

DISCUSSION PAPER

Bioeconomy Test and Demonstration Infrastructures

- policy considerations based on findings from mapping

Introduction

The mapping report *“Bioeconomy Test and Demonstration Infrastructures - an opportunity for Smart Specialisation in the Baltic Sea Region”* was prepared to provide an overview of test and demonstration infrastructures available to SMEs in the bioeconomy – with a view to support a dialogue among policy makers, testbed practitioners and SMEs (as the users) on opportunities for cooperation between bioeconomy test- and demonstration infrastructures in the Baltic Sea Region. This dialogue will be commenced in connection to the presentation of the mapping at a macro-regional workshop in Tampere on 6 April 2017.

Background

In 2015, the Nordic Council of Ministers published a comprehensive report called *“Development of the Nordic Bioeconomy”*. That report demonstrates that the Nordic countries are uniquely positioned to take full advantage of the opportunities that the bioeconomy offers for environmental, social and economic sustainable development. Many of the conclusions do also apply in the wider Baltic Sea Region. We can for example agree that:

- *“The [macro-region] distinguish itself from most other places in the world because the bioeconomy emerged differently here – by not focusing only on biofuel”*. The macro-region has therefore today developed competence and technologies that enable societies and business alike to benefit from side streams – to produce higher value products such as food and feed ingredients and cosmetics – from primary production and from the bio-industrial sector. Test and demonstration and more generally advanced technology services for SMEs have played an important role in this achievement.

The report from 2015 points to a number of opportunities for the macro-region for exploiting its full potential in the bioeconomy – and some of these relate to issues around technology development, technology service, testing and demonstration:

- **Sharing knowledge and technology infrastructures** – in particular in the biorefinery area where efforts are many but also fragmented. A key bottleneck is *“the availability and accessibility of technologies and test centers ... leading to sub-optimisation of resources invested”* the report finds.
- **Reducing financial risks associated with scale-up** – through provision of larger, but still flexible, demonstration sites and government support to stimulate private investment.
- **Setting up a strong Nordic biorefining innovation center** – that would provide a range of support to industries, including: expert assistance on commercialization, marketing, product registration, protection of intellectual property rights and the global regulatory environment; provision of regional overview of existing bioeconomy applications, product developments, test facilities, and collaboration- and funding opportunities; as well as feasibility mappings of biorefining products and market needs.

How does the Baltic Sea Region move forward?

The vast majority of test and demonstration infrastructures presented in the mapping report are legally open to SMEs in the bioeconomy from neighbouring countries. In reality however, SMEs shop for test and demonstration at home. From our present and previous work we have gathered a set of lessons learned. We do know that:

1. There are quite many – and a growing number of – test, demonstration and verification infrastructures that SMEs can benefit from when attempting to commercialise new products, services or processes in the bioeconomy.
2. There is strong evidence for the correlation between the competitiveness of technology-based SMEs and their access to test and demonstration infrastructures.
3. Countries in the Baltic Sea Region have complementary areas of bioeconomy testbed excellence – with e.g. Denmark having strongholds related to the food and feed sector; Norway similarly but related to the maritime sector; and Sweden and Finland having particular testbed excellence in the forestry sector;
4. Other countries like Lithuania are striving to further sophisticate their bioeconomy test, demonstration and verification infrastructures.

This points us in the direction of a number of opportunities to consider for transnational cooperation:

Question 1: How do we share?

There are clear benefits from developing a “single market” for test and demonstration technology services to SMEs in the bioeconomy in the Baltic Sea Region – but **how could regional and national stakeholders practically go about networking and sharing existing test and demonstration infrastructures?**

Question 2: How can we learn from each other?

Developing and delivering technology services such as test and demonstration is by far an exact science. Because of this complexity **is there opportunity for sharing experiences on how-to successfully deliver bioeconomy test and demonstration infrastructures and technology services to SMEs?** Particularly such knowledge sharing could potentially benefit a country like Lithuania, whose test, demonstration and verification infrastructures in the bioeconomy is currently less advanced than such infrastructures in other parts of the Baltic Sea Region. Also, a number of stakeholders from countries with more advanced test and demonstration infrastructures have expressed – during telephone interviews in connection to the drafting of the mapping report – that they have great interest in working with and learning from peers.

Question 3: How do we encourage the SMEs?

Providing a framework for increased sharing of infrastructures is one thing, another is **how to encourage SMEs to commission test and technology services in neighbouring countries with the excellence in their particular innovation and business area?** In this context it should be observed that experiences with reciprocally opening innovation systems among countries in the Baltic Sea Region shows that such efforts encounter challenges when they result in tax money in one country benefitting businesses in another country. Today the innovation vouchers provided by national

innovation agencies are tied to purchase of domestic test, demonstration and verification services. This limitation seems unlikely to change.

Question 4: What are the obstacles?

The existing financial support available to SMEs for buying test and demonstration services is rather small, in most cases not more than EUR 5-10.000. Thus SMEs are generally accustomed to pay for the majority of cost for test and demonstration themselves. **So why do SMEs not commission more test and demonstration services in neighbouring countries? Do they lack the knowledge of the available services? ...is language a barrier?**

Question 5: How can we facilitate the connection?

Information about test excellence is not easily accessible for SMEs from other countries. **Is there a need to improve the information/“inventory” of available test and demonstration infrastructures in the Baltic Sea Region? And if so, what would be required to ensure that this information becomes easily accessible – and continuously updated – for the SMEs?** Also important to ask in this regard: **What types of organisations could be effective intermediaries to facilitate the connection between SMEs and linkages between the macro-regional level, the national level and the regional level?**

Question 6: Would a Voucher Scheme help?

Could the bottleneck of geographical and cultural proximity be offset by a macro-regional innovation voucher scheme? – a scheme designed to compensate the SMEs (some of) the additional costs related to commissioning test and demonstration services in another country? The BSR STARS S3 project has funds allocated to pilot such a macro-regional innovation voucher scheme for SMEs in the bioeconomy. **What could such a scheme look like?**