

# Innovating for sustainable growth: a bioeconomy for Europe

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**PURPOSE:** to present a Bioeconomy Strategy for Europe and Action Plan.

**CONTENT:** Europe is confronted with an unprecedented and unsustainable exploitation of its natural resources, significant and potentially irreversible changes to its climate and a continued loss in biodiversity that threaten the stability of the living systems on which it depends. This is exacerbated by a world population expected to increase by more than 30% in the next 40 years, from 7 billion in 2012 to more than 9 billion in 2050. Overcoming these **complex and inter-connected challenges** requires research and innovation in order to achieve rapid, concerted and sustained changes in lifestyle and resource use that cut across all levels of society and the economy.

The **EU's bioeconomy sectors are worth EUR 2 trillion in annual turnover and account for more than 22 million jobs and approximately 9% of the workforce.** However, in order to remain competitive and maintain jobs in the light of major societal challenges and rising markets in the developing world, the European bioeconomy sectors need to innovate and further diversify. Significant growth is expected to arise from sustainable primary production, food processing and industrial biotechnology and biorefineries, which lead to new bio-based industries, transform existing ones, and open new markets for bio-based products. New high skilled jobs and training options need to be developed to meet labour demands in these industries, as well as in agriculture, forestry, fisheries and aquaculture.

It is estimated that direct research funding associated to the Bioeconomy Strategy under [Horizon 2020](#) could generate about 130 000 jobs and EUR 45 billions in value added in bioeconomy sectors by 2025. Further growth is expected from other - direct and indirect - public and private investments in all parts of the bioeconomy. It can be expected that bioeconomy sectors will significantly contribute to achieving the Europe 2020 objectives.

The Bioeconomy Strategy and its Action Plan aim to pave the way to a more innovative, resource efficient and competitive society that reconciles food security with the sustainable use of renewable resources for industrial purposes, while ensuring environmental protection.

They will **inform research and innovation agendas in bioeconomy sectors and contribute to a more coherent policy environment**, better interrelations between national, EU and global bioeconomy policies and a more engaged public dialogue. They will seek synergies and respect complementarities with other policy areas, instruments and funding sources, which share and address the same objectives, such as the Common Agricultural and Fisheries Policies (CAP and CFP), the Integrated Maritime Policy (IMP), environmental, industrial, employment, energy and health policies.

The Strategy builds on the Seventh Framework Programme for Research and Technological Development (FP7) and the EU Framework Programme for Research and Innovation (Horizon 2020).

The Bioeconomy Action Plan: the Plan describes the Commission's main actions for the implementation of the Bioeconomy Strategy objectives. It has three principal pillars.

## 1. Investments in research, innovation and skills

- ensure **substantial EU and national funding as well as private investment and partnering for bioeconomy research and innovation**. Develop further JPI and ERANet activities in order to strengthen coherence and synergies between public programmes. **Support bioclusters and KICs under the EIT for partnering with the private sector**. Outline the main research and innovation concepts and priorities for food, sustainable agriculture and forestry and for marine and maritime activities under Horizon 2020;
- increase the share of multi-disciplinary and cross-sectoral research and innovation and improve the existing knowledge-base and developing new technologies;
- promote the uptake and diffusion of innovation in bioeconomy sectors and expand support to knowledge networks, advisory and business support services, notably through EIPs and bioclusters;
- build the human capacity required to support the growth and further integration of bioeconomy sectors by organising university fora for the development of new bioeconomy curricula and vocational training schemes.

## 2. Reinforced policy interaction and stakeholder engagement

- create a **Bioeconomy Panel** that will contribute to enhancing synergies and coherence between policies, initiatives and economic sectors related to the bioeconomy at EU level, linking with existing mechanisms (by 2012). Organise regular **Bioeconomy Stakeholder Conferences**;
- establish a **Bioeconomy Observatory** that allows the Commission to regularly assess the progress of the bioeconomy and develop forward-looking and modelling tools (by 2012);
- support the development of regional and national bioeconomy strategies by providing a mapping of existing research and innovation activities, competence centres and infrastructures in the EU (by 2015). Support strategic discussions with authorities responsible for rural and coastal development and cohesion policy to maximise the impact of existing funding mechanisms;
- develop **international cooperation on bioeconomy research and innovation** to jointly address global challenges, such as food security and climate change, as well as the issue of sustainable biomass supply (from 2012).

## 3. Enhancement of markets and competitiveness in bioeconomy

- provide the knowledge-base for sustainable intensification of primary production. Improve understanding of availability and demand of biomass (including agricultural and forestry residues and waste) across sectors, taking into account added value, sustainability, soil fertility and climate mitigation potential;
- promote the setting up of networks with the required logistics for integrated and diversified biorefineries, demonstration and pilot plants across Europe. Start negotiations to establish a research and innovation PPP for bio-based industries at European level (by 2013);
- support the expansion of new markets by developing standards and standardised sustainability assessment methodologies for bio-based products and food production systems and supporting scale-up activities. Facilitate green procurement for biobased products by developing labels, an initial European product information list and specific trainings for public procurers;

- develop science-based approaches to inform consumers about product properties (e.g. nutritional benefits, production methods and environment sustainability) and to promote a healthy and sustainable lifestyle.

The Commission goes on to note that the need to increase public funding for bioeconomy research and innovation has been recognised under **Horizon 2020**: almost **EUR 4.7 billion** has been proposed for the **Challenge “Food security, sustainable agriculture, marine and maritime research, and the bioeconomy”**. There will be further support under elements of the Challenges "Climate action, resource efficiency and raw materials", "Secure, clean and efficient energy" and "Health, demographic changes and wellbeing".

The **European Institute of Innovation and Technology** (EIT) with its Knowledge and Innovation Communities (KICs) in different areas will address questions related to the bioeconomy, in particular under the proposed KIC "Food4future". This will be complemented by research and innovation in enabling and industrial technologies (e.g. biotechnology, nanotechnology and ICT) and the promotion of emerging technologies.

Providing stakeholders along the entire bioeconomy value chain with the knowledge base and a toolbox that includes a range of key enabling technologies will also be critical to the implementation of a wide range of bioeconomy-related policies.

**Several Member States have put in place bioeconomy research programmes** and agreed to improve coordination of their research activities through public-public partnering, such as the JPI on "Healthy and Productive Seas and Oceans". Active collaboration between stakeholders is also needed to encourage more private investment and entrepreneurship in Europe.