



Recommendation of the Council on Assessing the Sustainability of Bio-Based Products

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Background Information

The Recommendation on Assessing the Sustainability of Bio-Based Products was adopted by the OECD Council on 17 July 2012 on the proposal of the Committee for Scientific and Technological Policy. Recognising that the current and future magnitude of the economic, environmental and societal impacts of bio-based products are of such significance that they warrant strong, sustained and coherent action from governments, business and consumers to agree on harmonised frameworks for assessing the sustainability of bio-based products, this instrument is intended to recommend guidance for the development and implementation of the national frameworks for assessing the sustainability of bio-based products that take into consideration their environmental, economic and social impacts throughout the whole life cycle of bio-based products (cradle-to-grave).

Rationale for developing the Recommendation

Since at least the oil shocks of the 1970s, alternatives to fossil-derived products (fuels, but also chemicals, materials, textiles, etc.) have been researched. Gradually bio-based alternatives have started to arrive in the market, usually slowly and with difficulty due to competition from the century-old fossil industries.

Bio-based products became synonymous with the term 'sustainable', but proving sustainability has been fraught due to a lack of suitable indicators and measurement tools. Life cycle analysis (LCA) has become the default tool, but the concept of a sustainable bioeconomy has become associated with the three pillars of economic, environmental and social sustainability. LCA only addresses environmental sustainability, and even then the measurement of the environmental sustainability of bio-based products has yielded very different results.

Against this backdrop, the OECD Council adopted the Recommendation on the Sustainability of Bio-based Products to support the development of bio-based products in a manner that would guarantee their sustainability.

Scope of the Recommendation

The Recommendation applies to commercial or industrial goods (other than food or feed) composed in whole or in significant part of biological products, forestry materials, or renewable domestic agricultural materials, including plant, animal, or marine materials.

The Recommendation is predicated on the idea that the current and future magnitude of the economic, environmental and societal impacts of bio-based products are of such significance that they warrant strong, sustained and coherent action from governments, business and consumers to agree on harmonised frameworks for assessing their sustainability. The Recommendation provides guidance for the development and implementation of the national frameworks for assessing the sustainability of bio-based products that take into consideration their environmental, economic and social impacts throughout the whole life cycle of bio-based products (cradle-to-grave).

In the years since the Recommendation's adoption, the world has tilted more towards a green, circular and sustainable future. This is reflected in the publication of some 50 national bioeconomy strategies or related instruments worldwide. National bioeconomy strategies all stress sustainability. In essence, bio-based products represent a gradual shift from oil to biomass as a feedstock for industrial production to reduce emissions. Thus the Recommendation also aligns with the shift towards carbon neutrality.

For further information please consult: <https://community.oecd.org/community/cstp/bnct>.

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Implementation

The [2021 Report](#) on the implementation of the Recommendation presents progress made by Adherents in implementation and sets out conclusions regarding the instrument's dissemination and continued relevance. Data was collected through a survey to which 24 Adherents responded.

This Report found a growing awareness regarding the need to develop the bioeconomy. Key takeaways were that the Recommendation was overwhelmingly deemed to remain relevant and that most respondents had made progress in implementing its provisions. The Report noted that there has been much interest in the Recommendation since its adoption in 2012, as countries have been formulating their national bioeconomy strategies. National strategies mostly stress sustainability; thus there is an obvious connection to the Recommendation.

That said, a number of respondents noted that the definitions may require updating, that engagement with non-OECD Member countries could improve, that progress needs to be made in defining and measuring sustainability in order to foster bioeconomy policy coherence, as well as that more work may be needed to determine how issues such as the emergence of the concept of circular economy, cascading use, the need for more emphasis on the demand-side (market-making) including public procurement, climate change, and the difficulty of comparing bio-based to non-bio-based and fossil equivalents.

The CSTP, through the Working Party on Biotechnology, Nanotechnology and Converging Technologies (BNCT), will work to address these issues in the coming years and continue to review the implementation, relevance, and dissemination of the Recommendation and report again to the Council thereon in five years' time.

THE COUNCIL

HAVING REGARD to Article 5 b) of the Convention on the Organisation for Economic Cooperation and Development of 14 December 1960;

HAVING REGARD to Rule 18 b) of the Rules of Procedure;

HAVING REGARD to the Decision of the Council concerning the Mutual Acceptance of Data in the Assessment of Chemicals [C(81)30/FINAL, as amended];

HAVING REGARD to the Recommendation of the Council on Material Flows and Resource Productivity [C(2004)79];

RECOGNISING the increasing impact on national economies of global challenges, such as climate change, environmental footprints, energy security and the need to address these globally;

RECOGNISING the increasing contribution of the bioeconomy to the mitigation of global challenges and to green growth;

RECOGNISING that the development of the bioeconomy can underpin the evolution of sustainable manufacturing sectors and requires coordinated and systems-based policy development on the part of different ministries and agencies, nationally and internationally;

RECOGNISING the proliferation of sustainability indicators, certification schemes and sustainability labels at national levels and internationally for bio-based products that might lead to duplication of efforts and, therefore, to certain inefficiencies in the delivery of the bioeconomy;

RECOGNISING the need for the development of harmonised frameworks to assess the sustainability of bio-based products;

RECOGNISING existing regional, national and international initiatives concerning the development of bio-based products and assessments of their sustainability;

CONSIDERING that the current and future magnitude of the economic, environmental and societal impacts of bio-based products are of such significance that they warrant strong, sustained and coherent action from governments, business and consumers to agree on harmonised frameworks for assessing the sustainability of bio-based products;

On the proposal of the Committee for Scientific and Technological Policy:

I. **AGREES**, for the purpose of this Recommendation, to the following definitions:

1. A “bioeconomy” is an economy where the basic building blocks for industry and the raw materials for energy are derived from plant/crop-based (i.e. renewable) sources and where biotechnology is used to produce a range of goods and services.

2. “Bio-based Products” are commercial or industrial goods (other than food or feed) composed in whole or in significant part of biological products, forestry materials, or renewable domestic agricultural materials, including plant, animal, or marine materials. These are products developed from biological materials, with the intent of replacing or enhancing products derived from non-renewable resources. The term Bio-based Product encompasses bio-based chemicals, bio-based plastics, enzymes, bio-based materials, and bio-fuels. Food and feed are excluded.

II. **RECOMMENDS** that Members:

1. Develop and implement national frameworks for assessing the sustainability of Bio-based Products that take into consideration their environmental, economic and social impacts throughout the whole life cycle of bio-based products (cradle-to-grave).

2. Build consensus amongst relevant stakeholders in developing sustainability assessment frameworks for Bio-based Products.
3. Ensure the international consistency of approaches; use a life cycle approach to measure the sustainability of Bio-based Products, where possible; and compare with substitute non Bio-based Products.
4. Facilitate the development and adoption of assessment methodologies for Bio-based Products that are science-based, broadly accepted, flexible and verifiable; these methodologies should allow for comparisons between various products and production options, including non bio-based equivalents, in order to minimise the possibility of generating trade barriers.
5. Facilitate the development and adoption of international sustainability indicators for Bio-based Products that are science-based, unambiguous and validated. These should take into account factors such as:
 - i) Energy balance, including non-renewable and renewable energy use.
 - ii) All greenhouse gas reduction over product life cycles.
 - iii) Bio-based content as an indicator of renewability.
 - iv) Anticipated product life.
 - v) Water and solvent use during the different stages of production, and impacts on biodiversity during feedstock production and subsequent processing.
 - vi) Direct and indirect land use for feedstock production.
 - vii) All aspects of end of product life.
 - viii) Conventional as opposed to alternative bio-based production economics.
 - ix) Impact on human and environmental health.
6. Develop and implement effective and efficient third party peer review of the sustainability assessments of Bio-based Products, as appropriate, and compare with non bio-based products.
7. Collect and make public appropriate data relevant to the sustainability assessment of Bio-based Products to enhance transparency and to facilitate the development of assessment methodologies for evidence-based decision-making.
8. Promote awareness of the sustainability aspects of Bio-based Products and facilitate and encourage the timely provision of balanced and relevant information on the sustainability aspects of Bio-based Products.
9. Enhance collaboration with non-Members and assist them in the development and implementation of principles for assessing the sustainability of Bio-based Products.
10. Provide, through the public authorities of Members at various levels, support to SMEs involved in bio-based production and assessments of the sustainability of Bio-based Products.

III. INVITES non-Members to adhere to the present Recommendation and collaborate with Members in its implementation.

IV. INSTRUCTS the Committee for Scientific and Technological Policy to monitor the implementation of this Recommendation and to report to Council five years after its adoption and as appropriate thereafter.

About the OECD

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