ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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DRAFT OECD RECOMMENDATION ON ASSESSING THE SUSTAINABILITY OF BIO-BASED PRODUCTS

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BACKGROUND

Given the growing importance of bio-based products to consumers, industry and government, the need to assess the environmental, economic and social sustainability of such products is clearly evident. In an interconnected, global economy, sustainability assessment needs to be consistent across regions and across sectors.

The fact that a product is bio-based is not alone proof of its sustainability; a range of other factors need to be considered (*e.g.* product performance, health and safety, environmental effects, and profitability). The assessment of bio-based products should take into consideration their environmental, economic and social impacts and by this means highlight their contribution to sustainable development and "green growth"[1].

The use of commonly agreed principles for the development of national and international methodologies for assessing the sustainability of bio-based products will ensure their consistency, credibility, and the efficient use of limited resources, including data, knowledge and expertise. In creating common principles for sustainability assessment, governments should keep in mind the development and fostering of innovation and trade in bio-based products. They should avoid creating new and unique methodologies where existing ones will suffice, and they should strive for consistency across sectors between various bio-based products.

For bio-based products it is important to take into account the fact that this is an emerging sector using nascent technologies that will continue to develop and improve. Comparing bio-based products and their non-bio-based equivalents should ensure a level playing field for all products in the marketplace in as much as that is possible in this new field.

1. Green growth is about maximising economic growth and development while avoiding unsustainable pressure on the quality and quantity of natural assets. It is also about harnessing the growth potential that arises from transiting towards a green economy. Green growth does not seek to supplant sustainable development or the understandings that governments have reached in its name. Rather it aims to catalyse a more significant shift in conventional growth trajectories than has been observed to date by emphasising the inter-relatedness of the economic and environmental dimensions and to back this up with measures that can be widely deployed regardless of a country's stage of development. It is a policy framework that is designed to be flexible enough to be tailored to differing national circumstances. OECD (2011) Green Growth Strategy: http://www.oecd.org/document/10/0,3746,en_2649_37465_44076170_1_1_1_37465,00.html.

RATIONALE

The 2004 meeting of OECD Committee for Scientific and Technological Policy at the ministerial level, which discussed *"Biotechnology for Sustainable Growth and Development"*[2], invited the OECD to take steps to realise an eco-efficient bioeconomy. Facilitating the transition towards a bioeconomy is perceived as a powerful way to mitigate global challenges such as climate change through sustainable development and global growth. Many OECD countries are committed to taking steps towards realising a bioeconomy.

More recently, the OECD developed a "Green Growth Strategy" that has been adopted at Ministerial Council Meeting in June 2011[3]. The goals of green growth and the bioeconomy significantly coincide. Indeed, the principles set out in the aforementioned "Biotechnology for Sustainable Growth and Development" are considered in OECD's thinking on green growth. It is clear that work on eco-efficient bioeconomy and on green growth need to continue to reinforce one another.

However, it is recognised that the transition towards a bioeconomy and green growth is challenging and requires a supportive policy environment. Industrial Biotechnology is seen as particularly important sector in this effort and can, in principle, help drive the transition of some manufacturing sectors (*e.g.* IT, pharmaceutical, chemical, automotive, textile, food/feed, agriculture, *etc*.) towards more sustainable economic and environmental models.

There are currently significant international activities to develop sustainability assessment approaches. Among them are:

i) The OECD Green Growth Strategy that requires the integration of different policy areas such as environment, science and technology, trade and industry, innovation, and entrepreneurship and labour. These policies need to be measured, analysed and evaluated so that they more effectively promote the development and diffusion of green technologies while contributing to economic growth. Efforts are underway in the OECD to develop overall indicators for green growth. However, by their nature these are likely to be very general indicators and will not deal with the specifics of bio-based products.

[2] "Biotechnology" for Sustainable Growth and Development", http://www.oecd.org/dataoecd/43/2/33784888.PDF

[3] http://oecd.org/document/10/0,3746,en_2649_37465_44076170_1_1_1_37465,00.html

ii) The OECD Committee for Industry**,** Innovation and Entrepreneurship (CIIE) developed a common analytical framework for sustainable manufacturing and eco-innovation to analyse existing indicators for sustainable manufacturing and to summarise existing methods for macro-level measurement of eco-innovation. Again, these indicators do not specifically cover bio-based products.

iii) A number of organisations are currently developing metrics and indicators to measure the sustainability of bio-fuel production (for example, the World Business Council on Sustainable Development, UNEP, UNIDO, the Global Bio-Energy Partnership, etc). In addition, ISO currently has a work item that focuses on sustainability criteria for bio-fuels.

However, despite many activities in this area, there is still no agreed-upon sustainability assessment framework for bio-based products. Such a framework would help governments and industry to build an eco-efficient bioeconomy by supporting the development of bio-based products that are likely to be the most environmentally and economically sustainable. Therefore, an OECD Task Force on Industrial Biotechnology (TFIB) identified a need for international agreement on principles that help identify assessment methodologies for the sustainability of bio-based products in general (*i.e.* beyond bio-fuels). Principles are expected to help governments develop evidence-based policies supportive of bio-based products.

DRAFT OECD RECOMMENDATION ON ASSESSING THE SUSTAINABILITY OF BIO-BASED PRODUCTS

The OECD recommends that Member countries:

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

2) Use where possible the "whole life cycle" approach to measuring the sustainability of bio-based products to:

   - Avoid a shift in burden from one stage in a product's life cycle to another.
   - Avoid a shift in burden from one generation to another by considering impacts on future generations.
   - Avoid a shift in burden across environmental, economic and social strata and
   - Ensure consistency of approaches among countries.

3) Build consensus amongst relevant stakeholders in developing the sustainability assessment frameworks of bio-based products.

4) Facilitate the development of assessment methodologies of bio-based products that will be science-based, broadly accepted, pragmatic, and verifiable to achieve the goals of sustainability assessment while also allowing for comparison among various products and productions options, including non bio-based equivalents.

5) Facilitate the development of sustainability indicators of bio-based products that are consistent with accepted international frameworks, noting that these indicators should be science-based, unambiguous and validated. These indicators should include, but are not limited to the following factors:

   - Energy balance, including the differentiation of non-renewable and renewable energy use.
   - Greenhouse gases reduction on a life-cycle basis.
   - Bio-based content of the product.
   - Anticipated product life.
   - Water use during the different stages of production.
   - Direct land used for feedstock production.

- Waste management at the end of product life.
- Conventional *vs.* alternative bio-based production costs.

6) Develop and implement third party peer review of the sustainability assessments of bio-based products, as appropriate.

7) Collect and publicise appropriate data relevant to the sustainability assessment of bio-based products to enhance transparency and to facilitate the development of assessment methodologies that result from evidence-based decision making.

8) Promote consumer awareness of the sustainability aspects of bio-based products to facilitate and encourage the provision and communication of balanced and relevant information, in a timely manner, to all stakeholders with regard to sustainability initiatives on bio-based products.

9) Seek to enhance collaboration with and assist non Members in the development and implementation of principles for assessing the sustainability of bio-based products.

10) Provide, through the public authorities of Member countries at various levels, support to SMEs with regard to the sustainability assessments of bio-based products.

GLOSSARY

Terms defined for purpose of this draft Recommendation

The Bioeconomy: The Bioeconomy is an economy that is based on ecological sensitive products and services produced by the use of biotechnology and renewable energy sources. This 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. The evolution of the biotechnology industry and its application to agriculture, health, chemical or energy industries is the best example of bioeconomic activity.

Bio-based Product: These 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. It is a product 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.

Sustainability of bio-based products: Sustainability of bio-based products is defined to comprise of three pillars: environmental, economic and social. All three pillars should be adequately considered in true sustainability assessment of bio-based products. This suggests that the full lifecycle of bio-based products must be taken into consideration when assessing sustainability, from the production and harvest of raw materials to disposal at end of life.