COMMISSION EXPERT GROUP FOR BIO-BASED PRODUCTS

Working Group on Evaluation of the Implementation of the Lead Market Initiative for Bio-based Products' Priority Recommendations[1]

Definition of bio-based products:

Bio-based products are products that are wholly or partly derived from materials of biological origin, excluding materials embedded in geological formations and/or fossilised.

(CEN - Report on Mandate M/429". See also COM(2012) 60 final, p.3: SWD(2012) 11 final, p.5)

In the context of the Commission Expert Group for Bio-based Products, while taking into account the broader context of the bioeconomy, the Expert Group will not make recommendations specific to other sectors such as food, feed and energy."

CONCLUSIONS

Based on the evaluation of the state of play of the implementation of the Lead Market Initiative (LMI) priority recommendations, it can be concluded that:

- **Serious action has been taken and results are visible regarding recommendations focused on Research, Development & Innovation; Public Procurement and Communication**

- **Limited action has been taken and few results are visible regarding recommendations focused on Access to Feedstock and Access to Markets for bio-based products.**

At least two of the five focus areas show a considerable lack of progress in implementing the recommendations. Thus the change of the development of a broad bio-based economy within the EU is hampered and the transformation of the EU's fossil-based economy towards a bio-based one is at risk of being much slower than in other regions of the world.

[1] The priority recommendations were prepared by the Ad-hoc Advisory Group for Bio-based Products during the Lead Market Initiative for Bio-based Products between 2008 and 2011, see https://biobs.jrc.ec.europa.eu/sites/default/files/generated/files/policy/2011%20Lead%20Market%20Initiative%20LMI%20Biobased%20Products%20Priority%20Recommendations.pdf

Context of work and objective of the Working Group

Based on the final outcomes of the completed Lead Market Initiative (LMI) for Bio-based Products[2] and in the context of the Commissions' bioeconomy strategy[3] and industrial policy[4], the Commission Expert Group for Bio-based Products[5] (Expert Group) was established in July 2013.
The objective of the Expert group is to advise the Commission with regard to the development of the bio-based products sector by:

1. monitoring and supporting the development of the policy framework / implementation of the priority recommendations proposed by the Lead Market Initiative Ad-hoc Advisory Group for Bio-based Products.

2. proposing demand-side industrial policy actions conducive to the market uptake of bio-based products and processes (standardisation, public procurement, awareness raising, labelling, etc.).

3. mapping of bio-based products and relevant bioeconomy related activities and exchanging of good practices at regional, national, international and EU-level aimed at increasing the competitiveness of the European industry.

In order to carry out the mandate with respect to the first objective, the Expert Group decided to set up the Working Group "LMI Evaluation". Its mandates are the following:

- to gather information on implementation activities related to the priority recommendations at European Member States and regional/local level from the experts and observers of the Commission Expert Group and from the Commission services.

- to assess the current state of play of the implementation of the 15 priority recommendations based on the available information and draw concrete recommendations for the identified implementation gaps.

Methodology

The 15 priority recommendations have been evaluated and assessed by the Working Group based on information contributed by members and observers of the Commission Expert Group for Bio-based Products, various Commission services and on individual expertise. Due to obvious limitations regarding its resources, the Working Group has not had the ambition to deliver a comprehensive in-depth study on the state of the play of the implementation of the

[2] http://ec.europa.eu/growth/sectors/biotechnology/bio-based-products/index_en.htm
[3] http://ec.europa.eu/research/bioeconomy/pdf/official-strategy_en.pdf
[4] http://ec.europa.eu/growth/industry/policy/renaissance/index_en.htm
[5] http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=2886

priority recommendations. It rather intended to assess the obvious achievements and gaps which could be tackled by specific policy actions at European or Member States level.

Firstly the Working Group agreed on a set of criteria (level of implementation; uptake by EU/Member States/regions; tangible impact), which was arranged into a table of scores (Table 1 in annex).

Based on the consensus regarding the respective scores, an evaluation has been carried out for each of the priority recommendations with respect to achievements at EU / Member States / regional level and gaps identified.

Evaluation of the implementation of the 15 priority recommendations of the LMI Ad-hoc Advisory Group for Bio-based Products (2011)

Access to feedstocks

1. LMI priority recommendation #1:

Legislation and policies (agriculture, rural development, research, industrial and environmental policy, etc.) should be balanced between bio-energy and bio-based products to allow access to sustainable renewable raw materials/feedstock for industrial uses. Legislation and policies should promote the availability of renewable raw materials/feedstock in sufficient quantities at a suitable and guaranteed quality and at competitive prices.

1.1 Achievements at EU, national or regional level

The idea of a balance between bio-energy and bio-based products, referred to as a level playing field, is discussed extensively throughout Europe and multiple acknowledgments of its importance are made in strategies published at EU level, by some Member States and regions.

1.2. Gaps

For bio-energy/biofuel there are strong policies in effect, such as the Renewable Energy Directive (RED) or Member State incentives. Currently the use of biomass for material purposes is only encouraged by small and isolated incentives, resulting in a situation where the use of biomass for bio-based products is disadvantaged compared to its use for energy production.

2. LMI priority recommendation #2:

All programmes in Structural Funds and Rural Development, which are used to support and implement bio-energy and biofuels, should be opened to bio-based products, and all criteria for funding should be handled equally.

2.1. Achievements at EU, national or regional level

At EU level, the structural and investment funds (including European Agricultural Fund for Rural Development and European Regional Development Fund regulations for 2014-2020 as well as the CAP in general) have been opened up for projects focusing on bio-based products.

2.2. Gaps

The EU level initiative to open up structural funds etc. to date has not been followed up by Member State initiatives.

Research, development and innovation

3. LMI Priority recommendation #3

To continue to stimulate and enhance technological innovation and the development of technology, to increase public funding for demonstration projects and stimulate the construction of demonstrators via Public Private Partnerships, and to set up a specific "EU Innovation Fund" which could also serve to aid the transition of the results to full scale implementation and to the marketplace.

3.1. Achievements at EU, national or regional level

At European level, a new Public Private Partnership (PPP) between the European Commission and the bio-based industry, the Bio-based Industries Joint Undertaking[6] (BBI JU), was launched in July 2014 with a total budget of EUR 3.7 billion for the period 2014-2020. Almost EUR 1 billion will be invested by EC. The BBI-JU will cover research-, development-, demonstration- as well as flagship-projects. The first call was launched in 2014.

In addition the bioeconomy pillar within Horizon 2020 has been reinforced with a total budget of more than EUR 4 billion. Industrial biotechnology became part of the Industrial Leadership (Key Enabling Technologies[7]) pillar of Horizon 2020 carrying a focus on deployment.

At national level, several Member States have introduced specific funding programmes (sometimes via local Public Private Partnerships), e.g. Germany, Italy and The Netherlands.

[6] http://bbi-europe.eu/

[7] https://ec.europa.eu/programmes/horizon2020/en/area/key-enabling-technologies. See also http://ec.europa.eu/growth/industry/key-enabling-technologies/index_en.htm

Similar initiatives are being launched in many regions (e.g. Baden-Württemberg and North Rhine-Westphalia in Germany, Bio-based Delta in The Netherlands, Flanders in Belgium and some regions in Italy).

3.2. Gaps

The BBI JU has just started and its effectiveness has to be proven in the long term. Initiatives related to possible synergies between the Bio-based Industry Joint Undertaking and the European Innovation Partnership on Agricultural Productivity and Sustainability[8] have not been perceived so far.

4. LMI Priority recommendation #4

To develop incentives for the conversion of production plants and industrial processes into bio-based, provided that they have proven to be sustainable, and that applicable EU State Aid rules are respected.

4.1. Achievements at EU, national or regional level

Although no specific programmes or incentives exist to convert abandoned production plants or conventional production processes into bio-based ones, regions are allowed to use the Structural Funds to support conversion of such (old or abandoned) plants.

For example France has launched an industrial plan for biofuels and green chemistry and specific measures/ industrial projects are under discussion. Furthermore several regions in Italy have developed specific actions promoting the conversion of specific former/abandoned industrial sites into biorefineries exploiting local biomass.

4.2. Gaps

Compared to other parts of the world the potential of measures in Europe to support the conversion of abandoned plants or the investment in new production infrastructure still seems underutilized.

5. Recommendation #5

To develop incentives (taxation or state aid measures, grants) to support the development of new, sustainable bio-based products' production processes, in other words financial support for those companies that want to invest in new sustainable productions infrastructure.

5.1. Achievements at EU, national or regional level

Available funding has increased for innovation and even for demonstration projects and flagships (first-of-a-kind innovative production plants) in Europe (Horizon 2020 and BBI JU).

[8] https://ec.europa.eu/eip/agriculture/en/content/EIPAGRIabout

The European Investment Bank (InnovFin and EC Investment Package) offers additional opportunities. Finally, new instruments were established to enable Member States and regions to co-invest in projects (e.g. via ESIF).

5.2. Gaps

Access to finance, however, is more difficult in Europe than in other large economies (e.g. the funding landscape is too fragmented, administrative procedures are too complicated and decision-making processes are too long). Moreover, SMEs are not always aware of existing funding possibilities.

In November 2014 the Bio-based Industries Consortium has published "Guiding principles to combine BBI (H2020) and European Structural and Investment Funds (ESIF) to deploy the European Bioeconomy[9]". Despite the fact that several Member States/regions have taken up bioeconomy in their smart specialisation strategies, regional funding procedures still seem very diverse and complex.

Access to markets

6. LMI Priority recommendation #6:

Continue to develop and apply clear and unambiguous European and international standards. The standards help to verify claims about bio-based products in the future (e.g. bio-degradability, bio-based content, recyclability, and sustainability).

6.1. Achievements at EU, national or regional level

The definition of 'bio-based products' was published in summer 2014 by CEN. CEN TC411, TC276 and TC249 are on track in developing standards for bio-based products (definition, sustainability, life cycle analysis, biodegradation, labelling etc.) and envisage bringing several standards into force in 2016.

In addition, two FP7 projects (Knowledge Based Bio-based Products' Pre-Standardization[10] and its follow-up project OPEN-BIO[11]) are inputting research findings into CEN TC411.

In addition to FSC[12] (Forest Stewardship Council) and PEFC[13] (Programme for the Endorsement of Forest Certification) for wood, ISSC Plus[14] (International Sustainability & Carbon Certification) and RSB[15] (Roundtable on Sustainable Biomaterials) are organisations for the certification of sustainability of all kinds of biomass, independent of their final use.

[9] http://biconsortium.eu/sites/biconsortium.eu/files/downloads/Guidelines_BBI-ESIF-Final.pdf
[10] http://www.biobasedeconomy.eu/research/kbbpps/
[11] http://www.biobasedeconomy.eu/research/open-bio/
[12] https://us.fsc.org/
[13] http://www.pefc.org/
[14] http://www.iscc-system.org/
[15] http://rsb.org/

In Germany the Initiative for Sustainable Supply of Raw Materials for the Industrial Use of Biomass[16] (INRO) and in The Netherlands Green Deal[17] suggest suitable certification systems for the chemical and bio-based products industry. These initiatives aim to reach an agreement with industry on the voluntary certification of biomass.

6.2. Gaps

The standards are not yet fully implemented and/or used by governments in the Member States for incentives or market pull instruments.

7. LMI Priority recommendation #7:

Consider setting indicative or binding targets for certain bio-based product categories where they contribute towards achieving the objectives of existing and future sustainability policies (such as climate change, resource efficiency, energy security, etc.). Study their market perspective, possible mechanism for implementation and their contribution to these sustainability goals.

7.1. Achievements at EU, national or regional level

Although certain discussions at a European level and in some member states are taking place no real achievements have been observed.

7.2. Gaps

A political consensus cannot currently be perceived. Any implementation still seems remote.

8. LMI Priority recommendation #8:

Allow Member States to grant tax incentives for sustainable bio-based product categories.

8.1. Achievements at EU-, national or regional level

Tax incentives are being seriously discussed at EU level. Some member state already use tax incentives to support bio-based and/or environmental products such as France, Italy, UK, The Netherlands and Belgium.

8.2. Gaps

For tax issues duties and responsibilities lie first and foremost with the Member States so the scope of action at an EU level is naturally limited. Prospects of implementing this recommendation by all Member States still seems to be remote.

[16] http://www.inro-biomasse.de/en.htm
[17] http://www.rijksoverheid.nl/onderwerpen/duurzame-economie/green-deal

9. LMI Priority recommendation #9:

Allow bio-based plastics to enter all waste collection and recovery systems, including composting, recycling and energetic recovery (depending on the type of plastic and compliance with applicable standards). Bio-based plastics certified compostable according to EN 13432 should gain unhindered access to bio-waste collection.

9.1. Achievements at EU-, national or regional level

Many countries have allowed certified biodegradable materials/products in waste collection systems; at EU level and in the Member States discussions are on-going about how to integrate bio-based products into the next revision of waste, composting and recycling regulations.

9.2. Gaps

Know-how on a technical level is still not sufficient. E.g. gaps are seen in (material) recycling of bio-based plastics because of low volume and potential problems for the recycling of other plastics. Also more know-how and information is needed about anaerobic digestion into biogas (methane) of biodegradable plastics.

Furthermore reluctance from stakeholders in the recycling sector can be observed based on fear of higher costs.

10. LMI Priority recommendation #10:

Bio-based construction materials (foams for insulation, composite material, mortar, and concrete made of vegetative aggregate particles) have now become sufficiently advanced to offer a real alternative. The Construction Products Directive should promote the specificities of bio-based products. In addition, new and transparent standards showing the product capabilities are needed to help demonstrate that bio-based materials comply with construction legislation.

10.1. Achievements at EU-, national or regional level

In several countries information about bio-based building and construction products is being provided via brochures, internet, campaigns with road shows and exhibitions.

10.2. Gaps

However the uptake of new bio-based products in market share is still not very large in comparison to fossil- and mineral-based products.

Specific technical hurdles for some bio-based products in the construction sector were identified by the KBBPPS-project (Knowledge Based Bio-based Products' Pre-

Standardization), e.g. for natural fibre insulation materials; in the pilot phase of PEF (Product Environmental Footprint) the notion of "bio-based products" is only considered marginally.

11. LMI Priority recommendation #11:

Study the possibility of mandating the use of bio-lubricants and hydraulic fluids in environmentally sensitive areas. This could be implemented e.g. via soil protection and water protection legislation.

11.1. Achievements at EU-, national or regional level

In several EU member states the use of biodegradable lubricants is compulsory in sensitive natural areas. Likewise for FSC and PEFC managed forests, the use of biodegradable lubricants is mandatory.

11.2. Gaps

Due to the specificity of the problem biodegradability as a property outweighs "bio-based" in significance. A political consensus has not been achieved to date. Implementation at EU level, binding for all member states still seems far away.

Public procurement

12. LMI Priority recommendation #12:

Encourage contracting authorities in all EU Member States to give preference to bio-based products in tender specifications. A requirement or a recommendation to give preference can be laid down in a national action plan adopted by the government. Preference should be given to bio-based products unless the products are not readily available on the market, the products are available only at excessive cost, or the products do not have an acceptable performance.

12.1. Achievements at EU, national or regional level

In some countries, concrete pilot projects have been initiated to give preference to bio-based products in tender specifications. As a side effect bio-based products possess advantages in those procurement systems which include sustainability and/or innovation.

12.2. Gaps

Public procurement takes place in a fragmented landscape. Although the effectiveness of this recommendation is thought to be rather high a national and/or EU bio-based procurement system has not been reached yet.

13. LMI Priority recommendation #13:

Develop a list of product groups and designated bio-based products. The product groups and subgroups reflect the areas of application (e.g. building materials, furniture, cleaning products, lubricants, packaging, etc.). The designated bio-based products reflect the individual products from each manufacturer respectively.

13.1. Achievements at EU, national or regional level

Products list have been drawn up in several countries and put in booklets and on websites. This action also has been taken at a European level.

13.2. Gaps

Presently there is no official EU product list available. The publication (and maintenance) of such a list by the EU itself is deemed to be very useful. Such a list might be truly effective if used in combination with other actions such as legislation or procurement systems.

Communications

14. LMI Priority recommendation #14:

Promote and use harmonised certification and labelling schemes for bio-based products.

14.1. Achievements at EU, national or regional level

To date the EN 13432 for industrial compostability is well known and widely applied throughout Europe. Other EN standards like for bio-based content, industrial digestion and biodegradation in other environments (e.g. soil, water) are still in development by CEN.

14.2. Gaps

Not many governments actively promote the use of the compostability norm and/or prevent the misuse by producers not complying with the norm. As different norms for measurement of bio-based content currently are in development by different stakeholder groups, the harmonisation of a standard measurement for bio-based content presently is at risk.

15. LMI Priority recommendation #15:

Design and implement a communication strategy involving all partners in the value chain and all other stakeholders to achieve coherent messages on bio-based products.

15.1. Achievements at EU, national or regional level

The European Commission has conducted a public consultation on the bio-based economy in 2011. Some other communication activities on a smaller scale have been observed.

15.2. Gaps

Despite policy support for this measure through the EU wide communication on Bio-based economy a really visible and coherent communication strategy on the bio-based economy has not been observed to date.

Summary

	Recommendations	Consensus Rating
Access to feedstock	*1. Legislation and policies should be balanced between bio-energy and bio-based products to allow access to sustainable renewable raw materials / feedstock for industrial use. Legislation and policies should promote the availability of renewable raw materials / feedstock in sufficient quantities at a suitable and guaranteed quality and at competitive prices*	3
	2. All programmes in Structural Funds and Rural Development, which are used to support and implement bio-energy and biofuels, should be opened to bio-based products, and all criteria for funding should be handled equally	3
Research, Development &	*3. Continue to stimulate and enhance technological innovation and the development of technology. Increase public funding for demonstration projects and stimulate the construction of demonstrators via Public Private Partnerships. Set up a specific "EU Innovation Fund" which could also serve to aid the transition of the results to full scale implementation and to the marketplace.*	7.5
	4. Develop incentives for the conversion of production plants and industrial processes into bio-based, provided that they have proven to be sustainable, and that applicable EU State Aid rules are respected.	5
	5. Develop incentives (taxation or state aid measures, grants) to support the development of new, sustainable bio-based products' production processes.	6
Access to markets	*6. Continue to develop and apply clear and unambiguous European and international standards. The standards help to verify claims about bio-based products in the future (e.g. bio-degradability, bio-based content, recyclability, and sustainability).*	8
	7. Consider setting indicative or binding targets for certain bio-based product categories where they contribute towards achieving the objectives of existing and future sustainability policies (such as climate change, resource efficiency, energy security, etc.). Study their market perspective, possible mechanism for implementation and their contribution to these sustainability goals.	2.5
	8. Allow Member States to grant tax incentives for sustainable bio-based product categories.	5.5
	9. Allow bio-based plastics to enter all waste collection and recovery systems, including composting, recycling and energetic recovery (depending on the type of plastic and compliance with applicable standards). Bio-based plastics certified compostable according to EN 13432 should gain unhindered access to bio-waste collection	6
	10. Bio-based construction materials (foams for insulation, composite material, mortar, and concrete made of vegetative aggregate particles) have now become sufficiently advanced to offer a real alternative. The Construction Products Directive should promote the specificities of bio-based products. In addition, new and transparent standards showing the product capabilities are needed to help demonstrate that bio-based materials comply with construction legislation.	5
	11. Study the possibility of mandating the use of bio-lubricants and hydraulic fluids in environmentally sensitive areas. This could be implemented e.g. via soil protection and water protection legislation.	6
Public procurements	*12. Encourage contracting authorities in all EU Member States to give preference to bio-based products in tender specifications. A requirement or a recommendation to give preference can be laid down in a national action plan adopted by the government. Preference should be given to bio-based products unless the products are not readily available on the market, the products are available only at excessive cost, or the products do not have an acceptable performance.*	6
	13. Develop a list of product groups and designated bio-based products. The product groups and subgroups reflect the areas of application (e.g. building materials, furniture, cleaning products, lubricants, packaging, etc.). The designated bio-based products reflect the individual products from each manufacturer respectively.	6
Communication	*14. Promote and use harmonized certification and labeling schemes for bio-based products.*	6
	15. Design and implement a communication strategy involving all partners in the value chain and all other stakeholders to achieve coherent messages on bio-based products.	4

ANNEX

Table I

Table of scores

Score	Level of implementation	Uptake by	Tangible impact
0	no action	no country	
1	in serious discussion	at least one country	Low
1.5	in serious discussion	at least one country	Good
2	in serious discussion	several countries	Low
2.5	in serious discussion	several countries	Good
3	in serious discussion	all of EU	Low
3.5	in serious discussion	all of EU	Good
4	concrete concepts or project developed	at least one country	Low
4.5	concrete concepts or project developed	at least one country	Good
5	concrete concepts or project developed	several countries	Low
5.5	concrete concepts or project developed	several countries	Good
6	concrete concepts or project developed	all of EU	Low
6.5	concrete concepts or project developed	all of EU	Good
7	implementation	at least one country	Low
7.5	implementation	at least one country	Good
8	implementation	several countries	Low
8.5	implementation	several countries	Good
9	implementation	all of EU	Low
10	implementation	all of EU	Maximum