The Italian Updated strategy on Bioeconomy

A new Bioeconomy strategy for a sustainable Italy

National Bioeconomy Coordination Team
Presidency of Council of Ministers of Italian Government - National Committee for Biosafety, Biotechnology and Life Sciences
The Italian Bioeconomy landscape

About 330 Bln €/y and 2 Mln of jobs (3rd in EU)
(In Europe: about 2.300 Bln €/y and 18 Mln of jobs)

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Italian performance in EU projects on Bioeconomy

Italian presence in the proposals funded by H2020 SC2 + SMEinst
- 2014 - 4th
- 2015 - 3rd
- 2016 – 3rd
- 2017 – 1st
- 2018 – 3rd

Budget received: ~ € 145 M

Italian presence in the proposals funded by BBI JU
- 2014 - 5th
- 2015 - 3rd
- 2016 – 2nd
- 2017 – 1st
- 2018 – 2nd

Budget received: ~ € 75 M

Some opportunities:
- Widest biodiversity in Europe, high quality bioproducts on the market

Needs:
- Intensifying coordination of Ministries, Regionals and central authorities, for policies and regulations, R&I funding programmes, infrastructures, etc.
- Increasing the interconnection of Bioeconomy sectors and public/private actors for efficient exploitation of opportunities

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Primary production: main challenges and opportunities

Agriculture, livestock and aquaculture

Problems:
- Poorly innovative agricultural practices
- Low size and low revenue farms with poorly organized value chains
- Abandonment of rural areas and reduction of cultivated land;
- Depletion of soil organic matter and water scarcity.

Opportunities:
- Wide plant/animal biodiversity and ecosystem services to be valorized;
- Availability of improved crops/agricultural practices, precision farming and new breeding techniques;
- Emerging new business models for diversification of rural incomes and exploitation of urban farming.

Forestry

Problems:
- Fragmentation of ownership and poor valorization of forest products;
- Abandonment with biodiversity depletion, also due to climate change;

Opportunities:
- Integrated management of forest with valorization of biodiversity, ecosystem services, wood and related products;
- Business innovation across local value chains.
Food Industry

Problems:
- Small SMEs, lack of value chain coordination;
- Strong products counterfeiting and imitations;
- Low chain efficiency: food losses, energy/water consumption, waste production;

Opportunities:
- Leading position for “typical/quality" food products (DOP, IGP, STG, etc.);
- Digitalization for food production and delivery, novel sustainable/smart packaging;
- Food products from byproducts and new protein sources;


Problems:
- Imported low value wood and produces products;
- Difficult access to non-food feedstock also due to legislative barriers on biowaste;
- Market of biobased products affected by products that do not comply to standards;

Opportunities:
- IT wood available for IT high quality wood industry products;
- Agrifood byproducts/effluents/waste and urban waste available as feedstocks;
- Abandoned/marginal lands available for producing biomass for biorefineries;
- Dismissed industrial sites to be requalified for installing biorefineries;
- Waste-water/biomethane plants available for producing bio-compounds

~137 Billion €/y
~ 450,000 jobs

~130 Billion €/y
~ 600,000 jobs
Blue Bioeconomy: main challenges and opportunities

About 8,000 km of coastline

~ € 45 Billion €/y
~ 835,000 jobs
~15% due to Bioeconomy

After: VII RAPPORTO SULL’ECONOMIA DEL MARE Unioncamere, 2018

Problems:
- Unsustainable fishery and fish reproduction highly affected by climate changes;
- Market with fish imported from areas with uncertain regulations/monitoring;
- Sea pollution (due to chemicals, litter, etc), presence of invasive species;
- Coastal urbanization, over- and un-sustainable exploitation of beaches.

Opportunities:
- Exploit marine aquaculture (also off shore) and multi-trophic aquaculture;
- Exploit local marine biodiversity and bioenergy potential;
- Exploit agroforestry, cultural heritage, ecosystem services at the land/sea interface.

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Italian Bioeconomy strategy: promoters

Promoted by Italian Presidency of Council of Ministers and endorsed by:

- Ministry Economical Development;
- Ministry Agriculture, Food, Forestry;
- Ministry Education, University, Research;
- Ministry Environment, Land, Sea;

- Committee Productive Activities, Regions Conference;
- Agency for Territorial Cohesion;

- IT Technology Clusters: Green Chemistry, AgriFood, BlueGrowth.

Available at: http://cnbbsv.palazzochigi.it/media/1774/bit_en_2019_02.pdf
Identification of main challenges and opportunities for each sector within the bioeconomy
Identification of objectives and priorities
Identification of research and innovation needs
Identification of supporting actions (i.e. removal of normative constraints) and accompanying measures
Establishing of a monitoring framework
Italian Bioeconomy strategy: document

1. Bioeconomy – Basics
2. Raw materials sources and the opportunities of biowaste
3. Bioeconomy in everyday life
4. The social dimension of the bioeconomy
5. Legislative framework, funding measures and market pull measures
6. Challenges and action plan for the Italian bioeconomy
7. Implementation and monitoring
8. Actors involved and road map

Roma, May 14, 2019

AVAILABLE AT:

National Bioeconomy Coordination Team
Presidency of Council of Ministers of Italian Government - National Committee for Biosafety, Biotechnology and Life Sciences
The Italian Bioeconomy strategy BIT II: the vision

- Improve sustainable and climate/stress resilient primary production, valorizing local biodiversity, microbiomes knowhow, new hybridization and production techniques, and digitalization;
- Soil, water and marine ecosystems preservation and regeneration;
- Production of quality products (including typical and «organic»), favoring their certification, traceability and promotion;
- Ecosystem services, urban and coastal farming.

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- Improve sustainability, efficiency, flexibility, safety, biocompatibility and circularity of locally embedded production chains
- Improve products delivery and use, especially in the Cities, valorizing digitalization and new sustainable and functional packaging;
- Production of new Typical/Quality foods, defending their authenticity and promoting traceability;
- Development of personalized, sustainable and healthier diets;
- Development of new symbiotic society models to improve competitiveness, resilience, sustainability of the sector.

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Italian Bioeconomy strategy BIT II: the vision

- Improve efficiency, flexibility, circularity of productions, valorising national feedstocks through digitalization;
- Use of biowaste and CO₂ in biorefineries;
- Multiproduct production from wastewater and anaerobic digester plants;
- Production of high quality and certified bio-products, relying on standards and labelling;
- Foster demand of bioproducts
Italian Bioeconomy strategy BIT II: the vision

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Presidency of Council of Ministers of Italian Government - National Committee for Biosafety, Biotechnology and Life Sciences
**Italian Bioeconomy strategy BIT II: main priorities**

<table>
<thead>
<tr>
<th>Improve sustainably the productivity and quality of products of each sector</th>
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<tbody>
<tr>
<td>➢ interconnect sectors more efficiently;</td>
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<td>➢ create longer and locally routed value chains;</td>
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<td>➢ integrate actions of public and private stakeholders across sectors.</td>
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<tr>
<th>Exploit national terrestrial/marine biodiversity, ecosystem services and circularity</th>
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<td>➢ regenerate abandoned/marginal lands and former industrial sites.</td>
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<tr>
<th>Growth of Bioeconomy in the Mediterranean area via PRIMA and BLUEMED initiatives,</th>
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<tr>
<td>➢ greener and more productive region;</td>
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<td>➢ wider social cohesion and political stability in the area.</td>
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<th>Coherent political commitment and coordination among regional and national institutions/stakeholders</th>
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<td>➢ more investments in R&amp;I, start ups, infrastructures;</td>
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<td>➢ consistency with policies/regulations;</td>
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<td>➢ increased demand for bio-products via tailored standards, labels, incentives, and tailored communication, education and training.</td>
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AT NATIONAL LEVEL

- Smart Specialization Strategy (2 programs: agrifood and biobased economy)
- Green Public Procurement NP (2013)
- NP on Wastes (2016)
- Energy Strategy
- Marin strategy
- Research and Innovation NP
- Strategic plan on R&I for the agricultural sector
- Industry 4.0
- Forest NP

The Regions and the farmers’ organizations have been actively involved in the process

BIT 1 has gone through Public consultation
Rapidly deploying bioeconomies across Europe

- set up an EU Bioeconomy Policy Support Facility for EU countries to develop national/regional agendas;
- launch pilot actions for the development of bioeconomies in rural, coastal and urban areas, interconnecting the sectors.

Scaling up and strengthening the bio-based sectors via a €100 million Circular Bioeconomy Thematic Investment Platform.

Protecting the ecosystem and understanding the ecological limitations of the bioeconomy
• **9 MS** have a dedicated bioeconomy strategy (in dark green colour)

• **5 MS** in the process of developing a strategy (Estonia, Hungary, Lithuania, the Netherlands, Sweden)

• **11 CEE MS** plan to develop one under the **Bioeast initiative** (Bulgaria, Croatia, Czechia, Hungary, Poland, Romania, Slovakia, Slovenia, Estonia, Lithuania, Latvia)

• **>50 regions** have a bioeconomy-related strategy. Almost all foresee R&I in their RIS3 *(CoR Opinion)*

• **Only a few cities** have bioeconomy-related priorities in their policies
Italian Bioeconomy strategy BIT II: implementation

The *National Bioeconomy Task Force* of the Presidency of Council of Ministers will proceed with its action according to following road map:

i) Develop a **national Implementation Action Plan (IAP)** on Bioeconomy. BIT II and related IAP updated biannually;

ii) Assist and **monitor the adoption** BIT II and IAP at the national and regional level, ensuring **coordination among public authorities**;

iii) Promote BIT II and related IAP towards **European and international policy authorities and R&I funding institutions**;

iv) Promote BIT II and related IAP implementation in the **Mediterranean area**, also throughout PRIMA and BLUEMED initiatives;

v) Facilitate **Italian public-private partnerships** and effective participation in national and European funding programs, reducing fragmentation/duplication, fostering effective innovation in the Country.

**Objective:**
Increase Italian Bioeconomy turnover and jobs by 15% by 2030.
Boost **demand-side innovation policy tools** such as standardization, labeling, and public procurement;

Boost demand for bioeconomy products and services and **create a bioeconomy marketplace**, to match demand and supply of biomass, technology, and services;

Promote **education and professional training** for bioeconomy specialists, also in partnership with private actors and industrial players;

Support **corporate social responsibility** proposing a methodological framework for enterprises to highlight the bio-based content and features of bioeconomy processes and products.
Italian Bioeconomy Strategy BIT II: the national coordination Task Force

• Presidency of Council of Ministers, Coordination
• National Committee on Biosafety, Biotechnology Life Sciences, Presidency of Council of Ministers. Technical/Scientific coordination
  A. Lenzi, F. Fava, A. Camilli

• Ministry of Education, University and Research
• Ministry of Economical Development
• Ministry of Agriculture, Food, Forestry, Tourism
• Ministry of the Environment, Land and Sea

• Committee Productive Activities, Regions Conference
  M. Bora, R. Liberali

• IT Technology Cluster on Green Chemistry
  C. Bastioli, G. Gregori, L. Gardossi
• IT Technology Cluster AgriFood
  L. Scordamaglia, P. Brigidi, M.C. Di Domizio
• IT Technology Cluster for BlueGrowth
  R. Cimino, E. Campana

National Bioeconomy Coordination Team
Presidency of Council of Ministers of Italian Government - National Committee for Biosafety, Biotechnology and Life Sciences
# Italian Bioeconomy Strategy BIT II: monitoring and evaluation

## Key Performance Indicators at National and Regional Level

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<tr>
<th>Biomass Availability</th>
<th>Productive Structure</th>
<th>Employment Structure</th>
<th>Human Capacity</th>
<th>Innovation</th>
<th>Investment</th>
<th>Demographics</th>
<th>Markets</th>
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<tr>
<td>Agricultural biomass</td>
<td>Firms in total bioeconomy sectors [% of total firms]</td>
<td>Employment in total bioeconomy sectors [% of total employment]</td>
<td>Tertiary education [% of total population]</td>
<td>IPRs (patent, trademark, design) applications in total bioeconomy sectors [number of application per 1000 employees]</td>
<td>private R&amp;D expenditure [index (EU=1)]</td>
<td>Population growth [% year]</td>
<td>Exports of total bioeconomy sectors related goods [% of total exports]</td>
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<td>Import of agricultural biomass</td>
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<td>Blue biomass production</td>
<td>Firms in bioeconomy subsectors [% of total firms]</td>
<td>Employment in bioeconomy subsectors [% of total employment]</td>
<td>R&amp;D employment in total bioeconomy sectors [% of total employment]</td>
<td>IPRs (patent, trademark, design) applications in bioeconomy subsectors [number of application per 1000 employees]</td>
<td>public R&amp;D expenditure [index (EU=1)]</td>
<td>Population 15-65 years [% of total population]</td>
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<td>Forestry biomass production</td>
<td>Innovative start up in total bioeconomy sectors [% of total innovative start up]</td>
<td>R&amp;D employment in bioeconomy subsectors [% of total employment]</td>
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<td>Waste biomass production</td>
<td>Innovative start up in bioeconomy subsectors [% of total innovative start up]</td>
<td>University courses in bioeconomy sectors [% of total university courses]</td>
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Thank you for your attention!

**A TRULY INTEGRATED ITALIAN BIOECONOMY ECOSYSTEM**

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