

Recent Policy Developments in Bio-based Manufacturing Worldwide

Author

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[Brief background]

1980 : Graduated from the Faculty of Agriculture, Kyushu University

1982 : Completed a master's degree at the Graduate School of Kyushu University

1982 : Joined Kirin Brewery Co., Ltd.

2013 : Seconded to the Japan Bioindustry Association (General Incorporated Foundation)

Became assistant director of the Japan Association of Bioindustries Executives

2023 : Became a research fellow at the Research Organization for Nano & Life Innovation, Waseda University

2024 : Appointed part-time director of the Planning Department at the Japan Bioindustry Association (General Incorporated Foundation)

2026 : Became director of the Hydrosphere BioGX Initiative (General Incorporated Association)



As biomanufacturing is currently being discussed in the Japanese government's growth strategies, this article outlines recent policy trends related to bio-based manufacturing in Europe, the United States, China, and South Korea.

Europe, which was the earliest adopter of bio-based manufacturing, has pursued a circular bioeconomy aimed at sustainable production, as exemplified by the Green Deal policy introduced in 2019. Taking into account the technological competition with the United States and China, it also has been strengthening the acceleration of real-world implementation through easing regulations under the Biotechnology Act proposed by the European Commission.

In the United States, the second Trump administration, beginning in 2025, has moved to repeal policies introduced under President Biden to promote bio-based manufacturing, including Executive Order 14081 issued in 2022 and the Inflation Reduction Act of the same year. At the same time, it is also strengthening new bio-based manufacturing policies that emphasize reshoring supply chains for national security considerations, in coordination with recommendations issued in 2025 by the National Security Commission on Emerging Biotechnology (NSCEB) established by the U.S. Congress, as well as initiatives such as BioMADE.

China, which is a key focus of U.S. policy attention, has positioned the bioeconomy as a

national priority in its Bioeconomy Development Plan under the 14th Five-Year Plan announced in 2022. Under party- and government-led policies emphasizing nationwide mobilization and civil-military integration, it has established multiple major hubs for synthetic biology, while individual companies are accelerating efforts to set up dedicated divisions to promote the adoption of synthetic biology and AI and to build large-scale cultivation facilities. A total of 43 biomanufacturing pilot plant construction platforms have been announced, with one such example being in the field of polylactic acid, where production facilities capable of supplying several hundred thousand tons annually from a single company have been constructed.

In South Korea, the Presidential Bio Committee and the Korea Bio-Great Transformation Strategy were announced in 2025, and the world's first Food Tech Industry Promotion Act and Synthetic Biology Promotion Act were enacted the same year, reflecting efforts to position bio-based manufacturing as a new national growth engine after semiconductors.

Against this backdrop of global developments in biomanufacturing, stakeholders across industry, government, and academia in Japan need to engage in timely discussions and agreement on measures that are appropriate for Japan's future and enable it to maintain its strong international presence, and work together to implement said measures.