Chapter 1 Regional Science, Technology, and Innovation Policies

Section 1 Changes in Regional Science, Technology, and Innovation Policies Based on Science, Technology, and Innovation Basic Plans

Up until the enactment of the Science and Technology Basic Law in 1995, awareness of industry-university collaboration had been largely low in Japan, with few policies in place to promote such collaboration. As the 1st Science and Technology Basic Plan for the period between FY1996 and FY2000, which was formulated under said law, highlighted the need to promote regional science and technology, the government launched programs such as the dispatch of coordinators to regional bases and the concentration of regional research and development (R&D) sectors to help establish regional joint research systems under industry-university-government collaboration. The 2nd Science and Technology Basic Plan for the period between FY2001 and FY2005 underscored the need for environmental improvements to promote regional science and technology, and the government commenced its CLUSTER Policy aimed at supporting the formation of regional clusters, while furthering other measures including the nationwide dispatch of coordinators. Under the 3rd Science and Technology Basic Plan for the period between FY2006 and FY2010, the government advanced programs such as projects to further develop the CLUSTER Policy launched under the 2nd Basic Plan and to build research and education bases that would conduct world-class research and cultivate human resources under industry-university-government collaboration.

The 4th Science and Technology Basic Plan for the period between FY2011 and FY2015 recognized the necessity of prioritizing the promotion of initiatives utilizing science, technology, and innovation as a country, so that the early reconstruction and revival of regions affected by the Great East Japan Earthquake in March 2011 would become a reality. The government advanced the formation of regional innovation ecosystems by offering intensive non-physical support, under the collaboration of relevant ministries and agencies, toward regional reconstruction and revival through the prioritized promotion of new initiatives making active use of science, technology, and innovation and utilizing assets like regional features and traditions, as well as the creation of a system that would enable regions to develop independent science, technology, and innovation activities that leverage their strengths and special characteristics. In addition, COI STREAM[1] was launched in FY2013. This program is designed to support challenging and high-risk R&D under industry-university collaboration in response to R&D challenges identified based on a vision for what Japanese society should look like in ten years' time. COI STREAM has started to result in not only research accomplishments with active regional commitments, but the resolution of social issues facing regions through the social implementation of such accomplishments as well.

Under the 5th Science and Technology Basic Plan for the period between FY2016 and FY2020, the government advanced a series of initiatives to create innovation systems that would contribute to regional revitalization on the back of growing

1 Center of Innovation Science and Technology based Radical Innovation and Entrepreneurship Program

momentum for the promotion of regional revitalization with the enactment of the Act on Overcoming Population Decline and Vitalizing Local Economy in Japan in 2014. The government conducted commercialization projects that contribute to regional growth and increase in national wealth, centering on core technologies. It also supported initiatives utilizing science, technology, and innovation to resolve social issues identified by backcasting from regional "future visions" set by teams comprised mainly of local governments and universities. Other governmental efforts included the implementation of projects aimed at helping industrial, academic, governmental, and financial players concentrated in regions to collectively achieve the growth and development of complex innovation promotion bases (research complexes), thereby contributing to regional revitalization as well. Within the plan period, the "Guideline for Enhancing Industry-Academia-Government Collaboration Activities" was formulated in November 2016. In order to realize region-based industry-university-government collaboration in accordance with the guideline, local universities and other institutions are expected to reinforce necessary functions and serve as regional hubs of expertise.

The current 6th Science, Technology, and Innovation Basic Plan for the period between FY2021 and FY2025 puts forward the development of smart cities and other initiatives, given the progress in the digitalization of society with the development of information and communications technologies (ICT) and other emerging technologies, accelerating social changes arising from the spread of COVID-19, and other factors, in addition to the expansion of programs in place up until the 5th Basic Plan period. The government aims to create a society with sustainable living infrastructure that maximizes human vitality through the creation of diverse and sustainable cities and regions nationwide that can solve urban and regional issues and continue to create new value while demonstrating regional potential.

As seen above, Japan's science and technology policies have changed to science, technology, and innovation policies from the 1st to 6th Basic Plan periods, and its regional science, technology, and innovation policies have a history of expansion in scope from undergraduate or postgraduate units, to university-based units, university-centered coalitions involving both local governments and companies, local governments on their own, or coalitions among local governments. Especially since the start of the 5th Basic Plan period, policies from the perspective of regional science, technology, and innovation contributions to regional revitalization have increased in importance.

Section 2 Various Regional Science, Technology, and Innovation-Related Policies Within the Government

This section introduces several initiatives in regard to policies related to regional science, technology, and innovation that are mainly aimed at regional revitalization and target collaboration between local governments or among public entities.

Initiatives related to the establishment of regional bases date back to the development of science cities with one involving the government and Tsukuba City and another involving the government and Kyoto, Osaka, and Nara Prefectures. In accordance with the Tsukuba Science City Construction Act (Law No. 73 of 1970) enacted in 1970, the Tsukuba Science City

was developed in Tsukuba City to establish a base for experimental research and education—at the highest level in Japan—and to help mitigate overcrowding in Tokyo. Currently, the city is home to private research institutions and corporations, including 29 national experimental research and education institutes, and has been promoting many governmental policies, such as those for research exchanges and the functional improvement of international research exchanges. In Kyoto, Osaka, and Nara Prefectures, the Kansai Science City was constructed to contribute to the development of Japanese and global cultural, academic, and research-related activities as well as to the growth of the nation's economy in accordance with the Kansai Science City Construction Act (Law No. 72 of 1987) enacted in 1987. The science city is currently home to over 150 research facilities and the like, with a range of research-related activities and other similar activities under way.

Furthermore, as part of regional revitalization policies, 12 regions, namely, Akita, Toyama, Ishikawa, Gifu, Shimane, Hiroshima, Tokushima, Kochi, and Kumamoto Prefectures as well as Hakodate, Kobe, and Kitakyushu Cities have been selected for the Cabinet Office's "Grants for Revitalization of Regional Universities and Industries." This program is designed to provide intensive support for local governments that make integrated efforts under the leadership of their governors and mayors regarding regional revitalization centered on the creation of industries and employment opportunities for young people as well as systematic university reforms that will help universities play an active role in regional revitalization, from the perspective that it is important to aim for increased regional productivity through investments in regional human resources against the backdrop of a sharp decrease in the population of young people who will shoulder the future of their regions. This grant program seeks departure from the "principles" of "pleasing everybody," "settling for mediocrity," and "favoring internal perspectives" and aims to push ahead with the creation of local universities that will become the driving force behind the revitalization of regional industries and have overwhelming strengths in specific fields, thereby promoting education and employment among young people in regions and correcting the excessive overconcentration in Tokyo.

Moreover, with regard to the development of smart cities described in Section 1, the government has been forging ahead with the Vision for a Digital Garden City Nation which will bring about "spiritually rich lifestyles (well-being)" and a "sustainable environment, society, and economy (sustainability)." What the vision aims for is to leave the richness of regions intact while developing new attractive regions with conveniences and charms that are similar to, or different from, those of cities. Specifically, the vision pursues the goal of delivering the benefits of digital technologies to people in regions while creating new services and business models based on mutual help with the power of digital technologies in the areas of livelihoods and industries.

Moreover, in April 2022, Tsukuba City in Ibaraki Prefecture and Osaka City in Osaka Prefecture were designated as Super City National Strategic Special Zones, while Kaga City in Ishikawa Prefecture, Chino City in Nagano Prefecture, and Kibichuo Town in Okayama Prefecture were designated as Digital Garden Health Special Zones. These special zones are expected to lead the way toward the "Vision for a Digital Garden City Nation" by solving regional issues through data linkage involving bold regulatory reforms as well as through the realization of cutting-edge services. The Super Cities are aimed at advancing digital

transformation (DX) and realizing a future society across a wide range of fields ahead of other areas through regional digitalization and regulatory reforms. On the other hand, the Digital Garden Health Special Zones aim to be pioneering models for solving regional issues by focusing on issues that are particularly problematic in rural areas, such as shrinking populations, declining birth rates, and graying populations, through the use of digital technologies.

Support for initiatives to be advanced under collaboration among public entities includes governmental assistance for the formation of startup ecosystem bases. Under the initiative, the "Global Startup Acceleration Program" is being implemented to encourage startups in hub cities to enter the global market and attract investments from foreign investors, with intensive support being provided by the government, government-related organizations, and private supporters to promote the formation of a world-class startup ecosystem. In 2020, four Global Startup Cities and four Startup Cities were selected[1].

As mentioned in Sections 1 and 2, Japan has been continuously conducting various support measures for a variety of support targets in order to promote regional science, technology, and innovation, leading to the formation of a range of bases and producing diverse accomplishments. Subsequent Chapters 2 through 4 will feature several good examples among these measures.

1 Plans and progress for each Startup City
https://www8.cao.go.jp/cstp/openinnovation/ecosystem/kyotentoshi.html