The Bioeconomy of Europe – Summary
BERKELEY BIOECONOMY CONFERENCE
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Panel Topic: The State of the Bioeconomy - "The Bioeconomy of Europe"

Conference / Location: March 27-28, 2013, University of California, Berkeley, CA.

Session Topic Description: A discussion about the history of Europe's bioeconomy, and why Europe's bioeconomy is important now; its relevance and future outlook.

Moderator & Panelists: Professor Justus Wesseler, Chair in Agricultural and Food Economics at the Center of Life and Food Sciences, Weihenstephan, Technische Universität München. Email: justus.wesseler@wzw.tum.de.

Design, Methodology, Approach: Presentation with Q&A discussion following.

Main Discussion Points: The discussion was opened with Wesseler discussing the rapid growth of the bioeconomy in Europe. He cited several reasons, including advances in the biological sciences with the recombinant DNA technique, which brings together genetic material from multiple sources. In 2001, a strategic vision was outlined for Europe that mapped the potential in healthcare, agriculture, as well as environmental protections anticipating the implications. Decisions that were made about ruling patents in 1980 on GMO crops led to a first GMO crop in 1995, and since 2000 many new genes have been established. However, many countries in the EU, including Germany and France, banned GMO crops in 2009. Regulations are stiff in the European Union, and farmers must comply with a number of rigorous standards as well as deal with high compliance costs in order to sell their products.

Wesseler underscored the positives associated with the growth of the EU bioeconomy, including a significant increase in trade that has more than doubled in the last 20 years and an increase in globalization and advances in information and communication technologies (ICT) enabling a greater exchange of ideas, worldviews, products, and solutions to problems. However, alongside the growth have come problems including an increase in the number of outbreaks of E. coli infection. He noted a particular case that originated from seeds in Egypt carrying the E. coli bacteria that had substantial economic implications for Europe for many years.

Wesseler's discussion turned to the future of the bioeconomy in Europe starting with the impact of the Horizon 2020 Action Plan and the ambitious research program that is set to run from 2014 to 2020. The action plan involves better-targeted research funding for biotechnology and will secure industrial leadership in innovation and skill building. It will also fund billions toward addressing major public concerns. It will provide a platform for policy interaction and stakeholder engagement as well as enhance competitiveness and market development. But not all aspects of Europe's bioeconomy are being regarded as positive by people.

Wesseler outlined a number of controversies that are brewing, such as consumer attitudes about safety issues with regards to biotechnology and the fact that products are "unnatural and provide no benefit." There are political issues with respect to regulations. Germany experienced some non-approved potato varieties. Then there is the "food versus fuel" issue, and technologies that were introduced brought negative consequences, such as insulin produced from a GM bacterium that were forced through the industrial food system. Wesseler cited another gene transfer incident where the industry produced a gene that was transferred into the human genome for AIDS patients, but Netherlands law later stopped the production.

Outcomes & Analysis: The size of the EU bioeconomy in 2009 had increased to $2,078 billion and 22,000 people were employed in the bioeconomy industry. Some sectors are very complicated to identify in terms of their part in the bioeconomy, such as mining, and the economic results and forecasts vary for different industry sectors. For the period of 2014 to 2020, the European Union will have a strong focus on innovation.

Different perspectives will need to be integrated into the decision making process, including the effect of policy changes on the contribution of the bioeconomy to sustainable development; an examination of the efficiency of regulations on labeling and supply chain issues; and investment dollars and their impact on societal relevance and scientific challenge. Innovation in biotechnology is also heavily impacted by changes in regulations, and investing in innovation has declined since 2001 due to a tightening of regulations, which slowed the development of patents.

In the energy field, the nuclear energy industry has been in a state of decline, with the number of patents declining as well. However, the renewable energy sector has experienced strong growth due to large subsidies and the receipt of private investment capital. The number of patents in the renewable energy industry has increased considerably, with Germany having the most.

Keywords: GMO, EU GMO, EU bioeconomy, Germany bioeconomy, EU energy, EU renewable energy.

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