

Bioeconomy challenges and implementation: the European research organisations' perspective

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The EUROpean AGricultural Research Initiative (EURAGRI) is a not-for-profit organisation that acts as a forum for representatives from public research and innovation institutes, universities, funding bodies and ministries engaged in research and innovation in the agri-food sector and the broader bioeconomy. It encourages and stimulates debate on relevant research and innovation policy issues of strategic importance on EU, member state and organisational levels.

It provides members with a network where they can freely exchange views on the impact of policies and technological and societal developments on public research and innovation activities, trends and infrastructures within the field.

The annual EURAGRI conference, hosted in rotation by members in different countries, is the main event when representatives gather to exchange views and ideas. The programme reflects the specific situation of the host but always includes a European dimension and often goes beyond.

Additional workshops on pressing and specific issues that require in-depth discussion, as well as input from domains outside the agriculture and food sector, further broaden the knowledge base in which EURAGRI operates.

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Introduction

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This book focuses on opportunities and challenges in implementing a bioeconomy strategy from a research and education perspective. It is the second e-book produced by EURAGRI, following “Diffusion and transfer of knowledge in agriculture”, published in December 2016. It draws on contributions presented during the 30th EURAGRI annual conference held in Tartu (Estonia) in September 2016, as well as on other workshops organised as part of EURAGRI. EURAGRI is an informal gathering of EU research and higher education organisations and ministries interested in agri-food research. It works as a platform of exchange and discussion on topics of common interest pertaining to the organisation, orientation and outlook of agri-food research in Europe in connection with global changes. It holds annual conferences and organises workshops twice a year.

The topic of the 30th EURAGRI annual conference – and of this book – was chosen at a time when an assessment of the way bioeconomy strategies are being implemented in Europe was becoming increasingly necessary and urgent. In a way, the conference anticipated the publication, one year later, in November 2017, of a European Commission “Staff Working Document” to review its 2012 Bioeconomy Strategy and Action Plan.

The EU Bioeconomy Strategy and Action Plan¹ defines the 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, biobased products and bio-energy”.

The strategy highlighted the weight of the European bioeconomy in terms of annual turnover (EUR 2.2 trillion) and workforce (9%) and emphasised Europe’s need to “radically change its approach to production, consumption, processing, storage, recycling and disposal of biological resources” to ensure that the interlinked challenges of food security, resource efficiency, economic competitiveness, sustainability and environment protection are simultaneously tackled.

The publication of the EU Bioeconomy Strategy was soon followed by bioeconomy strategy documents drafted at the national level (Germany, Norway, Sweden, France, etc.) and beyond. At the regional level, the bioeconomy also took central stage in policy documents, echoing EU and national policies and mobilising stakeholders at a more local level.

The EU bioeconomy action plan delineated three major areas of action, with investment in research, innovation and skills as a top priority. The active involvement of research and education organisations was recognised as being key to the strategy’s success, and was also acknowledged in national and regional strategies. The EU research and innovation funding dedicated to the bioeconomy under Horizon 2020 doubled compared to the Knowledge Based Bioeconomy (KBBE) component of the 7th Framework Programme (2007–2013) and efforts to enhance research funding in the field of bioeconomy were similarly implemented in various member states.

Five years after the publication of the EU strategy and action plan, EURAGRI considered it relevant to reflect on the way research and education organisations had responded to such expectations and how bioeconomy strategies at all levels had affected their modes of operation and their organisational structures.

In the meantime, many major policy developments have occurred at national, EU, and global levels, creating a new policy context and conveying additional demands to research and education systems all over Europe. The emergence of new paradigms and concepts around the circular economy, international commitments under the Paris climate agreement and the Sustainable Development Goals have all put renewed pressure on research and education organisations to take on a leading role in developing and disseminating new solutions geared towards alleviating mounting challenges and identifying new opportunities.

To achieve these objectives, research and education organisations have been strongly encouraged to strengthen ties with industry and civil society as a way to combine scientific excellence with the demands of economic efficiency and social concerns. Such interaction with stakeholders is often framed in local/regional contexts and compels research and education organisations to permanently shift from the universality of science to the specifics of local dynamics, which represents a serious epistemic challenge.

¹ COM/2012/060final, <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2012:0060:FIN>. Accompanying Staff Working Document: SWD/2012/0011 final, <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52012SC0011&from=HR>

The following chapters in this book illustrate the way research and education organisations have coped with multiple, sometimes conflicting demands through examples and case studies set in different European countries reflecting a wide variety of situations. However, several converging trends can be identified, such as:

- restructuring and mergers of research and education organisations so that they reach a critical mass and improve efficiency,
- creating regional research and innovation hubs linking research, education and the industry,
- launching large transdisciplinary research programmes to tackle societal challenges,
- bringing data mining, new research tools and digital methods of handling data into the mainstream,
- reforming curricula and teaching methods to enlarge the learning horizon of students and increase their autonomy,
- strengthening the social dimension of research programmes by mobilising the social sciences and humanities and by involving civil society, and
- distributing knowledge across vast networks of users and providers.

Such trends are now deeply reshaping the research and education landscape in Europe, revealing a transformation process that might hopefully lead to a better use of science and knowledge for the benefit of humankind and the planet as a whole.