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Bioeconomía en América Latina y el Caribe 2015

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Session 1: / Sesión 1:

Regional, national and local bioeconomy strategies

Estrategias de bioeconomía regionales, nacionales y locales

Finnish bioeconomy strategy

– how research can contribute?



Contents

- 1) Background
- 2) Finnish bioeconomy strategy
- 3) Bioeconomy & research



Picture:Sustainable growth from bioeconomy - the Finnish bioeconomy strategy 2014



Background

- Finland has set the course for a **low-carbon** and **resource-efficient** society and a sustainable economy -> bioeconomy
- Bioeconomy refers to an economy that relies on renewable natural resources to produce food, energy, products and services.
- The bioeconomy will reduce our dependence on fossil resources, prevent biodiversity loss and create **new economic growth** and jobs in line with the principles of **sustainable development**
-> **growth strategy through sustainable development**



Background – current bioeconomy

- **Forests are the backbone of bioeconomy**
 - 70% of land cover,
 - 65% of the bioeconomy export value,
 - 25% of total energy,
 - 80% of renewable energy
- **First bioeconomy strategy launched 2014**
 - relies on forests

Table 1. Bioeconomy output, value added, people employed and exports in 2011

	Output million EUR	Value added million EUR	Employed	Exports million EUR
Food, total	16 093	4 356	128 400	515
Agriculture	4 822	1 658	90 100	0
Food industry	11 271	2 698	38 300	515
Bioeconomy products total	29 273	9 317	101 400	13 819
Forestry	4 232	2 898	25 000	68
Wood products industry	6 870	1 542	36 400	2077
Pulp and paper industry	13 653	2 967	23 300	9185
Construction	9 228	3 344	58 120	100
Chemical industry	1 644	434	1 600	1 347
Pharmaceutical industry	1 339	845	4 100	932
Renewable energy	4 033	1 903	5 801	0
Water treatment and distribution	610	400	2 700	0
Bioeconomy services total	2 993	1 416	33 900	0
Nature tourism	2 737	1 226	32 000	0
Hunting	85	79	100	0
Fishing	171	111	1 800	0
Bioeconomy total	60 685	20 104	319 321	14 248
National economy total	375 777	163 424	2 509 500	54 221
Share of bioeconomy	16,1 %	12,3 %	12,7 %	26,3 %

Table :Sustainable growth from bioeconomy - the Finnish bioeconomy strategy 2014

Strategy – strategic goals



Figure: Sustainable growth from bioeconomy - the Finnish bioeconomy strategy 2014

Strategy – expected outcome



**-> value of bioeconomy
from 60 to 100 billion euros by
2025**

**-> bioeconomy jobs
from 300 000 to 400 000**



Implementation

- How to ensure **low-carbon** and **resource-efficient** society and a **sustainable** economy ?

Research can contribute by:

- 1) ensuring sustainability
- 2) estimating the climate impacts of bioenergy
- 3) ensuring smart resource-efficiency
- 4) promoting transition to bioeconomy



1) Ensuring sustainability

- Strategy relies on forests
 - Secure existing industries & development of new products
- Annual forest growth 100 Mm³ -> 70% already in use
- How much can we sustainably harvest? How do we set the limit?
- Annual growth > annual harvests
 - > does it ensure sustainability from the point of view of other ecosystem services and biodiversity?
- Projects
 - The evaluation of environmental effects and risks of renewable energy production and use (UUSRISKI)
 - Sustainable Use of Natural Resources and the Finnish Economy (SURE)



2) Estimating the climate impacts of bioenergy

- Strategy promotes bioenergy and new biofuel products
- Forests
 - Produce biomass that can replace fossil fuels
 - Act as carbon sinks
- Globally forests sequester 25% of human-induced carbon emissions, in Finland 30-70%
- Increasing biomass harvests reduces forest carbon sink
 - > reduction may offset the climate benefits of bioenergy
- How to balance between forest bioenergy and carbon sink?
- Projects
 - Climate impacts of bioenergy from forest harvest residues
 - Sustainable bioenergy solutions for tomorrow (BEST)



3) Ensuring smart resource-efficiency

- Strategy highlights resource-efficiency and use of wastes, residues and industrial side streams
- Aim: forest harvest residues for bioenergy to 15 Mm³ /year by 2020.
- How does residue harvesting affect carbon and nutrient cycles, biodiversity etc.? How much to harvest sustainably?
- Energy or cascade use of biomass?
- Projects
 - Renewal of manufacturing towards a sustainable circular bioeconomy and implications for innovation policy (RECIBI)
 - Climate impacts of bioenergy from forest harvest residues



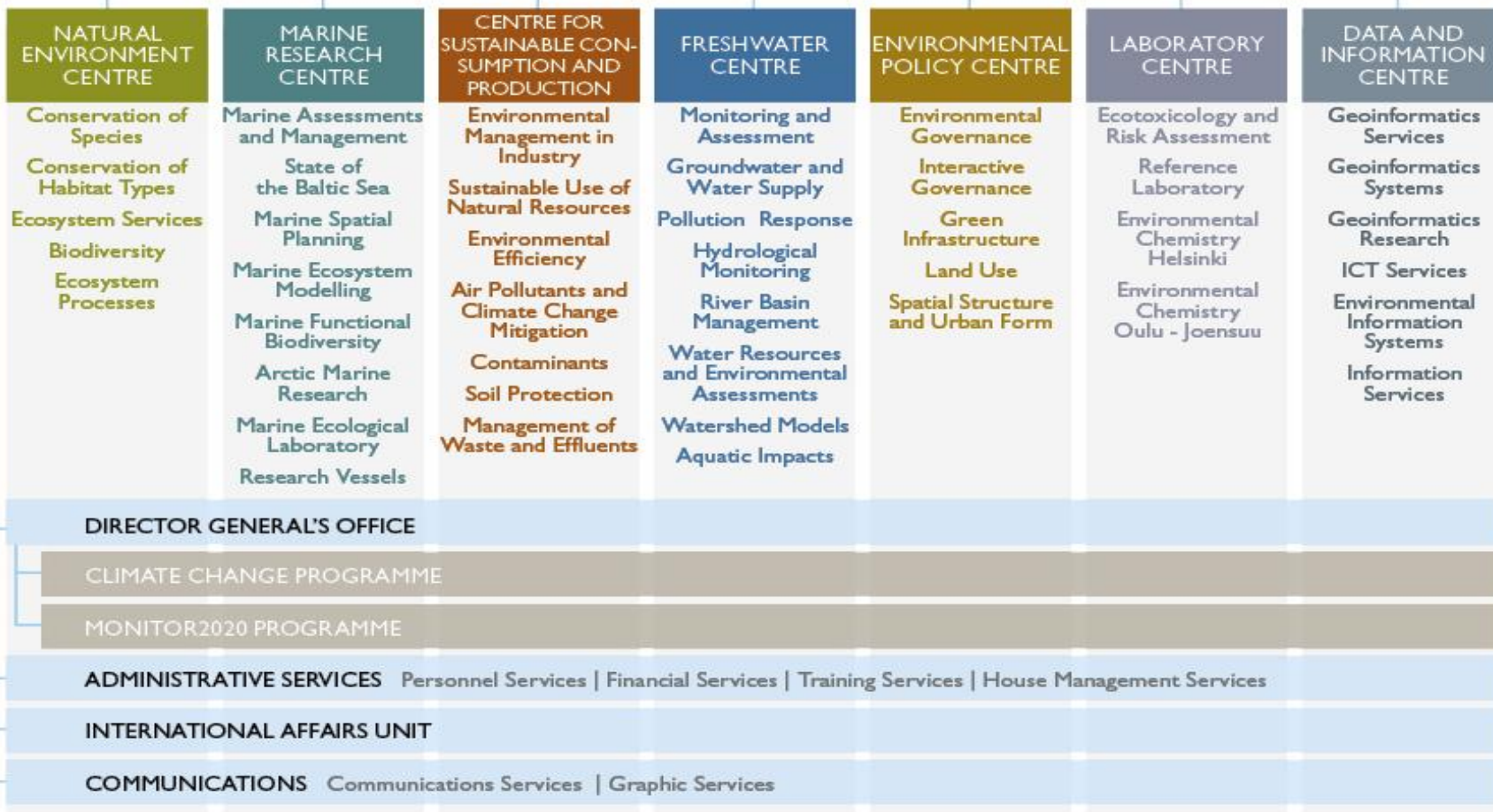
4) Promoting transition to bioeconomy

- Strategy seeks to increase supply of bioproducts
 - Raw material supply?
 - Administrative challenges ?
- Are the forest owners willing to sell wood and with which conditions?
 - Finnish forests privately owned (60%)
 - forest owner preferences: wood products, bioenergy or protection
- How changes in legislation, governance and in public sector aid the transition to bioeconomy?
- Projects
 - Regulation to promote bioeconomy -project
 - Processes and Decision Support System for Innovative Public Cleantech Procurement -project
 - Intermediaries in the energy transition: The invisible work of creating markets for sustainable energy solutions (TRIPOD)



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Bioeconomy research in Finnish Environment Institute

Circular economy

- Bioeconomy and green engineering as foundations for future circular green economy (PEER GE)
- Renewal of manufacturing towards a sustainable circular bioeconomy and implications for innovation policy (RECIBI)
- Requalifying matter: nutrient recycling, pollution control and the shifting economies of fertilisation (QUMARE)

Sustainable & low-carbon bioenergy

- The evaluation of environmental effects and risks of renewable energy production and use (UUSRISKI)
- Sustainable Use of Natural Resources and the Finnish Economy (SURE)
- Climate impacts of bioenergy from forest harvest residues
- Operationalisation of Natural capital and Ecosystem Services: From concepts to real-world applications (OpenNESS)
- Sustainable bioenergy solutions for tomorrow (BEST)

Transition to bioeconomy

- Regulation to promote bioeconomy – project
- Processes and Decision Support System for Innovative Public Cleantech Procurement
- Intermediaries in the energy transition: The invisible work of creating markets for sustainable energy solutions (TRIPOD)
- Assessing the role of economic instruments in policy mixes for biodiversity conservation and ecosystem services provision (POLICYMIX)
- Carbon Neutral Municipalities (HINKU)



Additional information

Bioeconomy in Finland

www.biotalous.fi Twitter #BioFiNews

The Finnish Bioeconomy strategy

www.biotalous.fi > Facts and contacts > Material bank

Finnish Environment Institute

www.syke.fi > Research & Development

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Finnish Bioeconomy Cluster FIBIC

<http://fibic.fi/>

Invest in Finland, Bioeconomy

www.investinfinland.fi > Industries > Bioeconomy

The Finnish Innovation Fund Sitra, Bioeconomy

www.sitra.fi > Ecology > Bioeconomy



Thank you!

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