

World BioEconomy Forum goes to Brazil  
Live from Belém!  
**18–20 October 2021**



FÓRUM MUNDIAL DE  
**bioeconomia**

# The Four-Pillar Structure of the World BioEconomy Forum

**THE FORUM STRICTLY OPERATES** under the Four-Pillar Structure: **I / The Bioeconomy: People, Planet, Policies, II / Global Leaders and the Financial World, III / Bioproducts Around Us and IV / Looking to the Future.** Using the Four-Pillar Structure enables the complete evaluation of the status of the circular bioeconomy and thereby facilitates developments across the whole of the sector. This makes the Forum and its activities extremely powerful and effective, enabling the facilitating of a holistic bioeconomy and thus making significant conjoined efforts in the mitigation of climate change.

**ALL FORUM PROGRAMS AND ACTIVITIES** are aligned with the Four-Pillar Structure, including all Roundtables and the annual Declaration. This Four-Pillar Structure ensures that all relevant stakeholders in the circular bioeconomy have a voice and a platform.



**THE WORLD BIOECONOMY FORUM®** is a key platform for promoting the use of circular bioeconomy to save vital resources and contribute towards curbing climate change. The Forum was established in 2018. This year's summit will be held in Brazil: The World BioEconomy Forum goes to Brazil – live from Belém! 18–20 October 2021.

## Host of Forum 2021



## Official partners



## Official supporter



# Dear followers of the World BioEconomy Forum!

**THE SEASON OF THE BIOECONOMY 2021** is about to reach its summit. This year the world's capital of the bioeconomy is in Belém, also capital of the Pará State, Brazil, which will be hosting the annual Forum 2021.

**BELÉM IS ALSO KNOWN AS THE GATEWAY TO THE AMAZON.** We all know the importance of the Amazon to the locals as for entire world, so what better place for us to hold the Forum than this fascinating city!

**THE IDEA OF HOLDING THE EVENT IN BRAZIL** was already expressed in 2019, but COVID-19 pushed our planning out to 2021. It has been an exciting and rewarding journey and finally get to this point. There are several people who made this journey possible, but I'd like to mention two – **Marcello Brito**, President of the Brazilian Agribusiness association (ABAG), who already saw in 2019 that bioeconomy is vital for Brazil, and Governor of the State of Pará, **Helder Barbalho**, who set his vision on the bioeconomy and committed his teams to bring the Forum to Brazil.

I think it is fair to say that we are all looking forward to a world post COVID-19. However, we are delighted to have the Forum as a **HYBRID EVENT**. What a pleasure is to see some of you in person, but on the other hand we are very pleased to be able to offer all our online followers access to the program wherever you are.

**HISTORY CAN BE WRITTEN.** I was told in Brazil that "the bioeconomy won't be the same in Brazil or in Latin America after the Forum". I strongly believe in this statement, and it is only up to each of us how the forum will be unfolded in the future. One thing is for sure – already now we can recognize that the bioeconomy is gaining more and more attraction. In fact, we will hear during the Forum about the launch of the very first biostrategy in Brazil, among the first biostrategies in the entire of Latin America!

In Belém we will learn how the **AMAZON COMMUNITIES** have always based their activities in the bioeconomy, and how today they partner with a number of **BRAZILIAN AND INTERNATIONAL COMPANIES** which valorize the economy of the local Amazon communities. In the forum we will jointly learn about all these.



Belém will also be the place where the World BioEconomy Forum's the **FOUR-PILLAR STRUCTURE** was solidified. All the forum activities are based on the four pillars, which will help to explain and understand the bioeconomy and derive actions based on the analysis. We feel that Four-Pillar Structure is completing the sustainability agenda and to provides tools to mitigate climate change.

Like always, the status of the bioeconomy 2021 and actions needed are compressed in the **DECLARATION**, which will be announced on the last day of the Forum.

As the bioeconomy evolves, the World BioEconomy Forum develops as well. During the season 2021 we had four insightful **ROUNDTABLES** – again according the Four Pillars. We are tenaciously bringing up the advantages of bioproducts – we even launched the **BIOPRODUCT DAY**, which will be held from now on every 7 July. Also, this season will be remembered for the year when the **WORLD BIOECONOMY NEWS APP** was launched for smartphones – so you can always be aware of what is up with the global bioeconomy.

**ON BEHALF OF THE ADVISORY BOARD AND THE CORE TEAM** – I'd like to warmly welcome you to the fourth Forum with a theme **World BioEconomy FORUM GOES TO BRAZIL – LIVE FROM BELÉM!** We wish you all an interest-ing and insightful Forum 2021!

**Jukka Kantola**  
Founder

# Advisory board 2021

The World BioEconomy Forum Advisory Board is chaired by **Jukka Kantola**, and includes several accomplished bioeconomy experts.



**Dr. Christian Patermann**  
*"Father" of European bioeconomy*  
Former Director EU Commission and Advisor to the German Government on bioeconomy matters



**Teresa Presas**  
Senior Advisor  
World BioEconomy Forum



**Marcello Brito**  
President  
Brazilian Agribusiness Association (ABAG)



**Ludo Diels**  
Research Manager, Sustainable Chemistry Flemish Institute for Technological Research (VITO), Vice-chair of the Public-private-partnership SPIRE



**José Carlos Fonseca**  
Ambassador, Executive Director of Iba (Brazilian Tree Industry)



**Jim Philp**  
Policy Analyst  
Directorate for Science, Technology and Innovation, OECD



**Mark Rudnicki, Ph.D.**  
Professor of Practice  
Forest Biomaterials, Michigan Technological University



**Everton Vargas**  
Ambassador. Coordinator for International Relations of the State of Pará. Former Brazilian negotiator for climate change and sustainable development.



**Tjama Tjivikua**  
Founding Vice-Chancellor  
Namibia University of Science and Technology



**Mika Aalto**  
Director General  
Chemical Industry Federation of Finland



**Aida Greenbury**  
Global Sustainability Advisor



**Mauro O'de Almeida**  
State Secretary of Environment and Sustainability of Pará



**Pramod Chaudhari**  
Executive Chairman,  
Praj Industries Limited



**Jukka Kantola**  
Founder,  
World BioEconomy Forum



**Mark Rushton**  
Co-Founder,  
Advisory Board

# Caros participantes do Fórum Mundial de Bioeconomia! Dear Participants of the World Bioeconomy Forum!



## **BEM-VINDOS A BELÉM DO PARÁ!**

É com grande prazer e alegria que os recebemos, aqui no Portal da Amazônia, para um evento importante para todos nós! O Pará e os paraenses os recebem de braços abertos para uma jornada de abrangência global. Este é o primeiro grande evento sobre o futuro, abrigado pelo Brasil e pela Amazônia.

Temos a justificada esperança de que, graças à ciência e à colaboração da sociedade, começamos a melhorar as condições sanitárias. Insistimos, porém, que todas as medidas de precaução sejam observadas para que todos guardemos excelentes lembranças deste momento.

Este Fórum mostrará que, somente pelo caminho da preservação e do uso sustentável dos recursos naturais, poderemos ter um mundo mais equilibrado, com menos desperdício, menos desigualdade, menos desmatamento e com mais harmonia entre a presença do homem e a permanência da natureza.

Sejam muito felizes entre nós!

## **Helder Barbalho**

Governador do Estado do Pará

## **WELCOME TO BELÉM DO PARÁ!**

It is with great joy and happiness that we receive you here at the Gate of the Amazon for an event that is important for all of us! Pará and its people – the “paraeneses” – receive you with open arms for a journey of global importance. This is the first big event about the future hosted by Brazil and the Amazon.

We have justified the hope that thanks to science and to society pulling together, we are starting to improve sanitary conditions. We insist, however, that all prevention measures be observed so that we may all have the best recollections of this moment.

This Forum will show that it is only through preservation and sustainable use of natural resources that we will build a more balanced world, with less waste, less inequality, less deforestation and greater harmony between man and nature.

## **Helder Barbalho**

Governor of the State of Pará

# Bioeconomy: an opportunity for Brazil



**By Marcello Brito**

The holding of the World Bioeconomy Forum in Pará is an important milestone for Brazil. When the advisory board accepted our proposal for this extraordinary event to come to our country, with the goal of discussing tropical forest issues, a unique opportunity was created to drive a transformation in the national and world production system, through the development of the local circular bioeconomy market.

Brazil has all the conditions to implement this sector in a regulated manner, bringing together the agri-environmental potential, socio-biodiversity, the conservation of tropical biomes, and the technological and scientific advancement provided by researchers and companies operating in the country. Currently, the productivity and quality indexes achieved in Brazilian agriculture prove the intense application of innovations to produce different cultures, in line with good sustainable practices.

The creation of a structured circular bioeconomy market will result in economic growth in the various Brazilian municipalities and states, generating business, employment, and income; in social development, reducing inequalities in education, health, and quality of life; and in the conservation of the different biomes that sustain life on the planet.

In addition, it will be possible to use the products coming from forests in their integrity, such as açaí, whose pulp is highly appreciated and used for the preparation of various sweet or savory foods, and even the stone, which today is a causative residue damage to the environment, it will have a new destination, based on the use of technology and science, as research shows that it can be used as a source of energy or transformed into resin to replace plastics and other components or into material. press for furniture construction.

The work and effort to insert the bioeconomy as a de facto market must be done jointly by the private sector, society, and the government, as it is necessary to build a sustainable path, guided by strategic intelligence, governance, and an Environmental Policy of State, which prioritizes the conservation of biomes, especially the Amazon, as they are heritage of Brazil and all Brazilians.

Thus, in addition to contributing to the construction of better living conditions for local and national society, taking families out of food insecurity and misery, we will provide agri-environmental products and food from conserved biomes and help mitigate the impacts of climate change on the planet.

***Marcello Brito is the president  
of the board of the directors of ABAG  
(Brazilian Agribusiness Association)***

# Diversity in the bioeconomy involves systems adapted to the regional reality



***From açai and Brazil nuts to the science of new materials from forest species, Brazil has a lot to show the world about the green economy***

***By Ambassador José Carlos da Fonseca Jr.***

The year 2021 continues to be sadly marked by COVID-19, which has claimed lives and rattled economies. At the same time, the pandemic has accelerated processes and demands a new attitude from society so that the recovery can have strong elements of sustainability and care for nature. The bioeconomy agenda, in its broadest sense, stands out as a route toward a better and more sensible relationship with the planet we inhabit.

This requires an effective change of attitude, and with major events such as the Climate Summit this past April, the UN Biodiversity Conference (COP-15) in October, and the COP-26 conference that will be held in November (as well as the World Bioeconomy Forum, which will be held here in Brazil in Belém do Pará), our actions must reflect a new environmental awareness and greater concern for the future of humanity and the planet.

It is time to work together so that Brazil is actively engaged in the debate on a new way of doing business. This is a key role for the country that is already an agro-environmental power, with the greatest biodiversity in the world and forest and water assets of incomparable value.

To turn potential into opportunities, we must combat environmental crimes such as burning, deforestation, and illegal mining and land fraud schemes. The reality of the approximately 25 million Brazilians who live in the Amazon region (most of them in vulnerable situations, particularly young people) requires attention and demands solutions.

For this reason, it is very symbolic that the Amazon will host the world's largest event on the bioeconomy. Here we can find the greatest biological diversity in the world, where we can obtain products and molecules to serve different industries, and also highlight those products that are already known and commercialized by traditional populations, such as palm products, Brazil nuts, and açai.

We know that there is not a single concept of bioeconomy that applies everywhere, but rather that it must be defined to operate in its own regional economic systems; this is a very important lesson.

In Brazil there are also initiatives and projects related to the bioeconomy outside the Amazon region, as exemplified by the visible successes of the agro-industrial segments that developed from sugarcane and planted forests, most notably pine and eucalyptus. These sectors

are founded on the green economy and have become well established thanks to significant and lasting investments in innovation, science, and technology.

The planted tree sector, represented institutionally by the Brazilian Tree Industry (Ibá), plants 1 million trees every day for industrial purposes. It plants, harvests, and replants trees, most frequently in areas that have previously been degraded by human activities. There are 9 million hectares of planted trees in Brazil, and 5.9 million hectares of preservation areas. The sector delivers products from renewable raw materials, with sustainable plantations and preserved areas that regulate water flow, remove and store greenhouse gases, at levels that reach 4.48 billion tons of CO<sub>2</sub> equivalent. Furthermore, 7.4 million hectares of planted trees have internationally recognized certifications such as FSC and PEFC/Cerflor.

There are more than 5,000 products and by-products, including cellulose pulp, paper, wood furniture, laminate flooring, biofuel, charcoal, paper packaging for e-commerce and delivery, and materials such as tissues, toilet paper, diapers, and masks that all offer solutions to replace items made from fossil sources.

Brazil is the world's largest pulp exporter and a world leader in technology in this segment, with competitive differentials resulting from years of investment in innovation and development. Companies in this sector have funded robust breeding programs and constant improvement of forest management techniques, which has led Brazil to stand out with the highest forest productivity in the world. The planted tree sector is responsible for 1.2% of the country's GDP and is looking to the future.

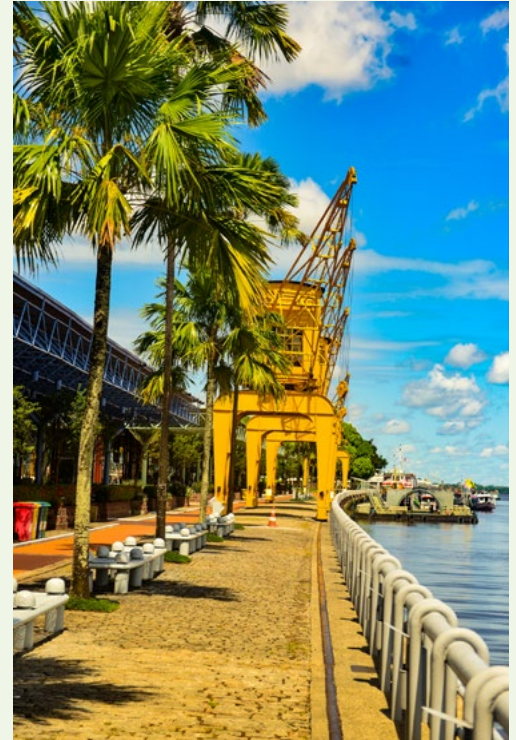
It is present in 1,000 municipalities and brings opportunities to places that are far from big cities: 1.3 million jobs, including direct and indirect posts, and partnerships with 1.6 million small-scale producers via outgrowing and fostering programs. This strengthens the economy, preserves the environment, and positions the country on the global stage in these industries.

The forest-based production chain continues to advance in the energy transition, in climate-positive impact, in conservation and sustainable uses, and in the carbon-negative balance that has characterized our evolution. This is the global challenge: to produce more with less natural resources. These productive processes must be made cleaner and more sustainable, and we must invest in green technologies to keep the Earth's ecosystem in balance and continue to generate even more opportunities in Brazil and around the world.

# Bioeconomy in the heart of the Amazon, in Belém do Pará

**THE WORLD BIOECONOMY FORUM 2021** will take place in Belém, Brazil, a city that features not only a stunning bioeconomy, but also a culinary culture which draws from the unique flora and fauna in the region. Belém has been recognized as a Creative City of Gastronomy by UNESCO, due to both the unique cuisine within the region, but also for their efforts to consider sustainability, biodiversity, and cultural aspects of cuisine within the city. As part of their efforts, Belém has established the Global Centre on Gastronomy and Biodiversity, an initiative to create a cluster for food technology and innovation. Regional cuisine includes for example seafood, açaí, and pupunha.

*The event will take place in the beautiful Estação das Docas, which combines modern facilities with a touch of history in the preserved dock yard. The venue also incorporates the local bioeconomy through the riverfront view.*

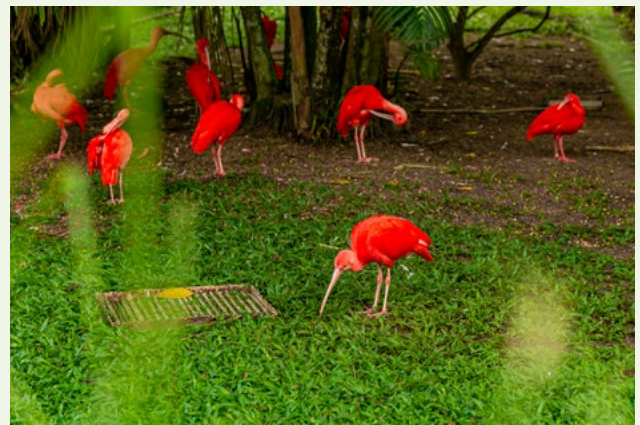


*Views from Belém, the being the Portuguese version of 'Bethlehem'.*





**BELÉM IS LOCATED WITHIN THE STATE OF PARÁ IN BRAZIL.** Pará has 144 municipalities, with a population of 8.6 million inhabitants (IBGE, 2018) distributed over an area of more than 1,245,870.798 km<sup>2</sup>. The state stands out as the largest consumer market and the largest economy in the Amazon and the northern region of Brazil, contributing 2.2% of the national GDP and 43.5% of the GDP of the Northern Region, results that position the Pará economy as the 12th largest economy in Brazil.



*The region features interesting flora and fauna.*



*The region also features the Amazon river.*

# Platform general information

## Practical information on joining the event virtually platform

The event will be broadcast through the exclusive platform <https://www.forumbioeconomia.com.br>

In the 3D world of the event, go to the DOCKS to find the event stream. Choose your language and participate!

To access the stream, you will need a personal password (sent to the registered participants by email). If you have not received your password, contact us at [info@wcbef.com](mailto:info@wcbef.com)!

## Networking and chat

Interact with the Forum by sending emojis located below the broadcast screen.

If you wish to talk to the other participants, click on the "Networking" button on the right-hand side of the transmission screen, find out who else is online and send messages!

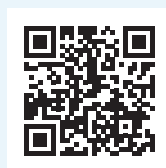
## Ask questions

During the Forum broadcast, you will be able to send questions to the speakers.

Click on the "Send Your Question" button below the broadcast screen, write your question with the name of the speaker who you would like to address it to, and send it.

## Connection

If you have any technical issues making your transmission difficult, use the support box/chat and an attendant will help you to reconnect again with the Forum!







# Online Studio



**FOR ONLINE DELEGATES** we will be hosting a studio during the breaks at the event where **Mark Rushton** and a series of special guests will be commentating on the sessions and proceedings as they take place in Brazil.

# Programme



<b>Day I</b> 18 October 2021	8:30–9:30 UTC-3	Opening ceremony <span style="float: right;">(( (▶) ))</span>
	10:00 – 12:30 UTC-3	 <b>The Bioeconomy: People, Planet, Policies</b> <span style="float: right;">(( (▶) ))</span>
	Lunch break	
	13:30 – 17:15 UTC-3	 <b>Global Leaders and Financial World</b> <span style="float: right;">(( (▶) ))</span>
	Get together dinner hosted by the state of Pará with local cuisine	
<b>Day II</b> 19 October 2021	8:30 – 12:30 UTC-3	 <b>Bioproducts around us</b> <span style="float: right;">(( (▶) ))</span>
	Lunch break	
	13:30 – 17:30 UTC-3	 <b>Looking to the Future</b> <span style="float: right;">(( (▶) ))</span>
Gala Dinner Annual awards		
<b>Day III</b> 20 October 2021	9:15 UTC-3	Workshops for in-person participants
	11:30 UTC-3	<b>Conclusions and Declaration of the Forum 2021</b> <span style="float: right;">(( (▶) ))</span>
	Lunch break	
	14:00 UTC-3	Press conference (media only)

# Programme

## Day I 18 October 2021

08:30 **OPENING CEREMONY**

***Welcoming words***

**Jukka Kantola**

**Marcello Brito**

**José Carlos Fonseca**

**Flavio Dino**

**Helder Barbalho**

**Hamilton Mourão**

Founder of the World BioEconomy Forum

President of ABAG

Executive Director, IBÁ

Governador do Maranhão e Presidente do Consórcio

Interestadual da Amazônia Legal

Governor of the State of Pará

Vice President of Brazil, Chairman of

the National Council of Legal Amazonia

09:30 **Coffee break**



*Hamilton Mourão*



*Helder Barbalho*



*Flavio Dino*



*Jukka Kantola*



*Marcello Brito*



*José Carlos  
Fonseca*



# The Bioeconomy: People, Planet, Policies

## 10:00 **The Bioeconomy: People, Planet, Policies**

### *Introduction of the theme*

### *Opening speech: Overview on recent biostrategies worldwide*

**Dr. Christian Patermann** "Father" of European bioeconomy, Former Director EU Commission and Advisor to the German Government on bioeconomy matter

### *Keynote speech: Bioeconomy in Brazil*

**Dr. Izabella Teixeira** Former Minister of Environment for Brazil

### *Keynote speech: Bioeconomy in the Amazon*

**Mercedes Bustamante** Professor at the University of Brasilia

## 11:30 **Panel 1: Biostrategies worldwide**

Moderated by Dr Christian Patermann

### *Panelists*

**Dr. Arturo Louis Luna Tapia** ICGEB Liaison Officer, Ministry of Science, Technology and Innovation, Columbia

**Ignasi Rodríguez Galindo** Responsible for External Relations, Ministry of Agriculture, Livestock, Fisheries and Food, Government of Catalonia

**Julius Ecuru** Programme Manager, BioInnovate Africa

**Nur Hygiawati Rahaya** Director of Forestry and Water Resource Conservation, Ministry of National Development Planning Indonesia (BAPPENAS)

**Marisa Lameiras da Silva** Adviser to the Minister of Environment and Climate Action, Portugal

## 12:30 **Lunch**



*Dr. Christian Patermann*



*Dr. Izabella Teixeira*



*Mercedes Bustamante*



*Dr. Arturo Louis Luna Tapia*



*Ignasi Rodríguez Galindo*



*Julius Ecuru*



*Nur Hygiawati Rahaya*



*Marisa Lameiras da Silva*



# Global Leaders and Financial World

Session host



13:30 **Introduction of the theme**

Hosted by **Teresa Presas** Senior Advisor, World BioEconomy Forum

13:40 **Keynote speech: Status of the global economy**

**Joaquim Vieira Ferreira Levy** Director of Economic Strategy and Relations with Markets of Banco Safra in Brazil

14:00 **Panel 2: Sustainable Financing**

**Moderated by**

**Michael Nettersheim**

Founding Partner, European Circular Bioeconomy Fund

**Panellists:**

**Gustavo Montezano**

President of the Brazilian Development Bank BNDE

**Mary Lystad**

Global Sector Lead, Forest Products Investments,

The International Financing Corporation IFC

**Ana Yang**

Executive Director at Hoffmann Centre at Chatham House

**Sergio Rial**

CEO Latin America at Santander

15:00 **Coffee break**

15:30 **Keynote on leadership role in Bioeconomy**

**Onno van den Heuvel** Global Manager of UNDP's Biodiversity Finance Initiative BIOFIN

15:50 **Panel 3: CEO Panel**

**Moderated by Teresa Presas** Senior Advisor, World BioEconomy Forum

**Panellists:**

**Joachim Schönbeck**

Board Member Andritz

**Cristiano Teixeira**

CEO of Klabin

**Celso Tacla**

CEO Latin America, Valmet

**Dr. Sara Boettiger**

Head of Global Public Affairs, Science & Sustainability, Bayer

**Dr. João Paulo Brotto Gonçalves Ferreira** CEO of Natura & Co

17:15 **End of the day I**

19:00 **Get together dinner hosted by the state of Pará with local cuisine**



*Teresa Presas*



*Joaquim Vieira  
Ferreira Levy*



*Michael  
Nettersheim*



*Gustavo  
Montezano*



*Mary Lystad*



Ana Yang



Sergio Rial



Onno van  
den Heuve



Joachim  
Schönbeck



Cristiano Teixeira



Celso Tacla



Dr. Sara  
Boettiger



Dr. João Paulo Brotto  
Gonçalves Ferreira

BUSINESS  
FINLAND

# WORLD-CLASS BIOECONOMY INNOVATIONS FROM FINLAND

Finland has set the course for a low-carbon society and a sustainable economy. The national Bioeconomy Strategy and National low carbon Circular Economy strategy drive Finland's economic growth while targeting at carbon neutrality by 2035.

Finnish companies offer numerous new solutions in biomaterials, biochemicals, biofuels, textile fibers and biobased packaging, and many more. These biobased businesses have attracted investment from over 20 leading international players.

Finland's success is based on a deep understanding of the entire bioproduct value chain, world-class experimental research, and "open access" pilots and demonstration platforms.

Business Finland calls you all for cross-national cooperation with Finnish companies and research actors. **Want to know more? Please contact us in our international office network.**



## Bioproducts around us

Session host

**ANDRITZ**

- 
- 08:30 **Wrap up Day I/introduction of the theme**  
by **Teresa Presas** Senior Advisor, World BioEconomy Forum
- 
- 08:45 **Keynote speech: Building a sustainable and circular bioeconomy with forests and forests products: status and trends**  
**Dr. Sven Walter** Team leader, Forest products and statistics, FAO  
**Keynote speech: Trillion tree project**  
**Dr. Constantin Zohner** Lead scientific advisor to the UN's Trillion Tree Campaign
- 
- 09:15 **Panel 4: Feedstocks & Services provided by bioeconomy**  
**Moderated by**  
**Aida Greenbury** Co-founder, World BioEconomy Forum  
**Panelists:**  
**Grant Rosoman** Global Forests Solutions Senior Advisor, Greenpeace  
**Georg Buchholz** Program Manager, Forest and Climate Change Program (FORCLIME)  
**Robert Nasi** Director General, Center for International Forestry Research (CIFOR)  
**Hannu Hämäläinen** Sales Director, Chempolis  
**Dr. Joice Nunes Ferreira** Researcher of Brazilian Agricultural Research Corporation (EMBRAPA), Brasília  
**Fernanda Mourão Arruda** Founder, Ateliê Xibé
- 
- 10:30 **Coffee break**
- 
- 11:00 **Keynote speech: RCI incentive**  
**Dr. Michael Carus** Founder and Managing Director, nova-Institute  
**Keynote speech: Status of bio-based plastics and materials**  
**Hasso von Pogrell** Managing Director, European bioplastics
- 
- 11:20 **Panel 5: Bio-based alternatives for materials**  
**Moderated by**  
**Ludo Diels** Research Manager, Sustainable Chemistry Flemish Institute for Technological Research (VITO), Vice-chair of the Public-private-partnership SPIRE  
  
**Case textile**  
**Bibiana Rubini** R&D&I Executive Manager, Suzano  
**Dr. Janne Poranen** CEO, Spinnova  
**Case consumer materials**  
**Roberto Werneck** Technical expert, Open Innovation, Braskem  
**Nelleke van der Puil** Vice President of Materials, LEGO Group  
**Case Car industry**  
**Alper A. Kiziltas** Technical Expert at Ford Motor Company
- 
- 12:30 **Lunch**





*Teresa Presas*



*Dr. Sven Walter*



*Dr. Constantin  
Zohner*



*Aida  
Greenbury*



*Grant Rosoman*



*Georg Buchholz*



*Robert Nasi*



*Hannu  
Hämäläinen*



*Dr. Joice Nunes  
Ferreira*



*Fernanda Mourão  
Arruda*



*Dr. Michael Carus*



*Hasso von Pogrell*



*Ludo Diels*



*Bibiana  
Rubini*



*Dr. Janne  
Poranen*



*Roberto Werneck*



*Nelleke van  
der Puil*



*Alper A.  
Kiziltas*



## Looking to the Future

### 13:30 Introduction of the theme: Looking to the Future

Teresa Presas, Senior Advisor, World BioEconomy Forum

**Keynote speech: Bioeconomy and the health agenda in Brazil: challenges for the future**

Dr. Nísia Trindade Lima, President, Oswaldo Cruz Foundation (Fiocruz), Ministry of Health, Brazil

### 14:10 Panel 6: Tropical Bioeconomy in a Global Context

**Moderated by**

Dr. Ricardo Abramovay Professor of the Environment Program of the University of São Paulo

**Panellists**

Valmir Ortega Former State Secretary in Pará

Roberto Waack Concertación for the Amazon, FSC

Dr. Tatiana Schor Executive Secretary, Executive Secretariat for Science, Technology and Innovation Amazonas, Professor at the Federal University of the Amazon

Dr. Flora Tibazarwa Program Director at Southern African Innovation Support Programme II

Professor Gabriela Bianchi dos Santos Co-founder of Mahá Biocosméticos

### 15:30 Coffee break

### 16:00 Panel 7 Intro speaker: Health and the Bioeconomy

Ahmed Fahmi Programme Specialist, Chief of Section, UNESCO

### 16:10 Panel 7: Health and the Bioeconomy

**Moderated by**

Mark Rudnicki Professor of Practice, Forest Biomaterials,  
Michigan Technological University

**Panellists:**

**Role of indigenous knowledge systems**

Dr. Vivian Camacho High Level Commissioner Alma Ata, PAHO, Peoples' Health Bolivia (Bolivia)

**New and biobased pharmaceuticals**

Zulay Poggi Researcher and university professor in the area of Innovation, Central  
University of Venezuela, Center for Development studies CENDES

**Healthy materials & indoor environments**

Alison Mears Dean of the School of Design Strategies, Parsons School of design

Dr. Yu Yuan Researcher, Chengdu Institute of Biology, Chinese Academy of Sciences;  
Executive President of Chengdu High-tech Zone Biological Industry Expert  
Association, Vice president of Chengdu Haifeng Biotechnology Co., Ltd

Dr. Lian Thomas Theme Leader International Livestock Research Institute (ILRI)s

### 17:30 Closing of the Day II

### 19:00 Gala Dinner

Annual awards



*Teresa Presas*



*Dr. Nísia Trindade Lima*



*Dr. Ricardo Abramovay*



*Valmir Ortega*



*Roberto Waack*



*Dr. Tatiana Schor*



*Dr. Flora Tibazarwa*



*Professor Gabriela Bianchi dos Santos*



*Ahmed Fahmi*



*Dr. Mark Rudnicki*



*Dr. Vivian Camacho*



*Zulay Poggi*



*Alison Mears*



*Dr. Yu Yuan*



*Dr. Lian Thomas*

### **Day III 20 October 2021**

09:00 **Wrap up Day II by Teresa Presas**

09:15 **Workshops for in-person participants**

10:15 **Presentations of the workshops**

11:30 **Conclusions and declaration of the Declaration 2021**

12:30 **Lunch**

14:00 **Press conference (media only)**

## Interviews



**EVERTON VIEIRA VARGAS**  
*is the current Coordinator for International Relations for the State of Pará, and worked many years as the Brazilian chief negotiator for climate change and sustainable development. He has also enjoyed a long*

*career in diplomacy, including as Ambassador of Brazil to the European Union (2016–2019), Argentina (2013–2016) and Germany (2009–2013). Everton Vargas is also actively involved in the organization of the World BioEconomy Forum as part of the Advisory Board. In his Five Minutes With... interview, he gives insights about the state of the bioeconomy in Brazil, and the future of the region.*

**We are delighted to bring you an exclusive interview with Everton Vargas, one of the World BioEconomy Forum's Advisory Board members.**

Everton Vieira Vargas is a Brazilian diplomat, and former ambassador of Brazil to the European Union, holding the post of Brazilian Ambassador to Germany from 2009 to 2013 and Argentina from 2013 – 2016.

During his career, Everton has been Political Undersecretary General and Director of the Department of Environment and Special Issues at the Ministry of Foreign Affairs in Brazil. At the ministry in Brazil he has also been Head of the Science and Technology Division, Coordinator of the Summit of the Americas and Head of the Environment Division.

From 2007 to 2008 Everton was part of the G8 summit meetings in Japan and Germany where he acted as Sherpa to the Brazilian president.

Everton has variously served at the Brazilian Embassy in Bonn, at the Mission of Brazil to the United Nations in New York and at the Embassy in Tokyo. He holds a doctorate in sociology from the University of Brasília.

**You have been heavily involved in international conservation, sustainability and climate change discussions on behalf of the Brazilian government in the course of your career. Can you tell us what progress has been made when it comes to the bioeconomy sector in the country up until now?**

I started to get involved with environment and sustainable development when I was assigned to the Brazilian Mission to the United Nations, in New York, in 1988. Then, the focus was concentrated on the meaning of sustainable development, as presented in the Brundtland Report – Our Common Future – released in 1987. The concept was also

developed in the report “Environmental Perspective to the Year 2000 and Beyond”, prepared by the UNEP Governing Council and adopted by the General Assembly in Resolution 42/186. This document was negotiated by the member states of the UNEP Governing Council, but, actually, had less repercussion than the Brundtland Report.

In those years, the concept of bioeconomy was still incipient. The potential value of biological and genetic resources gained prominence, however, with the growing pressure against their predatory exploitation. This exploitation was leading to alarming rates of deforestation, loss of marshlands, pollution of waterways and, in particular, to annihilation of certain species. The consequences of those impacts on ecosystems gave rise to serious concerns among scientists and traditional and indigenous communities about the loss of nutrients. Other anthropogenic events were also leading to the disappearance of biotic resources and to increasing the rate of extinction of whole species.

Discussions about biological and genetic resources were mainly concentrated on the imperatives of establishing a set of agreed rules for their conservation and sustainable use, and, at the same time, safeguard national sovereignty over those resources. That was in fact the major dilemma during the negotiation of the Convention on Biological Diversity. The negotiation went beyond these main issues to include the concepts of sharing benefits derived from the use of genetic resources, of protection of traditional knowledge, as well as the need for access to new and additional financial resources and transfer of environmentally sound technologies, particularly for the developing countries.

Bioeconomy is associated to the success in the productivity and competitiveness of Brazilian agriculture and its penetration in foreign markets. Brazil is now evolving towards a second stage with investments in products from extractive areas and other non-timber products. This occurs not only in the Amazon Region, but also in the Atlantic Forest, along the east coast of Brazil.

There is a growing awareness of the potential of these products. Their multiple applications and their importance in preserving ecosystems show us that an important segment of bio-based materials (excluding biomass) is actually outside the circular economy, as pointed out in the 2015 EU Circular Economy Action Plan. Circular economy, according to this reasoning, focuses on “maintaining the value of products, materials, and resources in the economy for as long as possible” and increasing the ecoefficiency of processes (CORUS, M., Dammer, L., 2018)[1]. The corollary is that many elements of bioeconomy go beyond the objectives of the circular economy, including aspects focused on the functionality of products and services.

The progress made by Brazilian agriculture, with huge investments in capacity building and in knowledge, is certainly a paradigm for the further development of bioeconomy in the country. In a vast country like Brazil, one should not succumb to the mirage of trying to define a bioeconomy policy or strategy for the entire country. With many different economic, geographical, ecological and social conditions within and between its regions, the country demands strategies and policies that not only stimulate investments and innovation but also have a strong social component for engaging the population, in particular those segments living in the fringes of its society.

**The Amazon region is of vital importance to the general health of the planet due to its immense size and the biodiversity of its flora and fauna. What does the future hold for the region when it comes to bioeconomy challenges and opportunities?**

The Legal Amazon in Brazil goes beyond the Northern Region. The nine states of Legal Amazon comprise 5.1 million km<sup>2</sup> (60% of the Brazilian surface area), 29.3 million inhabitants (14% of the country's population), 808 municipalities (14.5% of the total in Brazil), and a GDP of R\$ 623 billion (9% of Brazil's GDP).

It is a strategic asset for Brazil. The sheer size of the area, its long borders with six South American countries, and the economic potential of its untapped natural resources are among the key elements that, since colonial times, have been at the core of the doctrine on protecting the Region from foreign occupation and overall concerns about its security.

Expansion of economic activity and migration, especially since the 1970s, generated ecological stress – particularly with deforestation and burning — and marginalization of indigenous peoples and traditional communities.

The return to democracy of Brazil in the second half of the 1980s, with the adoption of the 1988 Constitution, with a specific chapter on environment led to the adoption of new policies and the creation of new institutions for the conservation and sustainable use of natural resources. This led to efforts by governments (at federal and state levels) to enact policies and programs, as well as to create institutions to control deforestation and combat illegal activities, like land grabbing, biopiracy, illegal logging, and mining. Such activities are today among the main causes for destabilization of the Amazon, together with climate change.

This challenge is not limited to the effect of these illegal activities. Their worst consequences will be felt in the coming years and decades, and become a reality sooner than expected due to the lack of bold actions worldwide to stop GHG emissions, according to the forecasts shown in the recent IPCC report. Extreme events such as floods, storms, rise in temperatures – in a Region that is normally very warm – will certainly provoke tangible changes in other regions of Brazil, including those known as the granary of Brazil, with dire consequences.

**The World BioEconomy Forum will be held in Belém, Para State in October. What are your hopes and dreams for the event, and how do you see the discussions affecting the future of the bioeconomy in Brazil?**

This will be the first time that the World BioEconomy Forum will take place outside Finland. We expect a broad, multifaceted and pragmatic debate that will contribute to raise awareness on the importance and potential of bioeconomy. We also hope to help establish partnerships in areas like science, technology, business, and investments between business, R&D institutions, and civil society.

We are expecting the presence of a significant number of government officials, experts, academics, businessmen, bankers, scientists, and journalists from around the world, as well as representatives of indigenous people and local communities of the Amazonian Region.

The World Forum on BioEconomy will be an opportunity to highlight the potential of the Amazonian Region as a locus for research projects, technology development and innovation, as well as investments and the integration of the regional economy and its biodiversity into value chains. There are already high expectations that this gathering will strengthen progress towards a sustainable economy and bring social welfare to the region.

The WCBEF will take place at a critical moment for the development of the Amazon and Brazil. We are facing a deep crisis in the Brazilian development process. Overcoming this crisis requires a medium to long-term political view together with political will and strong determination. A region with such wealth and diversity cannot improve social and economic standards without a better understanding of its potential and changing its perception of how the successes and failures of the past and present should be critically evaluated to build the future.

The future of the Amazon is political and cannot be reduced to a promise of a single event. It is the result of a careful and sometimes painful construction that produces a true cultural change. The WCBEF will blow a new wind in the Amazon, opening opportunities for new ideas, for innovative uses of its biodiversity and for ways and means to enhance the inclusion of its population and, therefore, diminish inequalities. It is like a seed that can alter conditions and produce fruits that can be for all.

[1] Corus, M., Dammer, L., 2018 *The "Circular Bioeconomy" – Concepts, Opportunities and Limitations*, Hürth 2018-01 Download at [www.bio-based.eu/nova-papers](http://www.bio-based.eu/nova-papers) Access September 1, 2021.



**EVERTON VIEIRA VARGAS**  
interview on YouTube



**DR PATERMANN** is widely known as the "Father" of European bioeconomy, and is former director at the EU Commission and advisor to the German government on bioeconomy matters. He shares his thoughts on the importance of the circular

bioeconomy. He will be a keynote speaker and moderator at the Forum 2021. In his interview he talks about the focus of the discussion in the first panel to take place at the Forum in Belém; *The BioEconomy: People, Planet, Policies*.

**Four Pillars of Wisdom**

The Forum has a diverse Advisory Board made up of prominent stakeholders and professionals working in the circular bioeconomy from all over the world, including politicians, academics and high-level business leaders. The content of the Forum is arranged into four separate pillars



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- The BioEconomy: People, Planet and Policies
- Global Leaders and the Financial World
- Bioproducts Around Us
- Looking to the future

Following is an interview **Dr Christian Patemann**, keynote speaker and moderator of the first panel to take place at the Forum in Belém; **The BioEconomy: People, Planet, Policies**. Dr Patemann is widely known as the “Father” of European bioeconomy, and is former director at the EU Commission and advisor to the German government on bioeconomy matters.

### From a political perspective, can you give us your view on the importance of a circular bioeconomy for the future of the planet?

Dr Patemann: Since the warnings of the Club of Rome half a century ago our planet and we all as its tenants face a growing number of planetary challenges, needless to enumerate: more recently the pandemic and a strong increase in extreme weather events. But mankind has a toolbox of responses available: sustainability to be more categorically practiced as ever before, with a new “old” Economy-model” in its centre, namely the stronger practice of the principles of biology, like renewability and circularity, coupled with an increased use of biological resources, like plants, animals, microorganisms (bacteria, enzymes, proteins etc.) and insects: in one word the “biobased” economy.

It will be one of the most challenging tasks for politicians and for their policies to use this political business model as much as possible to enable the transition into a less-fossil, close-to zero waste, circular, planetary healthy world society.

Great words, great ideas, but very ambitious to be realized. To do this within the larger context of a sustainable future I see as the prime task for policy deciders worldwide.

### When it comes to overall strategies in regards to the global bioeconomy and the subjects of People, Planet and Policies, how far have we come and what further work is there to do?

Dr Patemann: Today we see in spite of constraints by the pandemic an ever-growing number of states, regions and international entities to support the development of a bioeconomy via relevant national and regional strategies. In particular in Latin America this development is lately really remarkable: Costa Rica, Uruguay, Colombia, Brazil. But paper is patient as we say in Germany: if these strategies are not accompanied by accountable action plans, road maps or other monitoring instruments, if they are not implemented by concrete projects or processes, their political value and impact will be very limited.

These concrete cases are the more necessary as the format of a biobased economy needs permanently to demonstrate its better performance compared with other non-biobased products and processes. Just the

accompanying determination and qualification to be circular and biobased will in many cases not be sufficient! This is a common challenge to industry, academia, to communication and marketing experts as well. Thus a lot to do but for a very worthwhile cause!

### As an Advisory Board member of the Forum moderating the first panel in Brazil, what will be the main focus of the discussion?

Dr Patemann: There is already a certain “tradition” in this panel to present and discuss the most recent strategies – national and regional – from all parts of the world. However, based on a few expectations from the audience, we will be discussing the following: exchange of most recent experiences of how to produce and publish a politically successful bioeconomy strategy, AND, at least as important, follow the most recent development of the content of such a national or regional strategy.

We will also be asking questions, for instance: what role is Health, Digitalisation and Biodiversity playing today in the scope of an increased use of biological resources. The regional divergencies within the priorities-settings are remarkable, but more and more topics, qualified as soft skills within the bioeconomy are becoming relevant: new ways of academic and vocational training, new ways of funding, mobilizing private capital in the post Covid period stronger than before.

I expect this time in addition to be hearing new interesting information in these areas demonstrating the enormous dynamisms of bioeconomies worldwide. Learning more about the developments in Latin America, in particular the widely unknown “continental” Amazonia, and I expect – for the first time ever – that the role of tropical forests within the bioeconomy is made prominently known, also covering other regions like central Africa or Indonesia. These are additional features to follow developments also in close partnership with academia and industry.

I am already curious to learn what topics we will be discussing in our 2022 annual gathering!



**DR PATERMANN**  
interview on YouTube



**TERESA PRESAS** is a well-known consultant and strategic advisor for companies involved in the circular bioeconomy. With a particular knowledge of forestry and the pulp and paper industry, Teresa was a former Director General of the Confederation of European Paper Industries. and has held multiple roles within Tetra Pak. Among other things she is currently a board member of the Navigator company.

## Four Pillars of Wisdom II: Global Leaders and the Financial World

Continuing our series of discussions with the session heads at the World BioEconomy Forum, we speak to Forum Advisory Board member Teresa Presas. Teresa is head of the Global Leaders and the Financial World session and will be moderating the CEO Panel at the event in Brazil.

**All industries and business, large and small, as well as financial institutions across the world, have a vital role to play in creating a circular bioeconomy. Can you comment on this?**

The circular bioeconomy is certainly one of the most innovative when it comes to economic activity, addressing some crucial challenges of our times, such as climate change, efficient resource use, social development, energy transition. But no actor can succeed on its own. It seems obvious that only collaboration between the business, industrial and financial worlds has the capacity to bring a circular bioeconomy into reality. Value chains driven by focused business thinking, industry activities, and sustainable financing are a key element to deliver products and services that are solutions to a sustainable society.

**It does seem that the message of environmental sustainability has firmly gotten through to the general public. In your opinion, how well is the commercial community responding to consumer demands, and what more can industries, companies and financial institutions do to make further progress?**

Without acceptance by consumers and citizens there is not much sense in the effort to move the circular bioeconomy forward. Therefore, commercial activities must be transparent and clear about what they are offering and the benefits they bring. Communication from companies should adopt a language that addresses peoples' understanding and beliefs, and make their audiences real partners in their willingness to act sustainably. The same approach goes to financial institutions in supporting business investments and the outcomes that ultimately will reach consumers and citizens.

**You will be moderating the CEO panel in the Global Leaders and the Financial World session, what are you hoping to achieve from the discussions in Brazil?**

We are in a critical transition moment towards a world that is more sensitive and open to real change. We believe strongly that establishing a circular bioeconomy has a key role in that transition and all actors have their part to play. Industry leaders have a particular responsibility as they are running companies and institutions that have the solutions. I do hope that our discussions will deliver a sharp and clear message by corporate leaders that they are committed to providing these solutions.



**TERESA PRESAS**  
interview on YouTube



**PROF. LUDO DIELS**, *Dr. in chemistry & biotechnology, works at the University of Antwerp, and is Research Manager Sustainable Chemistry for the Flemish Institute for Technological Research (VITO) in Mol, Belgium.*

He is responsible for the transition toward sustainable chemistry and clean technology. In this he is strongly involved in the set-up of a biobased economy in Flanders and Europe, and collaboration between Europe and India. He is a founding father of the Shared Research Centre on Bio-aromatics (BIORIZON), the BIG-C trilateral alliance with NordRhein Westfalia and the Vanguard Initiative. He integrates coping with global change and a forest-based economy into a new business plan.

## Four Pillars of Wisdom III: Bioproducts Around Us

Our next interview in the Four Pillars series is with **Professor Ludo Diels**, Advisory Board member for the World BioEconomy Forum. Professor Diels is the head of the **Bioproducts Around Us** session at the Forum this year, and will be moderating the panel: **Bio-based Alternatives for Materials**.

Professor Diels is a doctor in chemistry and works at the University of Antwerp as research manager, sustainable chemistry for the Flemish Institute of Technological Research. He is also Vice Chair of public-private partnership SPIRE, the European Association committed to manage and implement the Processes4Planet partnership.

**Bioproducts – those made from renewable resources and that are often able to be reused, recycled and finally biodegrade, have become essential ingredients of the circular bioeconomy. Can you comment on what progress you are seeing being made in bringing products to market?**

We have seen a lot of progress made over the years in the level of commercialisation of bio-based materials and biopolymers.

It all started very long time ago with cellulose-based materials (or let us say 'paper-based materials'). It is largely accepted by society as people all understand that paper comes from trees. Besides cellulose-based materials there are also starch-based and protein-based materials of minor importance.

But now we see also a move toward aliphatic polyesters like PLA. PLA is classic plastic that we use already very regularly. Very recently, 'finally' I would say, we see a move toward PHA and its quality is still underestimated. We also see the movement toward other biodegradable plastics (mulching films) in agriculture.

On the other hand, we see more and more bio-based PE and a start of PP with some potential to enter the recycling systems. Very interesting is the breakthrough of polyamide 11, a bio-based nylon made from castor oil that can be used in 3D-printing. This is of course perfect. We strive toward



the use of sustainable feedstock, so bio-based, and to use less feedstock, so to move to additive manufacturing as in 3D-printing.

Further, and this is a real breakthrough, we see the movement toward bio-based aromatic molecules such as PET, PEF, polystyrenes etc. all with very good potential to become recycled. And I believe that the recycling of bio-based materials will become crucial in the defossilisation of our materials. The more we introduce bio-based materials in a recycling loop, the more we can move away from fossil-based materials to stop climate change. In this way we keep biobased carbon in the material loop and this will work as a carbon sink.

### What do you see and the most prominent and interesting bioproducts emerging at the moment?

To start with, certainly the new cellulose-based materials. We see a lot of innovations at the level of new cellulose-materials. In addition to all the materials I just mentioned.

From an environmental point of view, the use of composite materials cannot be encouraged due to the fact that disassembly is nearly impossible. But I see that every material around me is becoming composite. So, either we ban composite materials by regulation because it is difficult to recycle, or we need to find a solution. And I think that a technical solution will be more easily accepted worldwide.

Composites are composed of different materials bound together by special glues/additives/adhesives. I see now that these additives and adhesives are developed in a bio-based way and more specifically from lignin, a residue from the pulp and paper industry. If we will be able to make bio-composites fully bio-based, it will be a step forward to full recycling and again avoiding the use of fossil-based materials.

Additionally, I expect several performance improvements from these innovative bio-based materials. The next challenge will be to make these adhesives smart. This means allowing them to reverse their characteristics under certain conditions to enable the composite to fall apart

### You will be moderating the Bioproducts Around us panel in Brazil, what will be the focus of the discussion?

We will start by making an overview of how well managed forests and smart use of biomass in the world can create carbon sinks. We would like to pay attention to the right management including discussions on biodiversity and climate impact. Then we will move to the real discussion on applications with bio-based materials in the automotive, textile, construction, and packaging sectors, and also in the toys sector.

You will see that indeed the fact of being bio-based, either biodegradable or recyclable, will play an important role in the final breakthrough of these materials in manufacturing industries.

So, in our session we will combine the process industry transforming biomass from agro-industry or forestry into materials, that will be assembled by brand owners into products AND then back again into feedstock via recycling of new materials and products.

That is exactly what we as consumers are looking for:

sustainable feedstocks and recycled materials. On top of this, bio-based materials will be less toxic and can in some cases perform better.

We will particularly focus our discussion on materials that have a positive impact on climate, no negative effects on biodiversity, and that can be used in a circular economy without any toxic effect – and with a performance improvement.

That is really a big challenge. So, I hope to meet you all in person or virtually in Belém in October.



**PROF. LUDO DIELS**  
interview on YouTube



**DR. MARK RUDNICKI** is currently a Professor of Practice in Forest Biomaterials in the School of Forest Resources and Environmental Science at Michigan Technological University where he engages in and coordinates

research in forest biomaterials. Dr. Rudnicki has also been the Executive Director of the Michigan Forest Biomaterials Institute since its establishment in 2016 as a non-profit NGO dedicated to the facilitation of the forest bioeconomy in the State of Michigan.

### Four Pillars of Wisdom IV: Looking to the Future

In our final interview for the Four Pillars series, we speak to **Professor Mark Rudnicki**, another Advisory Board member for the World BioEconomy Forum. Dr Rudnicki is head of the **Looking to the Future** session at the Forum, and will be moderating the panel: **Health and the Bioeconomy** at the event in Brazil this year.

Dr Rudnicki is currently a Professor of Practice in Forest Biomaterials in the School of Forest Resources and Environmental Science at Michigan Technological University where he engages in and coordinates research in forest biomaterials. He has also been the Executive Director of the Michigan Forest Biomaterials Institute since its establishment in 2016 as a non-profit NGO dedicated to the facilitation of the forest bioeconomy in the State of Michigan.

### How do you see the future of the circular bioeconomy developing over the next 10 years? Are you optimistic that the sector will grow and possibly even boom as the pandemic gets behind us?

As we look increasingly to sustainable solutions, the framework being developed by the bioeconomy is critical. The bioeconomy lays out a pathway to sustainability that harnesses emerging technologies, industry as well as seeking to preserve the rural economies and endemic resources on which the bioeconomy depends.

## How do you see the future of bioproduct development in tropical areas?

Like most regions of the world, the bioeconomy is both established and yet has incredible potential for growth and contribution to a sustainable future. We will hear about several specific efforts in session 4 that should serve to inspire

## You will be moderating the final panel of the Forum, Health and the Bioeconomy, what are your expectations when it comes to the content of the discussion?

Dr Rudnicki: We have an impressive line-up of women from around the world who are leading the work on these issues from a wide variety of perspectives/disciplines. I expect these varied perspectives to illuminate our understanding as they converge on the connections to the bioeconomy.



**DR. MARK RUDNICKI**  
interview on YouTube



**DR. CARLOS NOBRE** is an eminent climate scientist from Brazil. He obtained a PhD in Meteorology from the Massachusetts Institute of Technology (MIT) in 1983. Nobre's work largely focuses on the Amazon and its savannization as a result

of climate change. Dr. Carlos Nobre is a Nobel laureate, as well as a member of the Brazilian Academy of Sciences, a foreign member of the National Academy of Sciences, and Senior Scientist, University of São Paulo's Institute of Advanced Studies.

## You have a huge amount of professional experience in relation to the Amazon rain forest. Can you give us your opinion about the current state of health of the region, and if there are any absolute must-dos that will help preserve forests and help alleviate climate change?

The Amazon rainforest is very near a tipping point of 'savannization' of more than 50% of its area. This is caused by three anthropogenic drivers which interact synergistically: global climate change, deforestation and forest degradation, and increased vulnerability to fires. Observations are revealing that rainforest-climate interactions are rapidly changing. For instance, the dry season over southern Amazon is 3-4 weeks longer today in comparison to the 1980's. The forests are losing the strength of recycling water year-round and of removing carbon from the atmosphere.

Very worrying are observations that the mortality rate of wet-climate trees is increasing, one more sign

that the rainforest is near the tipping point. If the tipping point is exceeded, the large reduction of the rainforest means a total emission of more than 250 billion tons of carbon dioxide, making it much harder to reach the Paris Agreement targets. Therefore, it is urgently needed to bring deforestation rates to zero in less than a decade. At the same time, forest restoration is also an absolute must-do. In addition to reducing the risk of rainforest disappearance, forest restoration is absolutely necessary to mitigate climate change by effective removal of carbon dioxide from the atmosphere.

## What are your thoughts on how the circular bioeconomy – with an emphasis on substituting fossil-based products with bio-based options – can be a major help in the alleviation of climate change on a global scale? Which areas of the circular bioeconomy do you see as having the most potential?

Needless to say that to meet the Paris Accord targets of 1.5 C we need to reduce global emissions of GHG to net zero by 2050. 70% of global emissions come from fossil fuel. In addition to rapidly moving to renewable energy, we also need to bring use of fossil fuels to zero, that is, quickly introducing bio-based products at global scale. For countries like Brazil, on the other hand, more than 50% of emissions come from deforestation. Therefore, a circular bioeconomy for tropical rainforest countries must find solutions to reduce deforestation to zero. The way to do it is to uncover a variation of circular bioeconomy for tropical countries tapping into the immense biodiversity of the rainforest, a standing forest bioeconomy. There is already a lot of evidence that forest products make for a strong bioeconomy in comparison to removing the forest and replacing with low productivity livestock farming or crops.

## The World BioEconomy Forum is coming to Brazil in October – live from Belém on 18 – 20 October. What are your expectations of the event?

I do believe that the event will be very important to demonstrate the enormous potential of a circular bioeconomy also for tropical countries such as Brazil. This would be fundamental to reduce deforestation rates and the risk of climate change. Also this circular bioeconomy for tropical countries must develop modern technologies for adding value to forest products bringing well-being to local the population.



**DR. CARLOS NOBRE**  
interview on YouTube



**DR. SERGEY MALKOV** is President of Association of the Specialists of the Pulp and Paper industry (ASPPI) founded in Russia in 2013. ASPPI's mission is to improve the industry image Support and promote of important initiatives and

projects in Forest and Pulp & Paper industries to be implemented in Russian Federation. In order to accomplish its mission, ASPPI creates environment and communication network for forest-related business and Russian Federation Government by arrangement of industry exhibitions, seminars and conferences, both in Russia and abroad. Born in 1974 in Archangelsk, Russian Federation. Graduated with honors from the Helsinki (Finland) University of Technology in 2002 with a Doctoral Degree in Pulp and Paper Technology. Sergey has over 20 years of experience in the Pulp & Paper Industry, including extensive experience in strategic planning and implementation of large-scale investment projects both in Russia and abroad. In addition to being a President of ASPPI, Sergey also is holding senior management positions in different Russian and international companies that involve in bioeconomy.

Russia's forests are known to be the largest in the world providing a huge potential for forest-based investments. What do you see as the major areas of the bioeconomy where Russia could play a role?

Indeed, Russia has vast forest-based resources. Around 220 million m<sup>3</sup> of forest was harvested in 2020, about 30% of that volume remains unused. Additional potential accounts for over 400 million m<sup>3</sup>, however most of that volume remains in areas with poor accessibility. The cost of forest-based raw material is quite competitive in many regions of the country. This, together with governmental support measures, creates a good platform for future development of the sector.

I personally see the following potential areas where Russia can play a sizable role: bioenergy, biofuels (including liquid), bio-based materials and chemicals and bio-based textiles. Having significant forest resources Russia might become large player in the evolving market of Carbon Neutral Certification, Carbon credits, etc.

Currently Russia does not have a dedicated biostrategy. What are your thoughts on the subject? Do you think Russia will have a biostrategy at some point?

You are right – at the moment Russia does not have dedicated biostrategy. During last several years the focus has been on the Strategy of Development of Forest Complex up until 2030. On September 20th, 2018 this

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strategy has been ratified by the Government of Russian Federation Since then some parts were corrected and ratification of a new revision of strategy was carried out on February 11th, 2021 by Prime Minister Minshustin. The main point of the strategy is to double the contribution of the forest sector to the economy (GDP) by 2030. This to be done with increase of production volumes, but mainly focusing on value added bio-products.

As for Russian national Bio-Strategy definition, I would accept some development starting after 2025.



**DR. FANG CHEN** is a Professor, and director of Information Research Department, and executive director of Center for Strategic Studies on Bioscience and Biotechnology (CaSBIO), Chengdu Library and

Information Center, Chinese Academy of Sciences. She is mainly engaged in research of science and technology strategy and innovation policy, strategic information research on biotechnology and related fields, and has undertaken and participated in a number of strategic research and information analysis tasks entrusted by the Chinese Academy of Sciences and relevant ministries and institutions.

*Dr. Fang Chen participated as an esteemed panelist in the roundtable on People, Planet, Policies discussing bioeconomy strategy in China.*

**The year 2020 has been exceptional due to the pandemic. How do you see 2021 unfolding – what are your expectations for this year?**

2021 has come. We have to admit that we will still face the challenges of the pandemic or other unknown diseases and disasters for a longer period of time. In the post COVID-19 era, first of all, let's expect cutting-edge biotechnology to bring us more possibilities in dealing with these challenges, which has been confirmed in the past year. mRNA based vaccines are industrially produced and commercially used for prevention of human infectious diseases for the first time. Synthetic biotechnology is helping us to realize the design and production of drug molecules, new materials and even artificial foods. The integration of agriculture, biotechnology and information technology or automation technology is drawing a view of smart agriculture, smart medical care and smart community. Secondly, in 2021, I hope to see people reach a broader consensus and a better framework for action in seeking the harmonious development of human beings and nature. As planned, the 15th Conference of Parties (COP) for the Convention on Biological Diversity (CBD) will be held in Kunming, China this year, at which the 2030



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goals to save planet's biodiversity will be redefined. We have reason to believe that the concept of one health will be reflected in the global strategy of biodiversity conservation in the next decade.

**We understand that China is preparing its national biostrategy. Can you please share some information about the strategy, and the plans to implement it?**

Actually, in China, the idea of bioeconomy has been reflected in national development concepts and many strategies. Taking the bioindustry as an essential part of strategic emerging industries, special development plans have been launched every five years since 2006. Then, China has put forward a new five development concepts of "innovation, coordination, green, openness and sharing" in 2015 and proposed to build a "green, low-carbon and circular economy" in 2017. Recently, China has further made a strong commitment to take active measures to achieve carbon neutrality by 2060.

China is working hard to formulate the *14th Five-Year Plan for Bioeconomy Development*, which is expected to be released in this year. The new plan will be the continuation and upgraded version of the *13th Five-Year Plan for Bioindustry Development*, in which China will outline the blueprint of national bioeconomy and put forward the goals of high-quality development of bioindustry by 2025. I understand that the new plan will involve three main aspects. The first is for a healthy China,

that is, to take actions to protect Chinese people's life and health. The second is to build a beautiful China, to cultivate the innovations for greener environment, cleaner energy and more sustainable agriculture. And the third one is about *Made in China*, focusing on the use of bioresources and biotechnology capabilities to seek high-quality growth opportunities.

**The World BioEconomy Forum 2021 is planned to take place in Brazil later this year. What are your expectations for the event?**

That will be an exciting event. As we all know, Brazil is rich in bioresources and has great achievements on biotechnology crops and bioethanol industry. At the same time, Brazil and China are both important emerging economies, playing important role in the global bioeconomy map. I look forward to hearing more voices from developing and emerging economies at this forum and discussing on jointly promoting the development of bioeconomy in the whole world. I hope that the forum will be held smoothly as scheduled and be a complete success.

## Moving forward together in changing energy markets

Resource efficiency, flexibility and clean solutions are the key for success in changing energy markets. Based on our decades-long experience, we have the know-how to deliver the best solutions based on biomass, waste or on a mixture of different fuels.

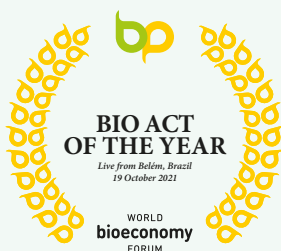
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# Awards session

**WHAT ARE THE WORLD BIOECONOMY FORUM AWARDS?** The World BioEconomy Forum aims to promote the incredible work ongoing in the circular bioeconomy to fight climate change and create a carbon neutral world. The awards recognise companies, products and people whose contribution created a remarkable impact on the global circular bioeconomy and climate change mitigation.

## CATEGORIES



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### Bio Act of the year

The most remarkable contribution during 2021 related to the circular bio-economy and climate change mitigation. The Advisory Board will consider contributions made by organisations, groups or other entities which facilitate the circular bioeconomy, or mitigate climate change

### Bioproduct of the year

The most remarkable bio-product during 2021 related to the circular bio-economy and climate change mitigation. The Advisory Board will consider the novelty and innovativeness of the bioproduct, which can be in commercial use or have a clear path to commercialisation.



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### Bio Person of the year

The most remarkable person during 2021 within the circular bioeconomy and climate change mitigation. The Advisory Board will consider recognised impact of this individual for the circular bioeconomy and mitigating climate change.

### Start-up of the year

The most remarkable startup during 2021 related to the circular bioeconomy and climate change mitigation. The Advisory Board will consider recognised impact of the start-up for the circular bio-economy and climate change.

# World BioEconomy Circle



**THE WORLD BIOECONOMY FORUM** provides a global platform for Circular Bioeconomy stakeholders around the world to share their views and learn from each other. It also provides the perfect opportunity for networking within the Circular Bioeconomy society.

The World BioEconomy Forum offers membership opportunities, inviting relevant organisations to support the circular bioeconomy and become part of the World BioEconomy Circle.

## **PRINCIPLES OF THE WORLD BIOECONOMY CIRCLE**

The World BioEconomy Forum® is offering a global platform for circular bioeconomy stakeholders. The World BioEconomy Circle provides the evergrowing global community of stakeholders opportunities to get engaged with the latest developments going in the circular bioeconomy via World BioEconomy Forum® events and other activities.

The World BioEconomy Forum® has formed a dedicated global networking platform to exchange ideas concerning the latest developments in the circular bioeconomy.

The World BioEconomy Forum® will allow discrimination-free participation of any entities as long as they do not in any way damage or denounce any recognized legal or ethical norms.

The platform is designed so that politicians, academics, technical experts and business leaders can share their vision and ideas and can learn from each other.

Every participant in the circle is responsible for their own announcements and IP-secrecy during all World BioEconomy Forum® events and activities.

The World BioEconomy Forum® will not be held responsible for any content discussed or statements of any participant.

The purpose of the World BioEconomy Forum Circle is to explore, discuss and highlight high-level developments within the circular bioeconomy. We would respectfully request that our members refrain from discussing any commercially sensitive topics regarding technology, markets or pricing.

Entities joining the World BioEconomy Circle and working together under the umbrella of the World BioEconomy Forum® are obliged to work under the so-called Chatham House Rules as follows:

“When a meeting, or part thereof, is held under the Chatham House Rule, participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed.”

## **THE WORLD BIOECONOMY CIRCLE INCLUDES THE FOLLOWING BENEFITS:**

- Announcement of the membership via newsletters, social media
- Logo or name display at the website and in the events
- Tickets for annual forum, World BioEconomy Forum events
- Advertising in conference Journal
- Post material access, recordings
- Allowance to use World BioEconomy Forum-label and/or -pin
- Benefits of World BioEconomy Forum networking possibilities



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# Exhibitors



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## Bioproduct Day – 7 July

**WE AT THE WORLD BIOECONOMY FORUM** have taken time to reflect about the role and importance of bio-based products in superseding non-renewable options. Through the adoption of more bio-based materials we can move towards solutions that are more sustainable and healthier for us and the planet by stepping away from fossil fuel feedstocks. We aim to raise awareness of the importance of bioproducts around us and how they contribute to the larger goal of environmental sustainability and climate action.

**THE WORLD BIOECONOMY FORUM LAUNCHED** a new campaign earlier this year, “World Bioproduct Day” held on 7 July. Bioproduct day will be an annual and reoccurring event in which we ask you to share your experience and story on bioproducts. You can participate by posting a photo/video of a bioproduct related to you or owned by you.



**WE ASK YOU TO SHARE** your post via LinkedIn or Twitter with the accompanying hashtag, **#bioproductday**. We will showcase and share yours and/or your company's posts on our social media channels. By doing so, we are placing a spotlight on the benefits of bioproducts to the future of the Earth, to the future of our home.

## World BioEconomy Shop

**THE WORLD BIOECONOMY SHOP IS AN ONLINE** shop for products, services, reports related to circular bioeconomy. We also think it is important to have an online store to help the circular bioeconomy community find sector related products on one site. The World BioEconomy Shop offers the Forum's own products as well as those from other stakeholders in the sector.

**VISIT THE SHOP HERE:**  
[wcbef.com/online-store](http://wcbef.com/online-store)

An aerial photograph of a forest, split diagonally. The top-left portion shows a lush green forest with a yellow Ponsse skidder visible. The bottom-right portion shows a dense forest of snow-covered evergreen trees. The Ponsse logo is in the top right, and the slogan and website are at the bottom.

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A Bayer celebra, em 2021, 125 anos de Brasil. Chegou ao País em 1896, abrindo a primeira fábrica no Rio de Janeiro; Hoje, está presente em mais de 30 cidades, com 6.500 profissionais espalhados de norte a sul. O Brasil é o maior mercado da Bayer na América Latina e local de grandes descobertas na medicina, de novas tecnologias para o campo e de inovações que melhoram a qualidade de vida do brasileiro e contribuem para o desenvolvimento do país.

O Grupo está atento aos novos desafios da humanidade, cada vez mais coletivos e que não podem ser solucionados por atores isolados. Por isso, tem investido cada vez mais em modelos de negócios baseados em colaboração, por meio de suas três divisões e do seu primeiro hub de inovação aberta da América Latina, com parcerias relevantes para os negócios.

E para construir os próximos 125 anos, mais que fortalecer sua voz, a Bayer quer ampliar sua escuta e entender cada vez melhor as expectativas da sociedade e as necessidades dos clientes: seja o agricultor, o médico, o paciente, o consumidor – e a sua gente, cada vez mais plural e diversa; quer estreitar laços, alinhar expectativas, promover o diálogo, aproximar sua comunicação e construir os próximos passos da empresa junto ao público.

Porque Você e Bayer: é bom. Para saber mais, acesse [www.bayer.com.br](http://www.bayer.com.br)



# Core team information



**Aida Greenbury**  
Co-founder, Advisory Board  
aida.greenbury@wcbef.com



**Jukka Kantola**  
Founder  
jukka.kantola@wcbef.com  
+358 40 552 8880



**Mark Rushton**  
Co-founder, Advisory Board  
mark.rushton@wcbef.com  
+44 7717 828211



**Hailiang Jin**  
Business Development  
Director  
hailiang.jin@wcbef.com  
+86 139 0613 3791



**Anna Nikkilä**  
Operations Director  
anna.nikkila@wcbef.com  
+358 40 718 0706



**Matthias Zscheile**  
Membership programs  
matthias.zscheile@wcbef.com  
+49 171 1219644



**Nina Lampela**  
Event Coordinator  
nina.lampela@wcbef.com  
+358 40 572 1681



**Tammy Moilanen**  
PR & Media Manager  
tammy.moilanen@wcbef.com  
+358 40 321 8998



**Burak Yirmibesoglu**  
Sales Manager  
burak.yirmibesoglu@wcbef.com  
+358 44 040 1120



**Markku Päätaalo**  
Brand Designer  
markku.paatalo@wcbef.com



# Bioeconomy News App



**THE WORLD BIOECONOMY FORUM LAUNCHED** the world's first breaking news app for global stakeholders operating in the circular bioeconomy. The app, which is available for both Android and IOS devices, alerts users to the very latest breaking news and developments taking place in the rapidly growing sector.

**THE APP COVERS** all the latest news emerging from the global circular bioeconomy, and importantly will fit into the World BioEconomy Forum's four thematic pillars of; **People, Planet, Policies; Global Leaders and the Financial World; Bioproducts Around Us** and **Looking to the Future.**



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