Adult education in Germany

The way forward **Technical specifications**

document This document presents findings on

opportunities for advancement in the bioeconomy sector in Germany, highlighting the needs for skills, existing education, gaps and needs in promoting education. It also includes 3 relevant case studies collected from the country.



Advancement

Opportunities for

& Wood Processing Enhanced production of chemicals, smart textiles and new materials in the construction industry; focus on

Construction Industry

Sustainable

more regional and more sustainable value chains; exploitation of production potential in wood, land and water resources; utilization of multifunctional nature of the forestry that provides amount of biomass, biomaterials and bioproducts; utilization of wood biomass for the production of energy; use of smart technologies in forestry as well as in the related paper industry.

and new technologies in energy storage, grid management, and clean energy production, utilizing

Green Technologies

& Renewable Energy

Enhanced use of green innovations

resources like solar, wind and biomass; foster of local sourcing to reduce supply chain risks.

of proteins (e.g. lentils) to improve the protein intake in nutrition; using new technologies of mechanical,

chemical and energy processing of agricultural and forest biomass. **Innovative**

Entrepreneurship

Smart Agriculture & Food Industry

Processing the plants which are rich

Utilization of advanced education and research at the higher education and research institutions in the country; continuing support

and Research

for setting up innovative labs (e.g. research centre Jülich); attracting the interest of private investors through dedicated Institutions and calls; further exploitation of the developed digital background.

On educational/academic level Due to its economic potential and geographical role, Germany may be considered as the leading force of bioeconomy in Europe – however, this still needs to be better

Needs for Skills

expanded into the country's education sector.

On private sector level

Skills most urgently needed are trainings in the fields of chemistry, agriculture, biology, process technology, economy and information technology; making the adult

learning and LLL programs more accessible with multidisciplinary approach.

On governmental level Harmonization of policies/governance mechanisms throughout all educational levels. Although the country has a National Bioeconomy Strategy (the first national

bioeconomy strategy in Europe), in parallel it has developed at least three more Regional Strategies, each of them with local particularities and specificities.



the Bioeconomy Council to draft and implement an internationally competitive strategy for a knowledge-based bioeconomy;

Higher education:

fields of bioeconomy.

Many courses related to bioeconomy

knowledge fields can be found at universities and technical colleges in the country; there is

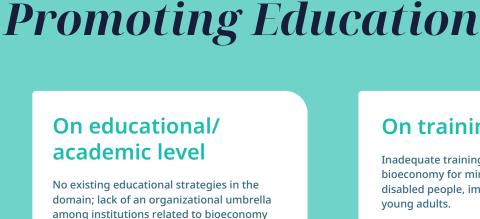
there are many existing national and regional funding programs and measures in various

• In the Rhenish territory in North-Rhine Westphalia, 19

universities and technical colleges can be identified with the courses related to bioeconomic knowledge bioeconomy such as Agricultural and Forest Sciences, Natural Sciences, Engineering, Energy and Supply Research centre Jülich and RWTH Aachen offer a course Sustainable Bioeconomy (Nachhaltige Bioökonomie); • Bioeconomy Science Center (BioSC) including the

University of Aachen focuses also on the training of

its applications in teaching STEM subjects.



Gaps & Needs in

education; lack of any dedicated educational initiatives for marginalized groups.

On governmental level

New National Bioeconomy Strategy has been published in 2020, however, there is a lack of assessment on the implementation of the strategy (both, at national and regional level); bioeconomy is not fully aligned with

the socioeconomic priorities of the country; fragmentation of activities and priorities.

3 Case Studies

• The University (Hochschule) Niederhein offers a project • Trainings like **BLOOM** (Boosting Bioeconomy Knowledge in Schools) are accessible for all teachers offering a fresh perspective into bioeconomy field and

state-approved information technical

assistant.

On training level Inadequate training programs in the field of bioeconomy for minority groups including disabled people, immigrants/refugees and young adults.

motivation.

Case Study 1 Bioeconomy education, training and retraining in Higher Education

introduction to the Basics /Germany Purpose: The certificate course in six modules gives the participants a practical introduction to the basics of the bioeconomy and the challenges and opportunities associated with its implementation. The companies can book the entire course or individual modules for their employees.

Bioeconomy certificate course – Bioeconomy and Sustainability: A practical

Purpose: As part of the Sustainable Design course, designers are trained to create in a meaningful and aesthetic way by placing design in an interdisciplinary context with the ecological, social, cultural and economic challenges of the globalised world. Graduates are equipped with a unique selling point through the focus on sustainable design.

Case Study 3 Bioeconomy education, training and retraining in Vocational Education and Training | Environmental Protection Technician /Germany

Purpose: Vocational training to become a state-certified environmental protection technician with a focus on environmental and process engineering and ecological knowledge. The subjects of job-related lessons include waste management, recycling, knowledge of hazardous substances, occupational safety,

Case Study 2

wastewater and exhaust gas cleaning, measurement technology and renewable energies.



the European Union

Consortium

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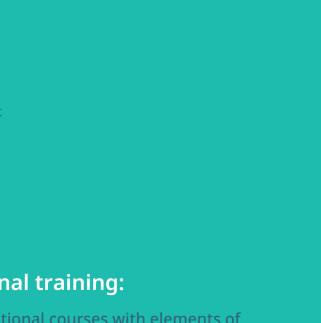














On private sector level Inadequate advocacy support for the careers in bioeconomy.

On societal level

Lack of identification of marginalized groups and their specific needs and priorities; potential brain-drain due to the lack of







Injecting the bioeconomy into design, art, architecture and suchlike



professions | Sustainable design /Cologne, Germany

