



The bioeconomy
and a future biobased food
industry and agriculture sector:
**How can workers' organisations
shape the change?**

Agreement No VS/2017/0319

Executive summary



EFFAT



with financial support
from the European Union

Areté Research
& Consulting
in Economics

Steering Committee for the project

Jesper Lund-Larsen, Political Advisor, 3F United Federation of Danish Workers, Denmark

Arnd Spahn, Political Secretary Agriculture sector, EFFAT

Estelle Arnette Brentnall, Political Secretary food and drink sector, EFFAT

Project team

Serena Berisio, Areté Research & Consulting in Economics, Italy

Alberico Loi, Areté Research & Consulting in Economics, Italy

Renata Rakic, Areté Research & Consulting in Economics, Italy

Professor Lene Lange, LLa-BioEconomy, Research & Advisory, Denmark

Karen Hamann, IFAU Institute for Food Studies & Agroindustrial Development, Denmark

Claire-Marie Luitaud, Blezat Consulting, France

Acknowledgments

This report is the result of a team effort. The consultants, Areté Research & Consulting in Economics, drafted the report and were responsible for the data collection and empirical analysis, with support from IFAU (Denmark) and Blezat Consulting (France). Valuable inputs were also received from EFFAT member organisations. The assistance of a dedicated small steering committee who facilitated this exercise is gratefully acknowledged. Special thanks are also extended to other EFFAT colleagues who helped in many different ways.

Disclaimer

This publication reflects only the author's view. The European Commission is not responsible for any use that may be made of the information it contains.

Executive summary

The study is based on information and insights collected through a combination of desk research and interviews with key stakeholders, carried out in the framework of a selection of case studies focusing on a wide range of processes aimed at adding value to biomass. The study mainly focused on the **implications of bioeconomy in terms of job creation / required skills of workers in the food industry**, but also considered the linkages with other activities and industries (including those dealing with non-food products and energy generation).

The European Commission defines **bioeconomy** as "the production of renewable biological resources and the conversion of these resources and waste streams into value added products, such as food, feed, bio-based products as well as bio-energy". In practical terms, the bioeconomy covers all the sectors of the economy that rely on production and processing of biological resources, like agriculture, fisheries, food, forestry, chemicals, materials, soil improvers and bioenergy.

Bioeconomy is a key contributor to economic growth and employment across the EU. According to the European Commission, the total turnover of bioeconomy sectors in the EU was estimated at 2,259 billion Euros in 2015; in the same year, bioeconomy employed around 18 million workers, mostly in agriculture and in the manufacturing of food, beverages and tobacco. Estimates and projections from authoritative sources suggest that **bioeconomy as a whole has a remarkable potential in terms of prospective employment creation**. According to industry estimates cited in the European Commission *Bioeconomy Action Plan 2018*¹, the EU bioeconomy can create up to one million new green jobs by 2030, in particular in rural and coastal areas. The importance of the contribution of agriculture and of the food industry to total employment in the bioeconomy may decrease in the future, even though this general trend may be offset, at least in part, by increases in employment in the forestry and "blue bioeconomy" (biomass from oceans and inland waters). It is likely that most of the growth in employment will take place in non-food sectors (including liquid biofuels and bioenergy), as well as in support services (logistics, equipment and input production, etc.): this implies that **trade unions representing agriculture and food industry workers should pay attention to the development of biobased value chains in non-food industries**, should not overlook the **expansion of support services**, and should **enhance their cooperation with the relevant trade unions**.

The study revealed that in many ways **the bioeconomy resembles food processing and the chemical industry**, since these industries make use of highly automated processing equipment, the production is process-oriented, and the industries process biomass into products and materials. The case studies also revealed that **the principles, processes and skills used in the food industry and for processing of biomass are quite transversal**. The study also showed that **besides positive effects in terms of employment creation** (which may be significant), the development of biobased value chains (including non-food ones) can improve the profitability of food companies, and hence **contribute positively to the safeguard of employment levels in the food industry**. The **importance of establishing inter-sectoral linkages** and of **promoting cooperation among diverse groups of stakeholders** as conditions for the development of biobased value chains clearly emerged from the study. These conditions are especially important for developing **large-scale biobased industrial clusters**, which have **significant potential in terms of employment creation**.

¹ European Commission (2018), *Bioeconomy: the European way to use our natural resources – Action plan 2018*, Directorate-General for Research and Innovation - Unit F – Bioeconomy.

The study also revealed that the **development of biobased value chains in the agro-food system** faces a number of **challenges and constraints**: some of these **affect workers**, and have **direct implications for trade unions**:

- With special respect to **job creation**, it should be noted that some biobased processes require substantial capital investments, but relatively limited workforce (capital-intensive processes rather than labour-intensive processes).
- The **sectoral focus of many initiatives for the development of biobased value chains** may prevent them from exploiting inter-sectoral synergies. The biggest potential for job creation, or at least for safeguard of current occupation levels, is offered by an inter-sectoral approach in the development of biobased value chains.
- Finally, there is the issue of the **allocation of value among the various actors** involved in biobased chains, with a special attention for the **share allocated to workers**.

Challenges for **workers** can be addressed by trade unions alone, or through their cooperation/dialogue with other stakeholders (business operators, policymakers, civil society, etc.).

The study showed that **bioeconomy is above all characterised by diversity**. To successfully develop new biobased value chains, such **diversity needs to be taken into account, to be properly understood, and to be adequately dealt with**: failure in doing that can lead to missed opportunities and/or to unaddressed challenges which can put the success of the related initiatives at risk.

The study also highlighted the **critical conditions to be met** to ensure that the potential of bioeconomy in terms of employment creation (or, at least, of safeguard of current employment levels) is fully exploited:

1. The application of the “**cascading approach**”² to fully unlock the potential for adding value to biomass without negative environmental side effects.
2. Establishing **inter-sectoral linkages** (between farming and processing; between food and non-food value chains) and **cooperation among different groups of stakeholders** (business operators; research centres and education centres; institutions and policymakers; civil society; etc.) to fully exploit the aforementioned diversity and to implement the “cascading approach”.
3. Establishing an **adequate policy / regulatory framework**, in order to:
 - a. **Minimise regulatory constraints** to full exploitation of biomass in value adding processes, **without prejudice to social standards and environment conservation**
 - b. **Provide financial support and incentives** to business operators, research centres and education centres.

The study findings clearly suggest that trade unions should not only **look at the development of the bioeconomy with great attention**, but should **also play a role in shaping that development**. In other words, trade unions should **define a “bioeconomy they want”**, and should **actively contribute to the realisation of a model of bioeconomy which is consistent with their values and goals**.

² Cascading involves obtaining the most valuable products in the first stages of biomass processing, and lower-value products only in successive stages; only the residues from biomass processing into biobased products are finally used to generate energy. The cascading approach also allows to minimise waste, with positive implications for the development of an environmentally sustainable bioeconomy.

EFFAT deems that the bioeconomy of the future should be socially, economically and environmentally sustainable.

A SOCIALLY SUSTAINABLE BIOECONOMY

The development of bioeconomy should be an inclusive process: young people and unemployed people should be given a chance to find a job in the bioeconomy. This implies promoting an adequate educational offer, including hands-on training in biobased production units.

AN ECONOMICALLY SUSTAINABLE BIOECONOMY

The study revealed that **diversification into non-food biobased value chains** can improve the profitability of the involved food business operators, with **positive implications for the safeguard of current employment levels in the food industry**. This finding reinforces the **importance of an inter-sectoral approach to bioeconomy**. The study also showed that new biobased value chains can be successfully implemented at different scales. Even if the potential for employment creation in large-scale industrial clusters is generally much higher, this development model may be unsuitable for some processes, or unfeasible in certain contexts. The **potential for employment creation of smaller biobased production units should hence not be overlooked**, especially where those units can be built in significant numbers.

AN ENVIRONMENTALLY SUSTAINABLE BIOECONOMY

Last but not least, the development of the bioeconomy should **contribute to enhanced environmental conservation and more effective action against climate change**. To these ends, the development of biobased value chains should: i) be supported by a comprehensive analysis of their environmental/ climate change implications; wherever these are negative, adequate **mitigating measures** should be taken; ii) **apply the “cascading approach”**, by virtue of its **waste-minimising effects**.

The study allowed the elaboration of **recommendations** aimed at **promoting the development of a socially, economically and environmentally sustainable bioeconomy**, along the lines defined above. To that end, trade unions and workers' representatives should:

1. Undertake initiatives aimed at **improving their knowledge of the bioeconomy**.
2. **Strengthen trade union solidarity and cooperation across sectors**.
3. Consider the possibility to **invest part of the financial resources available to them** (e.g. those related to workers' retirement funds) **in projects for developing new biobased value chains that are socially, economically, and environmentally sustainable**.

4. Contribute actively to the **adaptation of the existing EU-level and national-level instruments** to promote the development of the bioeconomy, as well as to **the elaboration of new ones**.
5. Contribute actively to the **elaboration of EU-level and national-level initiatives aimed at promoting the development of bioeconomy** (e.g. through research and education, granting of financial incentives, minimisation of regulatory constraints, etc.).

In order to **promote employment creation in the bioeconomy**, and to **ensure that workers have adequate skills for working in the bioeconomy**, trade unions and workers' representatives should:

6. Undertake initiatives aimed at:
 - a. **Improving their knowledge of the implications of the bioeconomy in terms of employment and required skills of workers.**
 - b. **Improving awareness of, and general knowledge about bioeconomy among workers** (e.g. through elaboration of informative material).
 - c. **Helping unemployed workers to access technical education in the field of bioeconomy**, with a view to improving their chances of finding a job in the related sectors.
7. Consider the possibility to **invest part of the financial resources available to them** (e.g. those related to workers' retirement funds) **in initiatives aimed at providing workers with technical education in the field of bioeconomy**, always with a view to improving their chances of finding a job in the related sectors.

EFFAT is the European Federation of Food, Agriculture and Tourism Trade Unions, also representing domestic workers. As a European Trade Union Federation representing 120 national trade unions from 35 European countries, EFFAT defends the interests of more than 22 million workers towards the European Institutions, European employers' associations and transnational companies. EFFAT is a member of the ETUC and the European regional organisation of the IUF.



EFFAT

EFFAT

Avenue Louise 130 A, Box 3

BE-1050 Bruxelles

Tel: + 32 2 218 77 30

Fax: + 32 2 218 30 18

www.effat.org
