



EU Bioeconomy Stakeholders Conference

Master-class: how to measure progress

The EU Bioeconomy Observatory

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Contents

- **The EU Bioeconomy Observatory – present status**
- **Monitoring the bioeconomy – some challenges**

Policy Context: the EU Bioeconomy Communication

February 2012 : **European Commission Communication (COM(2012)60) « Innovating for Sustainable Growth: a Bioeconomy for Europe »**

Includes a **EU Bioeconomy Strategy and Action Plan**, structured around three key pillars:

1. Investing in research, innovation and skills (research pillar)
2. Market development and enhanced competitiveness of bioeconomy sectors (market pillar)
3. Stronger policy coordination and engagement with stakeholders (policy pillar)



What is the Bioeconomy (in the EU)?

The Bioeconomy encompasses the "***production of renewable biological resources and the conversion of these resources and waste streams into value added products*** such as food, feed, bio-based products and bioenergy".

This **broad definition of bioeconomy** includes many economic sectors:

- agriculture, forestry, fisheries (biomass production)
- food, pulp and paper production (100% bio-based sectors)
- parts of chemical, biotechnological and energy industries ("hybrid" sectors)

Bioeconomy Observatory Objectives

- **See EU Bioeconomy Action Plan (Action No6):** *"To establish a Bioeconomy Observatory that allows the Commission to regularly assess the progress and impact of the bioeconomy"*
- **Mission: to supply policy-makers and stakeholders with reference data and analyses on the bioeconomy,** allowing to regularly assess the progress and impact of the bioeconomy and providing a solid basis for policy development and decision-making on the bioeconomy.

Bioeconomy Observatory Set-Up : timelines

- ✧ **Feb.2013** (*Dublin Conference*): **project launch** (3 years to set-up the Bioeconomy Observatory)
- **2013 (Y-1): Methodology definition** and stakeholders relations
- **2014 (Y-2): (first) Data collection and Data Dissemination**
- **Oct.2014** (*Torino Conference*) – **project 'half-way'**
- **2015 (Y-3): (more) Data collection and Data Dissemination + Data Analysis**
- **2016: Bioeconomy Observatory fully operational**

Present status: project 'half-way'

Bioeconomy Observatory Activities

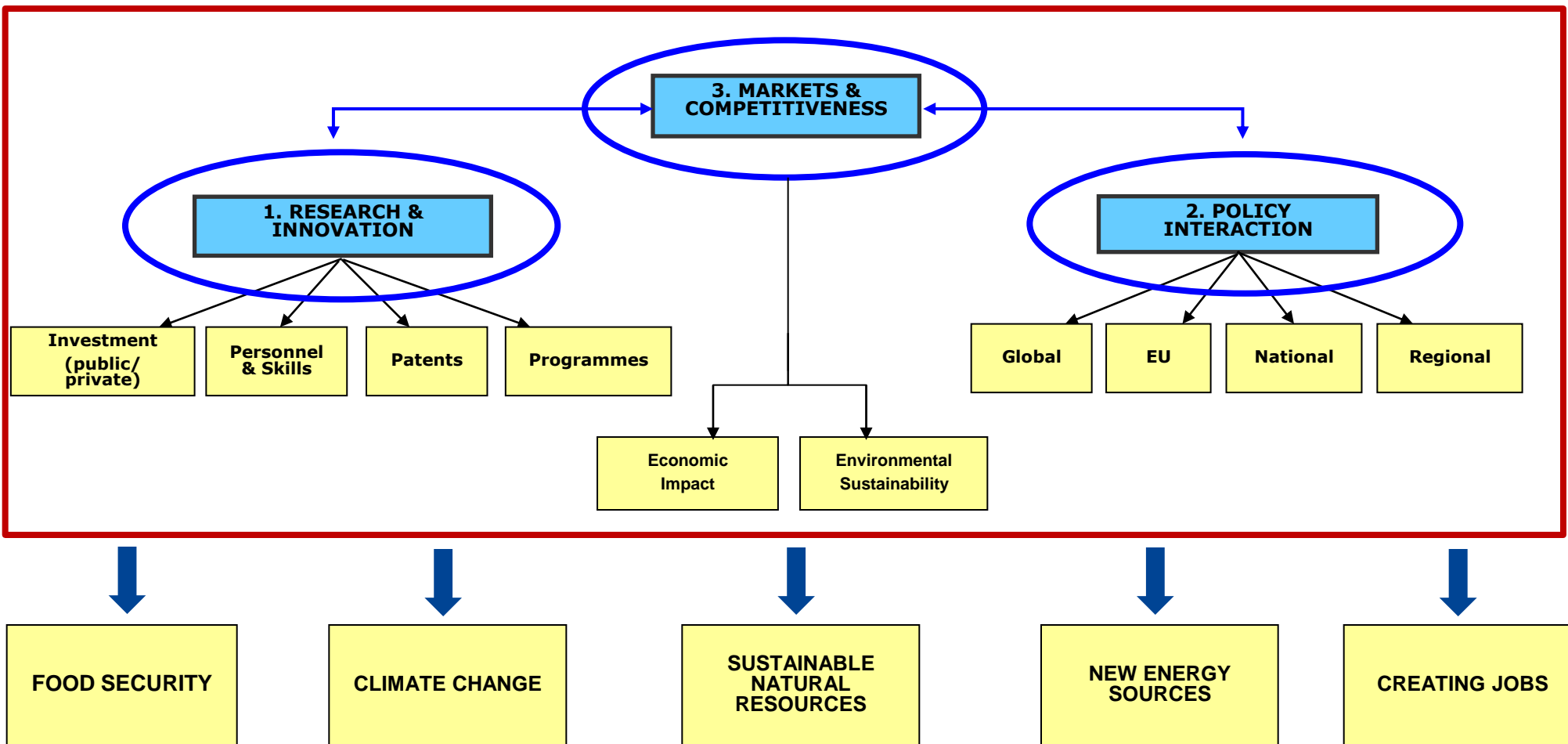
(Q1-2013 – Q1-2016)

1. Data Collection		2. Data Analysis	3. Data Dissemination
Existing data	New data		
Yellow	Yellow	Yellow	Yellow
Green	Yellow	Yellow	Yellow
Green	Yellow	Yellow	Green
Green	Green	Green	Green

Done

On-going

Bioeconomy Observatory Structure



Investments in research, innovation and skills

Bioeconomy research statistics on:

1. **Investments** (public and private)
2. **Skills**
3. **Patents**
4. **Programmes**

(see OECD "readiness" stats)



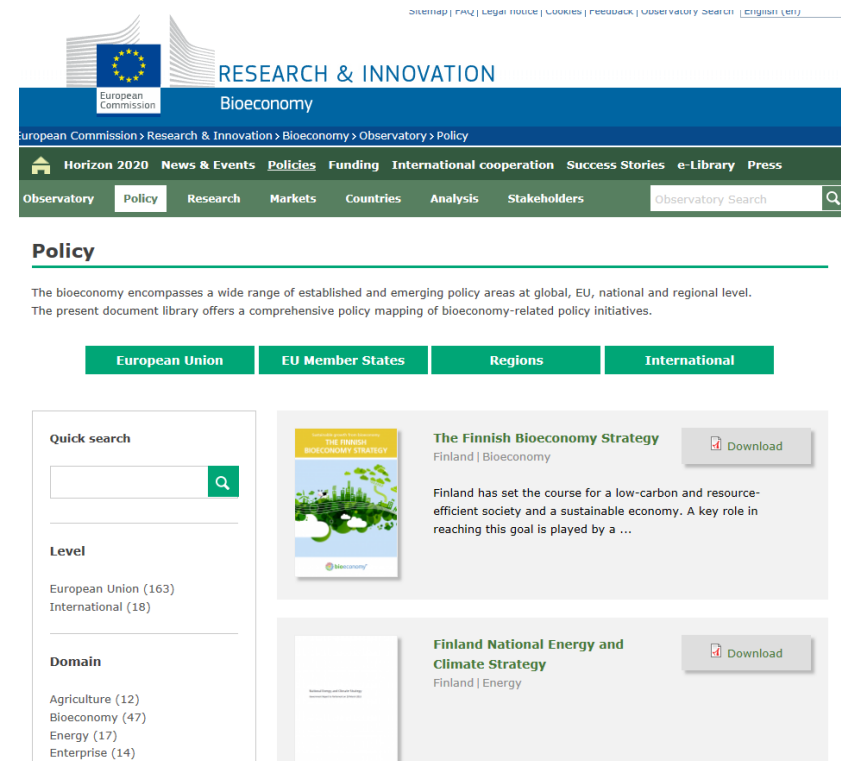
The screenshot shows the 'RESEARCH & INNOVATION' section of the Bioeconomy Observatory. The page title is 'Bioeconomy' and the breadcrumb trail is 'European Commission > Research & Innovation > Bioeconomy > Observatory > Research'. The navigation menu includes 'Horizon 2020', 'News & Events', 'Policies', 'Funding', 'International cooperation', 'Success Stories', 'e-Library', and 'Press'. The main navigation bar has 'Observatory', 'Policy', 'Research', 'Markets', 'Countries', 'Analysis', and 'Stakeholders'. A search bar labeled 'Observatory Search' is on the right. The 'Research' section is highlighted, and a sub-section 'Research' is shown with a green underline. Below this, a text block states: 'Statistics on Investments in research, innovation and skills are made available. Main source of information are Eurostat statistics on Science, Technology and Innovation (STI)'. Four orange circular icons are arranged in a 2x2 grid, labeled 'Investments', 'Skills', 'Patents', and 'Programmes'.

Reinforced policy interaction

Bioeconomy Policy mapping for:

1. EU
2. Member States
3. Regions
4. International

(qualitative information)



The screenshot shows the Bioeconomy Observatory website interface. At the top, there is a navigation bar with the European Commission logo and the text "RESEARCH & INNOVATION Bioeconomy". Below this is a secondary navigation bar with links for "Horizon 2020", "News & Events", "Policies", "Funding", "International cooperation", "Success Stories", "e-Library", and "Press". A main navigation bar includes "Observatory", "Policy", "Research", "Markets", "Countries", "Analysis", "Stakeholders", and an "Observatory Search" box. The "Policy" section is highlighted, and a sub-navigation bar shows "European Union", "EU Member States", "Regions", and "International".

Policy

The bioeconomy encompasses a wide range of established and emerging policy areas at global, EU, national and regional level. The present document library offers a comprehensive policy mapping of bioeconomy-related policy initiatives.

European Union | **EU Member States** | **Regions** | **International**

Quick search

Level

- European Union (163)
- International (18)

Domain

- Agriculture (12)
- Bioeconomy (47)
- Energy (17)
- Enterprise (14)

The Finnish Bioeconomy Strategy
Finland | Bioeconomy

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Finland has set the course for a low-carbon and resource-efficient society and a sustainable economy. A key role in reaching this goal is played by a ...

Finland National Energy and Climate Strategy
Finland | Energy

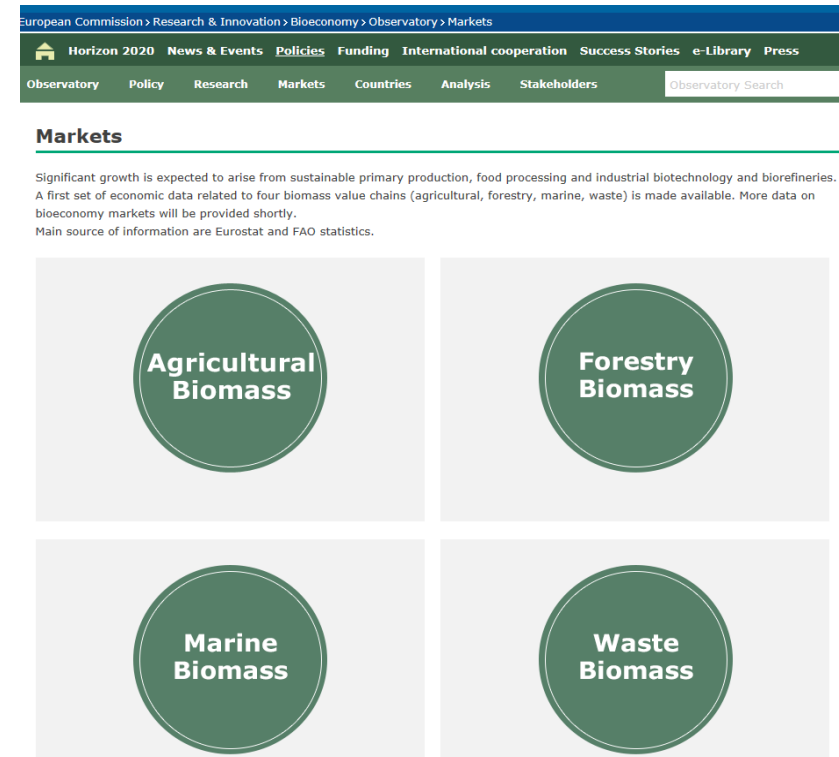
Download

Market development and enhanced competitiveness

Economic data (production volumes, employment, turnover) **on:**

- **Biomass supply** (incl. Agriculture, Forestry, Marine, Waste)
- **Biomass demand - 100% bio-based industrial sectors** (incl. Food/Feed, Paper, Wood...)
- **Biomass demand - "hybrid" industrial sectors** (incl. Chemicals, Energy...)

(see OECD "intensity" and "impact" stats)

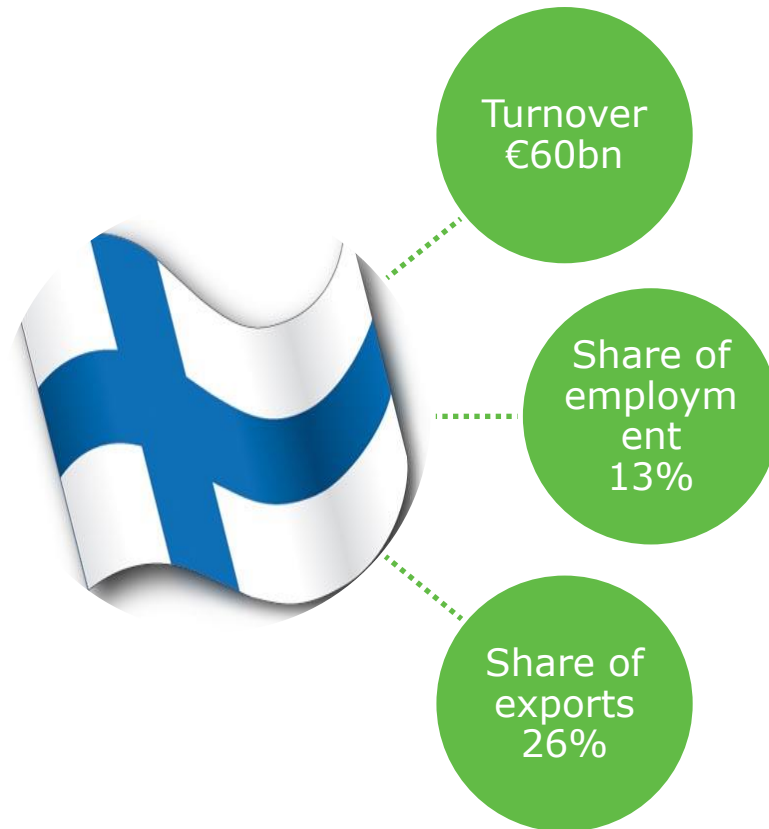


The screenshot shows the 'Markets' section of the European Commission Observatory. The breadcrumb trail is 'European Commission > Research & Innovation > Bioeconomy > Observatory > Markets'. The navigation menu includes 'Horizon 2020', 'News & Events', 'Policies', 'Funding', 'International cooperation', 'Success Stories', 'e-Library', and 'Press'. The main menu has 'Observatory', 'Policy', 'Research', 'Markets', 'Countries', 'Analysis', and 'Stakeholders'. A search bar is labeled 'Observatory Search'. The 'Markets' section title is followed by a paragraph: 'Significant growth is expected to arise from sustainable primary production, food processing and industrial biotechnology and biorefineries. A first set of economic data related to four biomass value chains (agricultural, forestry, marine, waste) is made available. More data on bioeconomy markets will be provided shortly. Main source of information are Eurostat and FAO statistics.' Below this text are four circular icons representing the biomass value chains: 'Agricultural Biomass', 'Forestry Biomass', 'Marine Biomass', and 'Waste Biomass'.

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Example: Bioeconomy Data in Finland



Source: Statistics Finland. The figures for construction, chemical industry and nature tourism are **estimates of the share of bioeconomy based** activities in these sectors.

	Output million EUR
Food, total	16 093
Agriculture	4 822
Food industry	11 271
Bioeconomy products total	29 273
Forestry	4 232
Wood products industry	6 870
Pulp and paper industry	13 653
Construction	9 228
Chemical industry	1 644
Pharmaceutical industry	1 339
Renewable energy	4 033
Water treatment and distribution	610
Bioeconomy services total	2 993
Nature tourism	2 737
Hunting	85
Fishing	171
Bioeconomy total	60 685
National economy total	375 777
Share of bioeconomy	16,1 %

Bioeconomy Monitoring Challenges - Definitions

- **EU:** - see before - production of biomass and its conversion into value-added products such as food, feed, bio-based products and bioenergy (biomass focus)
- **OECD:** the application of biotechnology to primary production, health and industry could result in an emerging “bioeconomy” where biotechnology contributes to a significant share of economic output (more biotech focus)
- **Different definitions mean different scope of monitoring,** and therefore **challenges for data collection, comparison and consistency** in different geographies

Bioeconomy Monitoring Challenges - Sectors

Broad EU definition means **broad scope of monitoring on a broad range of "bioeconomy-relevant" sectors** including:

- **Biomass supply** incl. Agriculture, Forestry, Marine, Waste
- **Biomass demand - 100% bio-based industrial sectors** incl. Food/Feed, Paper, Wood...
- **Biomass demand - "hybrid" industrial sectors** (fossil and bio-based) incl. Chemicals, Construction, Energy...

Information also needs to be collected for a **broad range of "bioeconomy-relevant" policy areas** like Research; Agriculture; Forestry; Marine/fisheries/aquaculture; Enterprise/industry; Energy; Environment/sustainability....

Bioeconomy Monitoring Challenges - Sectors

Limited data availability :

- Statistics not available for **"new" bioeconomy sectors (ie hybrid sectors)** (fossil and/or bio-based), like chemical industry, since bio-based products not differentiated with specific statistical codes)
- Statistics not available for **specific sectors** (statistics aggregated at one "general" level eg patents on "whole" biotechnology)
- Statistics not available for **linking biomass supply and biomass demand** for different uses (food/feed, energy, industrial uses)
- Statistics not available for **"public R&D investment" in bioeconomy** are not available (statistics for "public R&D investment" are produced according to broad socio-economic objectives)

Bioeconomy Monitoring Challenges – Geography

The Bioeconomy Observatory will collect data for bioeconomy in Europe which means data collection **at different geographical levels** (EU, national Member States and regional levels) but:

- Different (or unclear) definitions of bioeconomy at national or regional level makes data collection, comparison and **consistency challenging at different geographical levels**
- Statistics available at national Member States level are **not always available at regional level**
- Even at individual Member State level statistics are not always available for certain sectors because of confidentiality reasons

Conclusion

- **Monitoring the bioeconomy is (still) challenging**
- **Clear definitions are a prerequisite**
- **Specific "bio-based" statistics would be welcome**



Follow-up contact:

Bioeconomy Observatory Website @

<http://ec.europa.eu/research/bioeconomy/>

<http://biobs.jrc.ec.europa.eu/>

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