

***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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**Country: Canada**

## **1. 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?**

There are many economic indicators that are appropriate and currently monitored:

- **Investments in bio-based technologies or low-carbon technologies:** Monitoring public and private sector investments in the bioeconomy in innovation, and infrastructure.
- **Public and Private R&D Expenditure:** Measuring national or regional investments in bio-based research and innovation.
- **Bio-based product market share:** Measuring the market penetration of bio-based products versus traditional fossil-based products. This is relatively new undertaking through Statistics Canada and will likely not have much data for a few years to come.
- **Trade balance in bio-based products:** Measuring exports and imports of bio-based goods and services to track international competitiveness.
- **GHG emission reduction:** Tracking reductions in greenhouse gas emissions from bio-based industries compared to fossil-based sectors.
- **Access to biomass:** In the forest sector, harvests are monitored, and each jurisdiction determines an annual allowable cut to ensure sustainability. In the agriculture sector, harvests are monitored and tracked nationally (acreage, crops and livestock).
- **Carbon accounting:** There is ongoing work on carbon accounting.
- **Mapping and biomass availability:** Mapping and availability of residuals (ag and forestry) and damaged wood (ongoing).

Additional economic indicators that could be monitored:

- **GDP contribution:** The overall contribution of bio-based sectors to national GDP, including agriculture, forestry, biotechnology, bioenergy, etc. *This is relatively new undertaking through Statistics Canada and will likely not have much data for a few years to come.*
- **Sustainable land use policy and monitoring:** Monitoring how much land is used for sustainable biomass production and how it affects deforestation, afforestation, or reforestation rates. *This is in progress.*
- **Rural development and job distribution:** Tracking the distribution of bioeconomy-related jobs across urban and rural areas. Given the nascent nature of the bioeconomy, *this is not currently monitored but could be linked as Statistics Canada data becomes available.*
- **Policy Coherence and Integration:** Evaluating how well bioeconomy strategies are integrated with other national policies (e.g., climate, agriculture, and industry).
- **Input-Output Models:** Economic modeling to evaluate the interlinkages between different sectors of the bioeconomy and their impacts on the broader economy.
- **Circular and waste reduction – across provinces:** Monitoring the share of bio-based products and materials reused, recycled, or composted.

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

Canada does a great job of monitoring and reporting on indicators that support its sustainability efforts.

- **Emissions:** Measuring and monitoring the GHG reduction as industry transitions to lower-carbon inputs
- **Investment dollars spent (public and private)** on low carbon innovation and R&D
- **Investment dollars spent (public and private)** on scaling and adoption of low-carbon innovation
- **Cross-sectoral collaboration and programming:** Support collaboration across sectors: to instigate and build partnerships to expedite value chain decarbonization.
- **Growth of strong innovative ecosystems** with an emphasis on linking high performing low-carbon clusters (along supply and value chains)
- **Renewable energy use:** measuring and monitoring the increase in renewable and low carbon energy for industrial and residential processes
- **GDP contribution** of bio-based sectors
- **Resource productivity** in sectors integrating bio-based inputs
- **Industry and private sector competitiveness** as a result of lowering carbon intensity of products
- **Policy and regulatory development:** Agile regulations and government policy that enable green/clean innovation
- **Land use efficiency**

## ***2. Which national institutions or organizations have the mandate to select indicators and monitoring methods?***

- Statistics Canada has the mandate to select and monitor however, other federal departments play key roles in monitoring and reporting sector specific indicators including Natural Resources Canada (NRCan) - National Forest Inventory, Agriculture and Agri-Food Canada (AAFC), and Environment and Climate Change Canada (ECCC) - National Inventory Report & Data Catalogues.

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

Although Statistics Canada is the national statistical office that ensures access to key anonymized, and de-identified information on Canada's economy, society and environment, there are a number of other federal line departments that maintain regional and nationally relevant data sets used to assess the progress and sustainability of Canada's national bioeconomy:

- **Natural Resources Canada (NRCan)**
  - Resource monitoring, land use and management
  - Canadian Council of Forest Ministers (CCFM) Forest Bioeconomy Framework
  - NRCan also is involved in the National Forest Inventory, clean fuel standard and renewable fuels regulations
- **Environment and Climate Change Canada (ECCC)**
  - Emissions monitoring, environmental sustainability indicators, and national data catalogue for environment, climatology, geoscientific, etc.
- **Agriculture and Agri-Food Canada (AAFC)**
  - Sustainable Agriculture Strategy, which compliments the CCFM's forest bioeconomy framework.
  - Land Capability Data Sets
  - Acreage, crops, livestock and even farm financial data is monitored
- **Innovation Science and Economic Development Canada (ISED)**
  - Innovation investment tracking

### ***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?***

- Financing (co-financing) for international partnerships and projects including sustainable finance instruments, such as carbon credits and green bonds
- Global policy coordination on emissions reduction & biodiversity, specifically the Paris Agreement and the Kunming-Montreal Global Biodiversity Framework
- Knowledge and Technology Transfer: Sharing of strategies and policies that increase investment and adoption of low-carbon opportunities
- Enabling trade (as opposed to protectionist measures): Trade rules that remove barriers and promote sustainable practices, technologies, products, etc.
- Scaling for impact: Cooperation across clusters to amplify the benefits of the bioeconomy
- Corporate leadership: Supporting and championing MNEs tacking emission reductions and carbon intensity across their international corporate structures
- Harmonizing standards for feedstocks, inputs and products across countries

### ***3. 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?***

#### Knowledge and Technology Transfer, and Data Access

- Awareness and knowledge sharing – opportunities to support international events with NGO and industry participation
- International knowledge platforms and data sharing – sharing of frameworks, strategies, programs, indicators and monitoring methodologies
- International technology identification and validation support to support faster scaling and wider adoption of low-carbon innovation

#### Project Support

- Multi-country project support: funding cooperative projects where countries with more advanced bioeconomy sectors assist those in the early stages of development
- Multi-country research and innovation collaboration support and funding of collaborative projects

#### Financing/Investment Support

- Multi-country financing and investment for demonstration and pilot projects where the technology opportunity is multinational (e.g., Finnish technology being deployed in Canada with both EU and CDN dollars at the table to de-risk)
- International technology identification and validation support to support broader investment mechanisms including investment from early adopters, support faster scaling, and wider adoption of low-carbon innovation

#### Policy Coherence and Sharing

- Communicating the benefits of the bioeconomy (economic, environment, sustainability, etc.). This could also extend to communicating with the Global South
- Evaluating how well bioeconomy strategies are integrated with other national and international policies (e.g., climate, agriculture, and industry)