

## Financing the Bioeconomy in the Baltic Sea Region



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## 1. Introduction

Around the Baltic Sea Region one can observe a number of efforts and good practices that already moves the macro-region towards realising the bioeconomy. However, making a transition “from pockets of smartness to become genuinely smart about the bioeconomy” calls for larger and more widespread efforts<sup>1</sup>.

There are a number of challenges and bottlenecks related to policy coherence and capacity; private sector engagement; research, technology and innovation; civil society and communication. Reference is made to the 2015-18 BSR-Bioeconomy strategy and action plan<sup>2</sup>.

Overall the challenges and bottleneck relates to for example:

- Behavioural barriers – in the form of e.g. producer and consumer information failures, human capacity, budget cycles, and non-economic (emotional) decisions.
- Structural barriers – in the form of e.g. fragmented macro-regional markets, different and sometime conflicting policy incentives, and lack of data for targeting policies.
- Legal and regulatory barriers – in the form of e.g. regulatory distortions, burdensome procedures, and issues related to ownership of intellectual property.
- **Financial barriers** – in the form of e.g. upfront investment costs vs. payback time, insufficient pricing of negative externalities for non-bio alternatives, lack of awareness about business cases, and lack of scale leading to an emphasis on the low hanging fruits that may provide small immediate results but that may also lead to lock-in on small-scale benefits rather than structural change enabling big leaps with much larger societal benefits.

Whereas behavioural, structural and legal barriers undoubtedly are very important to address – also because these barriers impact on financial barriers – the greatest and in the short term most solvable barrier is properly improving the deployment of funds and finance in the bioeconomy.

Financing the bioeconomy does not call for development of a number of new technologies and innovations but rather that the large amount of existing public and private financial instruments and tools are applied in conventional or new ways to, quite simply, increase production and consumption of bioeconomy products and services.

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<sup>1</sup> Reference is made to mapping report “A Bioeconomy for the Baltic Sea Region”, Nordic Council of Ministers & Innogate, March 2014.

<sup>2</sup> Reference is made to paper “BSR-Bioeconomy 2015-2018 Strategy and Action Plan Towards a BSR Bioeconomy”, Nordic Council of Ministers & Innogate, February 2015.

Essentially one can look at financing the bioeconomy through two types of delivery mechanisms, either directly into companies (“company-level finance” in the figure 1) or indirectly into organisations, institutions and/or a number of companies (“project-level funding” in the figure 1).

Figure 1 lists the most common types of funding – all of them relevant to apply in the process towards realising the bioeconomy in the Baltic Sea Region.

**Figure 1: Main types of company-level and project level finance**

Type of funding	Company-level finance	Project-level finance
Grants		✓
Angel finance	✓	
Venture capital	✓	
Private equity	✓	
Strategic equity	✓	
Infrastructure funds equity	✓	
Tax incentives	✓	
Public procurement	✓	✓
Green funds	✓	✓
Alternative Financial Services	✓	

## 2. Grants

Grants are usually non-repayable funds disbursed by e.g. a government department, corporation, foundation or trust, to a nonprofit entity, educational institution, or business organization.

As a result of EU state aid and competition laws public grants may in general not be disbursed to single companies. There are exceptions to this rule, one of them being renewable energy production (biogas, wind etc.). Rarely though are such company (or personal) subsidies disbursed as grants. Mostly subsidies are provided as co-investment, tax and tariff incentives. We will come back to such incentives later in this paper.

In the Baltic Sea Region there are a number of project level grant opportunities – targeting groups of companies and usually in cooperation with public and semi-public organizations and institutions. Some of these target directly the bioeconomy – others target more generally sustainable environmental, social and economic development. Some examples are:

- Nordic Council of Ministers pre-seed funding for bioeconomy cooperation projects.
- Nordforsk, Nordic Innovation and Nordic Energy Research research and innovation programmes on green growth.
- The European Union Strategy for the Baltic Sea Region Seed Money Facility.

- European Union Territorial Cooperation Programmes, such as the Baltic Sea Region, the South Baltic, and the Central Baltic programmes.
- The EU Framework Programme for Research and Innovation, Horizon 2020.
- The Pilot Financial Initiative (PFI) of the Council of the Baltic Sea States.
- The Project Support Facility (PSF) of the Council of the Baltic Sea States.

As it appears there are numerous opportunities in the Baltic Sea Region to attract project-level finance to bioeconomy cooperation and development efforts.

It is a challenge that the above-mentioned funds and programmes are insufficiently aligned, making it difficult (and expensive) for the target group to navigate between the funding opportunities. For society the risk of duplication of efforts and lack of synergies between project funding programmes may further lead to inefficiencies in use of tax money<sup>3</sup>.

The European Union Strategy for the Baltic Sea Region (EUSBSR) with associated Action Plan – and with the Nordic Council of Ministers as co-lead of Priority Area Bioeconomy – provides a platform for advancing coordination and alignment of project-level grants to bioeconomy cooperation activities.

Efforts have commenced within the EUSBSR framework to network representatives of the above-mentioned funding programmes – and there are a number of efforts on-going to support potential project cooperation partners in navigating between the different instruments. For example, the bioeconomy seed money facility of the Nordic Council of Ministers and the Project Support Facility of the Council of the Baltic Sea States aim directly at supporting stakeholders in coming together in pre-project activities with a view to spin out competitive and larger project applications to e.g. the European Union territorial Baltic Sea Region programme. Also, the Nordic institutions Nordic Energy Research, Nordic Innovation and NordForsk (the Nordic research council) have made efforts to align funding opportunities through joint call for proposals.

**Proposal:** It is proposed to make further efforts in this area. One approach could be to establish a forum with representatives of the grant providing organisations and institutions with a view to increase information exchange about bioeconomy grant opportunities and thereby help to direct applicants to the for them best suited funding opportunity.

Another approach could be to undertake (more) joint call for proposals to a multi-organisational pool of funds for bioeconomy cooperation. As attractive as this would be, experience shows that good intentions with such fund integration efforts are difficult to pursue in practice. The likelihood is therefore that such funds integration will not happen at a

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<sup>3</sup> Reference is made to workshop paper "A Bioeconomy for the Baltic Sea Region – impact, engaging the private sector and financing cooperation", Nordic Council of Ministers, September 2014.

larger scale – making it all the more important to support potential project cooperation partners to navigate as smoothly as possible among different grant opportunities.

### **3. Angel finance and venture capital**

As opposed to grants, angel finance and venture capital are rarely provided to a group of companies or other partners – but is rather provided as company-level finance to a single company.

**Angel finance** is when an investor – or “business angel” – provides capital for a business start-up, usually in exchange for ownership equity or for being able to convert the investment into cash at a later point in time. Business Angels are usually affluent individuals. They are often retired entrepreneurs or executives seeking high-risk, high-return investments opportunities. In many cases their motivation is more than just the opportunity for financial returns but also to “remain in business” by engaging with the next generation of promising entrepreneurs through provision of funds *as well* as business development mentoring and networks.

Business angels may act as individuals – identifying and engaging with start-up companies through referrals etc. in their personal network. In a Baltic Sea Region dimension it would be rather cumbersome to engage with business angels on an individual basis. However, there are a number of business angel organisations and networks around the Baltic Sea Region. These organisations and networks would be attractive to engage within a Baltic Sea Region perspective. Firstly, because they often accredit or have other standards for the quality/capacity of the business angels they have as members. Secondly, because these networks already facilitate a number of business-to-angel pitch activities – often both in the form of pre-pitch training for start-ups, other kinds of mentoring, and business-to-angel face-to-face meetings in connection to conference-type match making events.

Some of the dedicated business angel networks active in the Baltic Sea Region are:

- The national angel networks, such Business Angel Denmark, Business Angels Netzwerk Deutschland (BAND), Norwegian Business Angels Network (NORBAN), Lewiatan Business Angels (LBA, Poland), Estonia Business Angels Network (EstBAN), and Finnish Business Angels Network.
- City and region focused business angel networks, such as Business Angels Copenhagen, Connect Vest Business Angel Network (Bergen), and the Scandinavian Angel Investment Network.
- At the pan-European level there is The European Trade Association for Business Angels, Seed Funds, and other Early Stage Market Players (EBAN).

**Venture capital** is broadly speaking the next level of risk financing. Much like with business angels, finance is provided to early-stage, high-potential, growth start-up companies.

However, unlike business angels whom typically invest their own funds, venture capitalist often manage funds of others. Another difference is that venture capitalists tend to focus on slightly more mature companies and venture capitalists usually do not engage in the personal “mentoring way” that business angels tend to do. Consequently venture capital investments tend to be only against equity (and thereby co-ownership) and less in the form of other types of securities that can pay a return on the investment.

However because of the similarities, business angel and venture capital networks in the Baltic Sea Region tend to overlap. A number of the above business angel networks are therefore part/member of larger venture capital networks and organisations in the Baltic Sea Region, such as:

- The national venture capital associations which exist in all countries around the Baltic Sea: The Estonian Private Equity And Venture Capital Association; the Latvian Venture Capital Association (LVCA); the Lithuanian Private Equity and Venture Capital Association (LT VCA); the Danish Venture Capital and Private Equity Association (DVCA); the Swedish Private Equity & Venture Capital Association (SVCA); the Norwegian Venture Capital Association (NVCA); the Icelandic NSA Ventures; the The Finnish Venture Capital Association (FVCA); the Polish Private Equity and Venture Capital Association (PSIK); and the German Private Equity and Venture Capital Association.
- At the transnational level there are also a number of networks and partnerships, including the Nordic Venture Network (uniting 9 leading technology venture firms in the Nordic region) and Cleantech Scandinavia (uniting more than 50 partners, some of them venture firms, others being large corporates, universities and authorities); as well as the European Venture Capital Association (EVCA).
- Venture Cups: In Sweden, Norway, Finland and Denmark nationwide non-profit organizations seek to discover and develop university start-ups through competitions, mentoring, idea development and networking. Though the Venture Cups are essentially large national business plan competitions – rather than tailored matchmaking with investors – the Venture Cups help to build investment attraction capacity in start-up companies and expose these towards venture capitalists.
- Nordic Cleantech Open: Once a year since 2010 business idea/plan competitions within cleantech has been co-organised by partners from the five Nordic and three Baltic countries. Also, these platforms have helped build investment attraction capacity in numerous start-up companies and exposed these to a large number of venture capitalists.
- Yet another example is the annual Cleantech Venture Day. This event provides an important meeting place for Nordic cleantech companies and investors. Cleantech Venture Day emerged from the Nordic Innovation Accelerator, aiming to accelerate growth through networking and cooperation, including by match-making companies with venture capitalist investors.

The national business angel and venture capital networks and associations represent hundreds of specialized investors looking for opportunities in early-stage, high-potential, growth start-up companies. Key priorities for these networks and associations are to improve the venture capital markets e.g. through dialogue with policy makers and to facilitate business matchmaking that spins out companies that are innovative and with high growth potential.

Business angels and venture capitalists usually targets novel technologies or business models in high technology industries, such as biotechnology and ICT. More and more one can observe that business angels and venture capitalists gain interest also for cleantech start-ups. Altogether there seem to be a trajectory among business angels and venture capital firms and organisation leading in the direction of the bioeconomy.

**Proposal:** It is proposed that an effort is made to explore cooperation opportunities with the above-mentioned networks and organisations. A starting point could be to establish what the interest and opportunities are for targeting a sub-set of early-stage, high-potential, growth start-up bioeconomy companies and subsequently facilitate their matchmaking with investors. These explorations could take place in connection to one or more of the major macro-regional events that already brings together a number of business angel and venture capital representatives, e.g. in connection to the Cleantech Venture Day in Lahti on 29 October 2015 and/or in connection to European Venture Capital Association's annual Venture Capital Forum in Berlin on 22 October.

Also, a project application "BSR Stars S3" has successfully passed through the first application stage to the EU Baltic Sea Region Programme. If the application is finally approved in the second half of 2015, this project with bioeconomy and digital economy as overarching themes will provide a number of opportunities to pursue matchmaking of bioeconomy businesses with angel and venture investors.

#### **4. Private, strategic and infrastructure equity**

These three types of finance are also company-level finance aimed at single companies/infrastructures.

**Private equity** differs from venture capital in a number of important ways: Firstly, private equity firms mostly take 100% ownership in established mature companies that are deteriorating or not making the profits because of inefficiencies. Private equity firms buy these companies and subsequently streamline operations to increase revenues. As mentioned above business angels and venture capital firms invest rather in early-stage, high-potential, growth start-up companies.

Secondly, business angels and venture capital firms usually invest much smaller amounts and they never size full control of the (start-up) company.

Thirdly, private equity firms buy companies from any industry, while business angels and venture capital firms tend to focus on start-ups in technology based industries such as ICT, biotechnology and cleantech.

In other words: “In private equity, you start with the numbers, and then you try to fit everything into the numbers. In venture capital, you start with people, and then you try to figure out what numbers you can make.” (Mark Kachur, the former CEO of CUNO).

Because private equity stakeholders are more of the kind of “Wall Street type players” – banks and large funds and institutional investors – and because private equity does not target in particular technology based industries with strong cross-overs to bioeconomy, engaging with private equity firms seems unlikely to be able to fast-track a transition towards the bioeconomy in the Baltic Sea Region.

**Strategic equity** has a number of similarities with private equity – one important difference being that strategic equity investors does not necessarily buy out decaying companies but rather competitors or companies with complementary products and services that can add value and customers to the strategic buyer.

For the same reasons as mentioned for private equity firm, engaging with strategic equity firms seems unlikely to be able to fast-track a transition towards the bioeconomy in the Baltic Sea Region.

**Infrastructure equity** is also usually provided as buy-out investments, however in this case not usually buyouts of companies but rather acquisition of mature unlisted infrastructure assets in e.g. transport (such as roads, railways, airports and ports), energy and utilities (such as electricity, gas and water supply) and social infrastructures (such as health, education and waste treatment).

Infrastructure equity fund investors are typically looking for infrastructure assets with potential to generate stable long-term returns.

Because environmental, social and economic policies are used to guide investment decisions and management of the portfolio (where to buy more and where to exit) there may be an opportunity for fast-tracking the transition towards the bioeconomy in the Baltic Sea Region by engaging more with infrastructure equity firms.

**Proposal:** Though generally it is still a rather small fraction of infrastructure assets in the Baltic Sea Region that are listed or under other kinds of private ownership – the tendency seems to be that more and more infrastructures for e.g. energy and waste treatment are privatised fully or transferred to public-private companies. Infrastructure equity investors play an important role in this transition – whereby communicating new-found economic opportunities of the bioeconomy could trigger more investments e.g. sustainable energy production and waste treatment. Infrastructure equity investors in the Baltic Sea Region are usually institutional investors such as pension funds, insurance companies, savings institutions, foundations and (other) large investment companies. Thus it would be these kind of investors that would be the target group for such improved dialogue.

## 5. Tax incentives

It is well known that one of the main economic barriers for making a speedy transition away from the fossil-based and towards the bio-based economy is that the negative externalities on in particular the environment are insufficiently priced in to today's products and services.

Tax incentives on production and consumption that alter the current price competitiveness between fossil-based and bio-based alternatives can play an important role to alter investments decisions, production and consumption.

As regards producer tax incentives, the renewable energy space offers many examples of favourable investment schemes, feed in tariffs, producer tax breaks etc. These practices could be adapted to a number of bioeconomy value chains. There are also a number of examples of taxes providing dis-incentives in production such as tax on residual discharge from sewage treatment, tax on nutrient discharge in agriculture, and other polluter pays taxes.

As regards consumer tax incentives the energy space again offers a number of examples of incentives: disincentives by taxing consumption of energy and encouraging incentives through tax benefits to independent power production such as PV panels on domestic houses. More "old school" examples are eco-taxes on conventional plastic, paper bags and bottles that encourage consumers and producers to reuse resources.

Altogether taxes provide a number of very direct and immediate impacts that alter production and consumption patterns – and can therefore be a very powerful tool to fast-track the transition towards the bioeconomy in the Baltic Sea Region.

Importantly, taxes are however also about creating revenues for governments. EU member states tend to guard intensely their sovereignty in matters of tax policy. At the European – as well as the Nordic and Baltic Sea level – therefore, so far only little coordination has been achieved in this area.

**Proposal:** There would seem to be an opportunity for cooperation around sharing practices on tax policies and incentives that enable the transition towards the bioeconomy in the Baltic Sea Region. Not only would such policy exchange provide a resource for national tax policy making that supports the bioeconomy, it would also support a better alignment of tax incentives by more countries (voluntarily) adopting similar policies. More approximate policies would in turn mean more uniform bioeconomy business framework conditions. With that a number of opportunities for companies to engage in the macro-regional market would arise, rather than it is often the case today where bioeconomy companies are restrained to engage only at home markets with national specialized tax incentives.

## 6. Public procurement

Public procurement can like tax incentives very directly provide new markets, be it for single companies or for a group of companies and RTI institutions coming together to solve a

societal challenge. By providing new or larger markets for bio-based products a company or group of partners can more easily leverage needed investment finance.

Within the context of the Action Plan for European Union Strategy for the Baltic Sea Region a project Green Public Procurement has been implemented. The project has demonstrated good practices and build capacity in public organisations on how Green Public Procurement can advance environmental innovative, eco-efficient products and services.

**Proposal:** It would seem rather straightforward to propose that efforts are made to go one step further and undertake a cooperation effort on practices and capacity building for bioeconomy public procurement. Already there are a number of good practices are available. One example is public procurement in public transport in Sweden, more specifically biogas-propelled busses. A more recent example is from Denmark, where the Municipality of Mariagerfjord have tasked local public and private partners to develop a local energy supply system that will enable the municipality to make the transition from fossil fuel dependency to become fuelled on locally produced biomass.

Almost all EU Member States in the Baltic Sea Region have drawn up National Action Plans (NAPs) for greening their public procurement. Beyond raising awareness, the plans aim to spur development and implementation of policies and instrument to accelerate greener public procurement. The non-legally binding plans provides assessments of the current situation and national targets for the next three years, including what measures will be taken to achieve them. The existing cooperation activities and platforms – nationally and at the European level – around the NAPs for greening public procurement could provide a productive baseline for initiating cooperation efforts on bioeconomy public procurement.

## 7. Green Funds

In the Baltic Sea Region there are a number of “Green Funds” that investments in sustainable development of companies and projects.

These funds generally provide guarantees, loans at preferential rates, investment capital against equity, and (usually only for feasibility type activities) grants – or a combination of these.

**National investment funds** that targeting – partly – the bioeconomy include funds investment activities of the Finnish Innovation Fund (SITRA); the green technology investment programme of Innovation Norway; Industrifonden in Sweden; The Danish Growth Fund; and the Polish Investment Programme (as implemented by Polish Investments for Development and the government owned Bank Gospodarstwa Krajowego). These national owned funds often co-invests with private angel, venture and equity investors (refer section 3 and 4 above).

There are also a number of national investment funds targeting developing and emerging markets in Asia, South America and Africa. Examples are the German Green Climate Fund, the Danish Climate Investment Fund and Sweden’s Green Climate Fund.

In addition there are a number of ***European and Nordic investment funds*** targeting environmental sustainable development; including the Nordic Investment Bank (NIB), the Nordic Environment Finance Cooperation (NEFCO), the Nordic Project Fund (NOPEF), the Nordic Climate Facility (under the Nordic Development Fund); the European Investment Bank (EIB), the European Investment Fund (EIF), and the European Bank for Reconstruction and Development (EBRD).

**Proposal:** There would seem to opportunities for accelerating investments into the bioeconomy by networking national and macro-regional public investment funds e.g. through opportunity awareness efforts and sharing of investments instruments and experiences. As these funds are public and therefore ties into government policies, a productive avenue to engage with these funds could be by enrolling them in cooperation efforts among grant providers, refer section 2 above.

## **8. Alternative financial services**

New types of lending and investing are getting traction in recent years. They may be grouped under a heading “Alternative financial services” because what unites them are that they offer entrepreneurs alternative – mostly online-based – access to capital beyond what banks and other financial institutions normally offer.

Crowdfunding is one such example. Essentially crowdfunding involves three types of actors: The entrepreneur that has an idea but needs capital to carry it out; a person or company that has free funds to invest; and a broker/platform that match investor(s) with the entrepreneur with the idea. In short there are two basic types of crowdfunding: 1) the “reward” type whereby entrepreneurs pre-sell a product or service to launch a business concept without incurring debt or sacrificing equity/shares but by offering a share of the return, and 2) the “equity” type whereby the investor receives shares of a company in exchange for the money provided (in this case the fundamentals are similar to the equity financial modalities discussed in section 3 and 4 of this paper).

One variation of crowdfunding is peer-to-peer lending. This is usually unsecured personal or company specific loans. In early days these types of loans were mostly channelled through personal social networks. Increasingly brokers/intermediaries are beginning to offer web-based platforms that are able to connect borrowers and lenders initially unknown to each other. Often the reverse auction model is used as the brokering system through which lenders compete. The winning lender is the one that provide the lowest interest rate on the loan. The fact that the transactions take place online reduce costs for the brokers/intermediaries thereby enabling them to offer better returns for the lenders and lower interest for the borrowers. As a result additional business cases become viable. Another advantage of the broker/intermediary systems is that they offer multiple opportunities to lend – and thereby possibilities for lenders to mitigate/reduce potential losses through diversification in lending.

Another variation of crowdfunding is peer-to-investing that shares the rationale with peer-to-peer lending. In this case however, the lenders do not just offer cash by buy notes as a security

and subsequently they are able to sell the notes and thereby exit the investment before the borrower has (completed) repayment of the debt.

Yet another example of alternative funding is rent-to-own schemes where a product is leased in exchange for a phased repayment with an option to purchase the product at some point during or at the end of the lease. The advantage is that this system reduces the initial investment. Because it also provides the buyer with an opportunity to “try it out” – and return the product if it does not deliver the expected results without sustaining the full costs of the investment – it makes unsure buyers more inclined to by the product.

**Proposal:** There are a number of crowdfunding intermediaries in the Baltic Sea Region, e.g. ToBorrow and Local Capital in Sweden and Crowdfunding Berlin. There is also the Nordic Crowdfunding Alliance uniting Boomerang from Denmark; Invesdor and Mesenaatti from Finland; Karolina Fund from Iceland; and Bidra from Norway. It is proposed to engage with these organisations and their networks to investigate opportunities for propelling the bioeconomy in the Baltic Sea Region through (increased) cooperation on crowdfunding.

## 9. Implications

As mentioned in the beginning of this paper financing the bioeconomy does not call for development of a number of new technologies and innovations but rather that the large amount of existing public and private financial instruments and tools are applied in conventional or new ways to, quite simply, increase production and consumption of bioeconomy products and services.

The paper demonstrates the availability of an abundance of financial instruments available to stakeholders in the form of company-level and project level finance.

The opportunities in going forward with efforts to accelerate the transformation towards the bioeconomy in the Baltic Sea Region can be summed up to:

1. Make efforts to engage more with the different funding and finance partner; increase awareness about the business opportunities in the bioeconomy – and how these relate to existing business areas in biotechnology, ICT, cleantech and other environmental technologies; and with that increase the interest for investing in bioeconomy companies with high growth potential. Mechanisms for relaying these opportunities and facilitate investor-company matchmaking could be a number of the existing investor and business matchmaking conferences taking place throughout the Baltic Sea Region.
2. Provide forums for policy makers and representatives of government investment funds whereby they can access and exchange information on financing and funding mechanism. This would be likely to spur funding and finance alignment – as well as other types of cooperation – that would support companies and project partners to navigate more effectively between instruments and financing opportunities.

The Nordic Council of Ministers has already – in its capacity of leading bioeconomy cooperation efforts with the Action Plan for the European Union Strategy for the Baltic Sea Region – made attempts to facilitate more cooperation in these areas, including by proposing the establishment of a macro-regional working group “Financing the Bioeconomy in the Baltic Sea Region” bringing together a large number of funding and financing partners, including those mostly providing credits (EIB, NIB, NEFCO, etc); those mostly providing grants/co-financing (Nordic Innovation, NordForsk and European Commission DG Research and Education and DG Regional Policy); and those national/regional/local financial stakeholders and networks that in other ways enable and facilitate investments towards realising the bioeconomy.

It is proposed that further efforts are undertaken in this area, including by connecting to existing fora (as mentioned under point 1) and by facilitating the development of new cooperation platforms (as mentioned under point 2).