In order to unlock the innovation potential of the bio-economy, while minimising adverse socio-economic and environmental impacts, the European Commission proposes to put forward a "European Strategy and Action Plan towards a sustainable bio-based economy by 2020" to be adopted at the end of 2011. The main objective of this initiative is to address the technological and societal challenges in building the bio-economy in the next 10 years taking into account longer term time horizons, with increased emphasis on sustainable use of natural resources, competitiveness, socio-economic and environmental issues.

The proposed initiative responds to the Europe 2020 strategy launched in 2010 and it underpins the Innovation Union\(^1\) and Resource Efficiency\(^2\) flagship initiatives. The new strategy will propose a framework for stronger coherence between the various policies and funding instruments at EU and Member State level, and a better alignment of the research agendas for innovation in the bio-economy. It will highlight the policy initiatives needed to deliver the full potential of Europe’s bio-economy sectors, taking into account the needs of farmers, fishermen, industry, consumers and society at large. Such a framework is timely and relevant in light of the preparation of the new Common Strategic Framework\(^3\).

Biological resources are increasingly used to satisfy European consumer and market demand for a secure and healthy food supply, for animal feed, to provide sustainable construction materials, materials for energy and for the production of sustainable paper & pulp, and a wide range of technical products (such as cosmetics and chemicals). While the fundamental source of energy for these materials – the sun – is effectively limitless, other factors like the land and fresh water required for their production are finite or limited resources. Thus, sustainable exploitation of biological resources will require careful use of land, more and better use of the oceans, and a shift to systems that produce more from less. The sustainable management of biological resources needs to take account of new technologies if it is to deliver more while at the same time reducing biodiversity loss and protecting the environment.

A systematic approach is necessary to address all of these requirements together in a coherent way. It is within this perspective that the concept of a bio-based economy has been defined - a low waste production chain starting from the use of land and sea, through the transformation and production of bio-based products adapted to the requirements of end users. More precisely, a bio-based economy integrates the full range of natural and renewable biological resources - land and sea resources, biodiversity and biological materials (plant, animal and microbial), through to the processing and the consumption of these bio-resources. The bio-economy encompasses the agriculture, forestry, fisheries, food and biotechnology sectors, as well as a wide range of industrial sectors\(^4\), ranging from the production of energy and chemicals to building and transport. It comprises a broad range of generic and specific technological solutions (already available or still to be developed) which could be applied across these sectors to enable growth and sustainable development, for example in terms of food security and requirements for industrial material for future generations.

In 2009, the bio-based economy in Europe was estimated to be worth 2 trillion Euros in annual turnover derived from biotechnology related activities alone and provided 20 million jobs\(^5\). The primary production,
health and industrial sectors that either use biomass or have applications for biotechnology accounted for 5.6% of GDP in Europe in 2004 (compared to 7.4% for information and communication technology).

Moving towards an economy that makes increasing, but sustainable, use of biological resources from both land and sea in order to replace fossil-based resources while guaranteeing food security, will be one strand of a long-term strategy for addressing these challenges. The products and services generated will be important for the European economy and will contribute to an increasingly global effort to cope with the challenges facing today’s society, in particular well-being and sustainable growth and the development of rural and coastal areas.

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