

Brussels, 13 February 2012

Commission adopts its Strategy for a sustainable bioeconomy to ensure smart green growth in Europe

The European Commission has today presented its strategy and action plan for a sustainable bioeconomy in Europe, called “Innovating for Sustainable Growth: a Bioeconomy for Europe”. The goal is a more innovative and low-emissions economy, reconciling demands for sustainable agriculture and fisheries, food security, and the sustainable use of renewable biological resources for industrial purposes, while ensuring biodiversity and environmental protection. The plan therefore focuses on three key aspects: developing new technologies and processes for the bioeconomy; developing markets and competitiveness in bioeconomy sectors; and pushing policymakers and stakeholders to work more closely together.

The bioeconomy in the European Union

The bioeconomy encompasses the sustainable production of renewable biological resources and their conversion and that of waste streams into food, feed, bio-based products¹ such as bioplastics, biofuels and bioenergy. It includes agriculture, forestry, fisheries, food and pulp and paper production, as well as parts of chemical, biotechnological and energy industries. Its sectors have a strong innovation potential due to their use of a wide range of sciences (life sciences, agronomy, ecology, food science and social sciences), enabling industrial technologies (biotechnology, nanotechnology, information and communication technologies (ICT), and engineering), as well as local and tacit knowledge

The EU bioeconomy already has a turnover of nearly €2 trillion and employs more than 22 million people, 9% of total employment in the EU (see Table 1). It includes agriculture, forestry, fisheries, food and pulp and paper production, as well as parts of chemical, biotechnological and energy industries.

¹ Note: Bio-based products are products that are wholly or partly derived from materials of biological origin, excluding materials embedded in geological formations and/or fossilised, CEN - Report on Mandate M/429

Table 1: The bioeconomy in the European Union²

Sector	Annual turnover (billion €)	Employment (thousands)	Data source
Food	965	4400	CIAA
Agriculture	381	12000	COPA-COGECA, Eurostat
Paper/Pulp	375	1800	CEPI
Forestry/Wood ind.	269	3000	CEI-BOIS
Fisheries and Aquaculture	32	500	EC***
Bio-based industries			
<i>Bio-chemicals and plastics</i>	50 (estimation*)	150 (estimation*)	USDA, Arthur D Little, Festel, McKinsey, CEFIC
<i>Enzymes</i>	0.8 (estimation*)	5 (estimation*)	Amfep, Novozymes, Danisco/Genencor, DSM
<i>Biofuels</i>	6**	150	EBB, eBio
Total	2078	22005	

*Estimation for Europe for 2009; **Estimation based on a production of 2.2 million tonnes bioethanol and 7.7 million tonnes of biodiesel at average market price in Europe; ***EC, Facts and figures on the CFP, Basic Statistics Data, ISSN 1830-9119, 2010 Edition

The Bioeconomy Strategy: three key pillars

1) Investing in research, innovation and skills

The strategy will promote research and innovation activities to increase EU leadership and investment in the bioeconomy, increase the share of the skilled bioeconomy labour force and promote entrepreneurship.

The need to increase public funding for bioeconomy research and innovation has been recognised in the European Commission's proposal for its future research programme Horizon 2020 ([IP/11/1475](#) and [MEMO/11/848](#)). €4.5 billion have already been proposed for the Horizon 2020 'societal challenge' theme "Food security, sustainable agriculture, marine and maritime research, and the bioeconomy"³. Furthermore, bioeconomy themes will also be partially supported under elements of the Horizon 2020 themes "Climate action, resource efficiency and raw materials", "Secure, clean and efficient energy" and "Health, demographic changes and wellbeing".

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 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.

² Table adapted from Table 1 (page 14) of The Knowledge-Based Bio-Economy (KBBE) in Europe: Achievements and Challenges, Full Report, presented at the KBBE Conference on 14 September 2010 – <http://www.kbbe2010.be/en/kbbe2010/programme/kbbe-report>

³ COM(2011) 500 final

In order to promote the skills required to support the growth and further integration of bioeconomy sectors, new bioeconomy curricula and vocational training schemes will also be developed.

2) Market development and enhanced competitiveness of bioeconomy sectors

Enhancing market development and better resource efficiency in the bioeconomy sectors - agriculture and forestry; fisheries and aquaculture; bio-based industries; and the food chain - will create additional growth and jobs.

The increased research funding for the bioeconomy under Horizon 2020, along with a stronger innovation drive and reinforced policy interaction prescribed by the Bioeconomy Strategy, is estimated to generate an added value of about €45 billion and 130 000 jobs in bioeconomy sectors by 2025⁴. It will also contribute to the Commission's Europe 2020 goals and to the roadmap for moving to a low-carbon economy in 2050.

If the European bio-based industry is to remain competitive, it needs to bring more products and services from the drawing board onto the market. This will deliver direct benefits to citizens, such as food security and sustainability, sustainable agriculture, secure and clean efficient energy and the transition to a resource-efficient, low-carbon economy. The action plan aims to provide support for this process by supporting research and innovation and building the knowledge base to support cross-cutting policies.

New markets can be developed by:

- Developing standards and standardised sustainability assessment methodologies for bio-based products and food production systems and supporting demonstration and scale-up activities;
- Facilitating green procurement for bio-based products by developing specific labels, an initial European product information list and specific training for public procurers;
- Putting in place incentives and mutual learning mechanisms for improved resource efficiency;
- Starting negotiations for establishing research and innovation Public Private Partnerships for bio-based industries at European level.

3) Stronger policy coordination and engagement with stakeholders

The Bioeconomy Strategy calls for a more informed dialogue and better interaction and coordination across various policies in place at the EU and Member State level. This will provide a more coherent policy framework and encourage investment.

Steps to achieve greater coherence include:

- Creating a Bioeconomy Panel built on already existing resources and structures, that will involve relevant European Commission services, Member States and stakeholders to ensure synergies and coherence between policies, initiatives and economic sectors. Encourage the creation of similar panels at Member State and regional level.
- A *Bioeconomy Observatory* at EU level will be established to assess the progress and impact of the bioeconomy in Europe and to inform further policy making. The *Observatory* will build on existing systems at regional, national and

⁴ Figures based on the NEMESIS model. Further details can be found in the Staff Working Document accompanying the Bioeconomy Strategy.

supra-national level and develop common indicators for measuring bioeconomy activity.

- 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).
- Foster participation of researchers, end-users, policy-makers and civil society in an open and informed dialogue throughout the research and innovation process of the bioeconomy. Organise regular Bioeconomy Stakeholder Conferences.

Research and innovation in the bioeconomy – examples

The EU's Seventh Framework Programme FP7 supports research across a wide range of bioeconomy areas and sectors, including through collaborative research programmes, the European Research Council (ERC) and the Joint Research Centre (JRC). Total funding under FP7 (2007-2013) is expected to reach at least €1.9 billion, with €1.5 billion allocated so far. Some project examples are:

1) FORBIOPLAST (FP7)- Drawing on forest resources for sustainable manufacturing. The world needs to reduce its dependence on petro-chemicals. Might the answer lie in our forests? A broadly-based European research consortium has been developing innovative ways in which wood-derived fibres and forestry by-products could replace petro-chemicals in a wide array of products – from car seats to plant pots.

Coordinator: Universita Di Pisa, Italy

Other partners from: Germany, Italy, Belgium; Spain, Sweden, Greece, Latvia, Romania, Hungary, Norway

EU Contribution: €4.3 million

2) AQUAMAX (FP7) – creating a vegetarian diet for fish. Farming fish relies to a large extent on fisheries for fish meal and fish oil which are essential for producing feeds. This reliance is seen as a major constraint limiting the future development of aquaculture and compromising its potential in covering the increasing demand for seafood in Europe and globally. In a major EU-funded project, 32 partners from around the world united to develop a radical vegetarian alternative.

Coordinator: National Institute of Nutrition and Seafood Research, Norway

EU Contribution: €10.5 million

Other partners from: Norway, Germany, France, Italy, Belgium; Spain, Sweden, United Kingdom, Greece, Estonia, Hungary, India, China

3) Future biodegradable materials for a better quality of life (ERC)

In these times of economic crisis, eco-friendly plastic bags could be key in reconciling economic and industrial growth with sustainability. Supported by a European Research Council's Advanced Grant 2009, Professor Ann-Christine Albertsson aims at creating a new generation of materials that mimic nature's structural organization and that biodegrade in a controlled manner without leaving any long lasting debris. New sustainable materials could have direct applications in many sectors of activities (agriculture, medical research, etc).

ERC Grant Holder: Ann-Christine ALBERTSSON

Host Institution: KTH Royal Institute of Technology, Stockholm (Sweden)

ERC Funding: € 2.5 million for five years

4) Paving the way to greener products and services (JRC)

The increasing world population and the way we produce and consume manufactured goods place unprecedented pressure on our environment. To face the resulting challenges, in particular climate change and the depletion of natural resources, we need more sustainable production and consumption patterns. Life cycle assessment is a key to substantial improvement of the environmental performance of goods and services that we use every day. This scientific method looks at the environmental impact of production, distribution and consumption from cradle to grave. That means it quantifies the impacts of products from the extraction of natural resources to recycling or waste disposal.

The International Reference Life Cycle Data System (ILCD) Handbook, developed by the JRC and launched in March 2010 in the frame of the European Commission's Integrated Product Policy, provides comprehensive and detailed technical guidance which is needed to conduct a Life Cycle Assessment.

For more examples, please go to

http://ec.europa.eu/research/bioeconomy/press/press_packages/index_en.htm