

European Bioeconomy *Stakeholders* Manifesto

Building blocks

Thus concluded by stakeholders from large and small companies, NGOs, associations, national and regional governments from 30 countries throughout Europe at the 4th Bioeconomy Stakeholder Conference in Utrecht, 12-13 April 2016

Introduction

1. We, stakeholders from large and small companies, NGOs, governments and associations from all over Europe have come together in Utrecht. The purpose of our meeting was to reflect on the various aspects of a bioeconomy, to identify the opportunities for an accelerated transition from a fossil fuel economy to a bioeconomy, as well as the problems involved in that transition. The building blocks elaborate upon the main conclusions of recent Bioeconomy conferences, events and interviews with stakeholders. We believe Europe can be a leader in a sustainable bioeconomy.

2. The bioeconomy comprises those parts of the economy that use renewable biological resources (biomass) from land and sea – such as crops, forests, fish, animals and micro-organisms, as well as biological residues and waste –to produce food, animal feed, materials, chemicals, fuels, and energy in a sustainable way. Our vision has been built upon a solid historical basis. For thousands of years we have used biomass in different ways and for different purposes: we eat it, build with it, burn it or wear it. Thus the bioeconomy is as old as mankind. It is our natural habitat; it's the ancient ground upon which we have built our world. In general the bioeconomy includes potentially unique features and advantages, like carbon neutrality, renewability, circularity and multi-functionality. A bioeconomy has a potentially strong socioeconomic impact, enabling jobs in rural areas and making industries more competitive.

3. We regard the transition to a sustainable and circular bioeconomy as inevitable. For some 200 years fossil fuels accelerated industrial production and global economic growth. Now it's time to end the fossil fuel era because it has caused major problems for the climate, the environment and for mankind as a whole. We are at a crossroads. Of course it is possible to wait until the world runs out of fossil resources like coal and oil, or to wait until oil prices will rise again. But then we'll be too late; we will not be able to reach climate goals and to keep the global temperature rise within 2 degrees. If we look at the global development goals, a bioeconomy is at the heart of the solution. It would have an impact on climate change, food security, jobs, ecological balance and regional development. The enormous transition from a fossil fuel based economy to a sustainable bioeconomy requires ambitious efforts and coordinated actions. It demands: 'Put your money where your mouth is.' European governments and companies should invest wholeheartedly in research and development, sustainable production, market introduction, innovation, scaling up industries and smart regulation. The transition demands true leadership, from companies, NGOs, regions, states and especially - because it crosses so many boundaries – true leadership from the EU.

Challenges and opportunities

There are a number of challenges we will address and a number of opportunities within reach.

4. Development of the bioeconomy is driven by the desire to meet some of the big societal challenges of our time. The European bioeconomy should be sustainable in terms of people (jobs, inclusiveness), planet (biodiversity, ecological balance) and profit (resource efficiency, competitiveness) and it should contribute to reaching the UN Sustainable Development Goals.

5. A European bioeconomy should contribute significantly to the goals formulated at COP 21 on greenhouse gas emission reductions, holding the global temperature rise below 2°C, using sustainable biomass in the most effective and efficient ways to produce food, materials, chemicals and energy.

6. Creating sustainable growth and creating jobs is an important challenge. New and innovative products and production processes can meet social demands and will lead to new economic activities and increasing employment for people in all involved sectors.

7. It is vital to ensure sustainable production and consumption and sustainably manage the planet's essential resources, i.e., fertile soils, clean water, clean air, and biodiversity. Innovation and sustainability can reinforce each other. Companies that invest in sustainability have proven to be more innovative and score better on growth indicators.

8. Europe needs to revitalise rural and coastal areas. A European bioeconomy will offer a new perspective on high-value production in the regions, as well as creating new opportunities and jobs for farming, forestry and aquaculture. The potential of the marine environment should be included in an integrated, circular bioeconomy.

9. The efficient use of resources, lifestyle changes and reduced consumption are necessary in order not to exceed planetary limits. In the future various sectors of the bioeconomy will compete for the same limited resources. On the one hand there's still room for improving productivity, the creation of alternative feedstock and the circular use of waste. On the other hand, we aim to reduce the need for this competition by decreasing certain categories of consumption.

Guiding Principles

The following principles will guide our work towards a prosperous and sustainable bioeconomy.

10. Connectivity is the new productivity. The added value of the bioeconomy lies in the interaction between its various areas that provide opportunities for new innovation. The whole value chain is important: production, refinery and market application and consumption. As areas influence each other, there is an increasing need for integral chain management and a holistic systems approach.

11. Innovation and competition are important principles for a flourishing bioeconomy. That means simplifying policy, reducing administrative burdens, levelling the playing field between sectors, ensuring a return on investments within Europe, and creating new markets. A clear and stable legal framework is necessary for investment. If there is a strong, clear, established and stable policy in Europe, business will respond to these signals and invest.

12. A bioeconomy should contribute to food security. 'Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life' (FAO definition). Conflicts and periods of drought are important causes for food insecurity. A bioeconomy can contribute to food security and water security by promoting innovation in agricultural systems, organising crop rotation, creating stocks and buffers, establishing stable value chain cooperation, and by smart regulation and monitoring.

13. A foundational principle is ensuring the sound use of scarce land by promoting ecosystem resilience, nutrient balance, biodiversity and soil fertility. A bioeconomy closes the cycles of biomass and contributes to a circular economy. This includes protein isolation, phosphate and potash recycling and reducing the number of protein imports, like soy from South America. Negative externalities should be incorporated, minimising losses and waste, to reach a level of sustainable competitive development. The land footprint of the EU should not increase due to growth in the bioeconomy. Corporations and financial institutions should respect the land rights of indigenous communities in their value chains.

14. European energy policy needs a clear ambition: besides energy conservation and energy efficiency, all renewables are necessary to be able to meet the targets of COP 21. Energy from sun, wind, water and biomass, provided that it is sustainably sourced and produced, contribute to the achievement of climate goals. For airlines and shipping, biofuels will probably be the only renewable alternative in the next few decades.

Remark BEU2016:

- *No European legislation on cascading. Do not favour some uses; create level playing field.*

15. Resource efficiency is a fundamental principle for a sustainable bioeconomy. This needs to take into account the market economy principle and the complex and diverse realities of the bioeconomy, such as local economics, regional differences and specialisations, societal needs and the existence of viable alternatives. Biomass is a valuable resource that needs to be used in

a smart, circular and efficient way. Investments in the optimal production and optimal use and reuse of biomass, in waste prevention and in the recycling of waste streams, is necessary.

16. Europe's cities and regions should play a key role in further developing the bioeconomy. We should fully utilise the available biomass and better valorise the use of agricultural land that is currently not being used for production, or not being optimally used. A European bioeconomy will diversify the revenues of the agricultural and forestry sectors and develop a competitive, knowledge-intensive economy in rural Europe.

17. Marine production and aquaculture offer new possibilities. Aquaculture accounted for 50% of worldwide fish production for consumption in 2015. Fish farming is an efficient means of animal protein production and sustainable aquaculture prevents overfishing in common seas and oceans. Marine production of seaweed and algae can deliver biomass for food, non-food and for energy purposes.

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Actions

Agenda for all actors involved

There are a number of actions and next steps we want to initiate in cooperation. Joint action of companies, associations, civil society organisations, regions, in cooperation with EU and Member States, is necessary and includes:

18. A flagship for an European Bioeconomy *should include integrated participatory business cases (public private partnerships with a broad range of topics* and actors/ innovators included SME) with locally defined priorities in biomass cascading as a guiding principle.* Work to be undertaken includes defining and setting up new value chains and systems around them, stimulating the development of biorefineries and the use of renewable feedstock in complex and interconnected chemical production systems and supply chains, facilitating large demonstrations and bioplastic plants, incentivize demonstration, *bringing projects to market*, and stimulating techniques to process biomass. *Additional investment in R&D is needed to create new, sustainable European biomass value chains.*

Remarks BEU2016:

- *Financially support research on flagships. Involve society in research.*
- *Start little. Allow evolution, even failure.*
- *Measure and monitor substances in flagships (make the production comply with MRLs). Learn from existing flagships and share best practices.*
- *Include format for open dialogue at national level.*
- *Integrate the new supply chains into existing settings.*
- *Integrate the real cost of a plant and of the negative externalities (impact on health, environment) investment decisions to integrate these costs.*
- *Long term support, beyond building a flagship, is needed.*
- *Build multi-skilled teams and consortia. Promote education and training that provides you with multidisciplinary skills. Encourage mobility between academia and industry.*
- *Need for legislation support and reform of regulatory barriers*

* *no limited list of themes versus a lot of topics mentioned: Biorefinery, biomaterials, new food systems (for example proteins from aquaculture, insects, plants), building with innovative wood products, biochemicals, artificial photosynthesis, marine biomass production, new molecular functionalities, integrated crop & food production for food and security on nutrition, plant made pharmaceuticals, modify renewable sustainable feedstock.*

19. Education, training, *communication and (worldwide) outreach* is crucial for a future bioeconomy. *This start with promotion and accessibility of existing knowledge and the need to invest in the transfer of knowledge (open access).* A strong interconnection among education providers, *producers, workers, citizens*, researchers and innovators should be supported and facilitated. We will explore opportunities for long-term international research and development collaboration to advance bio-based technologies, processes and products in selected innovation areas. Mutual learning and *(new) transdisciplinary skills and competence* are necessary, specifically with regard to successful new business models, suitable policy practices and sustainability standards.

Remarks BEU2016:

- *Sustainability must be underpinned in this process*
- *Engaging society. Include social innovation, think from end consumers, market oriented.*
- *Promote existing (historic, local) knowledge besides development of new knowledge.*

20. Cross-overs and connectivity between the sectors should be organised, giving special attention to cross-overs in the funding of research, pilots and demo's. Open innovation, interdisciplinary research and public-private-partnerships are suitable approaches to enhance innovation. Here the 'Public to Public' partnerships such as ERA-NETs, Joint Programming Initiatives (JPIs) and Joint Technology Initiatives (JTIs) have proved their value; these should be further built upon.

21. *Bioeconomy is an integrated part of a sustainable circular economy, without being subservient.* The European Circular Economy Package offers great opportunities to reuse the vast majority of all bio waste and (unexploited) biomass stocks by 2030. We want to cooperate to deliver the bioeconomy contribution to the goals, targets and ambitions formulated in the Circular Economy Package. This involves systemic and efficient approaches across sectors, particularly innovation policy measures that aim to optimise bio-economy value networks and minimise waste and loss. We aim to stimulate the mobilisation and utilisation of currently unused produced biomass, by-products and residues. Engage society on using waste as a resource.

Remarks BEU2016:

- *Aim for resilient economy (endurable).*
- *Circular economy is a concept that can provide Bioeconomy with standards.*
- *Circular economy is the 'favourable legal framework (transport, status end product, waste, biosafety legislation) to stop end of life thinking.*
- *Aim for policy and terminology coherence between Waste Framework Directive & Renewable Energy Directive with terms (waste, by-products, residues). Legal framework must be coherent; EU policies should be mutual supportive (DGEnvi, DGRTD, DGAgri, etc).*
- *A sound inclusive approach is needed in prioritizing the use of residues between soil management, animal feed, bioenergy and biomaterials.*
- *Renewables need to be more valued and recognized in circular economy.*

22. Regions are key actors in developing a European bioeconomy *and bioeconomy can make regions more attractive.* Regions are important to keep vital rural economies and realising regional cycles. Mutual learning within and between regions and more resources for peer-to-peer exchanges at the EU level are essential. We need to make *and coordinate* the links between regional bioeconomy strategies and smart specialisation (*harmonization*), creating new value chains *and optimising existing ones*, stairways of excellence, jobs and growth *in rural/coastal less favourable regions.* A flourishing bioeconomy starts with primary producers, and an important requirement for industries is the availability of competitive bio feedstock. We need to redesign current policies related to biomass production and energy, climate, environment and waste policies in order to make the transition to a vibrant bioeconomy.

Remarks BEU2016:

- *Share knowledge on possibilities, markets and best practices within and between regions. More cooperation between bioeconomy regions is needed. Map biomass flows.*

- *Bioeconomy addresses local needs, uses local feedstock, will avoid transportation(costs) and is key in realizing 'local/ regional' cycles (nutrients, proteins, etc.).*
- *Regions are at 3 levels: policy making area, logistically defined area/ 60 km radius, primary production communities. Regions can be defined beyond national borders, on themes, as players.*

23. Raising public awareness about the bioeconomy (*and on CO2 footprint and possibility of CO2 tax*) can include beginning an information campaign directed at the European public on the many biological and renewable alternatives to fossil/mineral-based materials. Additionally, cooperation to improve legitimacy and market pull for sustainable bio-based products, via joint public dialogue campaigns, is needed.

24. Monitoring the (socio-)economic and environmental potential and impact of bioeconomy to *arise awareness, to research/model, to promote and to communicate*. As stakeholders we want to work together to develop the criteria for whether and how the bioeconomy will make positive changes. This includes impact assessment on available feedstock, available residues and waste, effects on climate (CO2), ecological footprint, and biodiversity, also in relation to fossil/mineral alternatives. We need a better understanding balanced natural capital of what the planet can sustainably produce. *Measure Green GDP*. More exchange of data will be necessary. *Use existing tools and data if possible to avoid extra administrative burden.*

Remarks BEU2016:

- *Look into cost effectiveness of monitoring. Transparency helps making benchmark results visible. Cross sectoral aspect of bioeconomy is important in monitoring. Monitoring needs to make sense.*
- *No EU-legislation on monitoring. Monitoring is competence of member states. Voluntary systems should be enough.*
- *We should make open guidelines indices on standardization (regional, European, local/qualitative, quality) to come to a common methodology of data, tools and definitions.*
- *Run assessment on value chains. By selecting the best, relevant indicators and methods. And properly combine them by involving major local stakeholders. Because many differ with local bioeconomies.*
- *Monitoring by JRC in cooperation with CECD, FNO, Eurostat, NGO, and private actors.*
- *Seek global cooperation with i.e. UN, FAO, OECD etc.*

25. We will further engage in a dialogue with civil society and the interested public to make the bioeconomy a venture based on a widely shared vision of a sustainable future. Especially on bio-energy a dialogue on opportunities and concerns seems necessary. We will engage in a dialogue based on facts and realistic expectations. We will introduce bioeconomy topics into ongoing discussions on how to achieve the Sustainable Development Goals at the international and national levels.

Remarks BEU2016:

- *Better communication via "spin-doctors", by labelling products, good narrative stories and arguments to raise awareness.*
- *Educate the policy makers.*
- *Education is important on European level. Cross sectoral aspect of education need attention.*
- *Use the role of region's and cities in public awareness.*

- *Technical staff transfer between university and industry.*

Agenda for the European Union and Member States

There are a number of actions and next steps in which the EU or Member States should take the lead. Strong leadership of the European Union and Member States and an integral approach to working towards a bioeconomy is urgent and includes:

26. Creating (*large scale*) demand is the number-one trigger for a thriving bioeconomy in the EU. At the current low oil price, the bioeconomy has little chance to emerge. Introduce ambitious and mandatory targets for biosourced products in public procurement, together with a voluntary labelling scheme, as in the US BioPreferred Program. Special attention should be given to SMEs, supporting their innovation, for example by public procurement policies.

Remarks BEU2016:

- *More public procurement, consumer behaviour.*
- *Market pull needed with long term conditions.*

27. The (forthcoming) Common Agricultural Policy can make a significant contribution to the development of the European bioeconomy, by stimulating innovation and the development of new business opportunities in rural areas of Europe, and by creating incentives in the whole value chain and stimulating the development of (new) biomass.

28. Access to finance. Some form of de-risking is essential to get the engine going, via subsidies, loans or grants. International funding mechanisms should be developed for scaling up and quick dissemination. First movers in the bioeconomy should be helped to scale up. Funding procedures are too fragmented. There is the EU-level, national level, regional level, with other procedures and other demands. Even within the EU, there are different funds with different procedures. Introduce loan guarantees to unlock debt financing and stimulate higher public contributions at high TRL's (Technology Readiness Level). In addition to stimulation of investments/loans and R&D the EU should also put preconditions for industry to scale up within the EU, so goals of job creation and revitalising rural areas in Europe will be reached.

29. Frontrunners should get the space they need to innovate and accelerate. Innovation deals and green deals can be agreed upon with stakeholders in situations where the regulation of a sector hinders the development of the overall bioeconomy and creative solutions are needed. Consider the revision of current regulations hindering the optimal valorisation of biomass. Work towards smart regulation and consistent implementation across the European Union. Remove obstacles and reduce administrative burdens, while at the same time securing sustainability.

30. Realise a level playing field between the variety of applications and different types of use of biomass. Introduce a REMD or RQD to stimulate biobased products and biomaterials. Attach incentives to innovative and high-value production and use in terms of people, planet, and profit. Develop benchmarks like jobs per ton of bio feedstock used, yield per hectare or CO₂ reduction per ton of product.

31. High-level commitment. In the EU there's no overall policy approach to develop a bioeconomy. European policy makers and the EC and the various DGs should approach the

bioeconomy more holistically and break down silos. Because of its potential contribution to solving the grand challenges facing the planet and to global climate ambitions, the European bioeconomy needs a high-level strategy and a dedicated Commissioner's bioeconomy committee to ensure synergy across the different fields.

32. Budget and investments. In times of historically low oil and coal prices a bioeconomy will only gradually emerge. In light of the COP 21 targets on GHG reduction, we cannot afford to wait. The IMF estimated the global subsidies on fossil fuels in 2015 at 5.3 trillion USD. We do not ask for a European equivalent to this subsidy, but we do plead for a modest fraction of that amount to be invested in the bioeconomy: 5 bln. Euro per year for the period 2017-2025 in a European investment agenda that includes flagships, pilots, R&D, innovation and mutual learning. We urgently demand that Europe shows leadership in this complex and promising area and that it invests in a sustainable and flourishing bioeconomy that crosses all boundaries.

Remarks BEU2016:

- *Investment of 5 bln. is too low.*

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Annex.

This annex consists of the points raised during the World café at the Utrecht bioeconomy stakeholders conference. More specific the points made at the 'free table' together with general points made during discussion on other buildings blocs of the Manifest This list is not intended to be fixed. Like the manifesto, the suggestions and remarks put by participants can be used and taken into account while developing the final version of the EU Manifesto.

What was missed in the Manifest:

- *More attention to marin, aquaculture, forest, insects.*
- *Missing animal sector and process/ financial support.*
- *Add eco system services, and other services.*
- *Use and reuse but also focus on production of biomass.*
- *Bio economy is a global challenge; look further than Europe alone.*
- *CO2 as a feedstock for manufacturing. Avoidance of CO2 emission is not recognized anywhere.*

Additional principles:

- *Food and nutrition security as principle.*
- *Holistic approach is needed.*
- *Link climate challenges and benefits of the bioeconomy (CO2 emission reductions).*
- *Smart land use is central.*

What is needed:

- *The organisation of the follow up of the manifest, who is responsible? Coordination agency; How to manage the transition, keep bioeconomy a political priority and keep it on agenda*
- *Funding closer to market (valley of Death)*
- *Competition for feedstock and true pricing (of fossil resources) is needed that takes into account externalities*
- *Support for startups.*
- *Need for level playing field (fossil/ biobased).*
- *Flexibility in bioeconomy approach is needed(adapt to state of development, country dependent).*
- *Enable long term legal framework, investment, not only in R&D.*
- *Alignment needed of EU policy goals. Policy coherence (agri/food, energy, forest) f.i. trade policies, tax policies etc.*
- *Include the finance sector.*
- *CAP should motivate farmers for partnerships and regional innovators to support bioeconomy.*

Context and acknowledgements

The European Commission intends to review its Bioeconomy Strategy, which the stakeholders of this manifesto fully encourage and support. Further development of the Bioeconomy is important for sectors such as Agriculture, Chemistry, Energy, and Logistics and for NGOs such as consumer, nature and environment and labour-organisations. The stakeholder Manifesto builds upon the main conclusions of recent Bioeconomy events and conferences. Interviews and smaller meetings with stakeholders contributed to the preparation of the Manifesto, focussing on the main economic opportunities and the main social issues, and identifying actions that stakeholders can take. In March 2016 stakeholders scored and prioritised a wide range of possible challenges, guidelines and actions. These building blocks for the Manifesto will be discussed at BioEconomy Utrecht 2016, the 4th Bioeconomy Stakeholders Conference, in April 2016 in the Netherlands. The new Bioeconomy Stakeholder Panel will elaborate upon this Manifesto and provide input to the European Commission for the review of the Bioeconomy Strategy.

Acknowledgements: Based upon outcomes of Expo Milan, the 4th SCAR Foresight Exercise, Biobased Industries Joint Undertaking, the Bioeconomy Investment Summit in Brussels and the Global Bioeconomy Summit in Berlin, and a variety of available statements, conclusions, manifestos and reports. Based upon interviews with stakeholders and experts, including Marion Aberle, Raphael Schneider (WeltHungerHilfe), Agnes van Ardenne (BIC), Roel Bol (MinEZ), Meadhbh Bolger (Friends of the Earth Europe), Ariel Brunner, Sini Eräjää (BirdLife Europe and EEB), Dick Carrez (BIC), Dorette Corbey (CDB), Bart Dehue (Nuon/Vattenfall), Jos Dings (Transport & Environment), Jean-François Fauconnier (CAN Europe), Bernard de Galembert (CEPI), Holger Gerdes, Zoritz Kiresiewa (BioSTEP), Reinier Gerrits (VNCI), Marc-Olivier Herman (Oxfam International), Courtney Hough (FEAP), Beate Kettlitz (FoodDrinkEurope), Jussi Manninen (TEM), Philippe Mengal (BBI-JU), Ward Mosmuller (DSM), Mona-Maria Narra (InnProBio), Oana Negau (COPA-COGECA), Gunter Pauli (expert), Pieter de Pous (EEB), Stefan Ruyters (Ghent Bio-Economy Valley), Annita Westenbroek (DBC), Linde Zuidema (FERN).

Based upon the Exploratory Meetings on a European Bioeconomy Manifesto, 17 February and 17 March 2016, Brussels, including Emma Berglund (CEPF), Fabio Boscaleri (Ufficio di collegamento con le Istituzioni Comunitarie Regione Toscana), Anamaria Bravo (DuPont), Nathalie Lecocq (FEDIOL (vegetable oils)), Valérie Corre (Tereos), Bernard de Galembert (CEPI Confederation of European Paper Industries), Pieter Depous (EEB), Joanna Dupont-Inglis (EuropaBio), Johan Elvnert (Forest-Based Sector Technology Platform), Sini Eräjää (BirdLife), Uwe Fritsche (Scientific Director IINAS), Catherine Pons (FEAP), Marc-Olivier Herman (Oxfam International), Juliette Jacques (Starch Europe), Paolo La Scola (Novamont), Andrea Lagundzija (ERRIN), Carlo Mango (Fondazione Cariplo), Ward Mosmuller (DSM), Oana Neagu (Copa-Cogeca), Anna Papagrigoraki (CEFS (sugar manufacturers)), Nicole Polsterer (FERN), Francesca Ricardi (Veneto Agricoltura - Veneto Region), Bertrand Rigal (Ville de Reims), Li Su (BBSRC), Marc Vermeulen (CEFIC), Bart Verschoor (Province South-Holland), Sabine von Wirén-Lehr (Tetra Pak International), Fanny Langue (European Biomass Association (AEBIOM)), Marijke Reuver (Ministry of Economic Affairs, NL), Willemien van Asselt (Ministry of Economic Affairs, NL), Saskia Sportel (Ministry of Economic Affairs, NL), Guido Enthoven (IMI), Christine Bunthof (WUR), Danny Cobiانchi (FEDIOL (vegetable oils)), Dominique Dejonckheere (Copa-Cogeca), Jesper Lund-Laesen (United Federation of Danish Workers), Jorge Molina (ADITECH), Isabel Poli (Region Värmland European Office), Francesca Ricardi di Netro (Veneto Agricoltura – Veneto Region), Meri Siljama (Confederation of European Forest Owners (CEPF)), Hasso von Pogrell (European Bioplastics).

Based upon discussions with 335 participants at BEU2016, Utrecht.