2. Science Council of Japan: Global Partnership of Science Communities

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Introduction

In the previous issue, Dr. Hiroyuki Yoshikawa, former president of the Science Council of Japan (SCJ), contributed a thorough and holistic view on the council, providing a simple-to-understand explanation of relationships between the entire aggregate of scientists, i.e., the scientific community, and their roles, missions and responsibilities to society and government[1].

I would like to begin my article by acknowledging the fact that there exist people who think hard "why" about nature as a whole, including humans, and act with a strong willingness to understand this "why." These people are basically a little more free-minded than others and are called "scientists."

History shows that outcomes from scientific research driven by the evolution of civilization has brought about tremendous value and contributed to the nation and its society. In the meantime, the activities of scientists are not bound by universities and research institutes or areas and scopes of research or even national boundaries; there are such entities as academic societies, committees and academies that are established based on specialty and representation within the entirety. Sometimes such an entity, though it is not always the case in every country, represents the scientific community of that country as a national organization. Japan, like many other countries, has such institutions, one of which is the SCJ. I would like to look back at the SCJ, with perhaps a little personal bias, in the light of changes to the framework of the times.

Science Academies and the SCJ

As a country economically grows, the number of nationals engaged in higher education and scientific research naturally increases. As facilities carrying out scientific research start to appear, circles of scientists, i.e., science academies, start to form. The Accademia dei Lincei of Italy in the early 17th century may perhaps be the first that comes up on one's mind as the first modern science academy; but if we go back further in time, the Library of Alexandria of Egypt, which faces the Mediterranean, was also founded as such a circle, or more specifically a center of knowledge.

For the two centuries of Japan's isolationism, the expansion of colonies by West European countries and the rising America transformed the world to the extent that it can be regarded as an age of historic sea change. Japan kept learning from the Chinese civilization, from the 1613 diplomatic mission led by Tsunenaga Hasekura, from the only window to foreign countries called *Dejima*, from other countries before and after the isolationist era in the mid-17th to mid-19th centuries, from the *Meiji* Restoration, and from the Iwakura Embassy between 1871 and 1873, which culminated in

founding a science academy in Japan. The first academy was the Imperial Academy (former Tokyo Academy). The first president of the Tokyo Academy was Yukichi Fukuzawa, a fact that is worth giving thought to. It is also worth noting that behind the re-establishment of the SCJ in the post-war era was a significant influence of the United States. Planners and founders must have had the National Research Council of the U.S. in mind when designing the SCJ as an entity that would expectedly have relations with the government as it does today. You can conveniently search for information related to the background and history of the foundation of the SCJ on the council's websites[2], Wikipedia[3], and other websites these days as well as in articles of Trends in the Sciences (*Gakujutsu no Doko*)[4], including the recent one featuring an interview with the president. More recently, comments made by Dr. Juichi Yamagiwa, the 24th president of the SCJ, in the course of somewhat turbulent interactions with the government stand out making the case for scientists and scholars[5]. Earlier this year Sato *et.al.* issued a book that logs a wide variety of fervent opinions about how academia should be[6].

In short, Japan's academia was modelled on the U.K. for the 75 years following the reopening of Japan and on the U.S.A. for the 75 years following the end of World War II.

Science Academy of emerging America

The National Academy of Sciences of the U.S. was founded by then President Abraham Lincoln in 1863, four years before the reopening of Japan; the president's mandate, or delegated authority, specifically includes reviews, recommendations and other advice on the government's policies. In 1916, a National Research Council was set up in the Academy as a function of advising the government. This Council was most likely the model of the SCJ. The U.S. now has three national academies including the National Academy of Engineering and the Institute of Medicine (National Academy of Medicine since 2015) formed in 1964 and 1970, respectively. Being a foreign member of the National Academy of Medicine, I follow what they are doing, to some extent, and have a good grasp of its movements even from Japan.

The last 30 plus years have seen the collapse of the Berlin Wall in 1989, which symbolizes the end of the Cold War, digital transformation with the birth of the Mac series, Windows OS, the Internet, Wi-Fi and more, and various other seismic shifts that fueled the rapid globalization of the world on the political, governmental, industrial and academic fronts. Under such circumstances, scientific communities can connect horizontally with each other beyond national borders, unlike states and governments, due to their nature. That being the case, we are expected by governments and societies to fulfill our roles in assessing policies and making recommendations accordingly by collaborating with each other beyond governments and enterprises. In other words, scientists today are feeling a strong mandate for providing governments with scientific assessments and recommendations on the full spectrum of globalized society, ranging from climate change to water shortage, food security, energy and waste management, from the various perspectives of different disciplines of scientific research. I believe that it is also the last three decades that this kind of momentum toward a globalized world is shared among scientists at large.

Now, what roles do organizations people generically call "science academies" play? While many countries regard such entities as establishments of honor, the U.S. attaches more importance to the functionality presumably because of the briefness of the country's history or of the will of President Lincoln. The raison d'etre of science academies of the U.S. apparently reflects the mandate issued at

the outset by President Lincoln.

The SCJ can make use of its global network, by inviting scientists from outside the country, when making assessments, reports, analysis, and recommendations on the government's policies. In other words, it can utilize processes that the government cannot easily use. This is because scientific communities, though they individually belong to their own governments, have the advantage of accessing other scientific communities horizontally irrespective of national borders to expand their activities. The council's awareness, sensitivity and practice are constrained, however, by the historical background of democracy in Japan.

Responsibility of scientists and strategy of the SCJ in the globalized era

The SCJ and other similar organizations in Japan started to take notice of their own roles in the globalized world toward the end of 20th century, as scientific communities reacted to the Brundtland declaration issued at the 1992 Earth Summit, and science academies and communities pledged a commitment to global issues in response to the World Conference on Science in Budapest co-hosted by the International Council for Science (ICSU) and the U.N. Educational, Scientific and Cultural Organization (UNESCO), in which former SCJ president Yoshikawa played an important role.

Notwithstanding that, the name of the SCJ might have temporarily been lost in administrative reform tackled by the government of Japan. The agency restructuring effort in 2001 transferred the council from the Prime Minister's Office to the Ministry of Internal Affairs and Communications (MIC). At the same time, a Council for Science and Technology (CST)(Council for Science, Technology and Innovation （CSTI） today) was newly set up and tasked to examine how the SCJ should be. This is exactly where Professor Masao Ito and Professor Hiroyuki Yoshikawa—both were the core members of the executive board of SCJ—were most troubled with; to put it plainly, the administration at that time did not recognize the SCJ as its own matter in the course of administrative reform and fully delegated the issue to the CST.

On the other hand, it was around that time that the globalization trend across the world heightened the expectation of the world toward science academies and accordingly started to change the Japanese government's perception of the SCJ. The Gleneagles G8 summit hosted by then Premier Tony Blair of the U.K. in 2005 was focused mainly on two topics: climate change and debt relief for Africa. The academies of the eight countries submitted recommendations in conjunction with these two topics[7].

The set of recommendations were mainly compiled by a joint effort between the Royal Society of the U.K. and the Science Council of Japan. The then president of the Royal Society, Lord Robert May, was the chief science advisor to the U.K. government and also a good friend of mine. So, Lord May, Professor Bruce Alberts of the U.S. National Academy of Sciences, and I, in the capacity of the president of SCJ at that time, held many exchanges back and forth with each other to develop a proposal. Upon the completion, we handed the document to our respective governments—to then Prime Minister Junichiro Koizumi in my case—at about the same time, so that each head of state would receive the document with almost no time lag from the host of the summit, then Prime Minister Tony Blair. This was intended to minimize the delay between the press release in the U.K.

and the time when the recommendations became visible to the other heads of states. What was important here is that we created such a process or mechanism to gather and organize recommendations through horizontal connections in the cross-border community of scientists and escalate them to the very top of national governments. This function that involves the science academies of the G8 states was soon integrated into the framework of G8 summit.

In today's globalized world, the SCJ is probably the only governmental agency in Japan that is acknowledged as an organization representing the scientific community that has such horizontal connections, as opposed to ministries and agencies that are vertically built in every country. It undertakes a unique mission that governmental ministries and agencies cannot fulfill. Instead of having scientific communities of different countries present recommendations to their respective governments' policies, this mechanism in which unified recommendations developed beyond national borders will be delivered to different nations is extremely viable in this age of digitalization and should be established between scientific communities and policy decision makers. This role of scientific communities needs to be made widely known to the peoples of the countries. That being the case, the SCJ must also play a major role in promoting the idea of how important it is to have policies that reflect views of the scientific community, especially in this globalized world with very little visibility to the future. We need to let not just the Japanese government and the academia but more widely the peoples around the world know that this is an extremely modern, appropriate process in such an age full of uncertainties. In the meantime, I can tell this based on my personal experience that we need to examine possible collaborative relationships between the government and the SCJ in which ministries and agencies can commission the SCJ to deliberate on policies utilizing its collaborative connections with its partner scientific communities of other countries and promote more practical operations. Expanding the network among scientific communities all over the world will no doubt become increasingly more important to address global agenda.

The Japan Perspective [8] is one of such documents that have been delivered based on the abovementioned awareness. On another occasion, the SCJ developed a report in response to an inquiry from the Ministry of Agriculture, Fisheries and Forestry, in the course of preparing for the WTO Ministerial Conference of 2003 held in Cancun, Mexico[9]. The report was highly valued for its excellence in the process of developing the document, according to then Minister of Agriculture, Fisheries and Forestry Yoshiyuki Kamei and one of the participating representatives, Yoshio Yatsu. This kind of process positively functions as a collaborative effort between the government and the SCJ.

Hopes for the SCJ

The SCJ has its unique roles and activities that nobody else can perform in such an international arena. In this globalized world, the government often states that politicians listen to the opinions of scientists before making decision at its own responsibility, concerning various topics. Yet, that process has not been clearly visible in the government, in the scientific community, or among the people of Japan. In this country, when a ministry develops and proposes a policy and the Diet deliberates and makes decision on it, third-party discussions are seldom held. Even at councils, the deliberations are often meticulously prepared by ministries. The SCJ was transferred from the MIC to the Cabinet Office in 2005, out of the necessity for making the process as well as the positioning of the council unambiguous.
Up until then, the council held many discussions. An increase of the number of members, meaning

civil servants, was not an option, against the backdrop of the administrative reform, even though they are not paid. The MIC was certainly not an appropriate framework. As a result, we decided to establish a new membership category called “Members”, meaning collaborating members, as opposed to “Council Members,” meaning regular members, so that we could embrace a larger number of talented scientists. I strongly encourage the incumbent leadership of the SCJ to ask for their assistance in wide-ranging tasks. These collaborators as well as council members are part of the mechanism which bridges Japan across the borders with scientific communities out there.

This is the background behind the parliament council hearing I was called into as a witness[10,11], in which I expressed my views in the capacity of president of the SCJ, following the administrative reform which “tentatively” placed the SCJ under the umbrella of the MIC. This hearing was covered in a small article on Nature with a small photo[12]. In 2005, the SCJ was transferred to the Cabinet Office. This means that all the reports and recommendations developed by the council would basically be delivered to the ministries as well as the Cabinet Office. The council might be able to make full use of this new structure by submitting recommendations and updates with respect to large-scale frameworks at the end of every fiscal year or putting other measures in place.

Being members of the council, busy scientists will be even busier, but the new structure allows the council to welcome and retain more members as its assets. I hope these members will know more about and access various opportunities for exciting activities. I hope that will in turn enhance the prowess of the council to communicate to society so that it can send out peer-reviewed and quality-assured messages concerning concepts of or proposals on large-scale frameworks in a timely manner. I hope parliament members and many other people concerned will inform their immediate communities as well as scientists, enterprises, university students, graduate students, and young people at large of what the SCJ is doing and how important it is to the policy-making process of the government. I strongly hope the government will place a little more focus on making people aware that scientists have incredible horizontal connections across the world in this globalized society and carry out activities as a transnational scientific community. Don’t just sit on a gold mine; making use of precious assets like talented scientists is extremely crucial to the future of the scientific community and also to the way a nation should be.

Way forward

Imagine that Japan did not have the SCJ. Which organization would undertake the roles the SCJ currently assumes? Who would submit a report compiling the views of scientists in Japan to the G7/G8 summit meetings on behalf of Japan? Who in Japan would play such a role? Whom would this person ask for peer support and peer opinions? To whom should this person deliver his/her opinions? Is it the Minister or Ministry of Education, Culture, Sport, Science and Technology? Is it the Cabinet Office? But these organizations and positions are part of the government. Then, is it researchers and academics? In that case, what kind of organization would be most suitable? This question may be one of the most fundamental philosophical questions in the world going forward when thinking about how states should be. It may be one of the questions concerning the concept of a nation to be addressed by many researchers, senior governmental officials, parliament members, the industry, the government, the academia and the public at large. What kind of nation does Japan envision to become in this unpredictable world?

"The Usefulness of Useless Knowledge" written by Abraham Flexner is a quick reading material quite popular among young scientists of the world today. The author, the founder of the Institute for Advanced Studies, wrote this essay in 1939. The book also contains a commentary by Robbert Dijkgraaf. Although the book is available at USD9.95, Flexner's essay itself is accessible on the internet. The piece is worth reading to learn the spirit of scientists. I strongly recommend you read it.

Sources:

[1] "Constructive dialogues between the government and scientists" by Hiroyuki Yoshikawa, Trends in the Sciences Vol. 26, no. 4, pp. 64-69, 2021

[2] http://www.scj.go.jp/ja/scj/index.html

[3] https://bit.ly/325Y8MB

[4] http://jssf86.org/works1.html

[5] "SCJ previous president 'Never notified. Never knew' such a document that states 'PM is not required to appoint.'", TBS News, YouTube, November 6, 2020, https://youtu.be/52qBk1WVP28

"SCJ issue: 'The worst aspect of Japan's politics exposed.' Previous president Yamagiwa appointed as Director-General of RIHN," The Kyoto Shimbun, April 1, 2021, https://www.kyoto-np.co.jp/articles/-/540628?utm_content=uzou_1&utm_source=uzou

"'Steady steps to totalism': a concern expressed by previous SCJ president," The Asahi Shimbun, October 20, 2020 https://digital.asahi.com/articles/ASNBK4RCWNBFUCFI002.html

"PM's rejection to SCJ nominees: 'No' prior consultation about HR, counters previous president Yamagiwa in response to PM's statements," The Tokyo Shimbun Online, November 7, 2020 https://www.tokyo-np.co.jp/article/66779

[6] "Freedom of academia is in danger (*Gakujutsu no jiyu ga abunai*)", Manabu Sato, Chizuko Ueno, Tatsuru Uchida, published by Shobunsha, 2021

[7] "Joint science academies' statement: Global response to climate change", http://www.scj.go.jp/ja/info/kohyo/pdf/kohyo-19-s1027.pdf

"Joint science academies' statement: Science and technology for African development", http://www.scj.go.jp/ja/info/kohyo/pdf/kohyo-19-s1027-2.pdf

[8] Japan Perspective, the Science Council of Japan, December 2002, http://www.scj.go.jp/ja/info/kohyo/18youshi/1852.html

[9] "Stance of the Japanese Government toward the Ministerial Conference in Cancun," MOFA Website, https://www.mofa.go.jp/mofaj/gaiko/wto/wto_5/j_tachiba.html

[10] 159th Diet Session, the Committee on Education, Culture, Sports, Science and Technology of the House of Representatives, Subject: Bill on a partial amendment to the Act on the Science Council of Japan, Friday March 19, 2004, https://bit.ly/3s9ATfh

[11] 159th Diet Session, the Committee on Education, Culture, Sports, Science and Technology of the House of Representatives, Subject: Bill on a partial amendment to the Act on the Science Council of Japan, Tuesday April 6, 2004, https://bit.ly/3dYoG80

[12] "Japan shakes up council to offer scientists political clout," Nature, 428, p.357 (2004). https://www.nature.com/articles/428357

References:

"Japan Perspective," the Science Council of Japan, December 2002,
http://www.scj.go.jp/ja/info/kohyo/18youshi/1852.html
"Essence of Japan's Science and Technology Policies," the Science Council of Japan, April 2, 2005
http://www.scj.go.jp/ja/info/kohyo/pdf/kohyo-19-s1024.pdf
The Japan Perspective, the Science Council of Japan, December 2002,
http://210.149.141.38/en/report/ perspective.pdf
Japan Vision 2050, the Science Council of Japan, April 2005,
http://www.scj.go.jp/en/vision2050.pdf

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