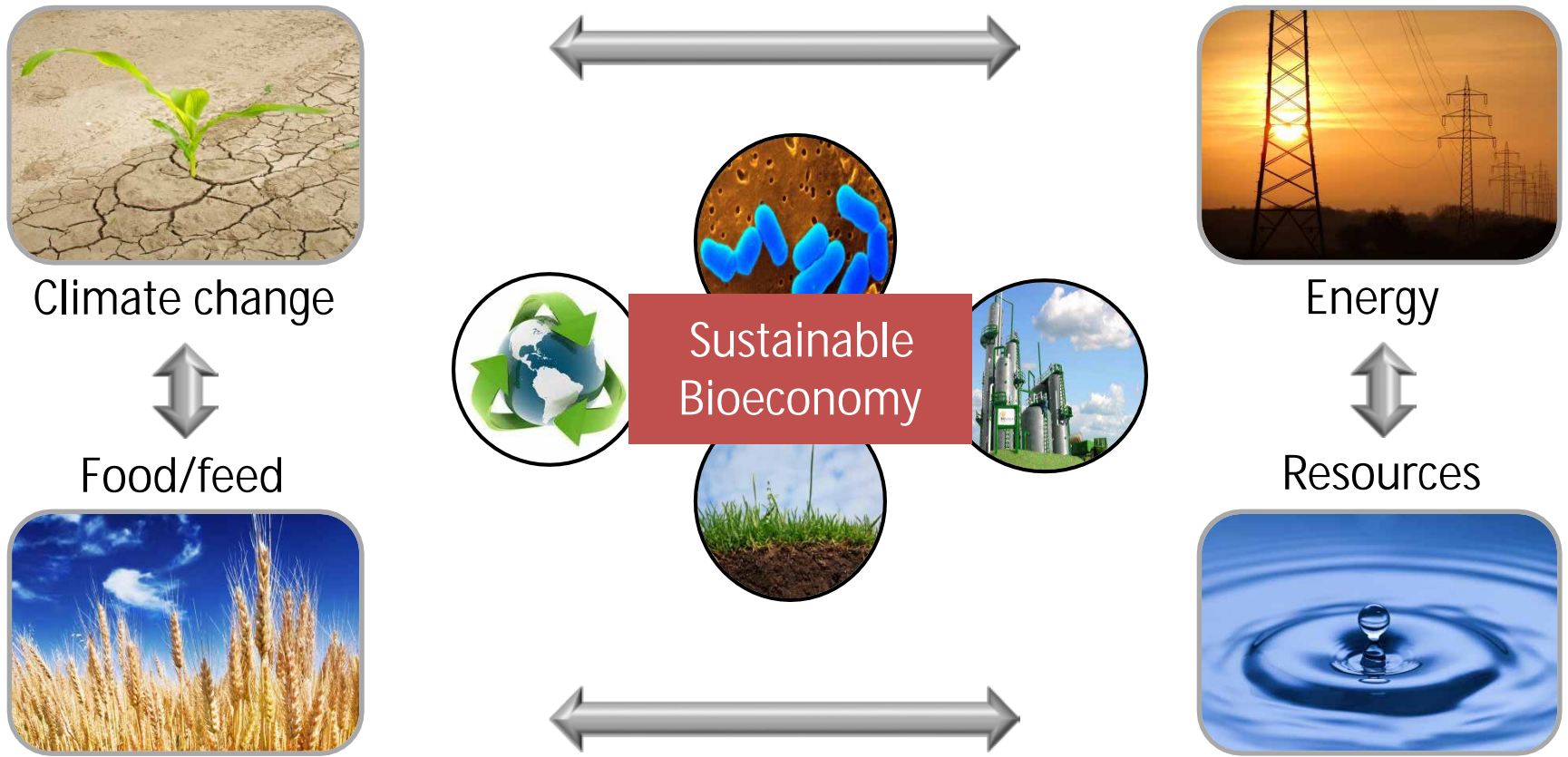


Strategy and practices for Bioeconomy in Germany – *The BioSC as an example*

Heike Slusarczyk

2nd Bioeconomy Course, Ceske Budejovice, 23 May 2017

Knowledge about biological systems for addressing grand societal challenges





Challenge – Sustainable Bioeconomy



Bioeconomy Policies around the World

- dedicated bioeconomy strategy
- bioeconomy-related strategy
- be-related strategy; dedicated be-strategy is under development
- dedicated be-strategy is under development



As of September 2015

Source: National Bioeconomy Council, BÖR, Nov 2015

© German Bioeconomy Council
http://www.biorat.de/ (http://www.biorat.de/)



Source: German Bioeconomy Council,
Maisei/fotolia.com (flags), jktu_21/fotolia.com
(world map)



POLICY: Member States & regions are working towards integrated bioeconomy strategies

- dedicated bioeconomy strategy
- partial bioeconomy strategy (e.g. bioenergy, bioindustry, regional strategies)
- bioeconomy strategy under development



The Bioeconomy

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AGRICULTURE & INNOVATION

Strategies

- Europe 2030
- International cooperation strategies

Bioeconomy Panel

Bioeconomy Observatory (JRC)

International Bioeconomy Forum - NEW

Bioeconomy stakeholder conferences

H2020

- Infrastructure
- About 50% DG Agri and 50% DG Research
- Multi-stakeholder approaches

EIP

- Focus groups
- Operational groups

German national strategies for bioeconomy



Understanding, predicting and using biological systems to address global challenges



Research strategy (2011)



Policy strategy (2013)



"a natural cycle-oriented, sustainable bio-based economy that carries the promise of **global food supplies** that are both ample and healthy, and of **high quality products** from renewable resources"
National Research Strategy Bioeconomy 2030

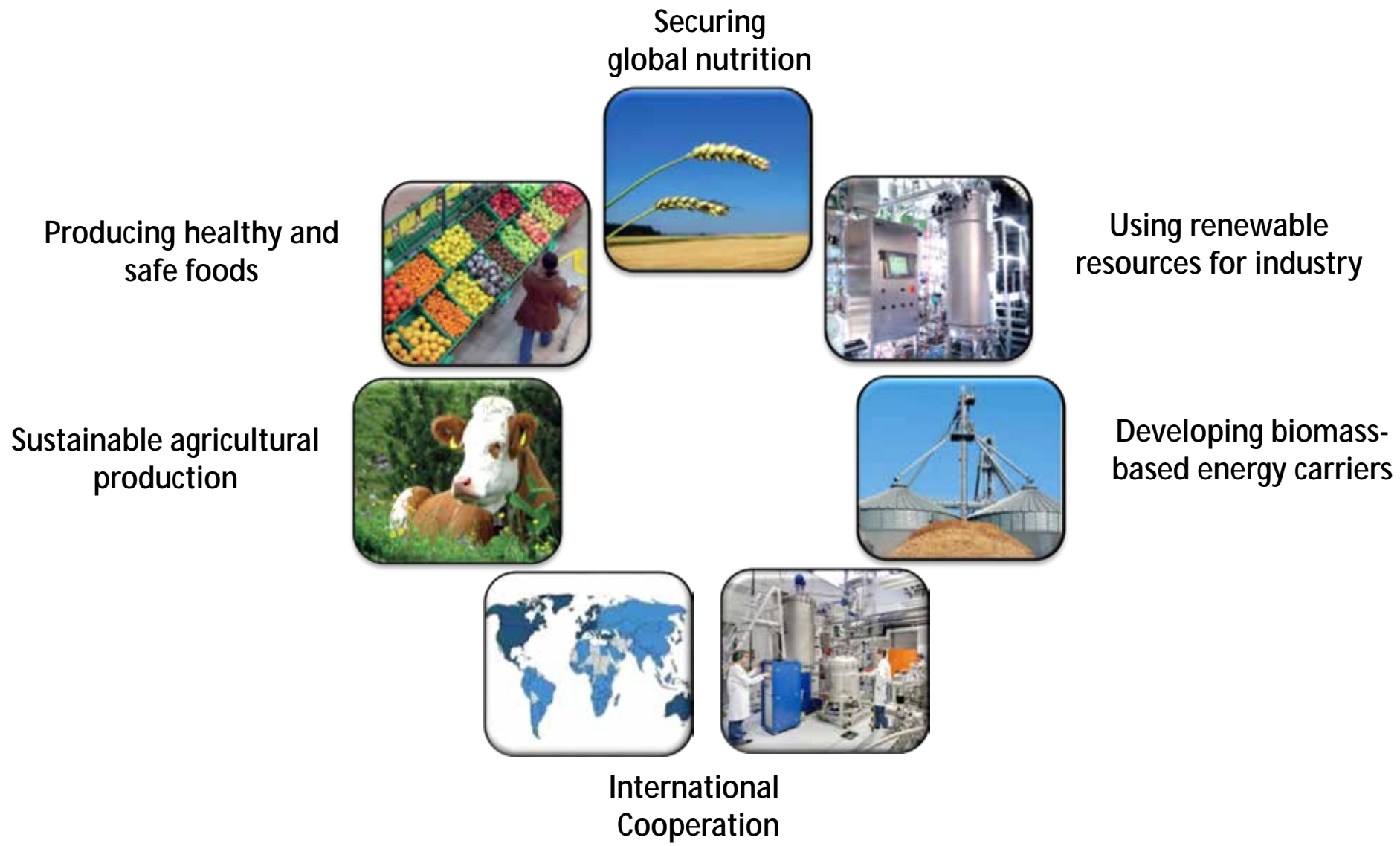
- **BMBF** Federal Ministry of education and research
 - **BMEL** Federal Ministry of food and agriculture
 - **BMWI, BMZ, BMUB...**
 - **Research Institutes:** HGF, WGL, FhG, MPG
 - **Industry**
 - **Federal states** (NRW, ...)
 - **European and International cooperation**
- Ø starting November 2010; duration 6 years

Project funding	1 457.6 Mio €
Institutional funding	976.6 Mio €
Total funding	2 400.0 Mio €





National Research Strategy Bioeconomy 2030 - Implementation



Crops for the future

Innovation rooms for Bioeconomy

Agricultural systems of the future

Smale Scale Biorefineries

Bioeconomy International

BioEnergy 2021

FACCE-JPI

Internationalisation of Leading-Edge Clusters

FACCE-JPI

ERANet SUSFOOD

GoBio

ERANet MIN2

ERANet Biotech

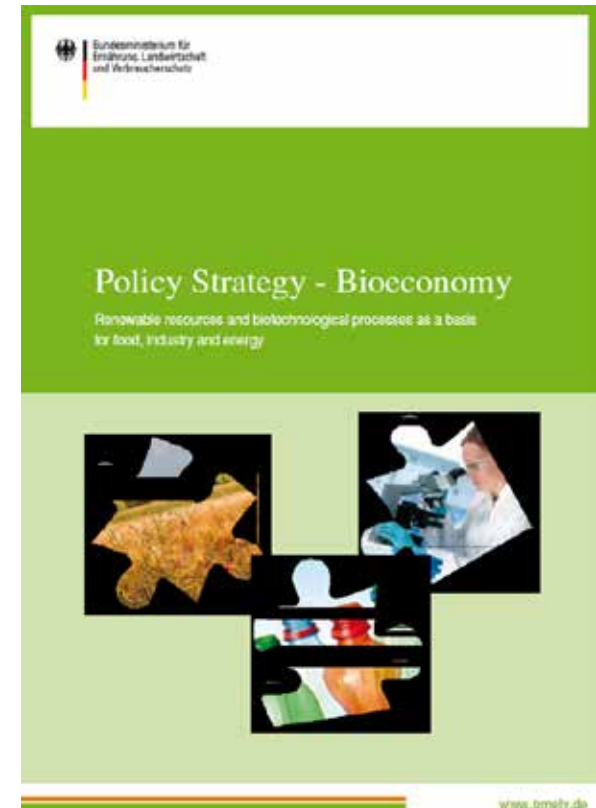


Renewable resources and biotechnological processes as a basis for food, industry and energy



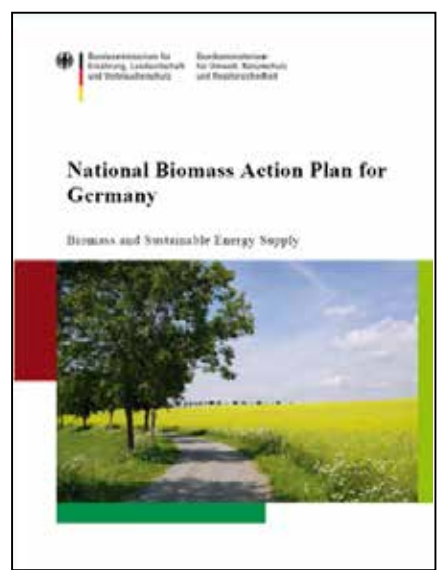
Bundesministerium für
Ernährung, Landwirtschaft
und Verbraucherschutz

- n Bioeconomy as an opportunity for the 21st century
- n Goals and guiding concepts for a sustainable bioeconomy
- n Challenges and drivers of the bioeconomy
- n Growth markets, innovative technologies and products – Industrial biotechnology, bio-based products and bioenergy, food and feed
- n Areas of action, strategic approaches and measures – Cross-sectoral and thematic areas of action

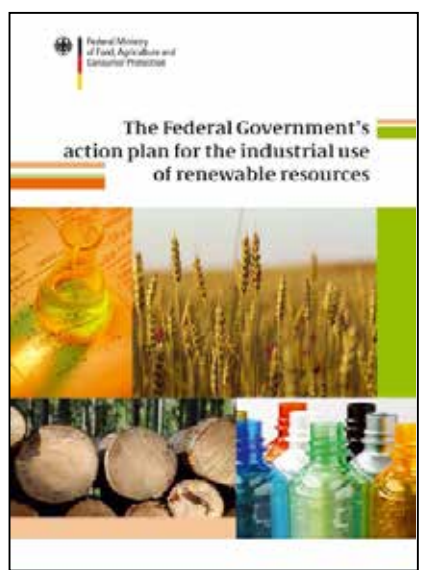


Inter-ministerial working group on bioeconomy

Action Plan Bioenergy



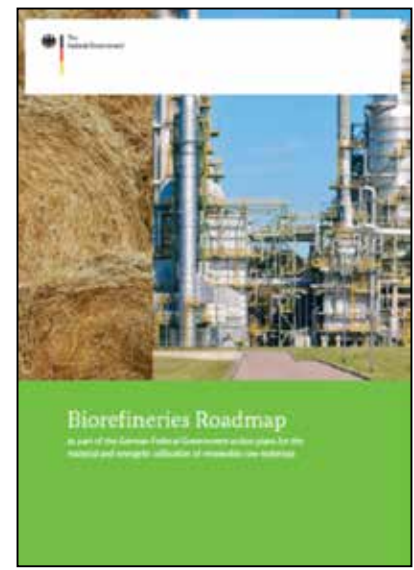
Action Plan Industrial use of renewable resources



Strategy Renewable resources



Biorefineries Roadmap





Recent strategic developments in Germany

Recommendations Bioeconomy Council



Potentials for Innovation in Biotechnology



Research Agenda Green Economy



Innovation Guidelines Hightech Forum



---à **Updated National Research Strategy
Bioeconomy expected in 2018**



Global Bioeconomy Summit

INNOVATION, GROWTH AND SUSTAINABLE DEVELOPMENT

GLOBAL BIOECONOMY **SUMMIT 2015**



GLOBAL
BIOECONOMY
SUMMIT 2018

--à 19.-20. April, 2018 in Berlin



Bioeconomy Strategies & Policies – Federal States of Germany (Examples)



North-Rhine Westphalia

Bioeconomy Strategy



Baden-Wuerttemberg

Bioeconomy Strategy
„Bioökonomie im System aufstellen“



Bavaria

Bioeconomy Council of Bavaria

... And more initiatives in other federal states



Vision of a Sustainable Bioeconomy

Important tasks

- **Identification of added-value nets**, based on bioeconomic elements
- **Regionalisation of bioeconomy pathways** (globally)
- **Identification of research** demand along bioeconomic pathways
- **Infrastructures** are required
- Development of **best-practice examples**
- **Development of education programmes**
- **Communication with all stakeholders** about relevant questions

Strategy development
& concepts

Identification of
research demand

Integrated research
approaches

Integrated education

Communication and
„transfer for
implementation“



Competence for Bioeconomy Research

The BioSC partners



Engineering meets natural sciences



Technology platforms
Strategic research



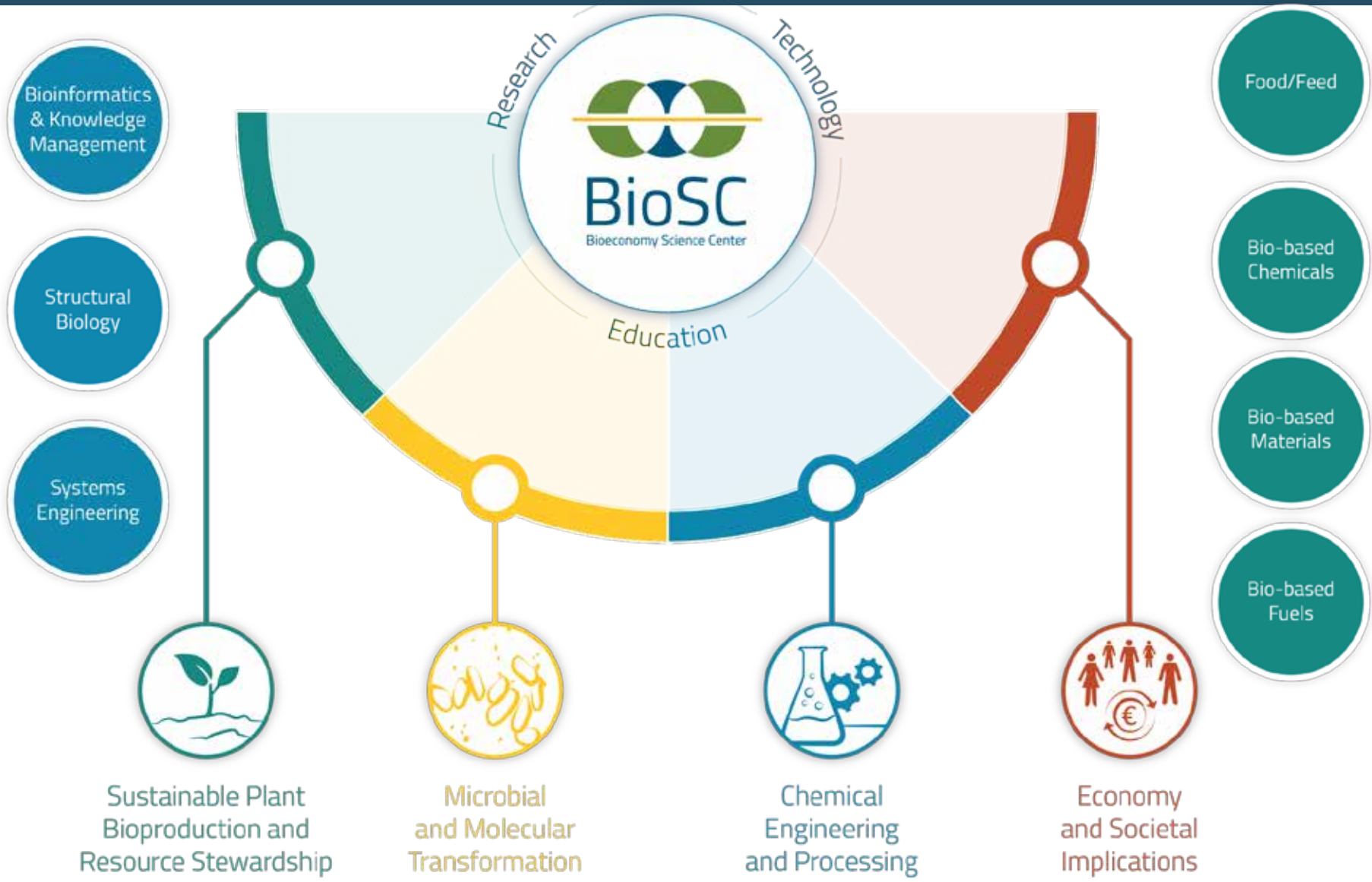
Excellent natural sciences



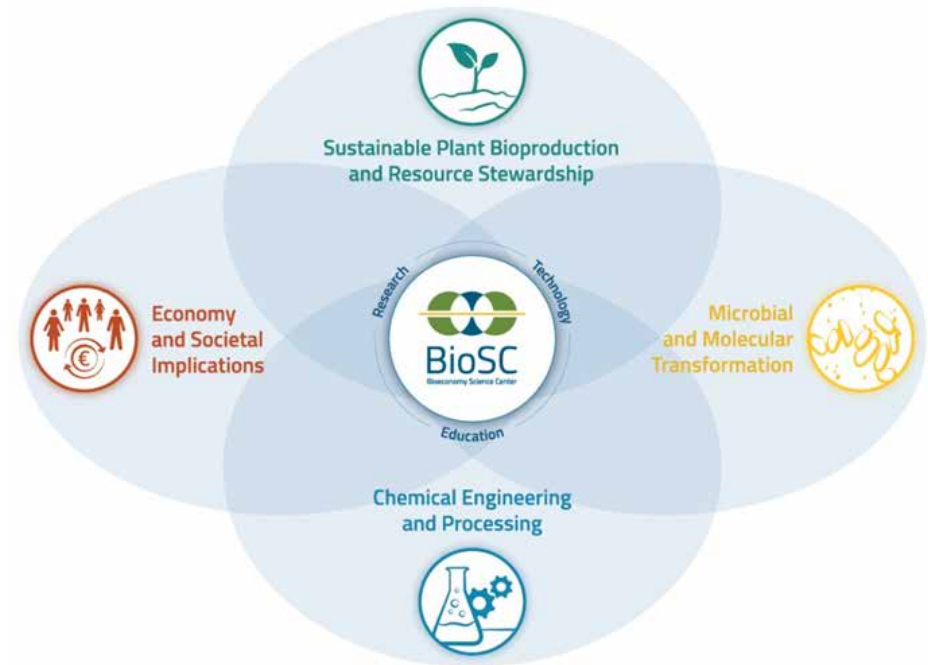
Modern agro-sciences
Food – Renewable resources - Energy



Competence for Bioeconomy Research - Four Key Research Areas of BioSC



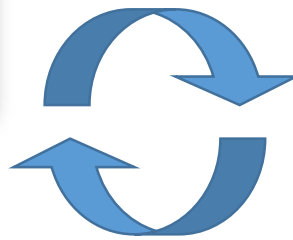
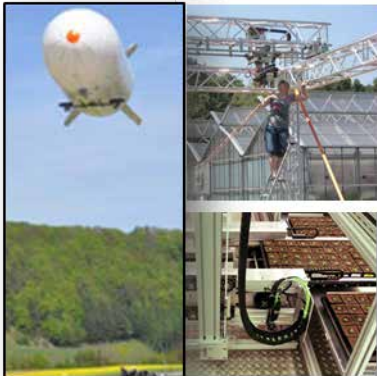
- Mission
Sustainable & Integrated Bioeconomy
- Integration of key disciplines for the provision of biomass, biobased products and processes, (socio-)economic aspects
- Research & Education



- founded 2010
- 65 Core Groups, > 1600 Staff

Combining Unique Infrastructures

Agricultural field sites



Biorefinery (NGP²)



- Analytical systems for
- Plant phenotyping
 - Microbiological processes
 - Biocatalysis
 - Chemical analysis



NRW Strategy Project BioSC

- 10 years funding period; 5.8 Mio. €/a
- Focus on community building and inter- and transdisciplinary projects
- Joint strategy and integration



Ministerium für Innovation,
Wissenschaft und Forschung
des Landes Nordrhein-Westfalen



Phase 1: Initiation

2013 - 2016

Phase 2: Implementation of focus

2017 - 2020

Phase 3: Sustainable development

2020 - 2022

Identification of topics

Focussing

Implementation



NRW Strategy Project BioSC

Focus on integrated bioeconomy

- **Integrated approaches are needed**
 - Products – innovative concepts solving concrete problems
 - Sustainability – circular processes and efficiency
 - Value networks/ webs – optimisation in the systems approach
- **Challenges**
 - Truly multi-disciplinary cooperation is essential
 - Overcoming boundaries of disciplines – founded on excellent science and infrastructure
 - Bottom-up and strategic approaches

Aims

- Concepts for integrated bioeconomy
- Cross-linked & trans-disciplinary understanding of disciplines
- Knowledge transfer and -interaction
- Networking internal & external
- Communication internal & external

White Papers

Guest scientists

Integration Fora

**Technology-/
Cluster Days**



NRW Strategy Project BioSC

Funded research projects in phase 1

21 SEED FUNDS (up to 150 T€; 12 M)

2.9 Mill.€ High risk, high gain projects

20 BOOST FUNDS (up to 800 T€; 24 M)

13.0 Mill.€

CoSenS BioSAF MoniCon

FlowCom VariSurf NovoSurf

MisQual MetEvo Roxense

Econ-BioSC UstiLyse BioCaPS

LIPANO EtMeD AquaPro

TPOT GreenGel BioDeg

DiPro UstiOpt HiQFlux

EnZIP OrCaCel P-ENG

BIO-ExpressPro BioBreak CatIBs

C4-PSH AlgalFertilizer RIPE

GLUFACT InductomE SPREAD

PNP-EXPRESS PlaMint PectiLyse

MoRE-Plants PrimACs PhytaPhos

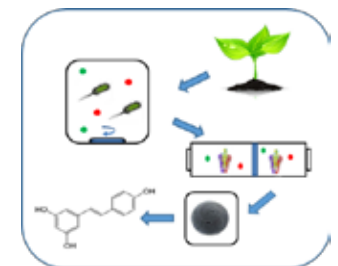
BiFuProts BeProMod



More details: www.biosc.de

Three Focus Topic Areas

- Smart management for plant performance
- Integrated biorefineries for sustainable production and processing
- Modular biotransformations for high-value chemicals



Competence Platform

- Economy, strategies and concepts



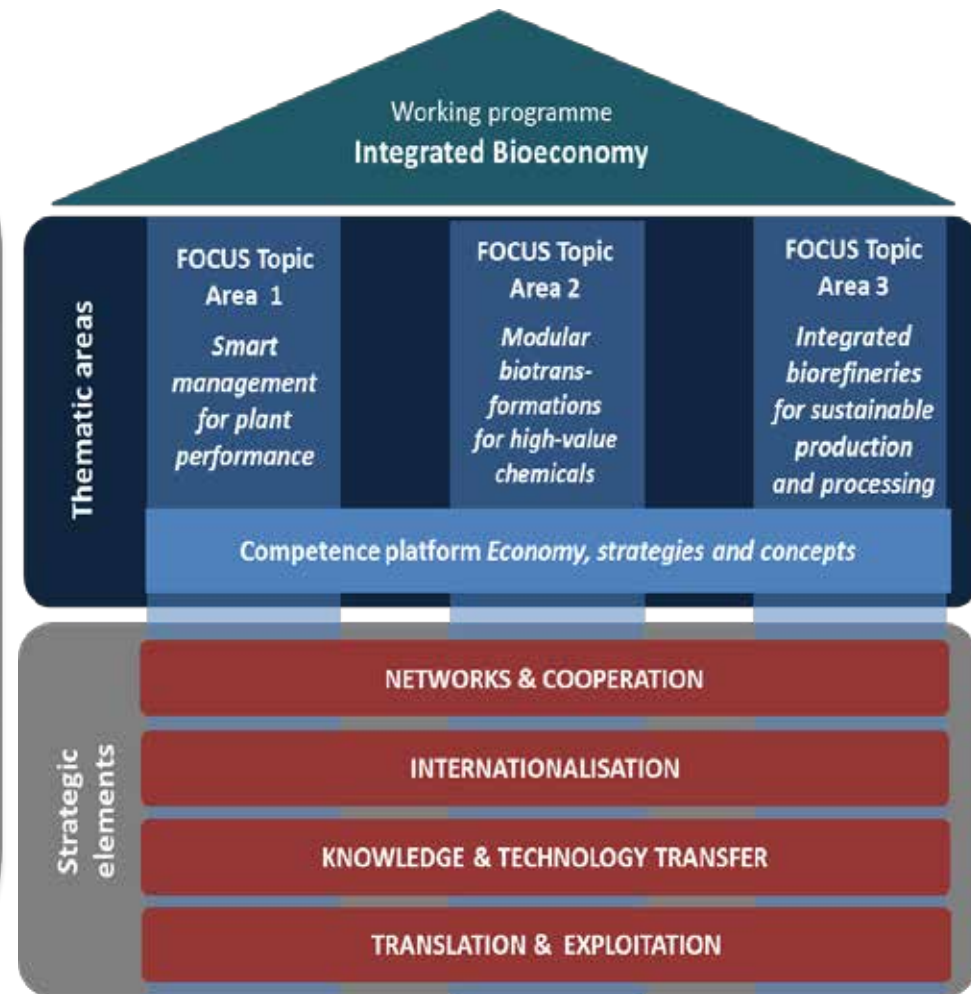
Next step in the BioSC development *FocusLabs* (2017-2020)

FocusLabs in BioSC

- § Start Q2- 2017
- § Integrated labs across disciplines
- § Own Governance

- § 1- 2 *FocusLabs* / Topic area
- § 800 k€/ year (3 years projects)
- § Option to extend in phase 3

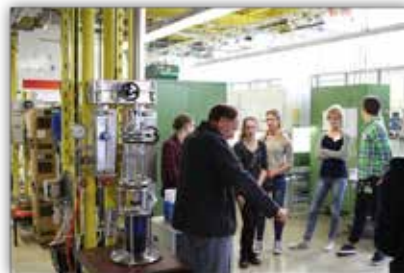
Inter-disciplinary education in bioeconomy





BioSC Education Programme – Activities

International
Summer Schools



Lecture series



Excursions,
Workshops,
Lab Exchanges



PhD Competence Award
Supervision Award





Europa



Lateinamerika



Brasilien, Argentinien, Costa Rica, Chile, Mexiko, etc.



India



Asien



China

Thailand





1st BioSC Symposium
Towards an Integrated Bioeconomy

A key prerequisite for the successful implementation of a knowledge-based bioeconomy and its related research is the integration of highly diverse research disciplines and the bundling of high-level scientific expertise into integrative approaches. All relevant disciplines need to explore the full potential of renewable resources to develop solutions for the Grand Societal Challenges.

Date:
21. November 2016

Venue:
Meternushaus, Cologne, Germany

ABOUT THE SYMPOSIUM:
 The BioSC Symposium focuses on different aspects for the development of an integrated and sustainable bioeconomy. Interdisciplinary BioSC research projects and complementary talks of invited external speakers will be presented and discussed. Bioeconomy topics will be reflected from different points of view in the following sessions:

- **Session I: Innovations for Plant Production and Resource Management**
- **Session II: Green Value Chains - Processes and Products from Biomass**
- **Session III: Socioeconomic Perspectives within a Sustainable Bioeconomy**

A program draft, including confirmed speakers, is available at the [BioSC Symposium website](http://www.biosc.de/symposium) and will be constantly updated.

PARTICIPANTS:
 International scientific experts from all relevant disciplines, stakeholders from politics and industry.

DEADLINE FOR REGISTRATION: 05.10.2016
 Please use the [>>application form](#).
No registration fees. Places are limited!

MORE INFORMATION:
www.biosc.de/symposium

www.biosc.de

The Bioeconomy Science Center (BioSC) is a research cooperation of the Fachhochschule Südwestfalen (FH SWF), the Fachhochschule Westfalen (FH WE), the Fachhochschule Rheinland (FHR) and the Technische Universität Bochum (TUB).

Partner of:
 Ministerium für Innovation, Wissenschaft und Forschung des Landes Nordrhein-Westfalen

2nd BioSC Symposium

„Towards an Integrated Bioeconomy“

27th November 2017, Cologne

www.biosc.de/en

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