

SUBJECT: Minutes of the second meeting of the Industrial Biotechnology and Bioenergy Strategy Advisory Panel held on 23 November 2011

Participants

Panel members

Professor David Lawrence	(Syngenta, recently retired) – Chairman
Professor Colin Brownlee	(Marine Biology Association, Plymouth)
Dr Mike Dawson	(Novacta Biosystems)
Professor Mike Goosey	(Shell, recently retired)
Professor Jens Nielsen	(Chalmers University, Sweden)
Professor Nilay Shah	(Imperial College, London)
Professor Alison Smith	(University of Cambridge)

BBSRC Office

Dr Clare Bhunnoo	(Strategy & Policy Manager, Skills & Careers Unit)
Dr Michael Booth	(Strategy and Policy Officer / Industrial Biotechnology & Bioenergy)
Dr Andy Cureton	(Head of Business and Innovation Unit)
Mr Duncan Eggar	(Bioenergy Champion)
Dr Natalia Gillies	(Strategy and Policy Officer / Industrial Biotechnology & Bioenergy Panel secretariat)
Dr Vicky Jackson	(Strategy and Policy Manager / Industrial Biotechnology, Bioenergy, BSBE)
Dr Colin Miles	(Sector Head Bioenergy and Industrial Biotechnology / chair of Cross-Office Industrial Biotechnology and Bioenergy Team)

BSC Panel representative

Prof. Ottoline Leyser	(Chair of the BBSRC Bioscience Skills & Careers Strategy Panel)
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RC representative

Dr Mark Claydon-Smith (EPSRC)

Dr Mike Dawson and Prof. Ottoline Leyser attended dinner discussion on 22 November and did not attend the Panel meeting on 23 November 2011.

Dinner discussion, 22 November 2011

The dinner discussion was focused on the training and skills requirements for IB and it was attended by Prof. Ottoline Leyser, Chair of the BBSRC Bioscience Skills & Careers Strategy Panel and Dr Clare Bhunnoo, Strategy & Policy Manager, Skills & Careers Unit.

Panel meeting, 23 November 2011

Minutes of the previous Panel meeting held on 30 June 2011

The Panel approved the minutes of the previous Panel meeting held on 30 June 2011 in Birmingham.

Introduction

1. The second meeting of the Industrial Biotechnology and Bioenergy Strategy Advisory Panel (the Panel) started with welcome from its Chair, Professor David Lawrence, and introduction of the meeting participants. A special welcome was extended to Jens Nielsen who was attending his first meeting. It was suggested that a NERC representative should be invited to attend future panel meetings.

Skills discussion

2. Dr Clare Bhunnoo presented information on skill issues in the industrial biotechnology and bioenergy sector (IB and BE), details of current BBSRC investment in training for IB and BE, and invited panel members to consider the proposal for the creation of an Industrial Biotechnology and Bioenergy Skills Working Group.
3. Panel Members discussed the capacity building potential in IB and BE both through training and research mechanisms, and the importance of engaging the engineering community, especially chemical and biochemical engineers.
4. Math skills are generally lacking in biologists and this is also relevant for the IB area. Specific skills gaps include the application of bioinformatics to IB. It was pointed out that perceived skills shortage may actually be a lack of application of skills and a shortage of people who are comfortable working in multi-disciplinary environments.
5. Cohort building may be an effective way of increasing general understanding of the area and of the potential career paths available. In order to provide the training in a multi-disciplinary way, it is essential to focus not just on groups of students but cohort approaches with students having the experience of working on multidisciplinary projects.
6. It was suggested that in order to attract researchers to IB, BBSRC should consider the use of the word 'biorenewables' (used by other agencies and companies, e.g. DSM) instead of industrial biotechnology, as this conveys sustainability and more attractive career prospects.
7. Should BBSRC wish to proceed with setting up a Working Group on IB Skills – the focus and purpose of the group would need to be made clear with a short and defined lifetime: establishing collaborations with (chemical) engineering community

through EPSRC and IChemE, and aligning interests and funding mechanisms (but not necessarily joint funding).

8. The Panel also had a discussion on possible interactions with the IB private sector, which is recorded separately.

Approaches to funding Industrial Biotechnology and Bioenergy research

9. Dr Colin Miles provided an update on the strategic Longer Larger (sLoLA) grant mechanism, experience with the first highlight notice for supporting industrial biotechnology and bioenergy research announced on 5 October 2011 and also on the plans for a £10M joint call for sustainable bioenergy research between the UK and India, announced on 15 November 2011.
10. Panel members were asked to consider possible options with regard to future plans on sLoLas and highlight notices and also provide guidance in relation to the subject areas of future highlight notices.

Algae research

11. The Panel discussed the exploratory review of the current status of algal research in the UK by Dr Schlarb-Ridley (In Crops Enterprise Hub and Cambridge Bioenergy initiative) commissioned by the BBSRC. It also considered a report by the National Non-Food Crop Centre that addressed the opportunities and challenges to the UK in developing products based from algae. These two reports provided a series of complementary recommendations on the implementation of basic algal research in the UK and subsequent scale-up for commercial production in the coming years.
12. Panel members looked into possible options on how to fund and further support UK algal research in the future and stressed the importance of building on the UK existing strengths in related areas, e.g. genomics, transcriptomics and synthetic biology research.
13. The Panel noted the high potential of algal biomass as a feedstock, which included but was not limited to bioenergy applications. It was considered essential not to overemphasise a bioenergy focus but embrace a wider perspective and encourage appreciation that co-products can be worth more than fuel and that lead products and co-products can interchange over time.
14. Panel members discussed the potential of algae with regard to a carbon capture project and considered that it may be beneficial to bring together UK algae physiologists and algae biologists to address the CO₂ fixation problem.
15. Joint working with other agencies, including other research councils, as well as a co-ordinated approach would be essential in order to avoid duplication and fragmentation in funding and overcome difficulties of co-funding proposals that do not fit a particular council's / agency's remit.

Biorenewables vs Industrial Biotechnology branding

16. The Panel looked into the issue of perception of *industrial biotechnology* and bioenergy by the research community, students and general public; it also noted a lack of general understanding of what *industrial biotechnology* is about, poor

appreciation of its strategic relevance alongside a lack of its appeal as a potentially interesting career versus other disciplines, e.g. biomedical sciences.

17. It was recommended that the BBSRC should explore other branding options, including the use of the word '*biorenewables*' as an alternative to '*industrial biotechnology*'.

EPSRC Update

18. An EPSRC update was presented by Dr Mark Claydon-Smith and included suggestions on joint BBSRC and EPSRC working in the area of IB and BE. Dr Claydon-Smith stressed the aspiration to strengthen the interface between engineering and biological sciences and emphasised the EPSRC's intention to work together with BBSRC to stimulate multidisciplinary research approach.
19. Dr Mark Claydon-Smith pointed out the need to be more explicit in the sLOLA call 2012 that BBSRC and EPSRC jointly invite sLoLas applications in this strategic priority area and that joint funding would be available to support these applications. He also informed the Strategy Panel of EPSRC plans to issue a call for "Renewable Chemical Feed-stocks", which could include IB based approaches and would complement the BBSRC led initiatives.

Next Panel meeting

20. The next Panel meeting will be arranged for May - June 2012 with potential agenda items to include updates on sLoLas, highlight notices, skills issues, and outcomes of the BSBEAC midterm review.