



OECD WORKSHOP ON BIOTECHNOLOGY FOR ENVIRONMENT IN FUTURE: SCIENCE, TECHNOLOGY AND POLICY

To be held in Rimini, Italy, 16-17 September 2010

Context of the Workshop

Most major industrialised economies have presented significant stimulus packages, many of which contain specific elements focused on innovation-led “green growth”. The recent financial crisis has provided additional incentive to boost innovation-led “green growth”. Environmental applications of biotechnology are general purpose technologies that might underpin such innovation and there is a clear opportunity – and need – now to ensure that policy measures in place are optimal in fostering developments that truly deliver on “green growth”.

There is broad consensus that Environmental Biotechnology has significant potential in such areas as: environmental remediation, especially to clean up heavy metals and chemicals; pre-treatment for chemicals or fuels to reduce the presence of certain harmful compounds; wastewater and water purification and for waste management and bio-monitoring; delivery of value added biomass and more potentially far reaching applications such as carbon sequestration and many other environmentally friendly biotechnologies.

Apart from difficulties encountered in industrial application phase, one of the most difficult phases of Environmental Biotechnology R&D is when the research moves from confined laboratories to an environmental setting, particularly when living organisms – or consortia of organisms – are involved. In many cases such applications involve naturally occurring organisms, in other cases they may be modified.

Purpose and Objectives of the Workshop

The overall goal of the workshop is to understand the framework conditions that govern innovation in environmental biotechnology with a view to identifying and addressing inefficiencies. Workshop participants will include experts from industry, government, academia and international organisations, and non-governmental organisations. The workshop is designed to:

- i)* Identify and summarise key areas of promise for environmental biotechnology R&D related to possible innovations in applications (including those that are unconfined);
- ii)* Identify and summarise the main factors of the policy environment in key OECD and non OECD countries across the whole innovation pipeline that could be said to provide incentives or disincentives to carrying out environmental biotechnology R&D;
- iii)* Insofar as possible, making a preliminary assessment of the relative influence of such factors on the development of environmental biotechnology R&D;
- iv)* Identifying a range of issues and options of work that OECD could address better to understand the challenges to improving the efficiency of innovation in this sector.

Expected Outcome

The expected output of the workshop would be a report focused on main findings of the workshop discussions and a number of case studies submitted to the workshop. The report would address the issues related to the Environmental Biotechnology R&D. It is expected the workshop would help define the way forward for improving delivery of innovation-led green growth through environmental biotechnology.

DRAFT AGENDA

DAY 1 – 16 September 2010

Venue: Room 6, Palacongressi, Rimini, Italy

14.00-15.00	Registration
15.00-15.15	Welcome and introduction <i>OECD and the Italian Delegation</i>
15.15-16.15 Keynote Session	
<p><i>Addressing Global Challenges through Science and Technology</i> <i>Michio Oishi, Executive Director, Kazusa DNA Research Institute, Japan</i></p> <p><i>Setting Science and Technology Priorities for Green Growth, Agricultural Biotechnology to alleviate environmental problems (including hunger & poverty)</i> <i>Wilhelm Gruissem : Professor, ETH Zurich, Switzerland</i></p> <p>Main themes:</p> <ul style="list-style-type: none">➤ <i>National and international science and technology policy agenda and mitigation of global challenges</i>➤ <i>Leverage of national strategies on green growth and innovation through biotechnology applicable to the environment</i>	
16.15-16.45	Break
16.45-18.30	
Session I: Biotechnology for Environmental Benefits: Current and Future Trends in Science and Technology	
<p>Workshop Chair: <i>Robert Wells, Head of Biotechnology Unit, OECD</i></p> <p>Workshop Rapporteur: <i>Joyce Tait, ESRC Innogen Centre, University of Edinburgh, UK</i></p> <p>Objectives of the session: (i) <i>To provide the current and future S&T trends of Environmental Biotechnology;</i> (ii) <i>To map emerging issues of environmental biotechnology that might impede further S&T advancements in this area.</i></p> <p>Potential questions to be addressed:</p> <ul style="list-style-type: none">➤ <i>What are the main promising areas of biotechnology applicable to the environment?</i>➤ <i>What are the current scientific and technological advancements in these areas? What is needed (should or could be done) in the future?</i>➤ <i>Are the Environmental Biotechnology R&D phases optimal compared to other sectors of biotechnology?</i>➤ <i>Are there knowledge gaps (in the basic and applied life sciences) that might impede further translational research on Environmental Biotechnology while applying leaving organisms to (in) the open environments?</i>➤ <i>How these gaps could be filled in? Are there any successful mechanisms in place?</i>	

Soil Bioremediation

Lenka Wimmerova, Project Manager, Dept of Development and the Biotechnological Laboratory, DEKONTA, Czech Republic

In situ groundwater bioremediation: perspectives and barriers

Mauro Majone, Professor, University of Rome La Sapienza and Member of the technical board of the Italian Ministry of Environment, Italy

Water Treatment and Technologies to valorise organic wastes

Emmanuel Trouvé, Director, Dept Assessment Municipal WW & Sludge Dept. Manager, Veolia Water, France

Agricultural biotechnology, GM crops and trees

Armand Séguin, Research scientist, Natural Resources Canada, Laurentian Forestry Centre, Canada

Questions & comments from the audience

DAY 2 – 17 September 2010

Venue: Room 6, Palacongressi, Rimini, Italy

09.30-18.00

Session I (cont'd): Biotechnology for Environmental Benefits: Current and Future Trends in Science and Technology

Workshop Chair: Robert Wells, Head of Biotechnology Unit, OECD

Workshop Rapporteur: Joyce Tait, ESRC Innogen Centre, University of Edinburgh, UK

Workshop Chair to recall questions to be addressed and rapporteur to summarise

Biorecycle of Phosphorus Resource for Sustainable Agriculture and Industry

Hisao Ohtake, Professor, Dept of Biotechnology, Graduate School of Engineering, Osaka University, Japan

Biotechnology for preventing environmental contamination (current and future trends and issues)

Ramani Narayan, University Distinguished Professor, Michigan State University, Department of Chemical Engineering & Materials Science, USA (he has provided a case of industrial bio and its contribution to the environment).

Bio-detection protocols and tools (current and future trends and issues)

Jan Roelof Van Der Meer, University of Lausanne, Switzerland

<i>Questions & comments from the audience</i>	
11.10-11.30	Break
<p>11.30-13.00</p> <p>Session II: Biotechnology for Environmental Benefits: Realising Economic and Societal Potential</p> <p><i>Objectives of the session: Discuss the means to realise the economic and societal potential of Environmental Biotechnology.</i></p> <p><i>Potential questions to be addressed:</i></p> <ul style="list-style-type: none"> ➤ <i>What are the main incentives that drive public policy and public support for Environmental Biotechnology R&D?</i> ➤ <i>What are the economic incentives that drive private sector toward the development of Environmental Biotechnologies?</i> ➤ <i>How to fully realize the economic and societal potentials of Environmental Biotechnologies? Are there successful approaches?</i> ➤ <i>What governments can do to help create efficient investment and market environment? What business models are currently available?</i> ➤ <i>How the environmental and economic performance of environmental biotechnologies can be evaluated, including the R&D phases (e.g. LCAs)?</i> ➤ <i>Why public perception and public acceptance of environmental biotechnologies differ across countries and regions? Are there any successful examples where public opinion was favorable to the use of Environmental Biotechnologies?</i> 	
<p>Speakers:</p> <p><i>Martin Remonet, Haut Conseil des Biotechnologies, France (TBC)</i></p> <p><i>Davide Viaggi, Associate Professor, Dept of Agricultural Economics and Engineering, University of Bologna, Italy</i></p> <p><i>Kazuo Watanabe, Professor, Graduate School of Life and Environmental Science, Tsukuba University, Japan</i></p>	
<i>Questions & comments from the audience</i>	
13.00-14.30	Lunch Break

14.30-15.40

Session III: Supportive Policy Environment: Current and Future Policy Trends and Issues

Objectives of the session: (i) To understand the national/international policy environment in which the Environmental Biotechnology currently evolves and the current policy imperfections as well as the ways to overcome these; (ii) To identify emerging policy issues and potential ways to address these.

Questions to be addressed:

- What national S&T policies (including regulatory frameworks) have been developed and implemented nationally to frame the development of Environmental Biotechnology R&D?
- How such policies impacted (or may impact) the development of Environmental Biotechnology R&D?
- What successful examples could be reported?
- Are there any examples of failures caused by the current policy and regulatory frameworks?
- How the policy/regulatory inefficiencies may be overcome?
- What might be the emerging policy challenges in this sector?
- What are the core S&T policy issues that might impede further advancement of the Environmental Biotechnology innovation (science, technology, translational research, policy, financial, regulatory, public perception, etc.)?
- What might be the priority S&T policy goals to be addressed by governments to support the Environmental Biotechnology R&D?
- What role the OECD may play to address the core policy issues and to foster the development of Environmental Biotechnology R&D?

Speakers:

Sue Popple, Department for Environment, Food and Rural Affairs (Defra), UK (TBC)

Paula Rey Garcia, European Commission, DG SANCO

Rapporteur's report on the main points from the Sessions I and II

15.40-17.40 – Roundtable Discussion

16.30-17.00 | Break

Rapporteur's report on the main findings and messages

17.40-18.00 – Closing Remarks