The bioeconomy developments and opportunities

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A sustainable Bioeconomy for Europe: strengthening the connection between economy, society and the environment

Updated Bioeconomy Strategy



European Bioeconomy Strategy

- A sustainable bioeconomy for Europe
- A circular bioeconomy for Europe
- Strengthen and **scale-up** the bio-based sectors
- Unlock investments and markets
- **Deploy local** bioeconomies rapidly
- Alignment of CAP and EU Bioeconomy strategy
- Understand the **ecological boundaries** of the bioeconomy.

Biobased industry consortium - SIRA



- Address technological and innovation challenges
- Create sustainable and competitive bio-based industries in Europe
- industry leading transition towards a bioeconomy
- Decoupling economic growth from resource depletion and environmental impact.
- BIC and EC write the AWP based on SIRA

European thinking on the bioeconomy and the BBIJU

Bioeconomy is beyond simply fossil replacement

Drop in products but also products without a fossil equivalent

Biobased functionality



Animal health Antibiotic resistance Food quality



Soil health Biocontrol agents Bio-stimulants Bio-fertilisers Symbiosis

Biodiversity

Using all resources

Unavoidable food waste - Organic/biowaste



National Policy Statement on the Bioeconomy



Ireland's Bioeconomy strategy

- Low-carbon, bio-based and circular economy
- Regional development and employment growth
- Capitalizing on Ireland's natural potential
- Policy coherence
- Implementation

An integrated bioeconomy ecosystem





Ireland



The Irish government has recognised the potential of the bioeconomy and published a "National Policy Statement on the Bioeconomy" in February 2018. The recently created National Bioeconomy Research Centre (Beacon) and the Irish Bioeconomy Foundation (IBF) are creating an ecosystem linking fundamental and industry led research from lab to industrial scale and aim to turn Ireland's bioeconomy into a well-oiled, profitable machine. The bioeconomy's annual turnover in Ireland amounts to approx. EUR 60 000 million and the sector employs more than 181 000 people'.



A first-of-its-kind flagship biorefinery, that will contribute to the creation of over 1,000 jobs in a rural area, represents a significant part of the BBI JU activity in Ireland.

AgriChemWhey

An integrated biorefinery for the conversion of dairy side streams to high value bio-based chemicals

BIOrescue

Enhanced bioconversion of agricultural residues through cascading use

FUNGUSCHAIN

Valorisation of mushroom offcuts to obtain high value products

ICT-BIOCHAIN

ICT Tools in Efficient Biomass Supply Chains for Sustainable Chemical Production

LIBRE

Lignin based carbon fibres for composites

PERCAL

Chemical building blocks from versatile MSW biorefinery

RefuCoat

Full recyclable food package with enhanced gas barrier properties and new functionalities by the use of high performance coatings

SpiralG

Production of phycocyanin from the spirulina arthrospira sp. Revisiting the sourcing, extraction and covalorisation of the whole algae in the frame of an industrial biorefinery concept

UNRAVEL

UNique Refinery Approach to Valorise European Lignocellulosics

URBIOFIN

Demonstration of an integrated innovative biorefinery for the transformation of Municipal Solid Waste (MSW) into new BioBased products

- Foster supply of **sustainable biomass feedstock** to feed both existing and new value chains **Improve the utilisation of existing feedstock** sources
- BBI2019.SO1.R1 Use tree species and/or varieties to create new biobased value chains
- BBI2019.SO1.D1 Scale up conversion of lignin into valuable compounds for application in specific market sectors
- BBI2019.SO1.D2 Produce components for various materials, including for food and feed, from microalgae
- BBI2019.SO1.F1 Valorise the organic fraction of municipal solid waste through an integrated biorefinery at commercial level

- Optimise efficient processing for integrated biorefineries through R&D&I
- BBI2019.SO2.R2 Develop breakthrough technologies to improve the costeffectiveness and sustainability of pre-treatment steps within biorefining operations
- BBI2019.SO2.R3 Apply microorganisms and/or enzymes to resolve end-oflife issues of **plastics**
- BBI2019.SO2.R4 Develop surface or bulk treatments for improved woodbased materials

- BBI2019.SO2.R5 Convert plant oils and fats into safe high-addedvalue products for various applications including food and personal care
- BBI2019.SO2.R6 Improve biorefinery operations through process
 intensification and new end products
- BBI2019.SO2.R7 Model the composition of bio-based residual streams and its evolution to optimise its management and processing
- BBI2019.SO2.F2 Apply technological combinations to valorise all components of biomass feedstock

- Develop innovative bio-based products for identified market applications
- Bio-based products that outperform fossil-based counterparts
- BBI2019.SO3.R8 Develop sustainable bio-based materials for highvolume consumer products
- BBI2019.SO3.R9 Develop bio-based fibres and/or functional molecules to improve the performance of textile products
- BBI2019.SO3.R10 Develop bio-based high-performance materials for various and demanding applications

- BBI2019.SO3.D3 Produce bio-based functional ingredients and additives for high-end markets
- BBI2019.SO3.D4 Demonstrate bio-based pesticides and/or biostimulant agents for sustainable increase in agricultural productivity
- BBI2019.SO3.F3 Produce high-performance bio-based alternatives to harmful products or processes to protect and enhance human health and the environment

- Create and accelerate the market-uptake of bio-based products and applications
- BBI2019.SO4.S1 Assist **brand owners** to 'switch to bio-based
- BBI2019.SO4.S2 Establish methods and communication for applying mass balance principles to attribute biomass cofeedstock to products
- BBI2019.SO4.S3 Shaping the bio-based economy through a participatory approach
- BBI2019.SO4.S4 Empower SME clusters to bring SMEs 'across the valley of death

Conclusion

- EU Bioeconomy and AWP 2019 going beyond fossil substitution
- Environmental and social aspects of sustainability to the fore
- Products include animal and human nutrition/health
- Zero waste/resource efficiency

Thank you



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