Proposal for a joint[1] Strategic Working Group on Bioeconomy[2] (BE):

Sustainable supply and processing of biomass and bioresources for food and biobased industries and markets

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Introduction

SCAR has reflected on earlier drafts of the planned Commission's communication on the Bioeconomy strategy "Innovating for sustainable growth: a Bioeconomy for Europe", taking on board the findings of SCAR Foresight 3 (FEG3 report). A SCAR reflection group recommended that the strategy should include, a.o.:

- integrated and coherent policies to address the trade-offs between the key priorities of food and energy security while preserving sustainable ecosystem functionality;
- fully integrated research and innovation agenda to identify clear policies and strategies required to govern and manage the complexity of the production and processing systems in the agri-sector and include a framework to address society's multiple demands on the natural resources, the processing of products, inter sector/cross-cutting issues and the conflicts/ opportunities that these will increasingly create.
- to tackle constraints linked to the increased global demand for renewable resources for industrial uses and the competition between food and non food production facing scarce land resources.

Also, KBBE-Net has significantly contributed to the development of EC's Bioeconomy Strategy (Contribution of the KBBE-NET to the EC's planned Communication, May 2011), through recommendations on the issues raised in earlier drafts of the Strategy such as *sufficient supply of food and biomass* and *competitive biobased industries*, and advice on possible actions. The LMI recommendations of the Ad-hoc Advisory Group for Biobased Products stressed the importance of standardisation and certification for bio-based products and food production systems and legislation matters.

In the search of solving the controversy about competing uses of biomass - taking into account the complex inter-dependencies between resource scarcity, climate change, biodiversity loss and food and feedstock security - and directing the research and innovation agenda's of MS as a follow up of the FS3 recommendations and as a step forward in the bioeconomy strategy SCAR has taken the initiative **to propose a Strategic Working Group formed by MS representatives in charge of Bioeconomy and Bioresources research to advise on research and innovation policies and to increase research collaboration on the issue of sustainable biomass supply for food and biobased industries.**

The SCAR-plenary of December 15th 2011 decided that the SCAR-FG should further develop and consolidate their proposal for a MS/AS coordination and advisory initiative on the Bioeconomy, taking into account the outcome of the Bio-economy conference in Copenhagen on 26-28 March 2012. Representatives of KBBE-Net and LMI were invited to join a preparatory team to set up a joint Working Group. The team has prepared a draft proposal for a Strategic Working Group that is discussed within SCAR and KBBE-net (ended march 2012). The Copenhagen Declaration for a Bioeconomy in Action has pointed out 10 recommendations. Four of them are directly related to this proposal, underpinning the need for an integrated approach to tackle sustainability aspects throughout the production chain. An official launch of the joint initiative could now be established.

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[1] SCAR together with representatives of the former KBBE-NET and LMI

[2] The term 'bioeconomy' includes all industries and branches of the economy that produce, manage or otherwise harness biological resources (and related services, supply or consumer industries), such as agriculture, food, fisheries and other marine resources, forestry.

Rationale
The European Bioeconomy Strategy (which includes recommendations from SCAR, KBBE-net and the results of the LMI on biobased products) aims at the delivery of the full potential of the bioeconomy by creating a coherent policy framework and governance, promoting relevant research and innovation activities and providing specific support to policy implementation and markets.
One of the goals is to better coordinate investments in research, innovation and entrepreneurship and skills for the whole supply chain, stimulate stronger synergy between programmes, boost knowledge creation in bioeconomy related areas and support EU research and innovation to tackle the societal challenges connected to the bioeconomy. The share of multi-disciplinary and cross-sectoral research and innovation should be increased in order to address the complexity and inter-connectedness of these societal challenges and to provide scientific advice for informed policy decisions on benefits and trade-offs of bio-economy solutions. Referring to sustainable management of natural resources it is stated that an internationally shared understanding of biomass sustainability needs to be developed to open new markets, diversify production and address long term food security issues.

A cooperaton of SCAR/(former)KBBE-net/LMI can provide an *integrated approach* to sustainable biomass covering the whole production chain on the basis of FS3 findings and recommendations, KBBE-net and LMI recommendations as well as the recommendations of the Copenhagen Declaration for a Bioeconomy in Action, while connecting the different elements:

1) coupling primary producers with processors, chemical industry and end-users; coupling biomass production and supply including side streams (e.g. agricultural, forestry and industrial residues) and bio-waste to conversion industry and new markets (food and biobased products)
2) couple research with industry in identifying research needs on sustainable biomass production and conversion to end-products
3) cooperation between SCAR and (former) KBBE-net/LMI in (re)defining criteria for sustainable biomass supply on the basis of existing sustainability criteria.
4) development of integrated standards and standardised sustainability assessment methodologies for food and biobased products.

These goals/activities are in line with the actions 2, 8, 9 and 11 of the EC Bioeconomy strategy Action Plan.

Scope of the SWG on sustainable bioeconomy

***Context*:**
In Horizon 2020 'food security, sustainable agriculture, marine and maritime research and the bio-economy[3]' is recognized as one of the societal challenges that needs to be addressed.
Goals are:
a) a lower carbon economy and sustainable primary production - sustainable supply of food, feed, biomass and bioresources from terrestrial and marine ecosystems;
b) building competitive and sustainable bio-based industries
c) a resilient sustainable and productive food chain – safe, nutritious and affordable food.
These societal challenges are also mentioned in the Bioeconomy Strategy: quality biomass needs to be accessible at a competitive price without compromising food security and adding pressure to primary production and the environment such as declining biodiversity and degrading quality of resources. This means that one of the largest challenges of the BBE is to produce sufficient biomass for conversion to food, chemicals, fuel, and bioplastics while taking planetary boundaries into account such as maintaining ecosystem functioning and preserving biodiversity.
It is generally accepted by science, industry and policy that in order to address the trade-offs sustainability criteria throughout the production chain should be developed such as reduced CO_2- output, ecological footprint, indirect land use change, impact on biodiversity and social

[3] Final name of this societal challenge is going be different and may include the term 'bioeconomy challenges'.

functioning of economies at local, regional, national and global level. This can be done by carrying out Life Cycle Assessments taking into account all these aspects. However due to a fragmented policy environment linked to the complexity of the bioeconomy and the variety of stakeholders involved, there is a huge information and knowledge gap between researchers, innovating entrepreneurs and producers , end-users, policy makers and civil society.

Transition to a sustainable bioeconomy.
The SCAR Foresight 3 and Budapest declaration: how to reach synergy and make the needed combination between 'productivity and sufficiency' by both research, industry and society for the transition towards a sustainable biobased economy (linking both food and biobased industries).The main question is how can industry become the driving force of the bioeconomy, taking planetary boundaries into account. How to incorporate e.g. biodiversity criteria into production processes and related business cases. How to stimulate the development of a sustainable industry for the production and conversion of biomass for food and biobased materials. In developing criteria for sustainable food and biobased industries we recognize two main problems. At the one hand there is the difficulty to address effects of biomass production on biodiversity and ecosystem functioning on a coherent way at different scales. On the other hand how can industry incorporate sustainability criteria into (new) business models.
From interviews in the Netherlands it became clear that large companies regard sustainability on the basis of ecosystem functioning and maintaining ecological equilibrium as an important challenge and take effort to improve sustainability in production processes and to deliver fully sustainable end-products. Some companies in the field of agro-food, breeding and cultivation industry see a huge market potential on sustainable products and processing techniques. These initiatives should be addressed at the EU-level. Both fundamental and applied research can play an important role in this transition process by carrying out the research that is needed for sustainable biomass production for food (including fisheries) and biobased industries.

Problem definition:
In order to address trade-offs between the delivery of sufficient food, chemicals, fuel and bioplastics and the necessary biomass supply for a sustainable bioeconomy within a resource constrained world with planetary boundaries, sustainability criteria throughout the production chain are now being developed and used by producers as well as end users. Difficulty is to develop standard values that express the complexity and encompass all aspects of biomass production and processing in the production chain. For example there is not a well developed standard yet for use and conservation of biodiversity. There is also the difficulty to fully adopt these sustainability criteria in business models for both (agricultural) biomass production and biomass use by biobased industries.

Objectives.
Establish a Strategic Working Group, composed by MS representatives, that aims at providing strategic advice on coordination activities and policies on the different qualities involved such as research and innovation (JPI, FP, EIP, KIC), industrial policy, standardisation and certification, training and international cooperation. This will be done by connecting research institutes and industry on the issue of sustainable biomass supply for food and biobased industries, while assessing barriers, constraints and opportunities in sustainable feed-stock supply linked to concrete business cases. It can provide an overview of examples of production of biobased and food products throughout the whole production chain from primary production to consumer products by LCA, impact assessments of (new technologies for) primary production on environment and biodiversity. It can make an inventory of best practices, as starting points for the transition to a sustainable bioeconomy (e.g. responsible soy, sustainable palm oil plantations), taking into account interferences between scarcities and barriers for sustainable production and consumption in these cases, such as the connection between new (agro-ecological) primary production methods linked to the demands of sustainable food and biobased industries and consumer needs. It will formulate recommendations for inventories of criteria for sustainable production and consumption within the context of global governance agreements.

More concrete output will be advice on questions and aspects such as, but not limited to:

- how can trade-offs between food, feed, fiber, fuel, forest, fun (i.e. leisure and recreation) be addressed given the complexity of sufficient biomass supply in a resource-constrained world and taking planetary boundaries and climate change into account seriously;
- what are the effects of indirect land use change (ILUC) on biodiversity as a consequence of bulk biomass production for food, feed and biobased products; (re)formulate criteria for ILUC on the basis of an inventory of existing criteria;
- study and (re)formulate criteria for sustainable production and processing of biomass and delivery of biobased products by life cycle assessments building upon existing methodologies
- how to facilitate start-ups (with industry) of new business models and new investments in sustainable biomass production for food and biobased industries with respect to the use and conservation of biodiversity in industrial processes?;
- pinpoint the role of public-private partnerships for the transition towards sustainable biomass production and processing industry; how to address (criteria for) Corporate Social Responsibility strategies?
- linkage to support other relevant EU initiatives such as the EIP Agricultural productivity and sustainability, the JPI FACCE
- List of demonstration activities and proof of concepts (business cases) in the EU building upon new sustainable technologies (e.g. for biomass and waste use in pulp, sugar and starch based industries)

Proposed activities of the Joint Working Group

1) elaborate the proposal as a joint action of SCAR, KBBE-net and LMI representatives

2) organise a starting workshop with stake-holders to identify and elaborate different programme lines based on a mapping of on-going initiatives in the 7th Framework Programma and JPI FACCE and other research initiatives and activities of networks such as ETP's

3) approach industry to explore possibilities for new or existing business cases on:
- biomass production and processing (biorefineries) in a sustainable way as best practices or pilots/ start-ups
- sustainable use and supply of feedstock in biobased and food industry (covering the whole production chain; e.g. the production of 'green' PEF-bottles)
- elaborate together with research institutes needs of industry for research and innovation in greening the production chain to be dealt with in the business cases (e.g. articulate both long term strategic research questions and short term needs for technologies/ applied research linked to the specific business case)

4) make an inventory of LCA-methods and sustainability criteria, while making use of earlier or on-going inventories, and apply these to the business cases

5) foster international cooperation aimed at diminishing regulatory barriers

6) formulate and develop science-policy-industry interface strategies (HUB) to address a.o. trade-offs, LCA-methods, sustainability criteria for supply and processing of bioresources and marketing of products

Next Steps

- Establishment a Joint Working Group. Such a group would fit in well with the objectives of the policy interaction model of the BE Strategy (see 1.2.3. on pg 16-17 of the commission staff working document). The WG is open to those interested, to contribute actively to achieve the goals identified. SCAR is serving as a platform to advise and support the process. EC-service will support the WG.

- the preparatory team will continue to work as a <u>core group</u> assisted by a remote group of MS representatives. The SCAR-plenary will launch an official consultation amongst SCAR countries to solicit membership and active involvement

- With the then confirmed membership the Joint Working Group will, if so desired, adapt and confirm its specific work programme.

- The SWG will take on board the findings of the SWG on fisheries/aquaculture and fully involve the forestry sector.

- Involvement of other stakeholders as representatives of industry or ETPs (Suschem, Europabio, Plants for the Future, Food for Life, Core Organic, EPSO): they will be invited to provide input.

- The SWG will develop activities in close cooperation with or back to back with a follow-up group of the Ad hoc Advisory Group on biobased products of the LMI aimed at implementing the LMI biobased products recemmendations,

- After official launch the SWG will work along the terms set to achieve the objectives and deliverables agreed before (such as organizing mapping activity and stakeholderworkshop, explore business cases and meetings with industry)

- 1th Progress Report to be presented at the SCAR-plenary

PS The text of this proposal is a slightly different version than the one discussed in SCAR Plenary on June 1st 2012, as some tipographic errors were corrected and updated information was included.