

# European Bioeconomy Congress Lodz 2018, 24<sup>th</sup> September 2018

## Workshop „Bioeconomy Education for the Future“

Josef Glössl

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### Outcome of the Workshop

## International Cooperation in Education and Training for the Bioeconomy

at the Global Bioeconomy Summit 2018, 20<sup>th</sup> April 2018, Track: "Policy"t

#### Co-Chairs:

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# International Cooperation in Education and Training for the Bioeconomy:

## Aims of the workshop

- To provide an input to the updated EU Bioeconomy Strategy which should put emphasis on
  - (i), the demands for knowledge, skills and competences for the bioeconomy,
  - (ii), the need for innovation and entrepreneurship in the concepts of bioeconomy education and training
  - (iii), the need to enhance the cooperation among educational and training institutions and their stakeholders (e.g. industry, public governance)
  - (iv), establishing centres of excellence/competence on education, research and training dedicated to the bioeconomy
- To provide a basis for the development and implementation of a “European / International Bioeconomy Education Forum” representing stakeholders from academia, vocational training institutions, industry, society and public administration.
  - This Forum needs to be included in the EU Bioeconomy Strategy and its Action Plan (as initially proposed in the Lodz Declaration on a European Bioeconomy Education Platform, 2017)

# International Cooperation in Education and Training for the Bioeconomy:

## Expected outcome

- A first map of the skills and competences needed, and their combinations, for a career in academia and industry related to the bioeconomy
  - This will result in providing the basis for a questionnaire survey among stakeholders to identify curricula requirements for bioeconomy in universities and vocational institutions educational programs
- Identifying whether there is the need for new human resource and institutional capacities in education and training institutions
- An improved basis for mutual capacity building for the implementation of bioeconomy concepts at the European and International level
- Further development of the concept for establishing and implementing a European / International Bioeconomy Education Forum with a global perspective

# International Cooperation in Education and Training for the Bioeconomy: Input Speeches from different stakeholder groups

- **Universities, Europe and Global:**

- **Barbara HINTERSTOISSER**, University of Natural Resources and Life Sciences, Vienna (BOKU), AT
- **Chadamas THUVASETHAKUL**, Executive Vice President, National Science and Technology Development Agency (NSTDA), Thailand

- **Industry, Europe and Global**

- **Phillippe MENGAL**, Executive Director, Bio-based Industry Joint Undertaking (BBI JU)
- **Karl-Heinz MAURER**, Global Marketing Director, ABEnzymes AG, D

- **Policy and Governance, Europe and Global**

- **Andrzej SIEMASZKO**, Central and Eastern European Bioregions Forum, Marshal's Office of the Lodzkie Region, PL
- **Peter WELLS/Ahmed Fahmi**, Chief of Higher Education Section, UNESCO

## International Cooperation in Education and Training for the Bioeconomy: Concept for Small Discussion Groups (modified World Café)

- 7 Groups (Round Tables) with 8-12 participants each (including 1 Chair and 1 Rapporteur per table)
- The same set of questions ([Guiding Questions 1 - 3](#)) were discussed in parallel at 2 or 3 tables
- The list of questions to be discussed have been prepared in the preparatory phase before GBS 2018 by the organizers of the workshop

# International Cooperation in Education and Training for the Bioeconomy: Outcomes to Guiding Questions 1

- What are the current deficiencies in the curricula approaches (knowledge, competences and skills for cross-disciplinary understanding) in education and training institutions related to the bioeconomy in developed, developing and emerging economies?
  - What new approaches are required in education and training for growing a sustainable bioeconomy?
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- Proper and careful, sustainable use of renewable resources needs a future generation of researchers and practitioner in all relevant sectors with consolidated knowledge and deep insight into the living and nonliving world and natural cycles
  - Education beyond disciplinary curricula
    - act in an interdisciplinary and transdisciplinary working environment, skills in project management, leadership, communication, critical and transformative thinking, cross-cultural/cross-silo-thinking
  - Both the adaptation of existing curricula as well as the development of new curricula dedicated to bioeconomy will be required
    - the biggest developments are required in the non-food value chain and for interlinking the food and non-food value chains, for assuring a sustainable, circular bioeconomy.

# International Cooperation in Education and Training for the Bioeconomy: Outcomes to Guiding Questions 1, cont'd

- What are the current deficiencies in the curricula approaches (knowledge, competences and skills for cross-disciplinary understanding) in education and training institutions related to the bioeconomy in developed, developing and emerging economies?
  - What new approaches are required in education and training for growing a sustainable bioeconomy?
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- Implementation at all career stages must be in alignment with stakeholder demand
    - Career-paths should be followed in different institutions/companies. Industry should offer internships, development of tandem training models (academia – industry), including training of teachers.
  - Start education on bioeconomy at early stage to show opportunities at all levels.
  - Study programmes should combine natural sciences, economics, social sciences and engineering, providing knowledge for an ecologically and economically sustainable use of natural resources.
  - Students and graduates should be aware of the necessity to merge the guiding principles of sustainability and entrepreneurship in developing and implementing bioeconomy concepts.

# International Cooperation in Education and Training for the Bioeconomy:

## Outcomes to Guiding Questions 2

- Are new human resource and institutional capacities needed in education and training institutions for providing the workforce for a growing sustainable bioeconomy?
  - How can these be created?
  - What are the resources that the public and private sector can contribute to building such a model of the bioeconomy?
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- Increasing demand for qualified human resources with integrated multidisciplinary knowledge and skills at all levels
    - vocational education, lifelong learning offers (training of employees on the job), covering a wide range of scientific, technological, social and economic domains
    - Education and training programmes should be designed to cover all target groups, including the farming sector
  - More cross-disciplinary trainings and joint degree programs
    - to enhance abilities of business leaders to manage research-driven enterprises, to enhance business and entrepreneurial skills of scientists



# International Cooperation in Education and Training for the Bioeconomy: Outcomes to Guiding Questions 2, cont'd

- Are new human resource and institutional capacities needed in education and training institutions for providing the workforce for a growing sustainable bioeconomy?
  - How can these be created?
  - What are the resources that the public and private sector can contribute to building such a model of the bioeconomy?
- 
- Need to strengthen cooperation among educational institutions AND also between educational institutions, research institutions and industry
    - each institution has its own profile and strengths that can complement each other, both within and across countries
  - Ensure education for excellence in the specific field
    - Based on this, training should be in real life/industrial context to get used to look beyond the limits of expertise (e.g. using job rotation within/between companies, academia/industry/research institutions)

# International Cooperation in Education and Training for the Bioeconomy: Outcomes to Guiding Questions 3

- How can synergies be developed at regional or global levels to support the capacity building of education and training institutions for growing a sustainable bioeconomy?
  - The workshop provided an improved basis for mutual capacity building for the implementation of bioeconomy concepts at the European and International level
  - Utilise university networks, students initiatives and industry networks in building synergies.
  - The regionality is linked to tax systems, the IP framework and regulatory aspects, all the rest can be seen as global
  - Education to and dialogue with citizens about bioeconomy and bio-based products has to be strengthened and be continuous in order to raising awareness on bioeconomy

# International Cooperation in Education and Training for the Bioeconomy: What`s next?

- Development of a „European/International Bioeconomy Education Platform” with a global perspective to provide a forum for international collaboration and exchange on education and training at all levels for the bioeconomy
  - Map bioeconomy education at all levels of career
  - Development of joint activities based on existing university and industry networks as well as international organisations (e.g. UNESCO), in close cooperation with the European Commission.
  - A stakeholder workshop at European level and link it to global activities as a forum for exchange, and for input to policy makers will be organised by the Workshop planning group in 2019
- Take action now!
  - Developing education for bioeconomy is urgent. There is already a shortage of key competences and demand is expected to raise quickly

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Workshop „**Bioeconomy Education for the Future**“

Outcome of the Workshop

**International Cooperation in Education and Training for the Bioeconomy**  
at the Global Bioeconomy Summit 2018

**Thanks for your attention!**

**Josef Glössl**

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