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Comments on "Toward Comprehensive Food Policy: A Conceptual Transformation from a Production-oriented Scheme"

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1. Introduction

There has been a major shift in the positioning of food and agriculture issues around climate change. Adoption of the Paris Agreement at COP21 in 2015 and the carbon neutral declaration by then Prime Minister Suga in October 2020 is significant driver in this shift. In order to achieve net-zero emissions in 2050, the 2030 target was also significantly revised, and a mid-term target of 46% reduction from the 2013 level was announced. These developments significantly change the existing food and agriculture policy.

Disaster prevention associated with extreme weather events and response to disturbances to agricultural products accounts for a significant portion of climate change adaptation policies in Japan. However, urgent response to the mitigation policy is needed. At COP26 in 2021, the "Methane Pledge," was established to voluntarily reduce methane emissions by 30% from the 2020 baseline by 2030. The agriculture sector accounts for approximately 80% of Japan's methane emissions.

2. Sustainable innovation

In response to this situation, Japan is focusing on sustainable innovation policies in various fields, including agriculture. In this section, we discuss the innovation policy in line with the framework of Direcks *et al*. (2019), which provides an overview of economic growth and science and technology policy. After World War II, large-scale government-led projects were promoted under the name of "Science and Technology Policy," focusing on infrastructure development for the country's economic growth, as shown in Figure 1. Afterward, technological development was promoted as the "Innovation Systems Policy" with participation from a broader range of stakeholders and industrial sectors by establishing the regulations that managed the innovation system. Now "Transformative Innovation Policy" is promoted, including bottom-up science and technology development with wider stakeholders.

This framework is shown in Figure 2. Here, four types of policy goals and innovation processes are presented. The first is a science and technology policy with a narrow understanding of the innovation system, focusing on economic growth and promoting top-down technological development by industry, government, and academia. The second is an economic field × broad understanding, specializing in economic growth.

The third is a social field x narrow understanding with a social mission in addition to economic growth. The fourth is a transformative innovation policy with a social field x broad understanding. In the environmental field, many pollution countermeasures may be classified in this fourth category, leading to the incorporation of the viewpoint of the demand side (consumers). Japan's agricultural and forestry policies have been attempting similar innovation development in the past.

In particular, the second type of technology development is a typical example. Many breedings have, of course, been carried out by the national government, prefectures, and specialized seed companies. In addition, wide varieties have been improved by benevolent farmers, and improved varieties were widely distributed throughout the country.

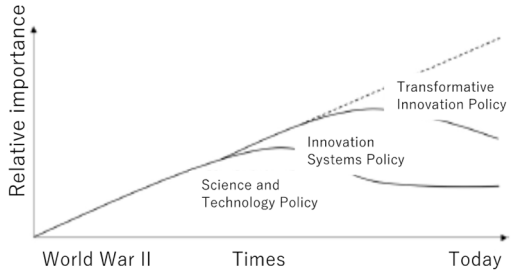

Figure 1. Development of science and technology policy. (Direcks, *et al*., 2019)

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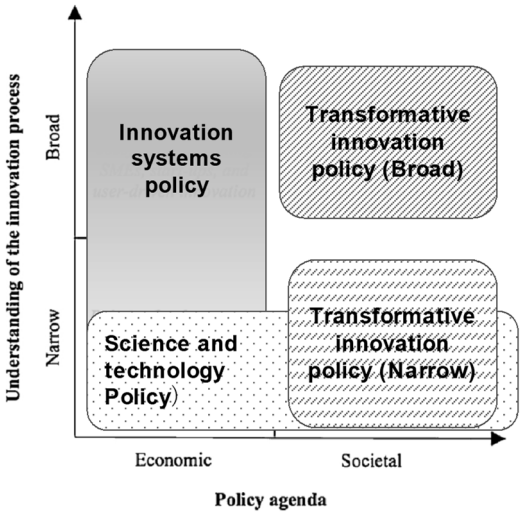

Figure 2. Positioning the transformative innovation policy paradigm. (Direcks, *et al*., 2019, modified by the author)

Steward (2018) summarizes this innovative technology policy from different aspects. (1) Incremental innovation: Grassroots organizations such as community organizations, NGOs, local governments, labor unions, and primary local governments play a significant role. (2) Breaking away from centralization: Issues specific to each region and systemic changes that should be implemented at the regional level will bring about significant results in the use of technology. (3) Establishment of short-term goals with long-term goals in mind (as part of the pathway): It is essential to include system reforms in the consideration and base them on reforming socioeconomic activities. In other words, it is necessary to consider achieving goals and system transformation through introducing new technologies rather than simply aiming at introducing new technologies.

3. European Green Deal: the case of Fit for 55

The development of technologies to solve social issues requires bottom-up technological development. This will lead to a more diverse composition of participants, including a network of many people and organizations. Focus will expand not only to the production side (supply side) but also to the consumption side (demand side). The more this develops, the more difficult it becomes for a single sector to implement policies. Therefore, it is necessary to establish a cooperative structure among sectors. Some are attempting to do so through the integration of policy packages.

In June 2021, the European Parliament and the EU Council of Ministers approved the European Climate Act with a revised target of "55% in real terms" and the European Climate Law was passed. In the following July, the policy package "Fit for 55" was announced. This policy package consists of eight proposed amendments to existing regulations and five proposed new regulations. Those addressing the agriculture, forestry, and fisheries sectors are the "Emissions and sinks from land use and land-use change and the forestry sector LULUCF" and the "EU Forestry Strategy". The proposed amendments require Member States to increase carbon sinks to achieve national targets. In addition, improved reporting and verification of emissions and sinks using geographic data and remote sensing are required. For biomass, a binding target was set to "increase the share of renewable energy in final energy consumption to at least 40% by 2030.

4. Conclusion

Climate change and other energy issues need to be addressed in order to build a post-carbon society in Japan. Agriculture can provide not only food, but also biomass, which plays an important role in the energy sector.

The scope of agriculture's contribution to building a post-carbone society will be expanded not only to meet the demand for food from consumers, food processing, and services, but also to supply energy. Bottom-up innovation inevitably becomes open innovation. Current agricultural policy systems that focus on supply will not be able to support this innovation. In order to make the form of innovation meaningful and to solve the problems of food, agriculture, forestry, fisheries, and energy in Japan, a policy system that can look at all aspects of these areas and a system that supports this system will be necessary.

References

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