



Business and Industry Advisory Committee to the **OECD**

Comité Consultatif Economique et Industriel Auprès de l' **OCDE**

Biotechnology for Sustainable Growth

Contribution of the BIAC Biotechnology Committee to the OECD CSTP Ministerial

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Introduction

Innovative technological change has raised living standards, improved quality of life and contributed to more sustainable economic growth. The expansion of biotechnology in a growing number of economic sectors has played an important role in contributing to this change and has enormous potential to improve a broad range of human activities. It has the potential to deliver products that can help address famine and malnutrition, improve human health and reduce the environmental impact of industrial activities. Biotechnology provides an increasing range of tools for industry to improve both economic and environmental performance beyond what could be achieved using conventional technologies.

As this technology continues to progress, governments have increased their attention on how to further stimulate its development. The OECD offers a forum for developing policies that will help them to better utilise the potential that biotechnology has in contributing to sustainable growth. BIAC is actively involved in and very much values OECD work on biotechnology, which is being dealt with by several OECD Directorates. While biotechnology has a range of different applications and can deliver benefits for a number of sectors, this paper addresses in particular two sectors, which will also be the focus of the Ministerial: industrial production and health.

Industrial Biotechnology and Sustainability

Moving towards more biobased products and processes offers the prospects of reducing reliance on finite resources and reducing the environmental impact of industrial activities. It can make a major contribution to tackling issues such as climate change, water conservation and pollution prevention. Biological sciences are likely to have a major impact on the formation of new industries in a number of areas, including the use of renewable raw materials, bioprocesses and bioproducts, such as fuels, chemicals and materials.

All of these applications will distinguish themselves by the contained use of microbial systems to transform, process or produce these manufactured goods. New enzyme and

whole cell systems are in development to convert biomass into fermentable sugars. Bioprocesses can also be used to replace traditional chemical process steps in a variety of industrial settings to make a wide variety of organic compounds and other chemicals.

A wide array of bioproducts will continue to expand their market penetration. Besides fuels and chemicals, new plastics and other high performance polymers are entering the market. In general, when bioprocesses and bioproducts replace those manufactured via traditional chemistry, raw materials are used and converted with greater efficiency, water and energy are saved, less hazardous waste is produced and more renewable carbon is used instead of fossil carbon.

The transition towards a more biobased economy will require increased policy co-ordination and convergence across various sectors. In order to maximise the potential economic and environmental gains of the use of biotechnology across appropriate industry sectors, we see an important role for OECD in the following areas:

- To increase communication outreach on the effects of biotechnology on industrial sustainability and improve the understanding of how biotechnology in industrial processes can contribute to decoupling industrial growth from environmental degradation;
- To develop tools and indicators to help deliver coherent policies to facilitate a broader use of industrial biotechnology;
- To analyse the economic impacts of industrial biotechnology applications and evaluate the implications for jobs and GDP;
- To identify additional opportunities for pollution prevention in process industries;
- To examine the economic effects of policy initiatives, for example in the areas of incentives, regulatory requirements, and tax framework;
- To encourage co-operation among sectors that have a stake in industrial biotechnology through increased multi-disciplinary work.

Enabling Health Innovation

Biotechnology for healthcare and medicine has the potential of bringing both direct economic benefits and improved health to our societies. It promises to provide novel treatments and better therapies for various diseases, the facilitation of drug development through new assays and models, new diagnostic tools for early detection of diseases or risk factors and more efficient ways of delivering medicines based on pharmacogenomics research. Increased research and development will be necessary to realise the full benefits of innovative biotechnology for the health sector.

We see an important role for OECD in examining how to deliver both better health outcomes and sustainable economic benefits through the application of biotechnology. In this context, we recommend that future work on health-related biotechnologies be put

within the overall framework of innovation and sustainable growth, which is a common platform of OECD and BIAC.

The framework of work should rest on a set of enabling conditions for innovation that include access to and dissemination of medical innovation, strong intellectual property protection and good enforcement, competition on the supply side and choice on the demand side, efficient regulatory approaches that acknowledge new configuration of public and private agents and new collaborations in science and technology networks, open trade and investment, high-quality basic research and education as well as ethics and the rule of law.

Enhanced dialogue between governments and the health-related industry, especially its innovative component, will improve industry's potential both with regard to health and the economy as well as governments' understanding of the various roles of such enterprises. More needs to be done, including at the international level, to ensure that advances in biotechnology can fully contribute to improving the health of society. We therefore encourage OECD to:

- Analyse the advances in biotechnology related to human health with respect to their broad implications for innovation, economic growth, improved societal health and other key public policy goals;
- Identify the factors and public policy measures that stimulate biotechnology innovation in health and encourage diffusion and technology uptake;
- Help governments to improve regulatory approaches, increase the efficiency of incentives and identify health-specific regulatory barriers;
- Improve the understanding of the cycle of innovation of biotechnological health products;
- Analyse the growing convergence between biotechnologies and other technologies leading to the creation of new domains of research combining biotechnology, telecommunications, medical devices and services;
- Analyse the design of global research and development programmes to help improve their performance.

A Role for OECD

In all its applications, biotechnology is having an increasingly significant impact on the economy as a whole. The OECD can make a major contribution to optimising the role that biotechnology can play as a driver for sustainable growth and development. In addition to the above-mentioned specific recommendations, we encourage OECD to:

- Strengthen its contribution to work on biotechnology as a driver for sustainable growth and integrate biotechnology as a high priority topic into OECD's work on promoting innovation and effective science and technology infrastructure;

- Increase co-ordination of biotechnology activities both within the OECD and among inter-governmental organisations on the full range of biotechnology applications;
- Identify the barriers to the development and application of biotechnology, e.g., regulatory requirements, trade barriers, and lack of intellectual property protection;
- Develop a statistical picture of the sectors that supply biotechnology-related goods and services;
- Carry out economic assessment of policy options, including opportunity costs of not using biotechnology;
- Analyse convergence points, such as the interaction with information and communication technology and nanotechnology;
- Foster outreach and input from non-member economies.

BIAC favours an enhanced role for the OECD in analysing advances in biotechnology and considering its broad implications for innovation, economic growth, improved societal health, and other key public policy goals. The OECD's high-quality analytical work and integrated analysis make the Organisation perfectly suited to have a leadership role in this area. In particular, we encourage OECD to take a multi-disciplinary approach to the analysis of long-term strategic objectives for the contribution of biotechnology to sustainable growth and facilitate internal co-ordination among the respective parts of the Organisation dealing with biotechnology.