Chapter 2 Toward Strengthening Communication with Society

It is obvious that S&T and the Japanese public's life are becoming inseparable. Expectations toward S&T to accomplish various tasks are growing, but at the same time, there are risks of S&T and worries of the Japanese public which is difficult to ignore.

Under these circumstances, the Japanese government needs to disclose information regarding S&T and share it with the public, and have more communication with the public based on the shared information in order to get the Japanese public's trust and support for science, technology and innovation policies and move ahead with the public. In this chapter, an overview was given on the increasing developments in communication regarding S&T and society with examples on how the Japanese public was proactively involved in activities related to S&T as such communication activities became more frequent. An overview was also given on expected problems in S&T communication in the future.

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Section 1 Possibilities of S&T Communication

1 Policy Trends Regarding Developments in S&T Communication

With regard to the promotion of S&T communication activities, the government has been strengthening efforts with a focus on improving understanding of S&T, based on a succession of basic plans (Figure 1-2-1).

First, after the enactment of the Science and Technology Basic Law, under the 1st Basic Plan started in FY 1996, a new item "Promotion of Learning and Understandings of, and Interests in Science and Technology" was included to reflect its importance. In autumn of the same year, a "Promotion of Science and Technology Understanding Department" was set up in the Japan Science and Technology Corporation (currently Japan Science and Technology Agency), and the full-scale implementation of "Understanding science and technology policies" was started. In November 1998, the Committee on the Promotion of Science and Technology Understanding (Chairperson: Keiko Nakamura) of the then-Science and Technology Agency produced a proposal "Focusing on the Importance of the Messenger", and suggested the importance of interpreters and allocating 1% of research funds to the promotion of understanding, which later became the main pillars of subsequent policy considerations.

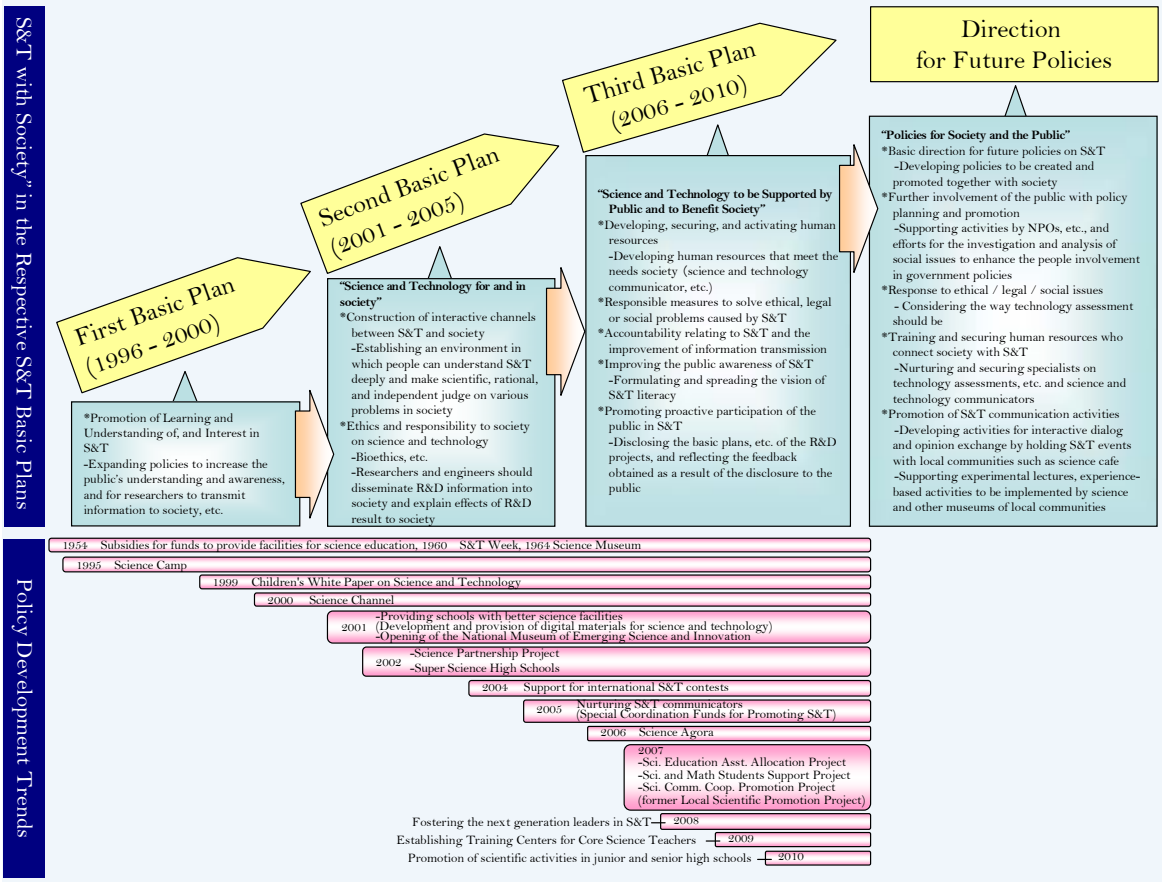
After that, in the 2nd Basic Plan from FY 2001, descriptions on S&T and society further increased, and from the viewpoint of "Science and Technology for and in Society," it was recognized that communication between S&T and society had to be established. Consequently, two more items "Interactive channels between science and technology and society" and "Ethics and responsibility on science and technology" were included, "The responsibility of explanation is the responsibility and duty of researchers" was clearly stated and the importance of interactive communication with the society was expounded. In July 2004, the proposal "Nurturing Talents from the Viewpoint of Science and Technology and Society" from the Committee on Human Resources within the Council for Science and Technology, MEXT opined that it was

important to not only nurture researchers and technicians who create knowledge, but also people who will utilize that knowledge to benefit society. Furthermore, in July 2005, MEXT's Conference on Policies Promoting Understanding of Science and Technology (Chairperson: Akito Arima) produced proposals that S&T should be taught to people in easy-to-understand and familiar ways, that outreach[1] activities should be promoted to deepen the dialog between researchers and the public, and that to show the ideal S&T literacy that adults need have, in order to realize "Science and Technology for Society" in its report "Toward Science and Technology Existing with People."

The 3rd Basic Plan inherited these developments and for the first time as a basic plan, a separate chapter "Science and Technology to Be Supported by Society and the Public" was established to express the importance of interactive communication and to include a new approach, "Promoting proactive participation of the public in S&T."

Up till now, it has been pointed out that the trend is for one-way communication, i.e. the government seeks the understanding from the Japanese public on its own efforts. Into the future, there remain many issues to be tackled, such as how to achieve the Japanese public's understanding, confidence and support for S&T, and further expanding activities fostering interactive communication.

Figure 1-2-1/Policy Development Trends on "Science and Technology with Society" in the Respective Science and Technology Basic Plans



Source：Created by MEXT

1 Outreach is the nominalized form of "reach out", which originally means to "stretch out one's hand, or reach out for something." Outreach activities here refer to telling people about science and technology in easy-to-understand and familiar ways, to understand their requests and fears through meaningful conversations and reflect them in one's own science and technology activities.

[Column 5] Science & Technology in Society (STS)forum

The tremendous developments in S&T have brought prosperity and an affluent lifestyle to mankind, but scientific and technological progress has also created problems related to the environment, security, and bioethics, which have to be resolved at the global level. Under these circumstances, with a view to create common values in the promotion of S&T and to manage and develop it appropriately, the international forum, "Science and Technology in Society (STS) forum" (organized by the NPO STS Forum), which provides a platform for various people such as researchers, politicians, business executives, government officials, journalists to gather and discuss the future of science, technology and humanity, has been held annually since 2004.

The 7th Forum with the theme of "The Lights and Shadows of Science and Technology" was held in Kyoto from October 3rd for three days. Approximately 800 participants from more than 90 countries, regions and international organizations around the world, including Banri Kaieda, the Ex-Minister of State for Science and Technology Policy, ministers in charge of S&T policies from different countries, researchers including eleven Nobel Prize Winners, politicians and businesspeople, attended and engaged in lively discussions. In closing, the forum released a statement which included the following points: 1) universities and research institutions should provide the society with results of basic research as well as those of advanced research that lead to innovation. In particular, universities should act as the hub that link the human science and natural science, and prepare students to be responsible global citizens, 2) the media should report fairly and objectively on the lights and shadows of S&T with regard to public policy issues, 3) Public education should play an important role to change individual and social behavior for promoting much more efficient use of materials and energy.

This international forum explores the relationship between S&T and society, and it is believed that there is great significance in holding it annually by the initiatives of Japanese organizers.

2 Significance of S&T Communication

S&T communication refers to communication activities related to S&T conducted in parliament, within the government, research and education institutions, academic associations, science museums, companies, NPOs, and among individuals such as researchers, technicians, the public and residents, and includes a very wide variety of programs. (Table 1-2-2).

Table 1-2-2/Examples of S&T Communication Activities

-Media reports
-Production and airing of programs
-Publication of scientific magazines, and books
-Seminars, forums, workshops, science cafés, etc.
-S&T lessons in schools, etc.
-Local science experimental lectures run by universities, companies, NPOs, etc.
-Displays in science museums, etc.
-Life-long learning seminars
-Science Shops (Science and Technology Consultation Rooms for Residents)
-PR activities by the government, local public organizations, research institutions, and companies
-Risk communication
-Participation in technology assessments, etc.

Source: Created by MEXT

In this chapter, some activities from the above that can be carried out for non-specialists to

- acquire a rational and scientific way of thinking required in making logical value judgments;
- satisfy their interest and intellectual curiosity about science

are highlighted. This is because such S&T communication activities are believed to stimulate ideas on how we, as a unified society, can realize science, technology and innovation meant to maintain and improve an affluent and high-quality lifestyle, and are also linked to inspiring more young people to take up S&T. At the same time, they help the Japanese public to make logical assessments on policies and problems related to S&T, and are associated with the co-partnership between society and S&T as we move toward the development of a sustainable society.

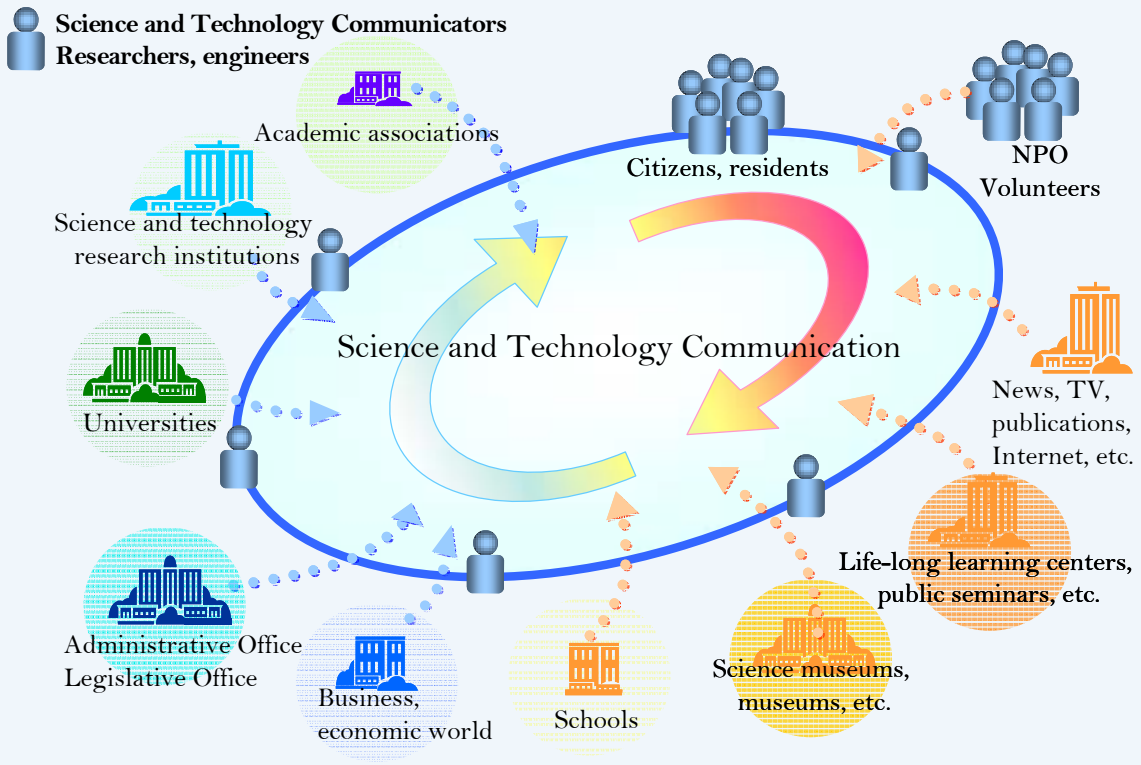
S&T communicators play a central role in such S&T communication activities, and whether they are full-time, part-time, or volunteers, their raisond'etre as a link between society and S&T has become more significant in recent years.

In addition, researchers and technicians are also increasingly called upon to be involved in S&T communication activities. This is extremely meaningful not only because tax-supported research can be widely understood by the Japanese public and the results and knowledge returned to society, but also researchers and technicians can deepen their understanding of society by knowing what the public thinks about their own research. Until now, researchers and technicians have mainly stayed within their own specialized communities, but in the future, it is hoped that they would work and share responsibility with the S&T communicators, and sometimes play the role of S&T communicators themselves to take part in such activities.

A better relationship between society and S&T that is required to achieve "S&T to be Created and Promoted together with Society" is achieved by the S&T literacy of the Japanese public, the attitudes of researchers and technicians regarding public opinions, and S&T communication activities carried out by S&T communicators that bind them together. It is supported by relentless efforts from the central and local governments and research institutions in their transparent provision of information, fair and accurate reporting by the media, and the academic communities and NPOs in their provision of forums to provide necessary information and exchange ideas. (Figure 1-2-3)

The next section showed the efforts to cultivate S&T literacy, which is the foundation of S&T communication activities, and the current situation and challenges of expanding S&T communication activities.

Figure 1-2-3/Promoting S&T Communication



Source: Created by MEXT based on materials from the Japan Science and Technology Agency

[Column 6] What the "Hayabusa Phenomenon" Showed

On June 13 2010, Japan as a whole nation was waiting in anticipation for the return of the asteroid explorer, the "Hayabusa" from the asteroid "Itokawa". The return of the "Hayabusa" was not only highly anticipated by amateur astronomers, SF aficionados, S&T related parties, but also by a wide spectrum of the Japanese public. Furthermore, many private "Hayabusa" support groups were also formed naturally, and Japan was enveloped in an air of excitement in what could be called the "Hayabusa Phenomenon." Many people tuned in to the live satellite telecast of its return to the Earth and sent out many tweets (over 100 million tweets in three consecutive days before and after its return day), related news was constantly reported on TV and in the newspapers, and it was even voted as a major news story of 2010 by the various news companies. In addition, animation-style, drama-style "Hayabusa" projects produced by the public were also introduced at video-streaming sites, and more than 400,000 people attended the public display of the "Hayabusa" Capsule nationwide. The Society for the Promotion of Japanese Literature presented the Japan Aerospace Exploration Agency (JAXA)'s "Hayabusa" Project Team with the 58th Kikuchi Kan Award for "letting the world know about Japan's scientific and technological capabilities, and for giving a dream to the Japanese people." In all, the return of the "Hayabusa" crossed the boundary of science news and became the national event.

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Personification of the "Hayabusa" (Hayabusa Boy)
Source: Japan Aerospace Exploration Agency (JAXA)

Looking at the messages (excerpted from the original messages) received by JAXA on its Hayabusa Support Site, we can see that the return of "Hayabusa" meant different things to different people:

-Whenever I am faced with a difficulty or hard time, I will encourage myself by telling myself to "remember Hayabusa!"

-Battered and bruised though it may be, the Hayabusa has taught us that science is the pursuit of romance and curiosity.

-The image of a burning Hayabusa was sad but also beautiful in the way it ended. It gave its life to the capsule. How touching.

-Let us ensure that the wonderful tangible and intangible achievements of Japan's scientific and technological capabilities and the "Hayabusa" are passed on to future generations!

-The "Hayabusa" helped me reflect on my own life, and taught me many things such as how strong and beautiful it is to have determination.

-You made me feel lucky to be a Japanese.

-I had almost no interest in the universe or JAXA, but I was moved when I knew about the hardships "Hayabusa" had to overcome and the staff's efforts.

-I will not give up, or lose. Even though I am injured, I will not give up becoming a soccer player.

Why has the "Hayabusa" attracted so much attention from the Japanese public? It could be because of the extremely dramatic path the "Hayabusa" took to complete its mission of bringing back particles from "Itokawa" after overcoming numerous problems, adding to that the ability of the Japanese public to follow in a timely manner on JAXA's special site and the various video-streaming sites, and mass media such as news reports, the conditions of the "Hayabusa," how it overcame problems and how it burned on re-entry to the Earth. If this was reported as purely a scientific achievement of being the first human effort to successfully mine and bring back particle samples from the asteroid "Itokawa", would such a phenomenon have occurred? The "Hayabusa Phenomenon" has certainly given us important hints when thinking about how to report "science and technology" to society, and what kind of information society wants.