

G7 Climate, Energy and Environment WORKSHOP: Sustainable and Circular Bioeconomy for reducing emissions and restoring ecosystems: success stories and indicators and best practices for monitoring their sustainability

October 31, 2024 (12.00-16.30)

Web meeting, Presidency of Council of Ministers, Rome

Italian Presidency G7 Climate, Energy and Environment and the National Bioeconomy Coordination Board (CNBBSV), Italian Presidency of Council of Ministers, and OECD

Round table on monitoring tools and indicators: good practices at national and territorial level

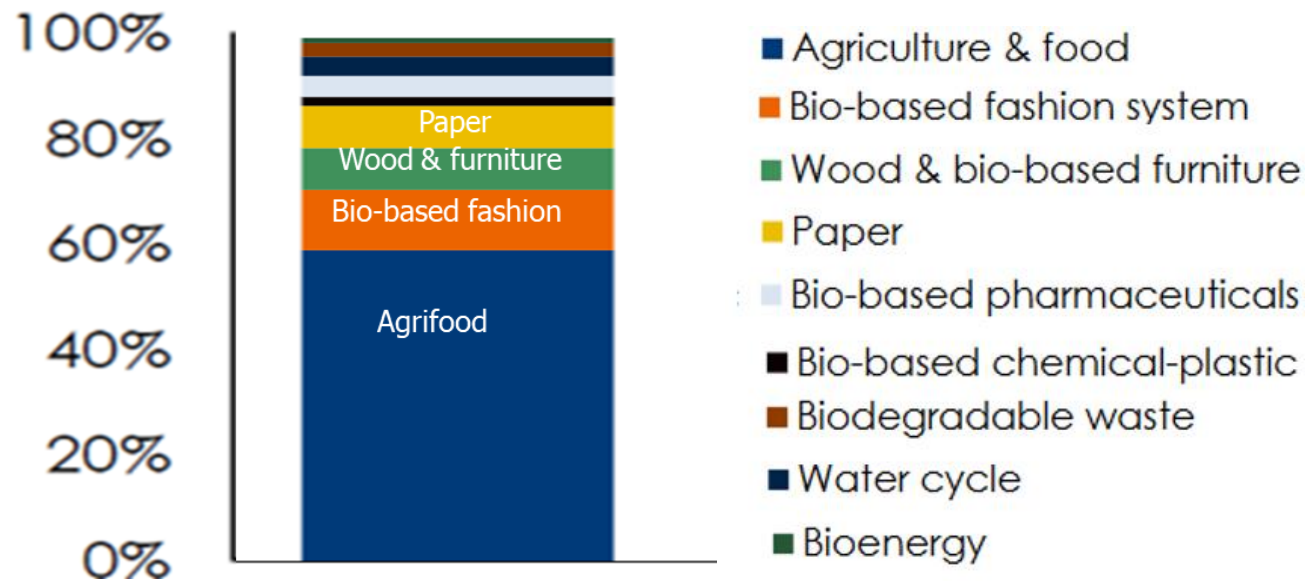
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National Bioeconomy Coordination Board (CNBBSV) of the Italian
Presidency of Council of Ministers**

Italy

1.a Taking into account the national context, which economic indicators are used in your country or would be most appropriate to monitor the progress of the bioeconomy towards the objectives?

% Breakdown of Italian Bioeconomy by sector in 2022



- ~437 Bln € production value, ~ 2.00 Mln of jobs *
- In EU 1st biodiversity richness and number DOP, IGP agrifood products on the market
- Bio-methane: ~ 1 Bln m³/y for agricultural and urban wastes and effluents.
- Liquid biofuels: ~ 1.8 Mln tons/y, (mainly Hydrogenated Vegetable Oils, HVOs)
- Biorefinery and Bio-based sector: 153 Bln/y, 567,000 jobs

1.a Taking into account the national context, which economic indicators are used in your country or would be most appropriate to monitor the progress of the bioeconomy towards the objectives?

CRITERIA	INDICATORS
BIOMASS AVAILABILITY	Agricultural biomass production [kg/capita] - import of agricultural biomass Blue biomass production [kg/capita] - import of blue biomass Forestry biomass production [kg/capita] - import of forestry biomass Waste biomass production (including OFMSW) [kg/capita] - import of waste biomass
PRODUCTIVE STRUCTURE	Firms in total Bioeconomy sectors [% of total firms] Firms in Bioeconomy subsectors [% of total firms] Innovative start up in total Bioeconomy sectors [% of total innovative start up] Innovative start up in Bioeconomy subsectors [% of total innovative start up]
EMPLOYMENT STRUCTURE	Employment in total Bioeconomy sectors [% of total employment] Employment in Bioeconomy subsectors [% of total employment]
HUMAN CAPACITY	Tertiary education [% of total population] R&D employment in total Bioeconomy sectors [% of total employment] R&D employment in Bioeconomy subsectors [% of total employment] University courses in Bioeconomy sectors [% of total university courses] Research Institute in Bioeconomy sectors [% of total Research Institutes]
INNOVATION	IPRs (patent, trademark, design) applications in total Bioeconomy sectors [number of application per 1000 employees] IPRs (patent, trademark, design) applications in Bioeconomy subsectors [number of application per 1000 employees]
INVESTMENT	Private R&D expenditure [index (EU=1)] Public R&D expenditure [index (EU=1)]
DEMOGRAPHICS	Population growth [% year] Population 15-65 years [% of total population] GDP (PPP) [index (EU=1)]
MARKETS	Turnover of total Bioeconomy sectors Turnover of Bioeconomy subsectors Value added of total Bioeconomy sectors Value added of Bioeconomy subsectors Exports of total Bioeconomy sectors related goods [% of total exports] Exports of Bioeconomy subsectors related goods [% of total exports] Imports of total Bioeconomy sectors related goods [% of total exports] Imports of Bioeconomy subsectors related goods [% of total exports]



Italy has started to work on indicators and monitoring in 2019, when the Bioeconomy Strategy was updated. The economic assessment is based on the EU Key Performance Indicators on the national supply and demand side.

They include: availability of primary feedstock and the output from economic sectors considered part of the bioeconomy.

The implementation of monitoring tools is subjected to an evolutionary process of data availability to meet public awareness and assessment needs.

1.b What indicators would be most effective to describe the sustainability of the implementation of bioeconomy in your country?

OBJECTIVES	SUSTAINABLE PRINCIPLE	INDICATORS
Ensuring food security	Social	Change in food price volatility, Change in macronutrient intake/availability, Change in malnutrition or risk of hunger
Managing natural resources sustainably	Environmental/Social	Change in freshwater availability, Level of water pollution, Change in land use intensity, Land productivity, Rate of biodiversity loss, Secondary material price changes, Organic waste diverted from landfills; forest area subject to planning and certified surface; Water productivity - Water Use efficiency
Reducing dependence on non-renewable resources	Economic/Environmental	Final energy consumption, Energy intensity of the economy, Share of renewable energy in gross final energy consumption. Energy
Coping with climate change	Environmental/Social	Change in greenhouse emissions, Level of emission of air pollutants
Enhancing economic growth	Economic/Social	Change in Employment rate, Job creation in skilled/unskilled labor

Indicators have been selected to monitor pressures and impacts on environmental and social systems in line with the EU bio-economy strategy.

All indicators will be updated in order to be consistent and comparable with a common EU bioeconomy monitoring system.



This will also be achieved by continuing the fruitful collaboration with the *Bioeconomy Knowledge Centre* and the *Joint Research Centre - Economics of the Food System Unit*, on the definition of robust indicators and assessment methodologies.

2.a

Which national institutions or organizations have the mandate to select indicators and monitoring methods?

The mandate of the *National Bioeconomy Coordination Board – NCB*

<https://cnbbsv.palazzochigi.it/en/bioeconomy/>

Presidenza del Consiglio dei Ministri



COMITATO NAZIONALE PER LA BIOSICUREZZA
/ LE BIOTECNOLOGIE E LE SCIENZE DELLA VITA
GRUPPO DI COORDINAMENTO NAZIONALE
PER LA BIOECONOMIA

1. To guarantee an effective synergy between national, regional and local public administrations and the National Technology Clusters operating in the bioeconomy, in order to define an adequate regulatory and R&I framework

2. TO FACILITATE AND MONITOR the implementation of the Italian bioeconomy strategy (2019)

3. To ensure the coordination of public policies, taking into account EU indications

4. To ensure the alignment of the national bioeconomy strategy with the European one. Ensure an effective participation of the country in the definition of the priorities for the national and European R&I programmes

Coordination

Andrea LENZI, President of ICBBSL

Fabio FAVA, Scientific Coordinator of the Board, Member of ICBBSL

Composition

Ministry of the Agriculture, Food Sovereignty and Forestry

Ministry of University and Research

Ministry of Education and Merit

Ministry of the Environment and Energy Security

Ministry of Business and Made in Italy

Permanent Conference of State-Regions

Commission Economical Development, Regions and autonomous Provinces

Commission Agriculture Policies, Regions and autonomous Provinces

Institute for Environmental Protection and Research – ISPRA

Association for Development of Industry in Southern Italy – SVIMEZ

National Technology Cluster Agrifood

National Technology Cluster Green Chemistry & Circular Bioeconomy

National Technology Cluster Blue Growth

National Technology Cluster Forestry Wood

2.a

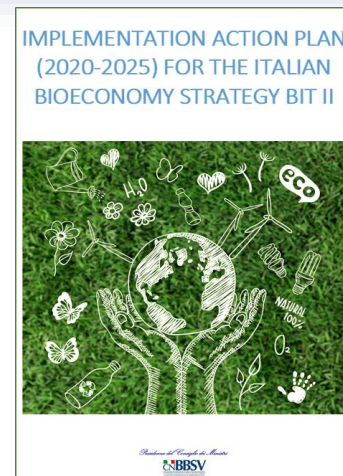
Which national institutions or organizations have the mandate to select indicators and monitoring methods?

In 2024, the National Bioeconomy Coordination Board has revised the 2021 IAP, involving all relevant stakeholders. The new IAP will be presented in the first half of 2025.

The updated document devotes more attention to assessment and monitoring, to promote the adoption of evidence-based policies and regulations on specific issues:

- training, education and communication** actions
- degraded land** at risk from the effects of climate change
- fisheries** activities to improve **traceability** of products
- biodiversity, ecosystems and soils and their **resilience/adaptation to climate change**
- water, nutrients and greenhouse gas balances to reduce the **environmental impact of agriculture**
- soil monitoring** for assessing the sustainability of **supply chains of bio-products** with respect to land use, quality and productivity and ecosystem services.

Roadmap: the NBCB will review the implementation actions in progress every year by also adapting or discontinuing activities that do not contribute to the objectives of the IAP in a satisfactory manner, on the basis of an analysis work involving the members of the NBCB



2. What national, regional or international statistics and databases are used to assess the progress and sustainability of your national bioeconomy?

Indicators refer to Eurostat and National Institute of Statistics (ISTAT).

Data are also made available by:

-the National Council for Research in Agriculture and Analysis of Agricultural Economics (CREA)

-the Italian Institute for Environmental Protection and Research – ISPRA.

The Department for the Cohesion Policy and the South provides data on the implementation of bioeconomy in the 20 Italian Regions and in the Autonomous Provinces.

Overall, they enable benchmarking analyses according to data availability



<https://www.crea.gov.it/banche-dati>



<https://www.isprambiente.gov.it>



<https://opencoesione.gov.it/it/S3/>

2. What national, regional or international statistics and databases are used to assess the progress and sustainability of your national bioeconomy?

The National Bioeconomy Coordination Board, also by involving the stakeholders of the Technology Clusters, has analysed the limitations of the current statistical classification of bioeconomy activities, which severely hamper the development of the bioeconomy and the deployment of its innovations.

Challenges:

- gaps and poor quality/homogeneity at the most disaggregated data levels
- difficult to find data for all bioeconomy subsectors and to distinguish between bio-based and non bio-based products and sectors.
- convergence and transformation of markets and industries: **statistical data and indicators are currently unavailable**

Actions undertaken:

- Promotion Bioeconomy Taxonomy in the Regional Smart Specialization Strategies - S3: assessment of projects funded by Regions under S3 and related EU structural funds in 2014-2020 and re-classification of sectors under the Bioeconomy landscape
- Identification of **Statistical Classification of Economic Activities** (ATECO – ISTAT and NACE UROSTAT) for biobased products (2021-) and proposal for their adoption

3. What kind of cooperation and international dialogue initiatives could foster the tailoring of robust and transparent criteria and methodologies for monitoring and evaluating the sustainability of bioeconomy policy and implementation?

Measuring sustainability is a challenging task given the specificities of the different bioeconomies being implemented at national or regional levels.

In order to co-design more transparent and effective global governance mechanisms for the bioeconomy, it is crucial to establish globally accepted criteria for a sustainable bioeconomy and to create common parameters to underpin a shared understanding of what a sustainable bioeconomy should look like.

The 10 high-level principles for bioeconomy proposed by the Brazilian Presidency of G20 represent an important step forward for designing the bioeconomy governance landscape.

Collaboration among countries and sharing good bioeconomy practices that have already been implemented and tested at national and regional levels is essential. The outcome of today workshop will enrich the international dialogue and advance agreement on methodologies for assessing and monitoring the sustainability of bioeconomy practices and policies.

How could multilateral institutions support these processes while providing a neutral platform where all countries and stakeholders have a central role in shaping the future bioeconomy?

- **By promoting knowledge distribution, also by delivering publicly available data, studies and analyses to support policymakers in adopting evidence-based policies**

EU-JRC and FAO dashboards:

https://knowledge4policy.ec.europa.eu/visualisation/eu-bioeconomy-monitoring-system-dashboards_en

https://datam.jrc.ec.europa.eu/datam/mashup/BIO_REG_EU/

<https://datam.jrc.ec.europa.eu/datam/area/BIOECONOMY?rdr=1717866368120>

<https://www.fao.org/in-action/sustainable-and-circular-bioeconomy/dashboard/en/>

- **By fostering global cooperation and by coordinating multi-stakeholder platforms (i.e. young people, society organizations, Indigenous Peoples, women and other vulnerable groups).**
- **These platforms could promote the development of coherent and transparent bioeconomy policies and legislations, foster capacity and building and knowledge networks, thus promoting sustainable development at **global, regional, national** and **sub-national levels**.**