Opinion of the European Economic and Social Committee on 'Bioeconomy — contributing to achieving the EU's climate and energy goals and the UN's sustainable development goals'

(exploratory opinion)

(2018/C 440/07)

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1. Conclusions and recommendations

1.1. The EESC considers that the bioeconomy is about creating added value for society by producing, converting and using biological natural resources. The transition to carbon-neutrality and circularity will increasingly act as a driver for the bioeconomy, as a sustainable bioeconomy has the potential to generate economic, social and climate benefits simultaneously.

1.2. The EESC points out that the bioeconomy contributes to climate change mitigation in several ways: by sequestering CO_2 from the atmosphere in biomass, by storing carbon in bio-based products and by substituting fossil-based feedstocks and products with bio-based ones.

1.3. The Committee also points out that the bioeconomy contributes to the EU's climate and energy targets by replacing fossil fuels with bioenergy in electricity production, in heating and cooling and in transport. It also contributes to energy efficiency and the security of energy supply.

1.4. The EESC is convinced that the bioeconomy plays a vital role in achieving the overall economic, environmental and social goals called for in the UN Agenda 2030 (Sustainable Development Goals, or SDGs). The bioeconomy's role is closely related to goals pertaining to industry and agriculture and to the creation of jobs in these areas.

1.5. The Committee calls for the EU Bioeconomy Strategy to be adapted in order to provide, in line with economic, environmental and social sustainability, the most favourable conditions for the European bioeconomy to create a competitive edge for the EU.

1.6. The EESC emphasises that policymakers must promote sustainable biomass production and mobilisation in the EU and ensure a stable, reliable and coherent framework for investments in the bioeconomy throughout value chains. Furthermore, policymakers should enhance the demand for bio-based products via public procurement, and adopt a coherent framework for technical, safety and state aid rules to provide a level playing field for bio-based products.

1.7. The EESC considers research and innovation to be key for the development of a future-proof bioeconomy. The innovation efforts promoted by the Bioeconomy Strategy should thus be continued, including the Bio-based Industries Joint Undertaking (BBI JU).

1.8. The Committee underlines the crucial role of education, advisory services, knowledge transfer and training for ensuring that workers and entrepreneurs have the necessary information and skills. People should be well-informed about the bioeconomy and made aware of their responsibilities so that they can be active consumers and make sustainable consumption decisions.

1.9. The EESC stresses that proper infrastructure is a prerequisite for the bioeconomy and requires adequate funding. Efficient transport systems are needed to enable access to raw materials and the distribution of products to markets.

1.10. The EESC recommends that the EU should strive for a global pricing system for carbon emissions, which would be a neutral and effective way of promoting the bioeconomy and bringing all market players on board to mitigate climate change.

1.11. The EESC is convinced that involving civil society in bioeconomy initiatives and decision-making processes is paramount. The Committee stresses that it is vital to ensure that the transition to a low-carbon economy takes place fairly.

1.12. The EESC highlights that a sustainable bioeconomy can only succeed by adopting a cross-sectoral approach. Coherence and coordination between the various EU policies and objectives are therefore needed. It is also important to ensure that measures at Member State level are coherent.

2. **Background**

2.1. The Austrian Presidency of the Council asked the EESC to draw up an exploratory opinion on the role of the bioeconomy in achieving the EU's climate and energy goals and the UN's Sustainable Development Goals (SDGs). Meanwhile, the EESC is currently preparing an own-initiative opinion on the new opportunities opened up by the sustainable and inclusive bioeconomy for the European economy (CCMI/160).

2.2. At the same time, the European Commission is updating the 2012 European Bioeconomy Strategy. The EESC is monitoring this process and welcomes the Commission's efforts. The Commission has defined the bioeconomy as 'the production of renewable biological resources and the conversion of these resources and waste streams into value-added products, such as food, feed, bio-based products and bioenergy'.

2.3. Generally speaking, the bioeconomy involves replacing fossil fuels and fossil feedstock with bio-based energy and raw materials. The bioeconomy entails economic activities that are based on the production, extraction, conversion and use of biological natural resources. Waste streams, by-products and residues can be another main source for the supply of raw materials.

2.4. Agriculture and forestry, together with fisheries, have a fundamental role to play in producing biomass for further use. A wide variety of industries (such as the forestry, food, chemical, energy, textile and construction industries) convert biomass, including secondary raw materials, into consumer commodities or intermediate products intended for other businesses. As a rule, the bioeconomy is based on extensive value chains, including transport, commerce and other services related to the above-mentioned activities. Additionally, ecosystem services are part of the bioeconomy.

2.5. The EU is committed to reducing its greenhouse gas emissions by at least 40 % by 2030 compared to 1990 levels ([1]), with separate targets and rules for the emissions trading sectors and other sectors. In addition, land use, land use change and forestry, i.e. the LULUCF sector, have been integrated into the 2030 framework, with the requirement that this sector does not generate net emissions but contributes to the aim of enhancing carbon sinks in the long term. This reflects the requirements of Article 4.1 of Paris Agreement, which calls for 'a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of the century' ([2]).

2.6. In keeping with EU energy targets for the year 2030, energy efficiency should be increased by 32,5 % compared to projections, and the share of renewable energy in the overall energy mix should be 32 %, both expressed as common EU targets rather than Member State targets ([3]).

2.7. The UN's 17 Sustainable Development Goals (SDGs) cover the different facets of the economic, social and environmental challenges being faced globally. While none of the SDGs focuses specifically on the bioeconomy, it is nevertheless linked to several of these goals.

3. **Contribution of the bioeconomy to the EU's climate and energy goals**

3.1. The transition to carbon neutrality is a huge challenge and requires a considerable reduction in emissions as well as an increase in carbon storage. The sustainable use of bio-based natural resources is a key element here.

3.2. The bioeconomy contributes to climate change mitigation through several mechanisms: sequestration of CO_2 from the atmosphere in biomass via photosynthesis, storage of carbon in bio-based products and substitution of fossil-based feedstocks and products with bio-based ones.

3.2.1. Effective absorption of CO_2 requires sustainable biomass growth. Active and sustainable forest management and the use of wood are key elements in achieving the climate targets (as already outlined in NAT/655 ([4]) on the implications of climate and energy policy and NAT/696 ([5]) on effort sharing and the LULUCF sector). One m^3 of wood captures around 1000kg of CO_2. As only growing biomass has the capacity to absorb CO_2, it is crucial not to set limits on the use of forests, provided that the harvesting rate does not exceed the replanting and growth rate of forests and sustainable forest management practices are followed.

3.2.2. Several kinds of bio-based products exist and new products are being developed. Such products can store carbon, thereby keeping it out of the atmosphere. Long-lasting wood products such as buildings and high-quality furniture are the most effective means of carbon storage. As long as shorter-living bio-based products are being recycled, they will not release their carbon content either. Moreover, at the end of their lifetime, bio-based products can be used as bioenergy and thereby replace fossil energy sources.

3.3. Bioenergy also contributes to the EU's energy efficiency goal. District heating in communities and sustainable industrial Combined Heat and Power (CHP) production are good examples of this. As buildings consume a significant amount of energy, the energy efficiency of buildings, together with the energy source used, is very important.

3.4. Transport has a decisive role to play in achieving the climate targets. All kinds of measures that help decrease greenhouse gas emissions are therefore needed, given the different needs and characteristics of the various transport modes (as outlined in several EESC opinions, such as TEN/609 ([6]) on the decarbonisation of transport).

([1]) Please see the 2030 Climate and Energy Framework available at https://ec.europa.eu/clima/policies/strategies/2030_en

([2]) Please see Article 4.1 of the Paris Agreement, available at https://unfccc.int/sites/default/files/paris_agreement_english_.pdf

([3]) Please see European Commission Statement 19 June 2018, available at http://europa.eu/rapid/press-release_STATEMENT-18-3997_en.htm

([4]) Please see NAT/655 on the Implications of climate and energy policy on agricultural and forestry sectors (OJ C 291, 4.9.2015, p. 1).

([5]) Please see NAT/696 on Effort-sharing 2030 and land use, land use change and forestry (LULUCF) (OJ C 75, 10.3.2017, p. 103).

([6]) Please see TEN/609 on the Decarbonisation of transport (OJ C 173, 31.5.2017, p. 55).

3.4.1. Electrification of transport seems to be a rising trend. To have a positive impact on climate, electricity must be produced using energy sources with low greenhouse gas emissions, including sustainable bio-based energy sources.

3.4.2. Fossil fuels in transport are partially replaced by sustainable biofuels. Despite increasing electrification of passenger cars, aviation and shipping as well as heavy road transport and off-road machinery remain largely dependent on fuels. In this respect, advanced biofuels are particularly promising.

3.5. In addition to climate benefits, the use of bioenergy contributes to the availability of energy and the security of energy supply. If properly managed, bioenergy will therefore play a significant role in achieving the basic goals set out in European energy policy.

4. **Contribution of the bioeconomy to the Sustainable Development Goals (SDGs)**

4.1. The SDGs challenge us to assess the role of the bioeconomy, not only from the climate and energy perspectives, but from the overall economic, social and environmental points of view, while also taking into account a long-term global perspective. Given the broad perspective of the bioeconomy, there are interlinkages with almost all 17 SDGs. However, the bioeconomy contributes particularly to the following SDGs: 1, 2, 6, 7, 8, 9, 11, 12, 13, 14 and 15.

4.2. The bioeconomy has the potential to generate economic growth and jobs, not only in urban areas but also in rural regions. It therefore has a significant role to play in achieving SDG 1 (no poverty).

4.3. SDG 2 calls for zero hunger. Biomass is a limited resource and there are interlinkages between the production of food, feed and fibre. A responsible approach to the sustainable bioeconomy is needed to enable sufficient production for different purposes — food availability being the priority — and to ensure sound ecosystems. The principles of resource efficiency and circularity, as well as transfer towards more vegetable-based diets are all ways to reach these objectives.

4.4. A sustainable bioeconomy contributes to SDG 6 (clean water and sanitation), for instance by maintaining sound forest ecosystems which are a precondition for clean water.

4.5. SDG 7 (affordable and clean energy) is at the core of the bioeconomy. The use of side streams and waste streams provides clean energy and reduces dependency on fossil energy resources.

4.6. On the whole, the bioeconomy has a vital role to play in enhancing economic and social goals. It plays a significant role in achieving SDG 8 (decent work and economic growth). Furthermore, the EU bioeconomy can help to substantially reduce import dependency on fossil commodities while fostering domestic added value and supporting local value chains.

4.7. SDG 9 calls for a significant rise in industry's share of employment and GDP, as well as the retrofitting of industries in order to make them sustainable, together with increased resource use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes. The bioeconomy is closely linked to all of these objectives, and sustainable use of biomass can enhance the EU's industrial leadership. It also has great potential to foster the growth of SMEs and integrate them into value chains.

4.8. The bioeconomy can play an important role in achieving SDG 11 (sustainable cities and communities). The concept of climate-smart cities ([7]) and well-being in urban areas goes hand in hand with solutions provided by the bioeconomy (for example, timber construction or low-emission transport and district heating).

4.9. The bioeconomy is in a good position to contribute to SDG 12 (responsible consumption and production). By optimising the use of raw materials, applying eco-design and producing long-lasting and recyclable products, the bioeconomy has a remarkable role in the transition to the circular economy. However, raising consumer awareness is seen as an important precondition for informed and responsible consumption patterns and fostering sustainable production.

([7]) http://www.climatesmartcities.org/

4.10. The bioeconomy can contribute significantly to global climate change mitigation, as called for in SDG 13 (climate action) and as already outlined in Chapter 3. On top of domestic action, the EU can have a remarkable global impact by exporting bio-based products, climate solutions and expertise.

4.11. Lastly, the bioeconomy has an impact on SDG 14 (life below water) and SDG 15 (life on land). Therefore, the responsible, effective and sustainable use of natural resources must be at the centre of the bioeconomy.

5. **Prerequisites for the development of the bioeconomy**

5.1. While the bioeconomy contributes in many ways to the achievement of both climate and energy goals and the SDGs, conditions need to be favourable in order to bring this about. On the one hand, the SDGs support and enhance the conditions needed to help the bioeconomy to evolve while, on the other hand, certain SDGs impose requirements which the bioeconomy must meet.

5.2. The EU Bioeconomy Strategy must be adapted to new markets in order to provide, in line with economic, environmental and social sustainability, the conditions most favourable to the European bioeconomy, which is evolving and expanding rapidly.

5.3. Above all, policymakers must promote sustainable biomass production and mobilisation in the EU, and EU regional development policy should provide sufficient support to ensure the development of rural businesses. Policymakers must also ensure a stable, reliable and coherent framework for investments in the bioeconomy, throughout the value chains.

5.4. Policymakers should adopt a coherent framework for technical, safety and state aid rules to provide a level playing field for bio-based products. The public sector also plays a major role in the demand for bio-based products via public procurement. Initiatives such as a 'European Bioeconomy Week' could help boost market uptake and cross-fertilise different projects.

5.5. Research and innovation are key for the development of a future-proof bioeconomy, which could provide a competitive advantage for the EU. This should be considered in the light of the immense potential offered by new kinds of bio-products, from traditional food and fibre products to new kinds of construction and packaging materials, textiles and bio-based chemicals and plastics. The same holds true with regard to the potential of plant breeding and different substances as raw materials for bio-products (e.g. lignocellulose, plant oil, starch, sugar, protein).

5.6. The innovation efforts promoted by the EU Bioeconomy Strategy should be continued, including the Bio-based Industries Joint Undertaking ([8]). The Bioeconomy Knowledge Centre ([9]) should also play an important role in promoting the use of knowledge to help grow the bioeconomy. Research and innovation initiatives and programmes should also be made more attractive for businesses.

5.7. The role of education, advisory services, knowledge transfer and training is crucial in order to ensure that workers and entrepreneurs have the necessary information and skills, with the result that the sustainability of current business could be increased and new opportunities in the bioeconomy exploited.

5.8. At the same time, people must be well-informed about the bioeconomy and be made more aware of their responsibilities so that they can be active consumers and make sustainable consumption decisions, taking into account the different levels of willingness of people of all ages to adapt and change. To this end, information campaigns, which strengthen consumers' trust in the bioeconomy and in bio-based products, should be organised.

([8]) https://www.bbi-europe.eu
([9]) https://biobs.jrc.ec.europa.eu

5.9. Access to raw materials is one of the basic prerequisites for the bioeconomy. An appropriate business environment for agriculture and forestry is thus necessary to foster biomass availability and mobilisation. Sustainable management of forests, land and marine resources, as called for in SDGs 14 and 15, makes an essential contribution to the security of the supply of raw materials. In this context, the existing legislative and non-legislative framework for sustainable and renewable raw materials in the EU should be acknowledged and promoted. The increasing use of side streams and residues as raw material for new uses also helps to ensure the availability of biomass. In the case of small-scale structures, cooperatives or producer organisations can play an important role.

5.10. Proper physical infrastructure is yet another prerequisite for the bioeconomy, and to this end, adequate funding for energy, transport and digital infrastructure is needed. Efficient transport systems are crucial for enabling access to raw materials and the distribution of products to markets.

5.11. As regards global markets, the bioeconomy is closely linked to SDG 17 which aims to strengthen the global partnership for sustainable development. This goal calls for promotion of a universal, rules-based, open, non-discriminatory and equitable multilateral trading system under the WTO. It is important for trade, in both agricultural and industrial bioeconomy products. Meanwhile, cooperation along regional value chains should be strengthened in order to foster regional development.

5.12. In order to stimulate the development of the bioeconomy in a neutral way, the EU should strive for a global pricing system for carbon emissions, which would bring all market players on board and provide a level playing field.

5.13. Involving civil society in the structures of bioeconomy initiatives and decision-making processes is paramount in order to strengthen cooperation between different actors within society and to enhance public awareness of the sustainable bioeconomy.

5.14. While the transition to a low-carbon and circular economy is a huge challenge and implies profound structural changes regarding the jobs involved, it is important to ensure that the transition takes place fairly.

5.15. A sustainable bioeconomy can only succeed by adopting a cross-sectoral approach. Coherence and coordination between the various EU policies and objectives is therefore needed, especially with regard to the climate, the environment, food, agriculture, forestry, industry, energy, the circular economy, and research and innovation. To this end, a high-level multi-stakeholder group on the sustainable bioeconomy should be established and endorsed by the Commission president.

5.16. Progress in achieving the SDGs is measured and monitored by means of 232 indicators. These indicators include climate- and energy-related indicators, but no specific bioeconomy indicators exist. The Commission should therefore develop the most relevant indicators in order to gain a realistic and informative picture of the development of the EU bioeconomy.

Brussels, 19 September 2018.

The President
of the European Economic and Social Committee
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