

Sustainable & circular bioeconomy, the European way

Brussels, 22 October 2018

Outcome report



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Outcome report

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**Sustainable & circular
bioeconomy,
the European way**
Brussels, 22 October 2018

Outcome report

edited by

David Burrows

PROGRAMME

Sustainable & circular bioeconomy, the European way High level event under the Austrian Presidency

22 October 2018

Charlemagne building, Brussels

8:00-9:30: Registration

High level opening

Moderator: Katrina SICHEL

09:30-09:40: John Bell, Director Bioeconomy

09:40-09:55: Carlos MOEDAS, Commissioner of Research, Science and Innovation

09:55 -10:10: Phil HOGAN, Commissioner of Agriculture & Rural Development

VIDEO on Bioeconomy

10:15-10:45: coffee

Thematic sessions

Moderator: Katrina SICHEL

10:45-10:55: Video connection with young farmers from Slovakia

10:55-11:45: I SESSION

Ensuring environmental, social and economic balance of the bioeconomy

The session will discuss how to operate the bioeconomy in a safe operating space balancing economic, social and environmental needs. This will include the protection of ecosystem, the research to increase sustainability and efficiency of production and ultimately the consumption affecting the safe operating space.

Co-chair: Erik MATHIJS, Katholieke Universiteit Leuven, Chair of the 4th Foresight Expert Group of the Standing Committee of Agricultural Research (SCAR).

Panellists:

Catia BASTIOLI, CEO Novamont

Tiago PITTA e CUNHA, Chief Executive Officer, Oceano Azul Foundation

Dominic KAILASH NATH WAUGHRAJ, Head of International Institutional Agenda, Member of the Executive Committee, World Economic Forum

11:45-12:00: Joanna Drake, Deputy Director General, European Commission, DG ENVI.

12:00-12:15: Josef Plank, Secretary General of the Ministry for Sustainability and Tourism in Austria.

12:15-13:15: II SESSION

Key Strategic Research priorities

This session will address the need of strategic research and innovation in areas that are key to the bioeconomy. The discussion will focus on what are the needs and how to better deploy resources for the development of new technologies and processes as well as research food systems linked to the bioeconomy sector.

Video on Spanish students

Co-chair: Monique **AXELOS**, Scientific Director for food and bioeconomy of INRA

Panellists:

Jochen WEISS, Professor at University Hohenheim and co-chair of ETP "Food for Life".

Lucrezia LAMASTRA, Coordinator of the EIP-AGRI Operational Group

Orla FEELY, Vice-President for Research, Innovation and Impact at University College Dublin.

Feedback from students involved in the bioeconomy

13:15-14:30: Networking & lunch

14:30-15:20: III SESSION

Local development

This session will focus on the importance of encouraging the adoption, update and coherence of Bioeconomy Strategies throughout Europe, and supporting the EU rural, coastal and urban areas in exploiting opportunities offered by existing and new bioeconomy value chains, with citizens engagement.

Co-chair: Sveinn **MARGEIRSSON**, CEO of Matis

Panellists:

Markku MARKKULA, Chair of the City board of Espoo and Helsinki region (TBC).

Anna TRETTENERO, farmer

Michal SKWIERCZYNSKI, coordinator BIOMOTIVE project

15:20-16:15: IV SESSION

Investments, Markets and the Bio-Based Sector

This session will discuss how to mobilise investments- including through the deployment of new financial Instruments- to strengthen and upscale existing and new technologies in order to support the creation of markets for more sustainable and circular bioeconomy products and processes.

Co-chair: Christine **LANG**, co-chair of the German Bioeconomy Council

Panellists:

Jos PEETERS, Managing Partner, Founder and Director, Capricorn Venture Partners

Andrew MCDOWELL, Vice President European Investment Bank

Ilkka HÄMÄLÄ, President and CEO of Metsä Group

Mathieu FLAMINI, former football player and now entrepreneur of a biotech company, *GFBiochemicals*.

16:15-16:45: Conclusions

Moderator: Katrina SICHEL

Joachim KREYSA, Advisor for Bioeconomy, JRC

Wolfgang BURTSCHER, Deputy Director General, European Commission, DG RTD

Jerzy Bogdan PLEWA Director-General for Agriculture and Rural Development, European Commission

16:45: end of the Conference

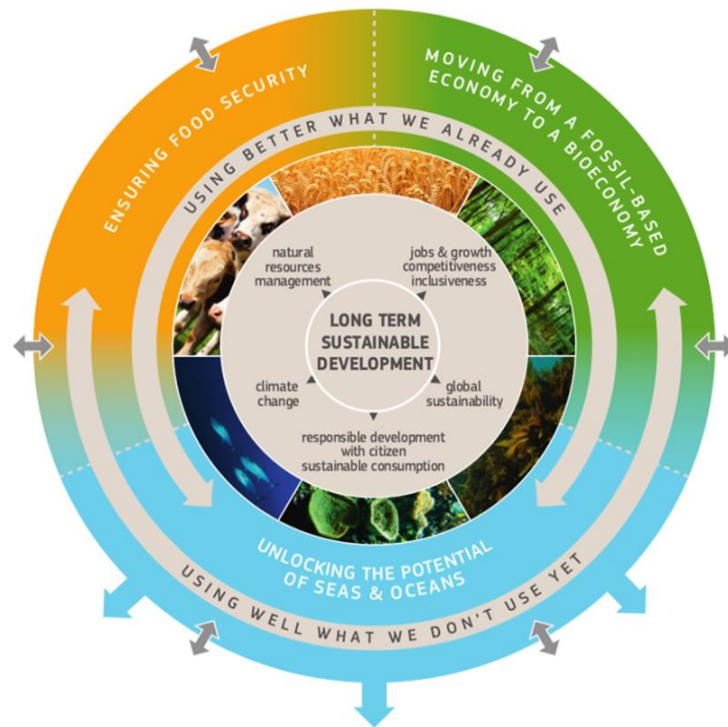


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SUSTAINABLE & CIRCULAR BIOECONOMY, THE EUROPEAN WAY



SETTING THE SCENE

The bioeconomy covers all sectors and systems that rely on biological resources (animals, plants, micro-organisms and derived biomass, including organic waste), their functions and principles. As such, it is a central element to the functioning and success of the EU economy. A sustainable and strong bioeconomy can help meet the many environmental and socio-economic challenges facing Europe: climate change, plastic pollution of the oceans, the exodus from rural and coastal communities, to name but three.

So, how can we build a bioeconomy that delivers the jobs, environmental benefits, rural and coastal development that Europe needs, whilst respecting the ecological boundaries of the planet?

That was the question running through the *Sustainable and Circular Bioeconomy – the European Way* conference, which took place in Brussels on 22 October 2018. The event followed publication of the new Bioeconomy Strategy on 11 October, which promises to “unleash the potential” of the bio-based sectors to modernise Europe’s economy.

The conference – attended by more than 500 participants from many different sectors, professions and nationalities – offered an opportunity to discuss the new action plan.

There were five sessions on the day:

- Opening remarks: political and policy speakers from the Commission
- Ensuring environmental, social and economic balance of the bioeconomy
- Identifying key strategic research priorities
- Boosting Local development
- Mobilising investments to strengthen and upscale new technologies.

These five sessions are covered in five chapters in this report. There is a short summary at the end. A list of speakers and further reading is available at the end of the report.

Reader notes.

Unless otherwise stated, all references to “the conference” and accompanying quotes refer to the *Sustainable and Circular Bioeconomy – the European Way* conference held in Brussels on 22 October 2018.

1 INTRODUCING THE NEXT ECONOMY

The opening session – which included speeches from John Bell (Director RTD-Bioeconomy), Carlos Moedas (Research, Science and Innovation Commissioner), and Phil Hogan (Agriculture and Rural Development Commissioner) – covered some of the social, economic and environmental threats the world faces, and highlighted the possible opportunities presented by the transition towards a sustainable bioeconomy.

Bioeconomy: from niche to norm “Welcome to the future,” said John Bell, as he opened the *Sustainable and Circular Bioeconomy – the European Way* conference in Brussels on 22 October 2018. In the six years since the 2012 Bioeconomy Strategy was launched much has been achieved:

- **Europe’s bioeconomy is now worth €2.3 trillion and employs 18.6 million people (representing 8.2% of the EU’s workforce)**
- **More than half a dozen member states now have national strategies or plans in place**
- **Dedicated EU funding for the bioeconomy has also more than doubled, from €1.9 billion in the seventh Framework programme (2007-13) to €4.52 billion in its successor, Horizon 2020 (2014-20)**
- **Myriad new products have been launched to market thanks to both private and public investment.**

A review of the strategy and action plan, published in November 2017, concluded that Europe has made “important headway” towards becoming a more innovative, resource-efficient society (1). The review, however, also highlighted that there was much more to do.

1.1 Threats bring opportunities

Indeed, the policy context in which the bioeconomy operates, for example, has changed significantly since 2012. EU and global developments include: the Circular Economy Package (and 2018 Plastics Strategy), Energy Union, Paris Agreement and Sustainable Development Goals.

THREATS

- The Intergovernmental Panel on Climate Change’s special report, published in October 2018, warned that there are 12 years left to avoid the worst impacts of global warming
- Europe has a target to halt biodiversity loss by 2020 (a target that was extended from 2010) and restore at least 15% of degraded ecosystems by 2020
- Rising population (9.7 billion by 2050) and changes to consumption patterns have put pressure on food and farming systems to innovate
- The exodus from rural and coastal areas to cities continues (cities and urban areas now house more than 70% of all Europeans).

To meet these commitments – and the challenges that underpin them (see right) – the economy will need to be decarbonised and circularised. Speakers highlighted that the land and resource degradation – driven by a “linear consumption path” – cannot continue.

Speakers described how a sustainable, responsible and circular bioeconomy will help reduce reliance on fossil fuels and oil-based products, as well as improve use of waste, resources and land. Improved monitoring of bio-based products will also ensure the

decisions made from production to consumption respect planetary boundaries and provide fair returns for all those in the value chain. John Bell spoke of a “fairer society”.

OPPORTUNITIES

Commissioner Hogan said there are good, practical examples of the bioeconomy all over Europe, but more were needed. He cited a number of projects funded under Horizon 2020 that he had visited, including:

- Novamont’s convert petrochemical site in Sardinia, which now hosts a biorefinery producing biowechemicals, building blocks for bioplastics and other bioadditives
- Glanbia Ireland’s bioeconomy research project, which received €22 million under Horizon 2020, will convert low-value byproducts from the dairy processing industry – excess whey permeate and delactosed whey permeate – into lactic acid for use in biobased products.

One of the three key objectives of the new Bioeconomy Strategy is to “understand the ecological limitations of the bioeconomy”. This was welcomed by a number of panellists, who spoke of the need for a “circular bioeconomy” backed by strong policies, sound investment, transparency and reliable data. This was discussed in more detail in sessions II and III and in session IV on investments

The bioeconomy can also help to accelerate the shift towards more sustainable food systems, and create one million green jobs by 2030, across a number of sectors, including agriculture, forestry, fisheries, food, bio-energy and bio-based products.

Those representing young farmers in Slovakia, talking via a live feed at the conference, were excited by the prospect of a bioeconomy. The new strategy, they said, was “very important”, given

that it would help family run farms to become more competitive and help them cope with the risks and challenges they face with regard to climate change. Indeed, Commissioner Hogan said farmers and foresters understand the urgency of climate change and want to play their part, but they need the tools to succeed. **“The EU has an opportunity to show [the world] how to drive rural economies.”**

The importance of the bioeconomy to local development is discussed in more detail in chapter 4. As Commissioner Moedas suggested, citizens will want to see the benefits of this transition for them and their local communities. One of the problems currently is that those who benefit from the bioeconomy “don’t realise how important it is in their lives”. As such, the new strategy “depends on communicating the benefits to citizens”.

Citizens are also consumers, of course, and they will want bio-based products to be as good as those already on the market – if not better. Moedas warned that few are willing to reduce their quality of life “one little bit”, so whether it is packaging, food, fuel or clothes, the quality needs to be high. And those involved should not be afraid to shout about this. **“You need to show your products and show how good they are,”** he said.

1.2 The 2018 bioeconomy strategy update

Throughout the opening sessions there was a feeling of “untapped potential” in the bioeconomy. On 11 October 2018, the European Commission presented a new Bioeconomy Strategy and action plan – ‘A sustainable Bioeconomy for Europe: strengthening the connection between economy, society and the environment. (2).

The update proposes a three-tiered action plan to:

1. **Strengthen and scale up the bio-based sectors, unlock investments and markets**
2. **Deploy local bioeconomies rapidly across the whole of Europe**
3. **Understand the ecological boundaries of the bioeconomy.**

John Bell called on everyone – Member States, industries, regions and citizens – to “make it happen”, whilst Joachim Kreysa, JRC bioeconomy advisor, asked: “What is the bioeconomy that we want?” The answer: one that is balanced environmentally, socially and economically, a theme which was picked up in session I.

Commissioner Hogan cited the additional support available. The Commission proposals for the next Multiannual Financial Framework for 2021-27 include a significant boost for systemic research and innovation in the areas and sectors covered by the bioeconomy – in particular, a dedicated €10 billion for “food and natural resources” within the Horizon Europe cluster (3). Within the new Bioeconomy Strategy there will be an additional **€100m available** through the **Circular Bioeconomy Thematic Investment Platform**.

These funding boosts were welcomed by a number of speakers at the conference, and an expert panel discussed how to mobilise these investments in order to strengthen and upscale both existing and new technologies (see chapter 5). There will also be new policy support facilities available, in which experts will travel to Member States to help explain how the bioeconomy works, and the benefits it can bring.

2 ENSURING ENVIRONMENTAL, SOCIAL AND ECONOMIC BALANCE OF THE BIOECONOMY

In a world of finite biological resources and ecosystems, an innovation effort is needed to feed people, and provide them with clean water and energy. The first thematic session of the conference focused on how to operate the bioeconomy in a “safe operating space”, in which ecosystems are protected, production is sustainable and efficient and ultimately so too is consumption. As Josef Plank, Secretary General of the Ministry for Sustainability, Austria, put it: **“We have to respect nature.”**

2.1 Ecological crisis

The challenges facing Europe are well understood (see chapter 1). Europe, and the world, is facing a “deep ecological crisis”, said Tiago Pitta e Cunha, Chief Executive Officer, Oceano Azul Foundation. It will be “very difficult” to use the oceans as a basis for the bioeconomy if we carry on like this, he explained.

Indeed, human activities exert increasing pressure on soils, oceans, water, air, biodiversity, climate and other natural resources. Agriculture is also a significant producer of greenhouse gas emissions. Joanna Drake, Deputy DG, Environment, warned that “we should not repeat the same mistakes we have on land” in the ocean. Her counterpart, Wolfgang Bartscher, deputy DG research and innovation, in his summing at the end of the conference, noted that this is not about creating “any old bioeconomy” – there has to be a balance between exploiting and maintaining (and restoring) natural resources for generations to come.

2.2 Safe operating space

Novamont CEO Catia Bastioli perhaps summed up the current situation best, when she said: **“The problem is the speed of regeneration is lower than the speed of degeneration.”** She also believed that it has to be a circular bioeconomy or the damage could be worse than today.

The need to give projects time and investment was highlighted by academics and business speakers. Bastioli, spoke of the “limits for growth” and the need to assess the potential and problems that arise from any innovation. Others warned that there are undoubtedly businesses “dreaming of cheap feedstock”, but change needs to happen quickly but responsibly.

There was understanding that natural resources and ecosystem services could no longer be regarded as “free”. The development of the bioeconomy therefore needs to respect ecological boundaries. However, there will also have to be “very disruptive” changes made in order to feed and warm nine billion people (worldwide) by 2050, Tiago Pitta e Cunha noted.

As Sveinn Margeirsson, CEO Matís, put it in the session III on local development: **“People are drunk on consumption. We need citizens that don’t like to consume as much as they [currently] do.”** This narrative of “consuming less” can appear negative, as can repetition of the environmental challenges ahead. In the past Europe has focused on the problems, some speakers noted; the conversation should become more positive.

There are already a number of positive stories to tell (see 1.1). However, the challenge is creating a narrative for the bioeconomy, which can then be spread by citizens themselves (through social media etc). Those in the food system, for example, are acutely aware of the need to engage more with citizens to design new solutions and to rebuild trust in the sector.

2.3 *Production efficiencies*

The challenges facing Europe's food systems will require "disruptive transformation" from farm to fork. Agriculture is the third largest emitter of greenhouse gases in the EU; farmers (and fishers) will need to become more efficient, producing more with less. Technology and innovation will help – for example, the use of algae and insects as new feedstocks – but consumption patterns will also have to shift dramatically.

Waste was discussed at length during this session. Joanna Drake called for a "no waste" approach amongst fishers and aquafarmers, whilst Plank called for more ideas, "fantasies even", in how to reduce waste and use resources more efficiently. **"There are limited resources so we need to enhance existing value chains,"** he said. This could involve cross-sectoral partnerships, with traditional industries like paper, pulp and timber working in combination with innovative start-ups in the "emerging" bio-based sector.

There was a feeling that Europe has the human resources to make these partnerships happen. "We have the visions, the science, the technology, the brains," said Tiago Pitta e Cunha, "we just need to get there first."

However, as Erik Mathijs, KU Leuven University, Belgium, put it: **"We do not have a level playing field for the bioeconomy."** Oil-based industries have been heavily subsidised, which has severely affected the ability of the bio-based sector to compete and upscale quickly. This is hampering Europe's ability to meet challenges relating to biodiversity loss, carbon emissions and low-carbon energy, speakers suggested in session IV.

Many speakers during the day said that, despite renewed and increased financial support for bio-based sectors, they still face an uphill struggle. Requiring businesses to internalise their external costs – in other words to raise environmental taxes – would be unpopular in the wider economy. However, it was widely felt that such a policy would accelerate the expansion of the bioeconomy. Mathijs referred to this as "true pricing".

3 KEY STRATEGIC RESEARCH PRIORITIES

This discussion focused on the research and innovation needs as well as how to better deploy resources for the development of new technologies and processes. As Monique Axelos, Scientific Director for food and bioeconomy of INRA, put it : **"Research should not be business as usual. There is a need to mix disciplines, private and public research, [and] develop real partnerships including farmers, society and customers."**

3.1 *Buying into the bioeconomy*

Citizens were often the focus of this particular session: how to better understand their needs; how to develop the bioeconomy with them; how to show them the products they are buying are truly sustainable. As students at a school in Zaragoza – ostensibly tomorrow's consumers and guardians of the planet – said in a statement made to the conference: "We want you to do something."

Currently, "around 10% to 15%" of consumers buy bio-based products because they believe in them, said Erik Mathijs in an earlier session. Pricing and incentives are therefore essential if the other 85% to 90% are to buy into the bioeconomy. However, price is not the only challenge: the bioeconomy may be worth in excess of €2 trillion and employ 18.6 million people, but a third of citizens are reportedly unaware of it (4).

The need to better engage consumers and comprehend their feelings towards bio-based products (and what they need) came up in a number of discussions during the conference. Academic speakers mentioned that some research has looked at who would buy what products; however, understanding of how consumers view bio-based products is in its infancy.

Evidence to date suggests a general state of confusion (5). **"Go out and ask people about the bioeconomy and their first reaction will be 'what is it?'"** said Mathieu Flamini, former footballer and co-founder of GFBiochemicals, a biotech company. Initiatives are already underway to raise awareness and enhance knowledge of the bioeconomy – for example, the Horizon-2020 supported BLOOM project (6).

The Commission's renewed efforts to raise awareness are timely. **"Without consumers none of this will be possible; they must be on board from day one,"** said Professor Jochen Weiss, from the University of Hohenheim. Still, there was a fear that media are "simplifying" the plastics issue, yet awareness of plastic pollution of the ocean will increase citizens' hunger to seek out credible alternatives and ask tough questions. For this reason, the value of expertise in social sciences cannot be overstated: **"We need to understand citizens, the consumer and their behaviour,"** said Professor Orla Feely, VP research, innovation and impact, University College Dublin.

3.2 *Clear rules and labelling*

This communication effort should be a priority, the conference heard – not least because lack of awareness breeds uncertainty. One of the aims set out in the EU Plastics Strategy is to harmonise the rules for labelling of "compostable" and "biodegradable" plastics. A

lifecycle assessment will also be developed to ensure biobased plastics result in “genuine environmental benefits compared to the non-renewable alternatives” (7).

At the conference, there was a proposal that sustainability criteria are not only needed for fuels, but also for products and for food. The updated Bioeconomy Strategy noted the need to “step up” the transformation of food and farming systems – they “urgently need” to become more sustainable, nutrition-sensitive, resilient and inclusive given the growing world population, climate and other environmental challenges such as water scarcity, loss of biodiversity and lack of available productive land. This is in line with the Food 2030 Initiative.

Speakers at the conference highlighted significant opportunities for producers, for example through diversification – turning organic waste and discards into valuable products for the bio-based market. Yet, sustainability criteria could be more clearly defined. **“Would you recognise bio-based products in a shop?”** wondered Christine Lang, Co-Chair German Bioeconomy Council, in session IV.

There was a feeling that clearly defined criteria for sustainable products would reassure consumers, businesses, investors (see chapter 5) and producers alike. As Joanna Drake, deputy DG Environment, said: **“Citizens deserve a guarantee that when they buy ‘bio’ they are buying sustainably.”**

BOOSTING THE BIOECONOMY: THE ACADEMIC'S PERSPECTIVE

1. **Joined-up policymaking.** There is a need to bring those who don't see the bioeconomy as a priority into the circle
2. **Better understanding.** Social science expertise is essential in order to comprehend citizens, consumers and their behaviour
3. **Facts, narratives, case studies.** We need kit on the ground. We need products. We need data
4. **Patience.** The timescales for innovation will be longer than they are in other sectors, such as ICT.

4 LOCAL DEVELOPMENT

In 2008, the bioeconomy employed 20.76 million Europeans. Over the next six years, that figure dropped consistently. By 2014, the most recent figure available, the number of bioeconomy jobs stood at 18.59 million, principally to losses in the agricultural sector.

At the conference, there was optimism that the bioeconomy can compensate for this, and even boost rural and coastal economies still further. Commissioner Hogan noted that the bioeconomy could create one million new green jobs by 2030.

4.1 *Revitalising the rural economy*

New markets and changes in land tenure may lead to environmental benefits and socio-economic opportunities. However, the effects on rural development depend on whether the bioeconomy is “mainstreamed” and a broad part of the population benefits from it. As Commissioner Moedas suggested during the opening session, citizens will want to see the benefits of this transition for them and their local communities.

European farmers are generally “ready to face the challenges”, according to Anna Trettenero, an Italian farmer who runs a biogas digester that “adds value to the region’s agricultural production, while working alongside the principles of circular bioeconomy” (8). However, she admitted (as Commissioner Hogan had) that farmers would need additional training and support. They will also need to be encouraged to share ideas, both within the sector and outside it – for example, using agricultural waste as a resource for other industries, like fashion.

Some speakers suggested that current regulations can hinder the development of the bioeconomy, and there was a call for “simplification” of the rules. The Commission is already looking to strip back some of the red tape in the aquaculture sector (see below). However, there was a warning from Commissioner Hogan: not enough member states have national bioeconomy strategies in place, he said, so this was a “1.5-year warning” that countries without a plan in place will not receive approval for Common Agricultural Policy (CAP) funding. **“The Commission’s proposal for the future of CAP will task each member state with drawing up a CAP strategic plan to outline their targets and expected results according to nine key objectives, and the bioeconomy is one of these,”** he said.

4.2 *Exploiting opportunities; respecting resources*

The EU’s objectives for rural development, which contribute to the Europe 2020 strategy for smart, sustainable and inclusive growth, include “facilitating the supply and use of renewable sources of energy, of by-products, wastes and residues and of other non food raw material, for the purposes of the bioeconomy”.

There are already a number of pioneers doing just that, but they remain the exception rather than the rule. Waste, it was noted, is a word with “many opportunities” so new ideas – “fantasies” even – should be encouraged. And perhaps some of the most interesting collaborations will take place between sectors – for example, fishers working with farmers – or regions, or countries.

Though the EU bioeconomy is largely land-based currently, the potential of the blue bioeconomy is “enormous”, noted Joanna Drake. The Blue Bioeconomy Forum, officially launched at the conference, will bring together industry, public authorities, academia and finance to identify opportunities (9). A roadmap will soon be published, highlighting how the oceans’ resources – used more sustainably – can improve food security (and relieve pressure on agriculture) and support diversification of the fishing and mariculture industries (10). “We need to shift to more farmed fish,” said Joanna Drake. “We are looking to remove red tape so our aquaculture sector can really take off.”

This would of course take pressure off agriculture and resources on land. Referring to the issue of plastic pollution, Joanna Drake said the same mistakes made on land cannot be repeated at sea. Systems need to be as efficient as possible, ensuring sustainable use of resources. **“We need to move to a ‘no waste’ approach in fishing and aquaculture,”** she said.

The oceans are also facing a deep ecological crisis. By 2050, as noted at the conference, it is estimated that there will be more plastic in the seas than fish (11), while 70% to 90% of coral reefs could be lost if global warming reaches 1.5 degrees (12). **“It will be very difficult to use the oceans as a basis for the bioeconomy [if we carry on like this],”** said Tiago Pitta e Cunha during the session covered in session I.

Supporting healthy ecosystems is a European priority, but while recognition of the problems was high, some speakers called on the EU to act “more decisively”. The focus should be on “saving what’s left” and creating a new bioeconomy that “dissociates growth from environmental degradation”. Europe has an opportunity to lead the world in this respect, the conference heard, using new technology to exploit waste products; for instance, extracting collagen from fish scales for use in cosmetics.

5 INVESTMENTS, MARKETS AND THE BIO-BASED SECTOR

The transition to a bioeconomy needs to be responsible, taking account of “safe” ecological limits; move too quickly and, as discussed above, the environmental impact could be even greater. Citizens will also need time to adapt to new products and services, whilst producers will require support, technology and fair returns. But what about businesses?

The final session covered how to mobilise investments – including through new financial instruments – to strengthen and upscale both existing and new technologies. The creation of markets for more sustainable and circular bioeconomy products was also considered.

5.1 Predictable policies

Carlos Moedas, the Commissioner for research, science and innovation, has noted in the past that: “Private money goes where stability is and where policies are predictable.” At the conference he said there is so much biomass available that “we can’t keep talking about potential”. Indeed, he felt that the bioeconomy is no longer just a resource and innovation strategy: “[The bioeconomy] has untapped potential ... it can touch everyone, every day.”

Policy is heading in the right direction, as discussed above, and much is expected of the new Bioeconomy Strategy and action plan, as well as the review of the Common Agricultural Policy. The conference heard how bio-based industry is on the brink of making the leap from niche to norm. Europe’s share of global bioplastics production, for instance, is forecast to jump from 18% to 25% between 2017 and 2022 (13). However, in areas such as chemicals, plastics and fuels, growth is 20% or more. So how do we catalyse innovation, de-risk sustainability, and mobilise and scale up bio-based technologies, businesses and communities in all parts of Europe?

5.2 Scaling up sustainable products

Delivering bio-based products to the market takes time, money and a steady policy environment. “Moving from pilot to technical demonstration scale is very difficult,” said ^[1]_{SEP} Andrew McDowell, VP European Investment Bank.

Indeed, there are not many venture capital investors at this stage of development, so businesses are required to take on debt. Plus, given the “fierce competition” from the fossil fuel industry it was unsurprising that panellists showed frustration. Jos Peeters, managing director, founder and partner at Capricorn Venture Partners, spoke of a “significant gap in funding” that has been holding developments back for some time.

Some of the barriers include:

- **Lack of experience within banks to assess and understand the benefits and risks of bioeconomy projects**
- **Banks require “incentives and sweeteners” to move into the bio-based space.**

Even companies that have secured substantial investment are facing challenges. Avantium is attempting to build commercial-scale supply chains and production facilities for PEF (polyethylene furanoate), a bio-based alternative to PET (polyethylene terephthalate).

Around 70% of soft drinks are now packaged in PET plastic bottles, but PEF is superior, according to the company (14). In January, the PEF pilot phase was extended by up to three years.

Rather than just one of these companies, perhaps we need to be supporting 10 of them, in the hope that nine succeed, suggested Christine Lang, Co-Chair of the German Bioeconomy Council. She wondered whether “we are expecting too much too fast”. Bio-based companies must prove the product, place it on the market and gain market share before buyers become interested – this is very different to pharmaceuticals, where investment comes much sooner.

It takes time to achieve buy-in at the top levels of business. Michal Skwierczyński, Co-ordinator BioMotive project, suggested that investment was sometimes being sought for products that might not be necessary for clients. Companies want to know the business case for bio-based products and what customers gain from this. Catia Bastioli, CEO at Novamont, a company that has invested more than €600 million to develop bio-based materials, regenerate decommissioned industrial sites and generate jobs, also said in an earlier session that **“we need good legislation and we need projects now”**. Christine Lang also urged the sector and its entrepreneurs to “be more visible”.

There also have to be the right instruments and incentives in place – an example presented was that of a small business that couldn’t afford to release a member of staff to work for six months with the research team at a university in order to develop a product.

It also remains difficult for the promoter to capture the full environmental benefits on offer, but the Paris Agreement, Sustainable Development Goals and focus on reducing plastic pollution will all help drive “impact investing”.

5.3 More support welcomed

The Commission proposals for the next Multiannual Financial Framework for 2021-27 include a significant boost for systemic research^[11] and innovation in the areas and sectors^[12] covered by the bioeconomy – in particular, the proposed €10 billion for “food and^[13] natural resources” including the bioeconomy, within the Horizon^[14] Europe cluster. Within the updated^[15] Bioeconomy Strategy and Action Plan there will be an additional €100m available through the Circular Bioeconomy Thematic Investment Platform. It is too early to say whether these will successfully de-risk investments in sustainable solutions, but the funding boost was welcomed by the likes of Jos Peeters.

Better availability of data would, according to a number of speakers, help in their investment decisions. Improved monitoring of bio-based products will ensure^[16] the decisions made from production to consumption are truly sustainable – and responsible. It will also reassure investors.

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7 LIST OF SPEAKERS



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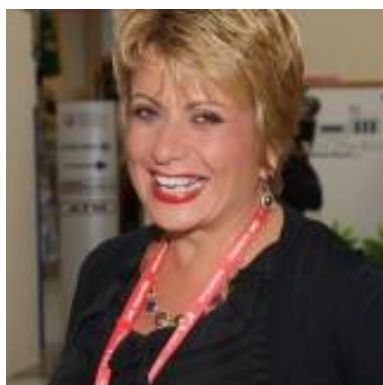
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The bioeconomy can turn algae into fuel, recycle plastic, convert waste from the food production chain into new clothing and transform industrial byproducts into valuable bio-based materials. The potential is enormous – there are opportunities to secure healthy food supplies, better manage natural resources, generate low-carbon energy, tackle climate change and revitalise rural and coastal areas. All these opportunities – on land and at sea – remain relatively untapped.

Despite employing 18.6 million people and being valued at €2.3 trillion, the bioeconomy is niche. Investments are viewed as risky, producers are yet to realise the value in their biomass (including waste) and citizens must be engaged further.

There is also an urgent need to act, and further financial support for bio-based innovation will help.

Research and Innovation policy

