“5 Minutes Elevator Pitches”
Where do we see the greatest opportunities?
Where can cross sectorial approaches create value?
Presentations by:

- Regional Development – Hans Jørgen Jensen, LAG Secretariat.
- Protein Value Chain – Knud Tybirk, Agro Business Park.
- Phosphorous Value Chain – Gitte Holton Rubæk, AU
- Blue Value Chain – Helge Paulsen, AG-Fisk.
- Green Value Chain – Katrine Hahn Kristensen, SNS.
- Brown Value Chain – Olav Rasmussen, Blue Planet Innovation.
- Innovative Financing – Thomas Norrby, SLU

- Energy Markets around the Baltic Sea
  Katrine Hahn Kristensen, SNS
The Regional Development Perspective
Hans Jørgen Jensen – LAG Secretariat

Where do I/we see opportunities in the value chains?
• local bio economy in a new era with limited resources
• Food and sufficiency by local protein production
• Food and energy – CO2 and recycling - reduction of the global footprint

Where do I/we see the greatest potentials in a cross sectorial approach?
• Strengthening of a green micro economy based on CSV
• Concrete contribution to green sustainable economics
• Strengthening of local brands (Food/tourism etc.)
• Prepare the ground for major community projects
Bright Green Island
– a strategic branding platform of Bornholm

Local energy (from 20% to 100%)
Local food (from 5% to 25%?)

Bio economy: Strengthen the Local economy thinking cross sectorial
# Project Ideas in Pipeline/Planning

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<thead>
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<th>Project Title and description</th>
<th>Concept – Value Creation</th>
<th>Status</th>
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<tbody>
<tr>
<td>1</td>
<td>Transparent Bio economy – Planning and implementation (BIOTRANS)</td>
<td>resource atlas Bank of replicable ideas</td>
<td>Project idea - Looking for partners</td>
</tr>
<tr>
<td>2</td>
<td>Bio economy in micro regions</td>
<td>bio-economic test lab at the micro level</td>
<td>Project idea - Looking for partners</td>
</tr>
<tr>
<td>3</td>
<td>Increased Circular Economy Local bio-economy - reinforced value chain</td>
<td>Bio economy in a cross-sectorial perspective. Building/strengthening regional Brands</td>
<td>Project idea - Looking for partners</td>
</tr>
<tr>
<td>4</td>
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The Protein Value Chain
Knud Tybirk – Agro Business Park

Where do I/we see opportunities in the value chains?
• Technology is developing, it becomes relevant
• Change agricultural focus towards green biomasses
• Increase the values of crops/biomass/residual stream
• Sustainable animal husbandry

Where do I/we see the greatest potentials in a cross sectorial approach?
• Nitrogen/protein streams from blue, green, yellow, brown and grey resources – integrative nature of the approach
• No tradition for exchange between silos (knowledge and materials)
• Job creation and innovation within bio refinery of local biological resources
Sustainable Protein Supply

Present situation:
Imported proteins

Future situation:
‘Regionally biorefined proteins’
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<td>Organofinery - Green clover juice refined</td>
<td>proteins, biogas and fertilizer</td>
<td>Applied and positive evaluation</td>
</tr>
<tr>
<td>2</td>
<td>BioValue - SPIR</td>
<td>Methods for protein refinement</td>
<td>Started 2013</td>
</tr>
<tr>
<td>3</td>
<td>Forestry residual nitrogen for animal fodder</td>
<td>Create new market and stream</td>
<td>Open idea – looking for partners</td>
</tr>
<tr>
<td>4</td>
<td>Residual fish/mussels, seastars for fodder proteins</td>
<td></td>
<td>Open idea – looking for partners</td>
</tr>
<tr>
<td>5</td>
<td>Regional Bioeconomy strategy</td>
<td>Regional specialization in EU</td>
<td>Open idea (re-apply)</td>
</tr>
<tr>
<td>6</td>
<td>Protein/fodder production innovation network</td>
<td>Exhange of experiences (research and business)</td>
<td>Open idea – looking for partners</td>
</tr>
<tr>
<td>7</td>
<td>Quality protein from green biomass</td>
<td>Permanent grassland and semi-natural areas</td>
<td>Platform Univ. Aarhus</td>
</tr>
</tbody>
</table>
The Phosphorus Value Chain
Gitte Rubæk, Aarhus University

Where do I see opportunities in the value chains?
• Closing the P cycle, by reducing losses and import
• Sustain (increased?) crop production at lower P input levels
• Recycle P in waste and residues
• “Smart” utilisation of legacy P in our agricultural soils

Where do I see the greatest potentials in a cross sectorial approach?
• Finding ways to handle waste/residuals-P with high degree of utilisation in existing and future crop production systems
• Developing new techniques for “smart” utilisation of soil. E.g. finding new ways to detect soil P variability.
• Getting “dirty” waste product- P “clean” enough for recycling
My Phosphorus Mind Map

- Feed/animal production
- Animal manure
- Wastes/residues
- Fertilizer P
- Food
- Energy
- Crops
  - Fields
    (huge, but highly variable storage of P)

- P losses
- P import
- P export
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<tr>
<td>1</td>
<td>Fertiliser value of P in residual products (GØDP)</td>
<td>Increase the value of waste/residues by documenting fertiliser value of P.</td>
<td>Just started, October 2013-March 2017</td>
</tr>
<tr>
<td>2</td>
<td>Online Decision Support for Calculation of Nutrient Utilization in Manure (Gylle IT)</td>
<td>Increase N and P utilisation in animal manure</td>
<td>Just started, until ultimo 2016</td>
</tr>
<tr>
<td>3</td>
<td>BUFFERTECH: Optimization of ecosystem services provided by BUFFER strips using novel TECHnological methods</td>
<td>Getting the best out of Buffer zones: N and P removal, C sequestration, biomass production, biodiversity, climate change mitigation</td>
<td>May 2014-may 2018</td>
</tr>
<tr>
<td>4</td>
<td>COST initiative: Innovation for efficient resource management: the example of P</td>
<td>Networking. Knowledge on P flows in EU. Closing the P cycle</td>
<td>Full application due January 2014</td>
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| 3 | Secure biomass production on agricultural land in a future where import of P in fertiliser and feed declines. | - Making better use of for soil P, soil P variability and subsoil P (precision farming, sensors?)  
- Crop varieties with better P traits | Ideas. |
| 4 | International P workshops (IPW)  
http://www-conference.slu.se/ipw7/ | Networking and keeping P fighters updated! International but EU-based | Every third year. Seeking a formal platform? |
| 5 | - The global P network,  
- The global P research initiative  
- EU P platform  
+ national platforms | Knowledge exchange. Increased awareness P as a ressource, Closing the P cycle, deal with future potential scarcity. | Ongoing  
http://globalpnetwork.net  
http://phosphorusfutures.net  
http://www.phosphorusplatform.eu/ |
Blue Value Chain
Helge Paulsen, NAF

Where do I/we see opportunities in the value chains?
• Baltic nutrient management plan
• Sustainable Aquaculture
• Marine biomasses

Where do I/we see the greatest potentials in a cross sectorial approach?
• Image building in the green sector
• Value adding of bio-products
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<td>1</td>
<td>Optimizing recirculation technology</td>
<td>Nutrient capture, energy, business concepts</td>
<td>On-going process Investment support</td>
</tr>
<tr>
<td>2</td>
<td>On-growing of fish in nutrient depleted waters</td>
<td>Combining production and environment</td>
<td>Legal framework vital</td>
</tr>
<tr>
<td>3</td>
<td>Domestication of Arctic charr and Pike-perch</td>
<td>Domestication vital to improve profitability</td>
<td>Need coordinated effort</td>
</tr>
<tr>
<td>4</td>
<td>Nutrient discharge pricing system</td>
<td>Increase production possibilities for high value</td>
<td>Legal framework to be established</td>
</tr>
<tr>
<td>5</td>
<td>Pelagic species biomass</td>
<td>Biomass resource, removal of nutrients</td>
<td>Detox or alternative uses</td>
</tr>
<tr>
<td>6</td>
<td>Use of algae biomass</td>
<td>Biomass resource, removal of nutrients</td>
<td>Exploration phase</td>
</tr>
<tr>
<td>7</td>
<td>Green sector human resource building</td>
<td>Sectors need human capital</td>
<td>Need coordination and planning</td>
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</table>
Perspectives for sustainable development of Nordic aquaculture

The Paban-Report

Pris: 200 DKK
AQUACULTURE IN THE BALTIC SEA REGION

Aquaculture is the production of fish, crustaceans, mussels and aquatic plants in freshwater, brackish water or seawater. It is not the same as commercial fishing, harvesting of wild fish.

Contrary to the growth limitations of agriculture and fisheries, aquaculture has great potential for providing the growing human population with healthy food. Globally, the industry has risen to the challenge. Aquaculture has been the fastest growing food production sector during the last two decades. In the Baltic Sea region, though, the industry has stagnated or even decreased. The goal for the Aquabest project is to change this trend. The future growth in aquaculture production has to be built on sustainable practices and technologies.
“Danish Salmon”
2000 t/year
The Green Value Chain
Katrine Hahn Kristensen, SNS

Where do I/we see opportunities in the value chains?
• Fiber engineering and wood processing
• Chemical engineering
• Genetic engineering
• But what about the ‘real’ wood?
• And how do we make the forest bioeconomy sustainable?

Where do I/we see the greatest potentials in a cross sectorial approach?
• Plant fibres – cooperation across forest and agriculture
• «From tree to filet» a real potential?
Perspective/Green Value Chain

Where do I/we see opportunities in the value chains?

• Fiber engineering and wood processing
• Chemical engineering
• Genetic engineering

What about the 'real' wood?

And how do we make the forest bioeconomy sustainable?

Where do I/we see the greatest potentials in a cross-sectorial approach?

• Plant fibres – cooperation across forest and agriculture

Thermo-hydro and thermo-hydro-mechanical wood processing: An opportunity for future environmentally friendly wood products

Dick Sandberg, Peer Haller, & Parviz Navi

Forest Products, Linnaeus University, Växjö, Sweden

Institute of Steel and Timber Construction, Technische Universität Dresden, Dresden, Germany

Wood and Civil Engineering, Bern University of Applied Science, Biel, Switzerland

http://www.tandfonline.com/loi/sgme20

Published online: 18 Dec 2012.
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<tr>
<td>Sustainable Bioeconomy in the Arctic</td>
<td>Agriculture, forestry, fishery, genetic resources, local development.</td>
<td>Ongoing project</td>
</tr>
<tr>
<td>Nordic forest sector in the biobased economy</td>
<td>Lessons from social, economic and political sciences to enhance the adaptation to a green economy.</td>
<td>Just finished</td>
</tr>
<tr>
<td>Ecological effects of intensive biomass harvesting in the Nordic and Baltic countries</td>
<td>Protection of the environment where forest is harvested for bioenergy production.</td>
<td>Ongoing project</td>
</tr>
<tr>
<td>Novel oxidative biocatalysts for tailored wood fibre modification</td>
<td>Value-creating wood applications: Fiber engineering and production of new biomaterials</td>
<td>Ongoing project</td>
</tr>
<tr>
<td>Biomass in the Nordic region</td>
<td>Network: Research and innovation on biomass resources</td>
<td>Planning phase</td>
</tr>
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The Brown Value Chain
Olav Rasmussen Blue Planet Innovation

Where do I/we see opportunities in the value chains?
• Holistic planning for bioenergy and nutrient circuit
• Local SME’s, organisations and key stakeholders in clusters
• Pathways for bioenergy toward high end markets e.g. transport

Where do I/we see the greatest potentials in a cross sectorial approach?
• Involve science, economics and key technologies (top down)
• Identify local talents, resources and markets (bottom up)
• Generate shared value to access public and institutional equity, e.g. “green bonds”
• Innovative communication reaching public and next generation
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<td>Biogas Grid and biogas plants in Ringkoebing-Skjern</td>
<td>Innovative brown value chain and organisation</td>
<td>Concept funded</td>
</tr>
<tr>
<td>2</td>
<td>Bioenergy Web Wall</td>
<td>Innovative communication and storytelling/branding</td>
<td>Applied/funded</td>
</tr>
<tr>
<td>3</td>
<td>Smart Bioenergy concepts (SMART BIOCON)</td>
<td>Bioenergy scenarios, infrastructure, lighthouse projects (brown value ch.)</td>
<td>Applied</td>
</tr>
<tr>
<td>4</td>
<td>Big Data to evaluate energy trade structures</td>
<td>Institutional barriers to the SE society</td>
<td>Project idea</td>
</tr>
<tr>
<td>5</td>
<td>Energy addition to bio energy products</td>
<td>Utilizing hydrogen towards methane, methanol</td>
<td>Project idea</td>
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[https://vimeo.com/81413507](https://vimeo.com/81413507)
Energy Markets around the Baltic Sea
Katrine Hahn Kristensen, SNS

• EFINORD – project 2013–2015

• Participants from METLA (Finland), SLU (Sweden) & UMB (Norway) + other partners to be recruited (from Baltic Sea countries, in particular)

• Coordination: Maarit Kallio, METLA
Questions examined

• How will the markets for renewable energy develop in the Baltic Sea countries (BSCs)?

• Who are the key players in the RES market in the BSCs?

• Supply, demand, price and trade flows for wood biomass under alternative policies and future scenarios

• The competition for woody biomass across the BSCs and alternative end uses (energy carriers, forest industry)

• The resulting future role of forest biomass in the energy palette in the BSCs?
Methods

- **Survey on the goals and policies** regarding the use of wood for energy in the Baltic Sea countries

- **Literature survey on the previous policy analyses & projections** for the forest resources, forest industries and energy sector in the BSCs: **Synthesis**

- The use of **numerical partial equilibrium model developed in this project** for projecting the demand, supply, prices and trade of woody biomass across the end users and the BSCs under various policy and market scenarios
Planned schedule

2013
• Literature survey (Peichen Gong, UMB)
• Proto model with tentative data for energy wood markets (Maarit Kallio, Metla)
• Applications for network funding (SNS, SI)

2014 With new project partners:
• Elaborating the key data for the analyses (country-specific)
• First results of the analyses in BS-level

2015
• Tailored case studies in a higher regional resolution by project partners in individual BSCs
• Feedback to the whole BS level analysis.
• Synthesis & dissemination of the results
Consumers of forest industry products and wood based energy carriers (represented by demand functions)

Producers using wood biomass

- Paper & board production
- Sawmills & Plywood production
- Particleboard & fibreboard production
- Pulp production
- Heat, power and biofuels production
- Wood pellets production

Forest resources Increment and drain of the growing stock

Biomass supply (supply of roundwood affected by price and growing stock, connection of forest chips supply to roundwood harvests)

Production factors from other sectors (prices)

Demand for and supply of wood/forest biomass and products made of them in other BSCs and RoW
Innovative financing for Bioeconomy
Thomas Norrby – SLU

Where do we see opportunities in the value chains?
• The banks are in dire straits...
• Need for increased local mandate in a multilevel governance approach to secure sustainable bioeconomy
• The need for new financial intermediaries in the rural setting taking a holistic approach on the development allowing a joint PP-funding

Where do we see the greatest potentials in a cross sectorial approach? Two separate tracks:
• Financial tools needed to enhance local business development
• Tools needed for efficient financial mgm of PPP-Projects
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<td>1</td>
<td>Establishment of Public Local Capital Companies</td>
<td>Connecting capital and competence with new business development, enhancing local mandate</td>
<td>Ongoing (SE)</td>
</tr>
<tr>
<td>2</td>
<td>Establishment of Public Local Capital companies in SE, SF and EE</td>
<td>Local access to capital and competence to invest new business development, strengthening the rural ownership, bridging CLLD/CAP/ERUF/ESF/</td>
<td>Ongoing – proposed to scale-up</td>
</tr>
<tr>
<td>3</td>
<td>Establishing a Bioeconomy project partner search platform and funding tool (under NMR)</td>
<td>Knowledge base, contact base, bridging EIP/Horizon 2020 and other national and private funding opportunities with superior Bioeconomy proposal</td>
<td>Proposal</td>
</tr>
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1st Working Group Session
Where do we see the greatest potentials?

Which projects would make the Baltic Sea Region to the European centre of bioeconomy?

- Step 1: Have we understood the question? (1 min)
- Step 2: Individually: Brainstorm – One project idea on each Post-It. (4 minutes)
- Step 3: Individually: Prioritise your ideas (1 minute)
- Step 4: Each person present one idea, only questions of clarification, do not evaluate. Next person- clockwise with several rounds until all ideas are on the poster. Group or cluster the ideas that are alike (15 min).
- Step 5: Enrich and describe the project ideas (15 min)
- Step 5: Prioritise the most important 2-3 project ideas and present them on your poster. Prepare to present one or two projects (10 min)
2nd Working Group Session
Suggested Format – Project Application

• Descriptive Title (5-10 words).
• Short project description (value proposition, value chain, business concept, 5-10 lines).
• Project Partners (key partners and other partners).
• Targets, activities.
• Timeline with milestones.
• Next steps – what will we do from here?
3rd Working Group Session

• How can the Nordic Council of Ministers facilitate that Baltic Sea Region become the European center of the bioeconomy?