

## *Foreword*

The concept of a “bioeconomy” invites the reader to think about the global challenges of the future and how the biological sciences may contribute to solving these complex problems.

There is a growing strategic interest in the concept of the bioeconomy in the OECD and non-OECD countries, not least because it addresses the potential for significant global economic, social and environmental benefits in an integrated framework. But for the bioeconomy to succeed, considerable uncertainties facing both public and private actors in our economies will need to be addressed.

A large part of the task of addressing global challenges will involve the biological sciences, from the contributions of industrial biotechnology through environmental applications to climate change issues, improved health outcomes, and feeding global populations with better yielding crops and better delivery of nutrients and vitamins in foods. Changing population demographics will mean more creative healthcare solutions for every generation of citizens. With the evolving consumer appetite for individualised medical care and medicines, biotechnology can make significant contributions to economic productivity and wellbeing in the health sector. Agricultural biotechnology can contribute to a more sustainable and productive agriculture sector.

In short, the bioeconomy holds at least some of the cards to ensure long term economic and environmental sustainability. But that potential will not become reality without attentive and active support from governments and the public at large. Innovative policy frameworks are needed to move forward to meet these global challenges, and these need strategic thinking by governments and citizen support.

The present report is the outcome of an interdisciplinary, strategic foresight project on the Bioeconomy to 2030. It provides a broad-based, forward-looking, policy-oriented review of future developments in the three sectors examined: primary production, health and industry. It also explores the implications of developments in these sectors for the economy and society in the 21<sup>st</sup> century.

The Bioeconomy project was carried out by an OECD secretariat team in the International Futures Programme (IFP). The IFP, which reports directly to the OECD Secretary-General, was created in 1990 to examine long-term futures. Past work has covered such themes as long-term prospects for the world economy, the future of international air transport, emerging risk in the 21<sup>st</sup> century, and infrastructure investment needs in the 21<sup>st</sup> century.

Conceived and designed in 2007-08, the 18-month project on the bioeconomy was completed at the end of 2008. The IFP's long experience in forward-looking, multidisciplinary activities helped to lay the groundwork for this project by organising the participation of governments, businesses and academic experts.

The work was overseen by a Steering Group whose membership (see Annex A) consisted of high-level representatives from governmental departments and agencies, corporations, and international organisations. The Secretariat's work benefited considerably from substantive contributions provided by members of the Steering Group throughout the project.

This report was written by Anthony Arundel and David Sawaya.

Michael Osborne, the IFP Director, initiated and directed the project as well as chaired the meetings of the Steering Group. Barrie Stevens and Pierre-Alain Schieb provided oversight and guidance to the project. Ioana Valeanu provided research assistance. Anita Gibson assisted in promoting the project. Lucy Krawczyk, Concetta Miano, Jane Leger and Rosella Iannizzotto provided secretarial and logistical support. Randall Holden edited the final text.

The project also benefited from the input of leading experts in the field of the biosciences (see Annex B) and from the knowledge and advice of colleagues in various OECD Directorates and Agencies, notably the Directorate for Science, Technology and Industry (Iain Gillespie, Benedicte Callan, Alexandre Bartsev, and Christina Sampogna), the Directorate for Trade and Agriculture (Ken Ash, Wilfrid Legg, Ron Steenblik, and Martin Von Lampe), the Directorate for Employment, Labour and Social Affairs (Elettra Ronchi), and the Environment Directorate (Peter Kearns).

This publication brings together the analytical work of the project and focuses on the findings arising out of that work. It is conceived as a forward-looking, evidence-based thought piece to stimulate thinking about a policy agenda to ensure that the biosciences are able to make good on the promise of a significant contribution to tomorrow's world through productivity gains, welfare gains and environmental sustainability.