

(Edited Version)

Basic Policies on the Contribution of Science, Technology and Innovation for the Achievement of the Sustainable Development Goals (STI for SDGs) at Japan Science and Technology Agency (JST)

1. National and International Trends Surrounding STI for SDGs

- “The Sustainable Development Goals (SDGs)” consist of 17 goals and 169 targets to achieve a sustainable and inclusive society leaving no one behind as stated in the “2030 Agenda for Sustainable Development” adopted at the UN General Assembly in September 2015. These goals include issues that affect all member states and all peoples of the world.
- At the same time, the SDGs present great potential business opportunities. At the World Economic Forum Annual Meeting held in Davos in January 2017, a report¹ stated that “achieving the Global Goals opens up an economic prize of at least US\$12 trillion” and “creates 380 million new jobs by 2030”.
- The UN STI Forum² has been held every year since 2016. To achieve the SDGs by 2030, Science, Technology and Innovation (STI) are expected to solve our various issues concerning sustainability and provide scientific evidence to support better policy-making.
- The government of Japan adopted the “SDGs Implementation Guiding Principles”³ in December 2016 in which STI is regarded as one of the priority areas and an essential element for the attainment of targets in various fields. Moreover, the “SDGs Action Plan 2018”⁴ approved by the cabinet in December 2017 presents the realization of “Society 5.0” in order to solve social issues stated in the SDGs and the formulation of a roadmap concerning the promotion of STI for SDGs. This Action Plan gives an importance to the roles of STI initiatives for the realization of the SDGs.
- Likewise, the Japan Business Federation (Nippon Keidanren) revised “the Charter of Corporate Behavior”⁵ in November 2017, focusing on the realization of Society 5.0 in line with the SDGs. In response to the guiding principles of the government and the trend of ESG investment⁶ in the market economy, local governments, enterprises, educational institutions, research and development institutions and civil groups have started to think of the SDGs as their own matters and are taking specific actions.

¹ <http://report.businesscommission.org/uploads/BetterBiz-BetterWorld.pdf>

² UN STI Forum: Multi-Stakeholder Forum on STI for SDGs

³ <https://www.kantei.go.jp/jp/singi/sdgs/>

⁴ <https://www.kantei.go.jp/jp/singi/sdgs/pdf/actionplan2018.pdf>

⁵ <http://www.keidanren.or.jp/policy/cgcb/charter2017.html>

⁶ ESG investment: Investment that takes such non-financial information as E (environment), S (society) and G (governance) into consideration.

- Since the SDGs are comprehensive and universal, they cannot be achieved only by STI. It is crucially important that a diverse array of stakeholders including the government, universities, research and development institutions, NGOs and companies should harness STI to take concrete actions in consideration of “Creating Shared Value”⁷ (CSV) , creating a new social trend pushing towards the realization of the SDGs. In other words, the SDGs give us an opportunity to reform what STI is like now.
- However, as the recognition of the SDGs is as low as 14% in Japan (according to a survey conducted in July 2018⁸), it is essential to conduct public relations and educational activities.
- According to the SDGs ranking announced by the SDG Index & Dashboard⁹, Japan was ranked 18th, 11th and 15th from 2016 to 2018. While Japan is evaluated to have generally achieved SDG4 (education), it is still critically far away from the realization of other goals. We need to recognize that the SDGs, including those connected to the aging population, declining birthrate and disaster control measures, are real issues our country is facing and resolve them.
- Amid initiatives for the realization of the SDGs taken in Japan and other countries, and expanding ESG investment, the SDGs are considered as driving force for new business opportunities¹⁰. It is expected that various stakeholders will look for collaborations under the framework of the SDGs and discussions over certification, standardization and formulation of new rules will be more and more active. We strongly hope that national stakeholders actively participate in discussions in these various fields and cooperate with other stakeholders with the aim of realizing the SDGs.

2. Past Major Activities Conducive to the Realization of the SDGs Taken by JST

- JST implements programs that can contribute to the achievement of the SDGs. For example, the Science and Technology Research Partnership for Sustainable Development (SATREPS) programs has conducted more than 100 projects in the form of international research collaborations with developing countries for resolving various global issues such as SDG2 (zero hunger), SDG6 (clean water), environment, energy, biodiversity and disaster prevention. Moreover, studies at the

⁷ Creating Shared Value (CSV): A framework to realize both the solution of social issues and the development of organizations and persons that implement the SDGs.

⁸ https://miraimedia.asahi.com/sdgs2030/sdgs_survey03/

⁹ <http://www.sdgindex.org/>

¹⁰ According to a survey reported in “the Investigative Research Report Concerning the Desirable State of Efforts and Partnerships with International Organizations, the Government, and the Industrial World Aimed at Resolving Social Issues (Such As the SDGs) (March 2017), European companies (63.5%) think of the SDGs as business opportunities compared to Japanese companies (37.1%). http://www.bpfj.jp/act/download_file/98193838/71988285.pdf

Center for Low Carbon Society Strategy (LCS) and the Advanced Low Carbon Technology Research and Development Program (ALCA) have contributed to SDG7 (affordable and clean energy) and SDG13 (climate action) .

- A variety of industry-academia collaborative programs funded by JST could also contribute to the revitalization of local economies through the solution of local issues. For example, the JST created new industries in the areas affected by the Great East Japan Earthquake and contributed to the reconstruction and development of local communities.
- The JST has also focused on public relations and educational activities on the SDGs. For instance, the National Museum of Emerging Science and Innovation (MIRAikan) operated by the JST hosted the Science Center World Summit¹¹ in November 2017 with representatives from science centers in different countries, and the “Tokyo Protocol” was compiled as policies for activities and actions of science centers toward the realization of a sustainable future. This museum is playing an active role as a science center platform to help people of all ages deepen their understanding on the SDGs. Furthermore, JST hosted the Gender Summit 10¹² in May 2015, where the “Tokyo Declaration” proposed that gender equality would be a bridge to the realization of all of 17 SDGs.
- In addition, JST has continuously participated in the UN’s STI Forum and been deeply involved in discussions with international organizations regarding promoting STI for SDGs. JST has played a practical role in initiatives and consensus building for the “creation of STI for SDGs roadmaps” in Japan and other countries. The creation of STI for SDGs roadmaps is a part of the pillars mentioned in the SDGs Action Plan 2018 as well as the Integrated Innovation Strategy¹³ in Japan.

3. Basic Policies

- JST is an advanced network-based research institute promoting state-of-the-art R&D projects to co-create innovation for tomorrow’s world together with society. Based on the Science and Technology Basic Plan adopted by the government, JST implements various R&D programs and formulates strategies for co-creating the future with society. Such missions of the JST as “maximizing R&D achievements” and “co-creating the future with society by resolving issues” are highly compatible with the SDGs which aim to “transform the society and realize a sustainable society”. Moreover, since the SDGs have potential business opportunities the contribution to

¹¹ <https://scws2017.org/jp/>

¹² <https://www.jst.go.jp/diversity/gender-summit/>

¹³ <http://www8.cao.go.jp/cstp/tougosenryaku/index.html>

their achievement results in the creation of new economic and social values through STI as promoted by JST.

- The SDGs are gaining recognition in the world as a common language or rule. A variety of stakeholders have started to make efforts to address issues under the SDGs. These initiatives for the SDGs may bring about new effects on STI policies and measures (e.g. the creation of new research areas, expansion of research outcomes to different fields, promotion of open innovation involving various stakeholders).
- Therefore, JST set the following three pillars as its action plans for playing a leading role in harnessing STI for the SDGs in Japan and for promoting the establishment of a robust innovation ecosystem to co-create the future society in Japan and across the world.

1) Promoting public awareness of and advocating the importance of “STI for SDGs” (SDGs for all, STI for all):

JST shall strive to grasp national and international trends related to the SDGs and promote awareness and recognition thereof by sharing the latest information in Japan, particularly initiatives to leverage STI for achieving the SDGs, so called “STI for SDGs”. Examples of initiatives and programs:

- Public awareness campaigns for the SDGs through events and exhibitions at the National Museum of Emerging Science and Innovation (MIRAikan).
- Exhibits at open fora including JST Fair, Science Agora, American Association for the Advancement of Science (AAAS) annual meeting, etc.
- Participating in the UN’s STI Forum and other related meetings.

2) Implementation of programs contributing to the achievement of the SDGs (STI for SDGs):

JST shall aim at contributing to the achievement of the SDGs through programs for creating an environment where diverse stakeholders have dialogues, co-design and work together, resolve issues and pursue society’s goals. Examples of specific initiatives and programs:

- Program for promotion of science in society
For the purpose of creating research and development (R&D) outcome that bring about social impact, JST will strengthen ‘convergence’ through promotion of "co-creation" activities such as dialogue or interaction involving multi stakeholders from various sectors of society, and dispatch of information related to STI or societal challenges we should address to the general public.
- Solution-Driven Co-creative R&D Program for SDGs (SOLVE for SDGs)
For the purpose of contributing for achieving the SDGs, JST will promote a solution-driven

R&D program in a co-creative manner involving multi stakeholders from various sectors. JST will clarify social issues and bottlenecks, create scenarios and solutions (case examples) to the issues in a holistic manner using scientific methodology based on natural sciences, social sciences and humanities.

- Center for Low Carbon Society Strategy (LCS)
In response to the Paris Agreement, LCS aims to construct a sustainable low carbon society that maintains a high standard of living. LCS also examines comprehensive strategies for new technologies and necessary elements for social system design that accelerate the realization of this low carbon society.
- JST Mirai*-Program * Mirai means “Future” in Japanese
Based on social and industrial needs including the SDGs, JST sets targets with clear social and economic benefit and promotes R&D towards “Proof of Concept (POC)” (the stage it’s decided whether a business can be successful or not).
- Advanced Low Carbon Technology Research and Development Program (ALCA)
Focusing on the social implementation of lowering greenhouse gas emissions by 2030, JST set clear targets on the top-down bases by “back-casting” from the goal of lowering greenhouse gas emissions and strongly promoting R&D focusing on game-changing technology.
- RISTEX
By utilizing knowledge and experiences from natural sciences, humanities and social sciences, JST conducts R&D programs and promotes Future Earth initiatives with extensive participation from stakeholders aiming to produce and promote innovative solutions to the issues that human society confronts.
- Center of Innovation (COI) Program
Looking towards society 10 years from now, R&D issues to be tackled are set to conduct back-casting R&D in collaboration with the government, industry and academia under the one roof.
- Science and Technology Research Partnership for Sustainable Development (SATREPS)
Towards the solution of global issues, JST promotes international collaborative research with developing countries in collaboration with ODA with the aim of strategically advancing international cooperation through science, technology and innovation.
- Japan-Asia Youth Exchange Program in Science (Sakura Science Plan)
JST enhances international partnerships through youth exchanges between Asia and Japan,

encouraging and inspiring the next generation of innovators that will support tomorrow's science and technology. The activity also helps welcome excellent international human resources to universities, research institutions and private sectors in Japan.

3. Operating programs from "STI for SDGs" perspectives (SDGs for STI)

As for programs and outcomes contributing to the implementation of the SDGs, JST shall strive to maximize and accelerate deployment of the research outcomes. For example, as the SDGs have become a common communication tool across the world, the SDG icons can maximize the potential of R&D outcomes through collaboration with various stakeholders (inter-disciplinary collaboration, industry-academia-government collaboration and international cooperation).