European Bioeconomy Alliance

THE CRUCIAL ROLE OF THE BIOECONOMY IN ACHIEVING THE UN SUSTAINABLE DEVELOPMENT GOALS

The bioeconomy has a key role to play in the transition to a more circular, renewable and resource-efficient society. In order to achieve food security, meet climate and renewable energy targets and accelerate progress towards the UN Sustainable Development Goals (SDGs), a holistic and cross-sectoral approach to foster bio-based solutions is vital.

For the most effective implementation of SDGs into EU policies and initiatives, coherence is necessary, particularly in light of the new EU political priorities from 2019 onwards. Only consistent, long-term and stable policies, especially for the areas of energy, environment, climate, innovation, forestry and agriculture, will attract the necessary investments and foster the full potential of the bioeconomy.

With this paper, the European Bioeconomy Alliance (EUBA) makes a contribution to the policy debate on how to deliver on the implementation of the SDGs in the EU by highlighting the crucial role the bioeconomy plays across the three pillars of sustainable development: environmentally, societally and economically.

The European Bioeconomy Alliance looks forward to further engaging with EU policy-makers to help realise the full potential of the bioeconomy in Europe.

The sectors represented by the European Bioeconomy Alliance contribute either directly or indirectly to most of the UN 2030 Sustainable Development Goals. The table below provides concrete examples of how the bioeconomy is helping deliver on SDGs.

SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

EU agriculture is playing a vital role in enabling food security whilst providing sustainable and locally produced biomass, within the framework of the highest standards set worldwide. Through a process of continual modernisation, innovation, optimisation and the sharing of best practices, the EU agricultural and forestry sectors sustainably use biomass from land and seas. This includes the valorisation of by- and co-products as well as residues that would otherwise be considered as waste, in a more resource-efficient way, providing food, feed and materials for a growing global population. This is complemented by both working with biorefineries and through the development of new cross-sectoral bio-based value chains.

EXAMPLE

Contributing to sustainable agriculture, biostimulants (such as seaweed extracts, amino acids and micro-organisms), which are often used as an organic fertiliser, enhance plant nutrition (efficiency) and improve soil health, lead to significant savings of natural resources and arable land.

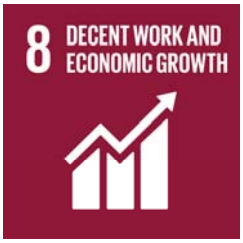
Moreover, the production of valuable co-products in the biofuel process, notably for the livestock sector, allows the EU to decrease its protein deficit and thereby increases the availability of agricultural products and land.

SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all

The EU bioeconomy is crucial to developing the renewable energy mix for affordable, reliable and clean energy, post-2020. Considerable efforts have already been made to valorise biomass into sustainable biogas or biofuels, which help to achieve significant greenhouse gas savings – more than 60% and 70% savings on average over fossil fuel for EU biodiesel and bioethanol, respectively. Furthermore, alternative sources of biomass, originating from forestry, agriculture, marginal land, biogenic residues and wastes are increasingly used to produce clean and renewable energy in the EU.

EXAMPLE

The EU H2020 project 'uP running' (http://www.up-running.eu/) aims to unlock the full potential of woody biomass residues produced by agrarian pruning and plantation removals and to promote its sustainable use as energy feedstock. Another example is the use of enzymes in household waste to turn the organic fraction of waste into biogas.



SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

By sourcing most of the biomass domestically, the EU bioeconomy contributes to the socio-economic development of Europe's regions, including rural ones. It generates income for biomass producers and provides jobs, especially for communities that manage and take care of natural ecosystems. The construction of biorefineries will also help create jobs in rural areas and de-industrialised zones, where land abandonment and jobs loss would have taken place.

EXAMPLE

The Sardinian Matrica project (http://www.matrica.it) by Versalis, Novamont and farmers' organizations turned an old petrochemical plant into a modern biorefinery, saving up to 680 local jobs while also providing future job opportunities for graduates from surrounding universities. The mill's raw material is locally grown thistle, generating income for local farmers.

SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation

Thanks to its focus on regions and rural development, the bioeconomy contributes to maintaining or improving industrial infrastructures, including roads and railways. The bioeconomy helps make industrial processes more sustainable through efficient use of resources and by applying innovative technologies such as industrial biotechnology. It further enables the development of new, sustainable integrated business models, based on circular solutions, working towards the end goal of becoming fossil carbon-free and achieving zero waste.

EXAMPLE

In Ireland, the BBI JU AGRICHEMWHEY project (www.agrichemwhey.com) will convert dairy-by-products into added-value products – bio-based chemicals, minerals for human nutrition and bio-based fertiliser. For that purpose, a first-of-its-kind, industrial-scale biorefinery will be built. The project aims to contribute to the rural and regional development by creating potentially over 1,000 new jobs and attracting additional private investments up to €325 million.

SDG 12: Ensure sustainable consumption and production patterns

The EU bioeconomy relies on a management of natural renewable resources that ensure the economic, social and environmental sustainability of regions and communities. Thanks to the versatility of biomass, a large number of bio-based products and materials substitute existing fossil-based ones, or even deliver new functionalities. These can include benefits such as compostability or improved physical and chemical properties. In most cases, bio-based products are re-used, recycled, converted into energy or composted/biodegraded, hence contributing to a truly circular economy.

EXAMPLE

Tetra Rex® Bio-based is a fully bio-based beverage carton to be manufactured entirely from renewable materials. The paperboard comes from wood that is certified and from controlled sources. The polyethylene components are made from renewable ethanol, all traceable to their origins.
This fully renewable package reduces GHG emissions per carton by over 50% versus the equivalent standard package and is fully recyclable together with conventional beverage cartons.

SDG 13: Take urgent action to combat climate change and its impact

The bioeconomy contributes to climate change mitigation by reducing dependency on fossil-based materials and energy. Renewable raw materials reduce greenhouse gas emissions by sequestering CO2 in the plants during their growth and by replacing the need to extract and emit further CO2 from fossil carbon sources instead. Bio-based products store carbon during their life cycle and are then either recycled several times or converted into bio-energy. The use of natural resources further contributes to sustainable management of ecosystems which ensure long-term productivity, health and resource resilience. Eventually, the bioeconomy increases the overall climate change mitigation and adaptation potential of our society.

EXAMPLE

According to OECD "the full climate change mitigation potential of biotechnology processes and bio-based products ranges from between 1 billion and 2.5 billion tons CO2 equivalent per year by 2030"[1].
In London, a timber frame of a 10-story carbon neutral apartment complex made of cross-laminated timber locks in 2,600 tons of carbon. In addition, the frame has 50% less embodied CO2 - the amount of energy required to produce and form a material - than a traditional concrete frame.

[1] https://www.oecd.org/sti/biotech/49024032.pdf

SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Based on sustainable use of natural resources and ecosystems, EU agriculture and forestry have become the most important providers of renewable resources while at the same time delivering multiple benefits such as ecosystem services and public goods to society and the economy.

The forest cover and growing stock in the EU has increased over the past decades, significantly contributing to combating desertification and halting land degradation and biodiversity loss while providing a growing source of biomass for the bioeconomy.

EXAMPLE

The INTENSE project (www.faccesurplus.org/research-projects-1st-call/intense) is looking at the efficient production and use of biomass for improved economic, environmental and social outcomes. The project helps to reconvert poor, abandoned and polluted sites including grassland, set aside land, brownfields, and otherwise marginal lands into sustainable agricultural production.

SDG 17: Strengthen the means of implementation and revitalise the global partnership for sustainable development

The bioeconomy holds great potential for increased cross-sectoral cooperation, sharing of best practices and forming new partnerships across and between value chains. Further developing such partnerships in the EU provides leverage opportunities and increases the global competitiveness vis–à-vis other bioeconomy regions outside the EU.

EXAMPLE

The Bio-based Industries Joint Undertaking (BBI JU) is a prime example how multiple actors across the bio-economy value chain form a partnership which has contributed to significant advances in bio-based innovation and the creation of new cross-sectoral partnerships in Europe. Also, while BBI JU projects are implemented in the EU, participating project partners operate globally (including non-EU project partners) allowing non-EU regions to benefit from the projects results.

European Bioeconomy Alliance

ABOUT EUROPEAN BIOECONOMY ALLIANCE

The European Bioeconomy Alliance (EUBA) is an alliance of leading European organisations representing sectors active in the bioeconomy – agriculture, forestry, biotechnology, sugar, starch, vegetable oils, pulp and paper, bioplastics, renewable ethanol, and research & innovation.

Members of the European Bioeconomy Alliance

BIC
Bio-based Industries Consortium

CEFS
European Association of Sugar Producers

CEPF
Confederation of European Forest Owners

CEPI
Confederation of European Paper Industries

COPA-COGECA
European Farmers and European Agri-Cooperatives

ePURE
European Renewable Ethanol Producers Association

EUBP
European Bioplastics

EuropaBio
The European Association for Bioindustries

FEDIOL
The EU Vegetable Oil & Proteinmeal Industry

FTP
Forest-based Sector Technology Platform

PFP
Primary Food Processors

Starch Europe
European Starch Industry Association