



Promoting stakeholder engagement and public awareness
for a participative governance of the European bioeconomy



Shaping the Scottish Bioeconomy Together

Proceedings of the second BioSTEP Stakeholder Workshop

18 - 20 October 2016, Glasgow Science Centre, UK



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KEY MESSAGES

This document summarizes the discussions during BioSTEP's second stakeholder workshop, which took place in Glasgow (Scotland) between 18 and 20 October 2016. The following key messages emerged from the discussions:

- Across the three sectors of whisky production, forestry and mariculture, the development of bio-based products and processes can help to achieve a circular economy in Scotland. A key motivation is to create value added by producing and processing innovative products in the region.
- A limiting factor particularly in the whisky and forestry sectors is the risk adversity of the established businesses: technologies usually need to be proven to be reliable and economically viable before they are taken up.
- The development of innovative bio-based products and processes is hampered by a lack of cooperation among relevant actors; the identification of new business partners, relevant regulators and other needed partners can be a challenge. The organization of the industry network around new products and value chains is a key challenge for entrepreneurs.
- A key success factor in the transformation process towards a bio-based economy is 'matchmaking', which requires a high degree of participation by stakeholders. Coordination efforts by public bodies (e.g. IBiolC) are regarded as a key instrument to bring the relevant actors together.
- In rural areas, the matchmaking is easier as knowledge of the relevant actors is a given. But high transport costs can mean that the needed puzzle of relevant companies and other actors does not exist in the rural area in question, providing different challenges.
- In the forest sector, conflicts over the use of wood resource might become a relevant issue (small-scale rural and community-based development vs. large-scale industrial development); new engagement strategies might be required to involve all relevant actors in discussion about challenges and opportunities (e.g. with regard to biorefinery activities). Another potential conflict of interest is between the need for highly productive forests on the one hand and the increasing need for forests with a high touristic and leisure value on the other.
- The high number of public agencies involved in regional development activities (incl. business support/funding) can be an obstacle, as it is not always clear who is in charge. Currently, different agencies are dealing with economic development issues.
- While universities in Scotland are already cooperating with each other, outreach to the business community needs to be improved. Often, people speak different technical languages. Technology transfer offices play an important role in communicating research activities and results from academia to the business sector.
- There are already effective financing mechanisms in place (e.g. specialist banks, hydro schemes and seed funding via the government); the development of bio-based business models is generally not hampered by a lack of financial incentives.
- With regard to public engagement, Scotland has experience with community activities (usually not linked to biotechnology, but to land use and biofuel issues) that could also serve as role models for the design of broader bioeconomy strategies.

1 Introduction

BioSTEP's second stakeholder workshop took place on 18-20 October 2016 in the context of the European Forum for Industrial Biotechnology and the Bioeconomy (EFIB 2016) in Glasgow, Scotland. The workshop focussed on local and regional businesses and their role in the Scottish bioeconomy. Scotland possesses a huge amount of natural resources, on which many small and medium-sized enterprises base their business models. The Scottish bioeconomy is largely focussed on industrial biotechnology and the major policy focus to date has been to support the growth of this sector, to enhance cooperation between technology-based firms and universities, and to invest in skills development.

The objective was to explore a broader model of the bioeconomy (bottom-up, participatory) and to discuss how small and medium-sized enterprises, civil-society organisations and further relevant actors can be engaged in the (further) development of a regional bioeconomy strategy in Scotland. To this end, the workshop discussed what relevant actors need from a bioeconomy strategy for it to be useful for them and how the engagement process might be structured and set out so that they can bring their needs into the process. In order to focus the discussion on the practical problems in specific sectors or processes, the workshop was split into three two-hour meetings on whisky production, forestry and mariculture (see [workshop agenda](#)).

The workshop was attended by 17 local bioeconomy stakeholders from science and academia to consultancies, SMEs, and the public sector. Among the participants, researchers from Strathclyde University formed the biggest group, partly as a result of Strathclyde's European Policy Research Centre's (EPRC) involvement in the BioSTEP project.

This second stakeholder workshop will be complemented by a third one, which BioSTEP will organise in Austria in the beginning of 2017. The proceedings of all three workshops will feed into a list of targeted policy recommendations for the (further) development of inclusive bioeconomy strategies at the regional, national and European levels. These recommendations will be presented and discussed at a stakeholder conference in March 2017 in Brussels.

2 Meeting I: Whisky production

The objective of the first meeting on whisky production was to discuss how traditional industries in Scotland can benefit from and take part in new, bio-based industries. Key questions were how the Scottish whisky industry can be linked to a regional bioeconomy and how the respective actors can contribute to the development of regional strategies. The meeting was kicked off with a keynote speech by Alan Wolstenholme, founder of Caledonian Solutions and Honorary Professor at the International Centre for Brewing and Distilling at the Heriot-Watt University, Edinburgh. The title of his speech was "[Distilling the Biofuture: How to link one of Scotland's oldest industries, Scotch Whisky manufacture, with its newest one, Industrial Biotechnology?](#)"

Alan Wolstenholme presented an overview of the history of Scottish whisky production and explained that the concentration of the industry in a comparatively small area has resulted in a number of problems, particularly with regard to the volume of waste materials that is produced. Biorefineries (the integrated production of materials, chemicals, fuels and energy from biomass) could be one solution to this problem. Anaerobic digestion processes can transform the waste material into biogas, which could then feed into the grid or be used in combined heat and power plants. As a result, the volume of solid waste from the whisky production could be reduced.

The transformation of the industry towards bio-based processes such as bioenergy production is, however, hampered by a number of factors. Currently, only a few whisky manufacturers are willing to take the risk of investing in a technology that has not yet been fully proven to be reliable and economically viable. Moreover, closer collaboration among the 40 actors in Scottish whisky production is regarded as a precondition for the large-scale implementation of biorefinery processes across the industry; currently a lack of cooperation between distilleries can be observed. In addition, the identification of new business partners may pose a challenge. In this context, the communication between scientists and businesses could be more effective. While the Scottish government may to some extent steer the process through economic incentives, a key success factor in the transformation pro-

cess is 'matchmaking', which requires a high degree of participation among stakeholders. Coordination efforts by IBioIC (incl. networking activities, project funding, start-up grants, and PhD funding) are seen as an important instrument to overcome this obstacle.

3 Meeting II: Forestry

The second meeting of the workshop focussed on the Scottish forestry sector and the question of what the opportunities and challenges are of using forest biomass for bioenergy purposes and in innovative bio-based products. In this context, the following questions were discussed: What are the prospects of these new uses? How can SMEs and other relevant actors contribute to effective regional bioeconomy strategies? Can these strategies avoid conflicts of interest and help to identify synergies and opportunities for cooperation? The meeting started with a keynote speech by Robert Matthews, Science Group Leader, Forest Mensuration, Modelling & Forecasting of the Centre for Sustainable Forestry and Climate Change at the Forestry Commission Scotland. The title of his keynote speech was "What are the prospects for innovative timber products - Are conflicts of use emerging and could regional bioeconomy strategies help to avoid these?"

Robert Matthews outlined the contribution of the forestry sector to the rural economy in Scotland and introduced the "Scottish Forestry Strategy" and the "Scottish Forest and Timber Technologies" paper as two key documents that shape the development of the sector. He identified wood fibre as a feedstock for biorefinery processes as an emerging market in Scotland. Currently, bioenergy plants are opening across Scotland. Over the long-term, it was projected that increased demand for wood as a feedstock for bioenergy processes may result in conflicts over the use of the resource, particularly with the wood panel industry. A question would then be whether to prioritize small-scale rural and community-based development or large-scale industrial development. Besides this challenge, however, bioenergy could also present an opportunity to use wood better if applied in a small-scale context and linked to the development of 'wood stations', biorefineries and wood cascading.

With regard to stakeholder participation in the design of potential strategies to address the potential challenges, one limiting factor is the heterogeneity of the forest sector in terms of ownership. At the same time, the government has limited opportunities to influence practices of landowners. However, the regulation of feedstocks is regarded as a solution. Also, Scottish Enterprise is trying to make connections, e.g., by looking into wood chemical compositions to identify potential new uses. The price of wood has recently dropped, and adding value is seen as a potential response to the decline in price. However, with reference to nanocellulose it was pointed out that the economic viability of new techniques still needs to be proven.

4 Meeting III: Mariculture

The third and final meeting of the workshop focussed on mariculture business models in Scotland. In this meeting, it was discussed how renewable power and circular economy mechanisms can be used to build mariculture business models for rural areas. Specifically, it was discussed how SMEs can effectively build networks and contribute to regional bioeconomy strategies. The meeting started with a keynote speech by Douglas McKenzie, founder and Managing Director at Xanthella Ltd. The title of his keynote speech was "Empowering Rural Industry: How could Mariculture, especially microalgae, be part of a regional bioeconomy strategy which addresses social and environmental challenges?"

Douglas McKenzie outlined the bioeconomy potential of microalgae. He pointed out that one of the key restrictions for the development of the industry is the availability of land, as the facilities take a lot of space. Amongst other uses, microalgae could potentially be used as a feedstock for local salmon production; salmon feed supplement based on microalgae could deliver high value omega 3s, astaxanthin, protein and vaccines and thus replace algae pastes that are currently imported from Japan or the USA.

In the case of Xanthella Ltd., stakeholder involvement was organised around the [Algae Solutions for a Local Energy Economy \(ASLEE\)](#) project. It was pointed out, however, that a key challenge for the implementation of innovate business models in the Scottish context is generally the organization of

the industry network. In the case of Scotland, the traditional industries - aquaculture (salmon) and whisky - need to recognize that they need to interact more widely. Currently, people often work in silos and speak different technical languages. A different kind of matchmaking is needed to solve this problem. In terms of public sector support, it was criticized that the high number of public (economic development) agencies involved in the process can be an obstacle, as it is not always clear who is in charge. The importance of technology transfer offices was stressed; at the same time, the lack of interdisciplinarity of research staff was noted. With regard to financing opportunities, it was held that there are already effective mechanisms in place, such as specialist banks, hydro schemes and seed funding via the government. In terms of public engagement, it was pointed out that Scotland has experience with community activities that could also serve as role models for the design of broader bioeconomy strategies.