

The Bioeconomy Council - Outlook for a sustainably shaped future

The Federal Government's Bioeconomy Council was appointed as an independent and voluntary advisory council by the Minister of Education and Research and the Minister of Food and Agriculture in the fall of 2012. The [17 council members](#) bring with them knowledge from different disciplines and have links to research, business and civil-society organizations. They share the fascination for a knowledge-based bioeconomy and the desire for a sustainable economy.

Comprehensive understanding of the bioeconomy

The Council has always emphasized that the [bioeconomy](#) sustainably produces and uses biological resources and, in particular, biological knowledge to provide products, processes and services in all sectors of trade and industry within the framework of a future-oriented economic system. Securing and improving nutrition in Germany and also globally is a priority goal of the bioeconomy. The knowledge-based bioeconomy also offers great potential for reducing greenhouse gas emissions and adverse environmental effects in all sectors of the economy. The bioeconomy is oriented on nature's carbon cycle. In the primary sector, it aims at low-emission land use and the maintenance of ecosystems. The Council attaches not only an existential but also an overriding ethical importance to protecting and preserving biodiversity. Climate and environmentally friendly production methods and sustainable products are being developed in industry. Material cycles should be closed, preferably locally. The significance of a bioeconomy geared to the global Sustainable Development Goals therefore extends far beyond a fossil fuel replacement strategy. The bioeconomy must be an important part of a transformation for a sustainable economic system in a post-fossil age.

Policy recommendations of the Council

The [Council recommendations](#) on the bioeconomy policy supported by all members were published in the form of *statements* and *BÖRMEMOs* after an external evaluation process and were discussed with the interested public as well as subject experts. The Council also engaged in current and controversial debates, for example on the [regulation of genome editing](#), on [nutrition](#) and the [protein supply of the future](#) as well as on [wood and forestry policy](#), on [bioenergy](#), on the transformation of the [chemical industry](#), [plant breeding](#) and [agriculture](#).

Bioeconomy in the federal states

From the outset, the Council members stressed that it will be necessary to adapt bioeconomy strategies to the relevant context. They discussed this in national and international political forums and launched a variety of bioeconomy initiatives. Since 2012, some federal states have developed their own bioeconomy strategies and tailored them to regional specifics. Science and industry are networking there to form regional bioeconomy centers. In the meantime, [bioeconomy courses](#), for example Master's programs and doctoral programs, are being offered nationwide. The Council members have supported these efforts in

many ways and have contributed to networking of the decentralized bioeconomy activities of the federal states.

International policies and networking

The Council's commitment to international relations in the bioeconomy led to the establishment and implementation of the [Global Bioeconomy Summits](#). At the successful launch in 2015, around 700 bioeconomy experts from 80 countries gathered in Berlin and for the first time focused on the contribution of the bioeconomy to the global Sustainable Development Goals. Just over a year ago, the second summit was opened by Federal Ministers Karliczek and Klöckner. The eminent international group of participants discussed the rapid developments in [bioeconomy policy](#) as well as sustainable [solutions in 14 topic areas](#) of global interest. These suggestions have already been taken into account in the EU and in national policy agendas, e.g. in Argentina, Thailand and South Africa.

The course is set for the third summit in 2020. The Federal Minister of Education and Research has agreed to support the summit in Berlin for a third time. A 40-member [international advisory council with bioeconomy experts](#) from all over the world is shaping this process and is now engaged in a regular exchange of information and ideas on the bioeconomy.

Also in collaboration with international experts, the Council developed ideas for lighthouse projects or future concepts of the bioeconomy. One example is “biobased cities”, which have been followed up by dialogues in China and Europe. Pilot projects on “BioCities” will be funded in future by the European Commission.

Social dialogue on the bioeconomy

In addition, the Council has stimulated the bioeconomy dialogue in politics and with society. The Council members held a large number of presentations, gave interviews and took part in many, often controversial, panel discussions. In 2013, the Bioeconomy Council initiated a first dialogue with the public and consequently developed bioeconomy product exhibitions aimed at a broad audience, for example at the International Green Week or the Federal Government's Open Day. Here bioeconomy was inspiring as “bioeconomy in everyday life”. The Council also held talks with young artists and initiated art projects on the bioeconomy. In all these activities, it became clear that broad sections of society were interested in having a say in and shaping the transition to the bioeconomy.

Need for action in the bioeconomy policy

Bioeconomy is now anchored in Germany's top-level research, economic and sustainability policies, notably the [High-Tech Strategy 2025](#), and plays a much more important role in the coalition agreements than was the case before 2012. However, in view of the current developments in Germany, the Council sees a need for political action because a sustainable and innovative bioeconomy will not come about by itself.

1. The business sector and the public are not sufficiently aware of the importance of the life sciences, the opportunities of the associated technological innovations and the potential of the bioeconomy. While in other countries high private investment now flows into promising innovations and emerging bioeconomy companies, German banks, investors and industry have remained rather cautious players. **Politics must set framework conditions and incentives in ways that allow sustainable innovations and solutions developed by companies and scientists to take hold in society. Part of this is having framework conditions that stimulate and promote environmentally-friendly and climate-friendly investment and consumer behaviors more strongly than before.**
2. The development of the bioeconomy requires research funding, interdisciplinary collaboration and societal dialogue. The goals and measures for the bioeconomy policy in the coalition agreement pick up on these things but at present they are not yet being developed coherently and strategically across the various ministries involved in the bioeconomy policy. The Council notes with concern that the opportunity to shape a forward-looking bioeconomy policy is being missed. **The Council therefore calls on the Federal Government to treat the bioeconomy policy as an interdepartmental task and to coordinate it similarly to the high-tech strategy. The new national bioeconomy strategy should propose an interdepartmental package of measures for the upcoming years on how to support the transition to a sustainable, more biobased economy politically. Due to the pioneering importance of the bioeconomy for coming generations, the existing budget/volume of funding should be increased considerably.**
3. In the Council's opinion, the understanding of the bioeconomy as a key element in a future-oriented economy also means that the bioeconomy strategy must be more effectively integrated into the German sustainability strategy and climate protection policy than before. **The Council wishes to see greater consideration given to bioeconomic concepts and projects with a view to sustainable development goals, in particular with regard to global food security, climate, biodiversity and environmental protection, quality of life in cities and rural areas, and employment, health and prosperity in Germany.**
4. The transition to a future-oriented economy and to the bioeconomy can only be achieved through the joint efforts of society, science and industry. **Steering and accompanying this change requires the following instruments and dialogue forums in particular.**
 - a) **Implementation plan.** An implementation concept and an action plan should translate the goals and guidelines of the new bioeconomy strategy into concrete measures on appropriate timelines. Monitoring and accompanying research should be key elements of the implementation plan so that there is an opportunity to identify and manage undesirable developments in good time.

- b) **Platform.** A bioeconomy platform should be set up to create a nationwide network for the many bioeconomy initiatives, players and stakeholders in Germany, thus facilitating synergies and collaboration. The platform should be open access and offer different participation formats.
- c) **Guidance.** An independent advisory council should continue to provide scientific expertise for the implementation, it should support national and international collaboration on bioeconomy policy and promote scientific exchange. Political complexity has increased in recent years. The bioeconomy is related to many national and international policy strategies and Sustainable Development Goals. An effective council should consist of no more than 15 to 20 independent experts and cover the areas of knowledge particularly relevant for the transition to the bioeconomy. These include the broad field of the life sciences¹ and converging technologies² as well as the economic and social sciences and ecology. This independent advisory body should regularly exchange with the platform referred to above.
- d) **Societal dialogue.** An umbrella concept for broader dialogue and participation is required to shape the transition jointly with the population and local bioeconomy players. The local authorities, stakeholder networks and the national platform will be important multipliers for this dialogue.

The Council is convinced that these tasks must be tackled on the basis of broad political and social consensus. The foundations for this are laid, now we must progress to implementing them.

¹ The biosciences or life sciences are a comprehensive term for biology as the classic science of living things (life) and for various research and development areas with findings and methods from biology as their basis and starting point. On the one hand, these are areas that arise from the fusion of biology and other scientific disciplines whose borders with biology are already often difficult-to-define and which are becoming blurred due to the increased exchange between the disciplines (e.g. nutritional science, agricultural and forestry sciences, biochemistry, biomedicine, biophysics), and on the other hand they are branches of research in which biological findings and methods are used and implemented technically and are the result of application-oriented biological research (e.g. bioelectronics, bioinformatics, biocybernetics, biomechanics, bionics, bioengineering, biotechnology). The life sciences also include specialist fields that deal with problems and impacts arising from the study of life science topics and the application of life science research results (spectrum.de, Lexikon der Biologie)

² In particular, the combination of bio, nano and information technologies