



# Yoshiyuki FUJISHIMA, D. Phil.

## | Work experience

From April 1995 Ajinomoto Co., Inc

Amino acid fermentation, utilization, food processing development, functional food development, research management, science communication

July 2015 On loan to Japan Bioindustry Association

Biological diversity, Bioeconomy domestic and international discussion involvement

July 2018 On loan to New Energy and Industrial Technology Development Organization (NEDO)  
Work on Bioeconomy, sustainability issues, ESG investment

From January 2023 Norinchukin Research Institute Co., Ltd.

Global Chief Researcher on Bioeconomy, circular society or agricultural technologies

## | External work

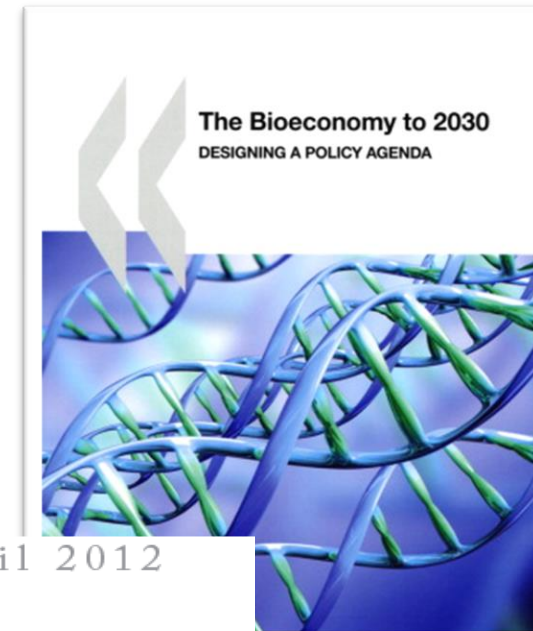
March 2022 Film production advisor

April 2023 Part time lecturer at Komazawa University on Agriculture Policy

January 2024 Bureau member of OECD's Bio, Nano Converging Technology (BNCT) Working Party

# What is Bioeconomy?

- ❑ There is no international consensus but “Bioeconomy to 2030, Designing a policy agenda” made by OECD has urged over 50 nations around the world to make national policies.
- ❑ Definitions in each country differs but the general understanding is creation of modern society independent of fossil-based resources.
- ❑ Over lapping ideas are “Carbon neutral”, “Net zero”, “Green Growth”, “Green transformation”, “Nature positive”, Circular economy or circular society”.
- ❑ In Japan, it is referred as Bio Strategy aiming to be a leading nation of Bioeconomy. (In the past, Japan introduced Biotechnology Strategy in 2002 and Dream BT Japan Strategy in 2008 but emphasis on research as well as economical confusion, leading party changes and earthquake stopped the progresses. ) Biomass strategy primarily pushed by Ministry of Agriculture, Forestry and Fishery also is considered as Bioeconomy by OECD or German Bioeconomy Council.
- ❑ Biden administration pushes with big budget in US and Horizon Europe is the funder of European Bioeconomy



# Expectation to sustainable society and bioenergy from Bio strategy and Biomass utilization plans

- Japan's Bio Strategy is aiming to realize Society 5.0, create international bio communities and accelerate regional collaborations. Utilization of bio data and progress of new enterprise based on research are envisaged.
- Business domains covered in Bio Strategy are
  - ① Highly functional materials
  - ② Bioplastics
  - ③ Sustainable primary production system
  - ④ Organic waste, wastewater treatment
  - ⑤ Lifestyle related disease healthcare, functional food healthcare
  - ⑥ Biological drugs, regenerative medicine, gene therapy related industry
  - ⑦ Biological manufacturing (Bio-foundry)
  - ⑧ Bio-analysis, measurement, tests
  - ⑨ Large size construction, smart forestry

新たなバイオマス活用推進基本計画の概要 (令和4年9月6日閣議決定)

Japan's new Biomass utilization basic plan Proposed by MAFF, Indicating increased productivity and sustainability.

- Transparent production to utilization
- New business of biomass
- Encouragement to used biobased products
- Research on energy (biogas to methanol, SAF) , CCU, lignin or cellulose nanofiber

バイオマスの年間産出量の約80%を利用

・農山村の活性化・地域の主体的な取組を推進  
全都道府県でバイオマス活用推進計画を策定  
全市町村がバイオマス関連計画を活用

・バイオマス産業の発展  
製品・エネルギー産業のうち  
国産バイオマス関連産業で市場シェアを2倍(1%→2%)に伸長

- 施設から排出されるCO2の回収・有効利用(CCU: Carbon dioxide Capture and Utilization)や、バイオ炭による炭素の貯留効果に関する研究を推進
- 日本固有の樹木であるスギのリグニンからの改質リグニン製造や、木質バイオマスや農産物残渣中のセルロースからセルロースナノファイバーを製造するなど、バイオマスのマテリアル利用を進めていくために必要な変換技術等の研究開発を推進

農林水産省 大臣官務課 / Minister's Secretariat, Ministry of Agriculture, Forestry and Fisheries.

- Industries must achieve ;**
- Wood Biomass Biorefinery (Energy products, biomanufacturing feed stock)
  - Energy from waste stream (FT synthesis, syngas ethanol, methane)
  - Biomanufacturing with micro algae
  - Research and development on hydrogen bacteria or electronic fermentation