

Part II describes the measures taken to promote S&T (science and technology) in FY2013 in accordance with the 4th Science and Technology Basic Plan (Cabinet decision, August 19, 2011) (Science and Technology Basic Plan, hereinafter: the Basic Plan).

## Chapter 1 Development of Science and Technology Policy

### Section 1 The Science and Technology Basic Plan

On the basis of “the Science and Technology Basic Law” (Law No. 130, 1995), the science and technology (S&T) policy in Japan is comprehensively promoted in a planned manner pursuant to the Basic Plan, which is determined every five years.

The environment, energy resources, food security and the spread of infectious diseases have become global issues. The Great East Japan Earthquake (GEJE) caused an unprecedented crisis for Japan and posed a great challenge to the rest of the world. These diverse global problems need to be addressed through the cooperation of all the countries in the world, and Japan should capitalize on its advanced S&T in order to take a leadership role in solving these problems.

Under these circumstances, the 4th Basic Plan presents five major goals that Japan aims at attaining through the following S&T policy objectives: 1) Reconstruction and revival from the disaster focusing on robust recovery from and reconstruction after the GEJE, 2) Promoting Green Innovation focusing on the environment and energy and 3) Promoting Life Innovation focusing on medical care, nursing care and health management. These policy objectives are defined as key factors for the sustainable growth and development of Japanese society for years to come. The Basic Plan also identifies Key challenges to the Priority Issues Facing Japan and states that efforts should be focused on these priority issues instead of specific limited S&T areas. It is also stated that the science, technology and innovation (STI) policies including system reforms should be comprehensively implemented to address the priority issues in an integrated manner. Basic research and human resources development are another integral part of the efforts for addressing the priority issues; thus, the Basic Plan emphasizes the need for 1) drastic enhancement of basic research from a long-range perspective, 2) the development of young researchers who will play active roles in S&T research in the future and 3) the development of an international-standard research environment and infrastructure. With the recognition that S&T policies need to be developed and advanced in the social context, the Basic Plan underlines the importance of public participation in policymaking processes, the dissemination of information regarding S&T and reforms in the systems for promoting R&D. Regarding the investment in R&D, the Basic Plan aims at increasing the total amount of investment by the public and private sectors to 4% or more of the GDP, increasing government R&D expenditures to account for 1% of the GDP and increasing the total amount of government investment in R&D during the term of the 4th Basic Plan to around 25 trillion yen. (The amount of government investment was estimated on the assumption that government R&D expenditures account for 1% of the GDP and that the nominal growth rate of GDP would average 2.8% during the term of the 4th Basic Plan.) (Figure 2-1-1)

Part II summarizes the progress made so far in accordance with the 4th Basic Plan.

Figure 2-1-1 / The 4th Science and Technology Basic Plan Overview (FY2011 - FY2015)



## Section 2 Council for Science and Technology Policy

The Council for Science and Technology Policy (CSTP) in the Cabinet Office<sup>1</sup> is positioned as a council that advances key policies toward vigorously promoting Japan's S&T policies under the leadership of the Prime Minister. The Council consists of the Prime Minister as the chairperson, related Cabinet members, expert members and others, who have the mission of overseeing the nation's S&T efforts and offering comprehensive and fundamental policy plans and general coordination (Table 2-1-2).

As of March 2014, the CSTP had the Expert Panel on Science, Technology and Innovation Policy Promotion and other three expert panels that deliberate technical aspects of key issues (Figure 2-1-3).

A draft bill for the Act for Partial Revision of the Cabinet Office Establishment Act was approved by the Cabinet on February 7, 2014, and it was submitted to the 186th ordinary Diet session. The Act stipulates the reorganization of the CSTP into the Council for Science, Technology and Innovation (CSTI) and the addition of affairs under the jurisdiction of CSTP and the Cabinet Office for enhancing the regulatory capabilities of the CSTP. The draft bill was enacted on April 23, 2014, and took effects on May 19 in the same year (Figure 2-1-4).

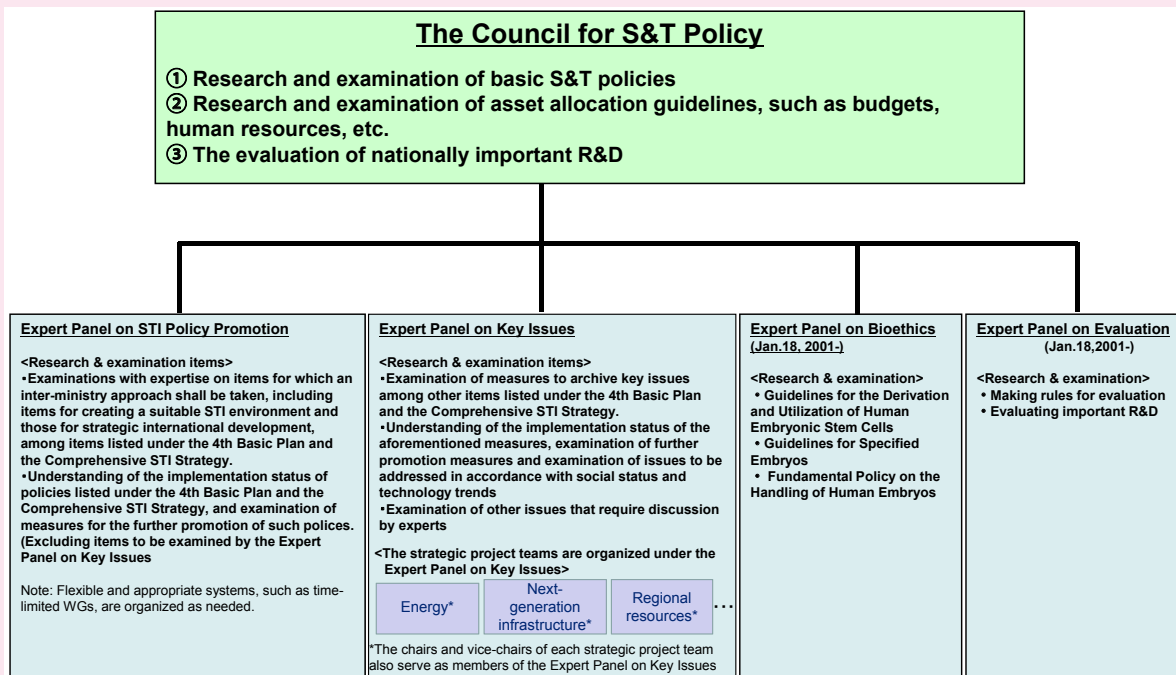
**Table 2-1-2 / List of the CSTP Members**

Cabinet members	Shinzo Abe	Prime Minister
	Yoshihide Suga	Chief Cabinet Secretary
	Ichita Yamamoto	Minister of State for Science and Technology Policy
	Yoshitaka Shindo	Minister of Internal Affairs and Communications
	Taro Aso	Minister of Finance
Experts	Hakubun Shimomura	Minister of Education, Culture, Sports, Science and Technology
	Toshimitsu Motegi	Minister of Economy, Trade and Industry
	Yuko Harayama (full-time)	Former Professor, Graduate School of Engineering, Tohoku University
	Kazuo Kyuma (full-time)	Former Senior Corporate Adviser, Mitsubishi Electric Corporation
	Takeshi Uchiyamada (part-time)	Chairman of the Board, Toyota Motor Corporation
	Motoko Kotani (part-time)	Director, the Advanced Institute for Materials Research (AIMR), and Professor, Graduate School of Science and Faculty of science, Tohoku University
	Hiroaki Nakanishi (part-time)	Chairman & CEO, Hitachi, Ltd. Professor, Graduate School of Engineering, The University of Tokyo
Kazuhito Hashimoto (part-time)	Professor, Research Center for Advanced Science and Technology, The University of Tokyo	
Toshio Hirano (part-time)	President, Osaka University	
Takashi Onishi	President of the Science Council of Japan (The head of affiliated institutions)	

Source: Cabinet Office

<sup>1</sup> As a result of the implementation of the Act for Partial Revision of the Cabinet Office Establishment Act (Act No. 31, 2014), the Council for Science and Technology Policy (CSTP) was reorganized into the Council for Science, Technology and Innovation (CSTI). <http://www.cao.go.jp/cstp/english/policy/>

Figure 2-1-3 / Organization Chart of the Council for Science and Technology Policy (CSTP)



Source: Cabinet Office

Figure 2-1-4 / The Act for Partial Revision of the Cabinet Office Establishment Act (Gist)

Based on the understanding that S&T innovation is necessary for the vitality and sustainable development of Japan 's economy and society, and thus that the Council for Science and Technology Policy (CSTP) should be drastically strengthened as a headquarters that promotes S&T innovation, necessary measures are taken, including increases in the jurisdiction of the Cabinet Office and the CSTP.

[Reference] Comprehensive Strategy on Science, Technology and Innovation (approved by the Cabinet on June 7, 2013)(Abstract)

The CSTP serves as the headquarters for advancing Japan 's S&T innovation policy. Specific measures for drastically enhancing CSTP as a headquarters need to be formulated so that the CSTP can more powerfully advance the S&T innovation policy to make Japan the Most Innovation-friendly Country in the World.

**1. Enhancement of the Comprehensive Coordination Function for Promoting Innovation**

(1) Additional affairs under the jurisdiction of the Cabinet Office and the CSTP (related to Articles 4-1 & 26)

In addition to promoting science and technology, the Cabinet Office is required to formulate and coordinate plans for the comprehensive development of an environment that helps promote innovation through the practical application of R&D results. The CSTP is additionally required to conduct investigations and deliberations regarding important matters related to these plans.

Note: Promoting innovation means creating new value and significant changes in the national economy and society through the following: the development and production of new products, the development and delivery of new services, the introduction of new systems for producing and selling goods, the introduction of new systems for delivering services and the introduction of new business management systems.

(2) Renaming of the Council for Science and Technology Policy (CSTP) (related to Articles 18 & 31)

- 1) The name of the Council for Science and Technology Policy shall be changed to the Council for Science, Technology and Innovation (CSTI)
- 2) The term of office for the executive members shall be changed to three years from the current two years
- 3) A provision shall be added to stipulate that executive members shall keep fulfilling their duties after the expiration of their term of office until their successors are appointed

**2. Drastic Enhancement of the CSTP's Function for Advancing S&T Innovation Measures**

To help enhance the role of the CSTP as a headquarters, the Cabinet Office engages in the following additional administrative work that is necessary for the drastic enhancement of the CSTP for advancing measures for S&T innovation. (related to Article 4-3)

- 1) Administrative work that is necessary to advance measures for the comprehensive development of an environment that helps to promote innovation through practical application of R&D results
- 2) Administrative work necessary for the formulation and advancement of the Science and Technology Basic Plan (Responsibility for this clerical work is transferred from the MEXT)
- 3) Clerical work necessary for coordination among the guidelines on S&T-related cost estimates of relevant administrative agencies (The responsibility for this administrative work is transferred from the MEXT.)

**3. Other**

- 1) Date of implementation: A date, prescribed in a cabinet order, that is no more than one month after the date of promulgation.
- 2) Other necessary provisions will be stipulated.

Source: Cabinet Office



## **1 Major Efforts of the CSTP, FY2013**

In the 107th CSTP meeting, the prime minister ordered the CSTP to do the following: 1) formulate the Comprehensive Strategy on Science, Technology and Innovation (hereinafter: Comprehensive STI Strategy) (approved by the Cabinet on June 7, 2013), which includes a long-term vision encompassing STI policies as well as short-term action programs, 2) examine policies that need to be incorporated into Japan's growth strategy from the viewpoint of STI and 3) study measures for drastically enhancing the CSTP's functions as a headquarters of STI. Based on these orders, the CSTP has been deliberating on the formulation of the following programs, so that they will be enhanced through policies, budgets and institutions: the Comprehensive STI Strategy, contribution for formulating the Japan Revitalization Strategy (approved by the Cabinet on June 14, 2013), S&T-related budget strategies for the whole government that would be implemented through the Science, Technology and Innovation Budget Strategy Committee and the Action Plans for Science and Technology Priority Measures in FY2013 (hereinafter: "the Action Plans"), the Strategic Innovation Promotion Program (SIP) and the Impulsing PARadigm Change through disruptive Technologies (ImPACT) Program.

## **2 Strategic Prioritization in Science and Technology -related Budget**

With the aim of focusing on promising scientific disciplines and policies when allocating S&T-related budgets of the government for effective use of the funds available, the CSTP overviews all STI policies, formulates *Guidelines for Resource Allocation, including the Science and Technology Budget* (hereinafter "Guidelines for Resource Allocation ") and plays a leadership role in supporting the efforts of government ministries and agencies. In formulating the S&T-related budget for FY2014, the primary focus was placed on the establishment of the Science, Technology and Innovation Budget Strategy Committee, the formulation of Action Plans and the creation of the SIP for the purpose of facilitating implementation of the Comprehensive STI Strategy. Additionally, the ImPACT Program was created and was implemented with the FY2013 supplementary budget.

### **(1) Guidelines for Resource Allocation, including the Science and Technology Budget for FY2014 (approval and supplementary recommendation on July 31, 2013)**

The CSTP decided guidelines for Resource Allocation, including the FY2014 S&T budget, and offered the guidelines to the prime minister and other ministers concerned. With a view to facilitating STI that helps revitalize Japan's economy, the guidelines recommend the following measures: the development of mechanisms for the CSTP to use the Action Plans for leading the efforts of relevant ministries and agencies according to policies, the use of these mechanisms in combination with the SIP for enhancing solution-oriented programs that encompass the process of undertakings from basic research to practical application and commercialization of research results. In this regard, beyond the boundaries of ministries/agencies and scientific disciplines, the CSTP focuses on the SIP in allocating the budget that is formulated by the Cabinet Office.

### **(2) Establishment of the Science, Technology and Innovation Budget Strategy Committee (June 20, 2013)**

In formulating the budget for FY2014, the STI Budget Strategy Committee was organized according to

the Comprehensive STI Strategy. The chair is taken by the Minister of State for Science, Technology and Innovation Policy, and the committee members are key officials from ministries and agencies concerned. A process for prioritizing S&T-related budgets was adopted in the stage for planning budgetary requests and the subsequent stages at ministries and agencies. The prioritization of S&T-related budgets was thus realized in the preparation of the CSTP Resource Allocation Guidelines and the guidelines for the formulation of S&T-related budgets.

**(3) Determination of Measures to be Adopted for the Action Plans for Science and Technology Priority Measures FY2014 (approval and supplementary recommendation on September 13, 2013)**

Policy challenges that need to be addressed by STI are enumerated in Chapter 2 of the Comprehensive STI Strategy as follows: I) *Realization of clean and economical energy system*, II) *Realization of a healthy and active ageing society as a top-runner in the world*, III) *Development of next generation infrastructures as a top-runner in the world* IV) *Regional revitalization taking advantage of the regional resources* and V) *Early recovery and revitalization from the Great East Japan Earthquake*. Regarding solution-oriented R&D under the jurisdiction of ministries and agencies, the CSTP proposed priority S&T measures in each of the challenges above for developing action plans. In response to the proposal, ministries/agencies proposed 243 specific measures. The CSTP capitalized on joint initiatives of ministries and agencies for eliminating measures that were duplicated among ministries/agencies as well as for making adjustments among multiple projects to rationalize the details of each projects. Consequently, a total of 98 measures were selected for prioritized allocation of budgets.

**(4) Creation of Strategic Innovation Promotion Program (SIP)**

On the basis of the Comprehensive STI Strategy, the SIP was created to ensure that the CSTP serves as the headquarters for advancing cross-ministerial, interdisciplinary R&D projects that encompass basic research as well as the practical application and commercialization of research results. According to the CSTP guidelines, the budget for creating and promoting STI (i.e., the initial budget of 50 billion yen of the Cabinet Office for FY 2014) is intensively allocated to the implementation of the SIP.

**(5) Priority Measures for Creating an Environment That Facilitates Science, Technology and Innovation FY2014 (approval and supplementary recommendation on September 13, 2013)**

Regarding the efforts by government ministries and agencies for the creation of an environment that helps to promote STI, the CSTP specified priority issues for each of the policy challenges (i.e., Nurturing the sprouts of innovation, Activating the innovation system and Fructifying innovation) stated in Chapter 3 of the Comprehensive STI Strategy. The CSTP received 100 proposals on measures addressing these priority issues from relevant ministries and agencies.

Of these 100 proposals, 35 were selected as priority measures that would help increase the effectiveness of conventional measures and promote system reforms and the creation of new organizations, leading to enhancement of STI. Out of 35 priority measures, 15 measures were elected for prioritized budget allocation.

## **(6) Creation of the ImPACT Program (Impulsing PARadigm Change through disruptive Technologies)**

According to the Comprehensive STI Strategy, the ImPACT program was created for promoting high-risk, high-impact, innovative R&D. The ImPACT Program aims at STI that can revolutionize industries and society. In the ImPACT Program, which makes use of the features of the preceding program (the Funding Program for World-Leading Innovative R&D on Science and Technology (FIRST)), a foundation was set up for facilitating the flexible use of budgets. Program managers are selected by the CSTP and are given great authority and responsibility to supervise the planning, promotion and management of R&D projects that may not seem highly promising but have the potential to revolutionize society and industry.

Necessary legal measures were taken for launching the ImPACT Program, and 55 billion yen was allocated for this program in the FY2013 supplementary budget. The CSTP determined the basic guidelines for the implementation of the ImPACT Program and began advertising for program managers for the five general R&D topics.

## **(7) Toward the Formulation of the Science and Technology Budget (approval and supplementary recommendation on November 27, 2013)**

The CSTP formulated a supplementary recommendation titled *Toward the Formulation of the Science and Technology Budget for FY2014* and offered it to the Prime Minister and other ministers concerned. This supplementary recommendation states significant matters that should be taken into account in the budgeting process so that S&T-related budgets are secured while prioritized allocation of resources is ensured according to the Guidelines for Resource Allocation.

## **3 Comprehensive Promotion of Science and Technology Policies**

### **(1) Evaluation of R&D Projects That Are of Great Significance for Japan**

#### **1) Preliminary Evaluation of a Large-scale R&D Project (determined, and notification made, on December 17, 2013)**

A large-scale R&D project that is tentatively called the Exascale Supercomputer Project will start in FY2014 under the jurisdiction of the Ministry of Education, Culture, Sports, Science and Technology (MEXT), using more than 30 billion yen of funds from the national budget. Because this project has great significance for Japan, preliminary evaluation was implemented and notification of the evaluation results was given to the Minister of Education, Culture, Sports, Science and Technology.

#### **2) Follow-up Evaluation of Large-scale R&D Projects (September and November in 2013)**

Preliminary evaluation was conducted by the CSTP in FY2011 regarding the following projects and subsidies: Seafloor Observation Network for Earthquakes and Tsunamis along the Japan Trench and the developments of the Emergency Tsunami Warning System (provisional title)(supervised by MEXT), Subsidies for Integrated Coal Gasification Fuel Cell Combined Cycle Demonstration Project (supervised by the Ministry of Economy, Trade and Industry (METI)), Subsidies for a High-Efficiency Gas Turbine Technology Demonstration Project (METI) and the Photonics Electronics Convergence Technology for Power-Reducing Jisso System (METI). The CSTP Expert Panel on Evaluation confirmed the measures



taken in response to the preliminary evaluation and advised MEXT and METI of the improvements that had been made.

### **3) Ex-post Evaluation of Large-scale R&D Projects (determined, and notification made, on July 31, 2013)**

The CSTP implemented preliminary evaluation of the following two projects, which are supervised by MEXT: the Targeted Proteins Research Program and the Development and Use of an Advanced, High-Performance, General-Purpose Supercomputer. The follow-up period of these projects ended in FY2011 and FY2012, respectively. Accordingly, the CSTP conducted ex-post evaluation of these projects and notified the Minister of Education, Culture, Sports, Science and Technology of the evaluation results.

### **4) Follow-up Evaluation of the R&D Project Specified by the CSTP (September, 2013)**

The CSTP acknowledged the need for evaluation of the Tohoku Medical Megabank Project (supervised by MEXT), and the CSTP Expert Panel on Evaluation confirmed the measures taken in response to the preliminary evaluation and advised MEXT of the improvements that should be made.

## **(2) Promotion of the Projects for Accelerated Dissemination of Research Results to Benefit the Public**

Under the leadership of the CSTP, projects were advanced through cooperation between the public and private sectors and joint efforts of the ministries concerned. These projects focused on interdisciplinary R&D and system reforms that were conducted in an integrated manner, and also on the accelerated dissemination of the research results through demonstration experiments. Specifically, the following six projects started in FY2008 and were completed by the end of FY2012, and the results were reported in July 2013.

- The realization of regenerative medicine that helps restore physical function
- The development of an information and telecommunications system that provides every citizen with detailed disaster information and, thus, is useful for disaster response
- The development of a safe and efficient road transportation system that uses information and telecommunications technologies
- The realization of advanced home healthcare and nursing care for elderly, ailing and disabled people
- The effective and efficient use of biomass resources, toward solving environmental and energy problems
- The development of speech translation technology for communication across language barriers

## **4 Major Points Deliberated by the Expert Panels**

### **(1) Expert Panel on STI Policy Promotion**

The Expert Panel on STI Policy Promotion studies and analyzes matters relevant to the promotion of basic policies for S&T from the mid- and long-term perspectives. In FY2013, the Expert Panel made a technical review of interdisciplinary issues, including strategies regarding intellectual property, the strategic development of global activities and the creation of an environment that helps to promote the STI specified in the 4th Basic Plan and the Comprehensive STI Strategy.

## **(2) Expert Panel on Key Issues**

The Expert Panel on Key Issues was set up in September 2013 for the purpose of ensuring the promotion of solution-oriented policies indicated by the 4th Basic Plan and also for furthering the FY2014 Action Plan that was specified by the CSTP. This expert panel is obliged to use its expertise for investigating and examining the key issues that are listed in the 4th Basic Plan and the Comprehensive STI Strategy as issues that need to be focused on at present or to be more thoroughly dealt with in the future.

To fulfill the mission of the Expert Panel on Key Issues, the three committees and the three working groups shown below were organized under the panel in light of the challenges identified in Chapter 2 of the Comprehensive STI Strategy. The committees are the Committee on Energy Strategy; the Committee on the Strategy for Next-generation Infrastructure, Reconstruction and Revitalization; and the Committee on Regional Resource Strategy. The working groups are the Working Group on Environment; the Working Group on Nanotechnology and Materials; and the Working Group on ICT. These conducted detailed studies and examinations of issues in the relevant fields.

## **(3) Expert Panel on Evaluation**

The Expert Panel on Evaluation formulated a preliminary evaluation draft for a large-scale R&D project that was to start in FY2014 and an ex-post evaluation draft for projects whose follow-up evaluation period ended in FY2011 or in FY2012. Additionally, follow-up evaluation was conducted for large-scale R&D projects that were preliminarily evaluated in FY2011 and for an R&D project that was specified by the CSTP and was evaluated in FY2012.

## **(4) Expert Panel on Bioethics**

The Expert Panel on Bioethics studied and examined emerging bioethical issues in response to recent advances in the life sciences. These issues include research on the creation of human embryos by utilizing germ cells derived from ES cells and iPS cells.

## Section 3 The Comprehensive Strategy on Science, Technology and Innovation

Japan is confronting many challenges, such as depopulation, global environmental issues and the acceleration of demographic aging. The most pressing issue is economic revitalization. Solutions to these problems are increasingly dependent on STI. In view of this, the Comprehensive STI Strategy was formulated in June 2013. It included a long-term vision for overall STI policies, and short-term action programs for realizing that vision (Figure 2-1-5).

The comprehensive STI strategy basically consists of the following:

- *Long-term vision including the whole picture of science, technology and innovation policies + immediate action programs*
- *Comprehensive package of problem-solving science, technology and innovation policies*
- *Clarified roles and responsible ministries in industry-academia-government cooperation; A combination of various policies such as budgeting, taxing and regulatory reforms*
- *The expansion of the R&D phases covered by the Comprehensive STI Strategy, to include phases upstream of basic research and phases downstream of applied research and practical application*
- *Evaluation and review of measures through the annual PDCA<sup>1</sup> cycle that is followed in connection with the allocation of budgets*

Specifically, the Comprehensive STI Strategy clearly states the economy and society that should be realized in Japan by 2030, as follows.

- *Economy that maintains the world-top-class economic strength and develops sustainably*
- *Society where the people can enjoy wellness, security and safety*
- *Economic society that harmonizes with the world and contributes to the progress of humankind*

On the basis of these three visions, the Comprehensive STI Strategy indicated the following five present policy challenges that STI policy should address and their related priority issues and efforts.

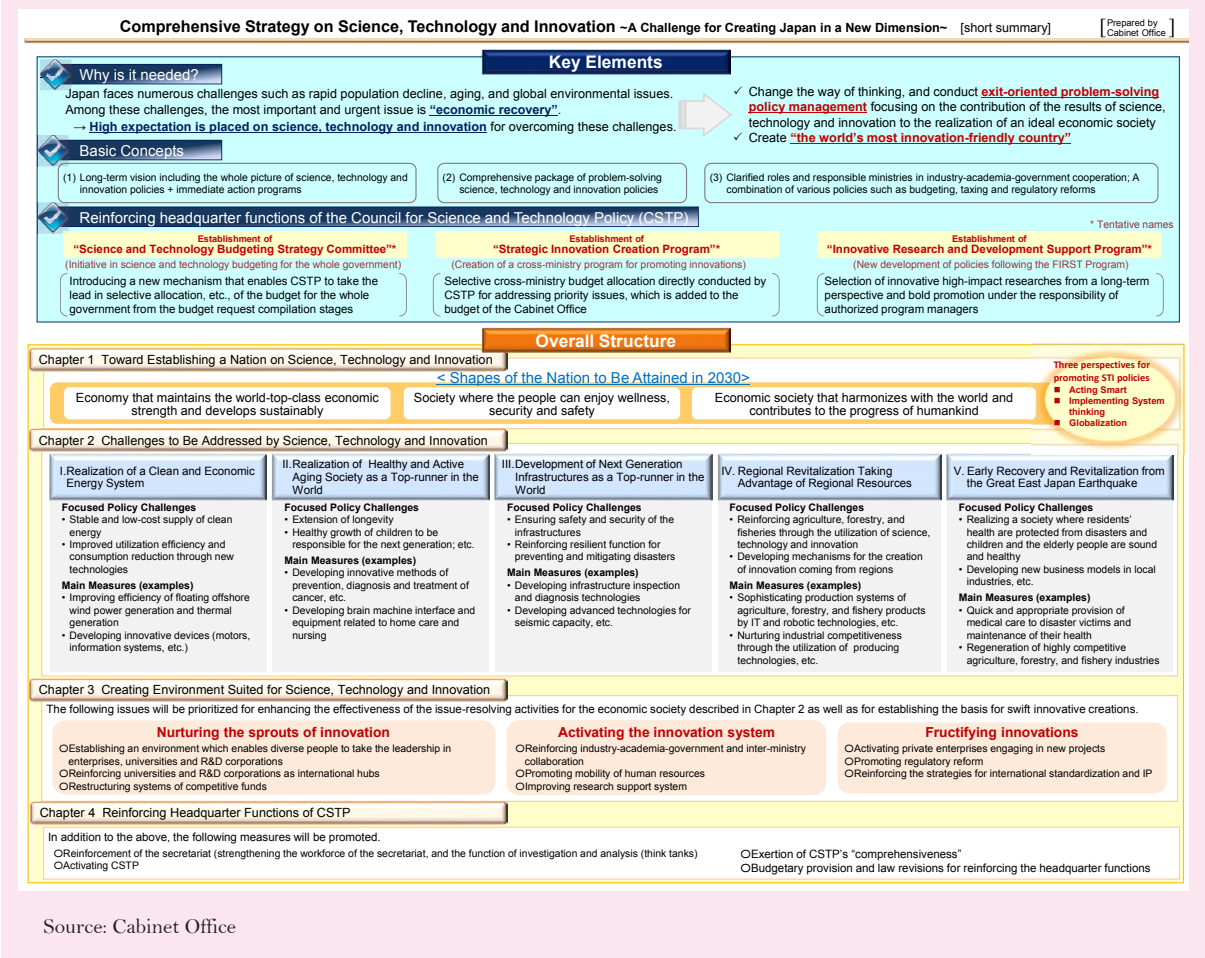
- (1) *Realization of a Clean and Economic Energy System*
- (2) *Realization of Healthy and Active Aging Society as a Top-runner in the World*
- (3) *Development of Next Generation Infrastructures as a Top-runner in the World*
- (4) *Regional Revitalization Taking Advantage of Regional Resources*
- (5) *Early Recovery and Revitalization from the Great East Japan Earthquake*

For the purpose of enhancing the effectiveness of measures for solving socioeconomic problems and for developing infrastructure necessary for prompt innovation, the following issues are prioritized in the Comprehensive STI Strategy: *Nurturing the sprouts of innovation, Activating the innovation system and Fructifying innovations.*

Moreover, to fully implement these measures, the Science, Technology and Innovation Budget Strategy Committee was established to help reinforce the function of the CSTP as a headquarters, the SIP was created as an inter-ministerial program and the ImPACT was started, for promoting high-risk, high-impact, innovative R&D activities.

<sup>1</sup> As a result of the implementation of the Act for Partial Revision of the Cabinet Office Establishment Act (Act No. 31, 2014), the Council for Science and Technology Policy (CSTP) was reorganized into the Council for Science, Technology and Innovation (CSTI).  
<http://www8.cao.go.jp/cstp/english/policy/>

Figure 2-1-5 / Comprehensive Strategy on Science, Technology and Innovation



## Section 4 Administrative Structure and Budget for Science and Technology Policies

### 1 Administrative Structure for Science and Technology Policies

In the administrative organization of the government, the CSTP belongs to the Cabinet Office, which is responsible for the planning and general coordination of key national policies. The CSTP formulates recommendations on comprehensive strategies for promoting S&T and guidelines on the allocation of resources including budgets and personnel for S&T programs. On the basis of these recommendations and guidelines, relevant administrative agencies are supervising 1) research conducted at national experiment and research institutions, and at incorporated administrative agencies and universities, 2) the promotion of research under various research programs and 3) improvements to the environment for R&D activities.

MEXT is responsible for the coordination that is necessary for developing specific R&D programs in diverse fields as well as for S&T-related administrative work of various administrative agencies. MEXT also takes the administrative leadership in comprehensively promoting the implementation of R&D programs in advanced, important S&T fields and the advancement of creative basic research. The Council for Science and Technology (CST), under the jurisdiction of MEXT, engages in investigations and deliberations regarding important matters related to the comprehensive promotion of S&T, following the advice of the Minister of Education, Culture, Sports, Science and Technology, and also offers its views to

the minister.

Based on the lessons learned from the significant damage caused by the 2011 Off the Pacific Coast of Tohoku Earthquake, in 2012 the CST reviewed the observation and research program (the *Observation and Research Program for the Prediction of Earthquakes and Volcanic Eruptions*) that was being implemented at the time of the earthquake in 2011, and revised the program on the assumption that catastrophic earthquakes might occur.

In addition to the revision to the observation and research program, the results of the review and third-party evaluation of this program as well as the proposal by the CST on January 17, 2013 ("*Future Science and Technology policies based on the experience of the Great East Japan Earthquake*") were used in the deliberations conducted in 2013 for improving the program on the basis of the understanding that science and technology shall be viewed in their social context and shall benefit the public. The improvements to the program aimed at helping to mitigate damage caused by disasters. In the 45th CST meeting on November 8, 2013, the *Promotion of a Seismological and Volcanological Observation and Research Project That Helps Mitigate Disasters* proposal was adopted.

Because it is stated in the Basic Plan that improvement is required in R&D evaluation systems for ensuring PDCA cycles' effectiveness in promoting STI, deliberations were conducted by MEXT regarding its R&D evaluation system, following National Guidelines for Evaluating Government Funded R&D approved by the Prime Minister in December 2012. At the 46th CST meeting on March 3, 2014, the *Guideline for Evaluation of Research and Development in MEXT* proposal was adopted.

Proposals and major reports of the CST are shown in [Table 2-1-6](#).



**Table 2-1-6 / Proposals and Major Reports from the Council for Science and Technology (FY2013)**

Date	Proposals and Major Reports
	<b>General Meeting</b>
April 22, 2013	<i>Basic Policy to Dramatically Strengthen Japan's R&amp;D Capacity</i> (Approved)
November 8, 2013	Promotion of Seismological and Volcanological Observation and Research Projects That Help Mitigate Disasters (Proposed)
March 3, 2014	Revision of the <i>Guideline for the Evaluation of R&amp;D at MEXT</i> (Proposed)
	<b>R&amp;D Planning and Evaluation Subcommittee</b>
July 29, 2013	Japan's Policy for Earth Observation 2014 [Earth Observation Promotion Commission]
	<b>Science Subcommittee</b>
August 21, 2013	<i>Development of Information Infrastructure for Enhancing Learning Environments (deliberation results)</i> (Science Information Committee)
August 29, 2013	Aid for Academic Research (Research Fund Commission's deliberation results (1))(Research Fund Commission)
	<b>Ocean Resources Development Subcommittee</b>
August 30, 2013	Results of the Preliminary Evaluation of the R&D Projects Concerning Marine Science and Technology (August 2013)
October 31, 2013	The 2nd Interim Report on the Oceanic-Earth Drilling Program
	<b>Geodesy Subcommittee</b>
July 26, 2013	Promotion of a Seismological and Volcanological Observation and Research Project That Helps Mitigate Disasters (Report on deliberations)
November 8, 2013	Promotion of a Seismological and Volcanological Observation and Research Projects That Help Mitigate Disasters (Proposed)
	<b>Advanced Research Infrastructure Commission</b>
August 26, 2013	Interim Report on Super Photon ring-8 GeV (SPRing-8) Results of Deliberations by the R&D Platform Committee on the Issues Regarding Research Infrastructure Development Strategies
	<b>Bioethics and Biosafety Commission</b>
September 11, 2013	<i>Interim Report on the Review of the Ethical Guidelines for Epidemiological and Clinical Research (Amended)</i>

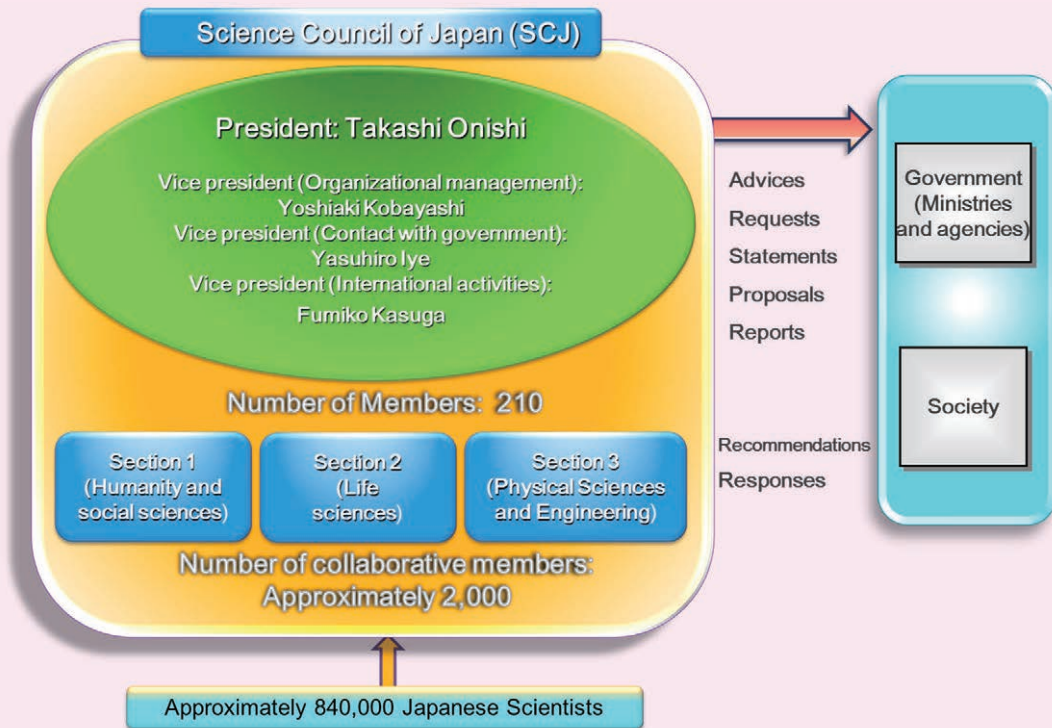
Source: MEXT

In addition to the CST, the Science Council of Japan (SCJ), an organization that represents Japan's scientific community and has 210 members and about 2,000 associate members, is under the supervision of the prime minister. The SCJ is responsible for the following: 1) deliberations on key issues and recommendations to the government and the public, 2) the networking of scientists, 3) collaboration with international academic institutions and 4) the promotion of scientific literacy through education (Figure 2-1-7, Table 2-1-8).

In relation to the Great East Japan Earthquake, the Committee on Supporting Reconstruction after the Great East Japan Earthquake urgently prepared recommendations in September 2013 regarding the need for the systematic implementation of a food inspection system, with the aim of addressing the problem of harmful rumors about radioactive contamination of farm products and food. Additionally, a subcommittee was established for working on the problem of water contamination. In relation to *Future Earth*, a global research initiative on environmental change which will start in 2015 worldwide, the Committee for Promoting Future Earth was established to help build a system that will support the initiative. The committee has been examining research and specific efforts that are necessary for sustainable global environment.

In light of the recurring misuse of research funds and the fabrication of research papers, the SCJ published its *Code of Conduct for Scientists (revised)* in January 2013. In December 2013, the SCJ published *Measures for Preventing Research Misconduct and Ex-post Measures: For Enhanced Scientific Integrity* as recommendations to help address the prevention of research misconduct, to promote the world's most advanced scientific research in Japan and to improve the integrity of scientific research.

Figure 2-1-7 / Organizational Structure of the Science Council of Japan (SCJ)



Note: As of April 3, 2013  
 Source: Cabinet Office

Table 2-1-8 / Major proposals and reports of the SCJ (FY2013)

Matters related to this White Paper	Recommendations	Date of issue	Gist
Recovery from and reconstruction after the Great East Japan Earthquake	Recommendations on the roles of social welfare in responding to disasters, including the Great East Japan Earthquake	May 2, 2013	The future roles of social welfare, with respect to disaster response, are recommended by distinguishing the roles of the national and local governments from the roles of the social welfare organizations.
	Recommendations on issues that need to be solved for recovery from and reconstruction after the nuclear disaster, and arrangements for addressing these issues	June 27, 2013	In connection with the efforts for supporting recovery from the damage caused by the TEPCO Fukushima Daiichi nuclear disaster, recommendations from a sociological viewpoint were made regarding 1) health problems, 2) the restoration of disaster victims' lives and 3) regional revitalization.
	Urgent recommendations on systematic food and product inspections, toward addressing the problem of harmful rumors about radioactive contamination of farm products and food	September 6, 2013	After the nuclear accident of the TEPCO Fukushima No.1 Nuclear Power Plant caused by a tsunami, rumors about radioactive farm products affected farmers in Fukushima Prefecture. To solve this problem and to help consumers ascertain the safety of farm products from Fukushima and use them without anxiety, urgent recommendations were made about the need for systematic food inspections as well as for radioactivity measurement of soil and farmland.
Advancement of measures for solving key issues	Urgent recommendations on the prevention of health damage caused by smokeless tobacco products, including snus products	August 30, 2013	JT began selling a snus-type smokeless tobacco product in the City of Osaka. Because smokeless cigarettes are mistakenly believed to be safer than conventional cigarettes and thus may adversely affect minors, urgent recommendations were made for addressing the potential problems of smokeless cigarettes.
	The SCJ's view expressed in response to the MEXT request for deliberation on the International Linear Collider (ILC) Project	September 30, 2013	In response to the MEXT request for deliberation on the International Linear Collider Project, the SCJ expressed its view as follows: 1)The SCJ deems electron-positron colliders and the ILC project as necessary and significant, but the ILC project needs to be explained in a clearer and more convincing way to justify the enormous investment necessary for the project and 2)the government will allocate a budget to investigations necessary for analyzing various issues before making a decision on the implementation of the ILC project, and the SCJ will advance intensive research and study on the ILC project together with governmental organizations concerned and experts in diverse fields.
	Recommendations on the use of research reactors	October 16, 2013	Research reactors are necessary and offer benefits, but use of these nuclear reactors involves risks. Because sincere efforts are required for managing the risks, recommendations were made regarding the following points in the light of Japan's academic, S&T development: the roles and justification of research reactors, the ensuring of safe and secure operation of research reactors, responses to the issue of spent fuel, improvement of systems for operating and using research reactors, and the study of future successor research reactors.
Closer link between society and science, technology and innovation	Recommendations on the significance of conflict of interest (COI) management and the securing of transparency in clinical research	December 20, 2013	As a result of the increase in cooperative industrial-academic activities, researchers face the need to manage conflicts of interest more often than before, namely conflicts between scientists' social responsibility and personal gain from industrial-academic activities. In view of this, recommendations were made regarding the researchers' roles and the responsibilities that researchers should have in conducting clinical research, for the purpose of supporting the advancement of proper clinical research through industrial-academic collaboration.
	Recommendations on measures for preventing research misconduct and on ex-post measures: for enhanced scientific integrity	December 26, 2013	Recommendations were made regarding the measures that should be taken to prevent research misconduct and to address suspected misconduct, with the aim of helping research/scientific communities and research institutions that manage research expenses to identify measures necessary for them to prevent research misconduct and to establish systems for ensuring recurrence prevention.
	Recommendations regarding dual use issues in research on pathogens	January 23, 2014	Recommendations were made regarding guidelines that help scientists and technical experts to deepen their understanding about dual use issues related to their scientific expertise and skills and about specific cautions needed in conducting research.

## 2 Science and Technology-related Budgets

The S&T-related portion of Japan's initial budget for FY2013 is 3.6097 trillion yen, of which 2.9577 trillion yen is appropriated for the general account budget and 652.0 billion yen is appropriated for the special account budget. The funds for promoting S&T, which represent the principal S&T-related expenditure in the general account, are 1.3007 trillion yen. The government also compiled a supplementary budget for FY2013 based on *Economic Measures for Realization of Virtuous Cycles* (Cabinet decision on December 5, 2013). The S&T-related portion of Japan's supplementary budget is 433.3 billion yen, of which 335.2 billion yen is appropriated for the general account budget (which includes 220.6 billion yen in funds for promoting S&T), and 98.1 billion yen is appropriated for the special account budget. Previous S&T-related budgets are shown in Table 2-1-9, and the S&T budgets are broken down by ministry/agency in Table 2-1-10.

In Japan, multiple ministries and agencies implement S&T-related policies. To promote S&T efficiently and effectively by ensuring consistency nationwide, it is necessary to advance S&T-related policies in relevant ministries while making necessary adjustments, eliminating duplications of S&T-related measures among ministries/agencies and strengthening cooperation among ministries and agencies according to the guidelines set forth by the CSTP.

Table 2-1-9 / Changes in Science and Technology-related Budgets

(Unit: 100 million yen)

Item \ FY		FY2009	FY2010	FY2011	FY2012	FY2013
S&T promotion expenditures (A)		13,777	13,334	13,352	13,136	13,007
	As a % of the previous FY	101.1	96.8	100.1	98.4	99.0
Other research-related budget (B)		16,414	17,197	17,213	16,728	16,570
	As a % of the previous FY	97.9	104.8	100.1	97.2	99.1
S&T-related budget included in the general account budget (C)= (A)+ (B)		30,191	30,531	30,565	29,863	29,577
As a % of the previous FY		99.3	101.1	100.1	97.7	99.0
S&T-related budget included in the special account budget (D)		5,449	5,359	6,083	7,063	6,520
As a % of the previous FY		102.6	98.3	113.5	116.1	92.3
S&T-related budget (E)= (C)+ (D)		35,639	35,890	36,648	36,926	36,097
As a % of the previous FY		99.8	100.7	102.1	100.8	97.8
General account budget of Japan (F)		885,480	922,992	924,116	903,339	926,115
As a % of the previous FY		106.6	104.2	100.1	97.8	102.5
General expenditure budget of Japan (G)		517,310	541,724	540,780	517,957	539,774
As a % of the previous FY		109.4	104.7	99.8	95.8	104.2

Note:

- 1) Initial budget amounts are shown.
- 2) Because of rounding, cumulative amounts in some columns may not equal the totals.

Source: MEXT

Table 2-1-10 / Science and Technology -related Budgets of Each Ministry/Office/Agency

(Unit: million yen)

Ministry/ Office/Agency	FY2012 (Initial budget)				FY2012 (Supplementary budget)				FY2013 (Initial budget)				FY2013 (Supplementary budget)			
	General account	S&T promoti on expendi tures	Special account	Total	General account	S&T promoti on expendi tures	Special account	Total	General account	S&T promoti on expendi tures	Special account	Total	General account	S&T promoti on expendi tures	Special account	Total
Diet	1,117	1,092	—	1,117	—	—	—	—	1,117	1,092	—	1,117	—	—	—	—
Cabinet Secretariat	63,002	—	—	63,002	—	—	—	—	60,842	—	—	60,842	10,695	—	—	10,695
Reconstruction Agency	—	—	49,581	49,581	—	—	12,864	12,864	—	—	60,105	60,105	—	—	38,130	38,130
Cabinet Office	14,602	12,838	34	14,637	4,671	4,671	—	4,671	14,171	12,494	—	14,171	—	—	—	—
National Police Agency(NPA)	1,997	1,967	—	1,997	6,776	277	—	6,776	2,047	1,890	—	2,047	782	235	—	782
Ministry of Internal Affairs and Communications (MIC)	56,244	41,738	88	56,332	64,032	53,800	—	64,032	49,432	41,452	—	49,432	1,453	1,003	—	1,453
Ministry of Justice(MOJ)	5,201	—	26	5,227	387	—	—	387	5,567	—	—	5,567	1,341	—	—	1,341
Ministry of Foreign Affairs (MOFA)	11,793	—	—	11,793	—	—	—	—	10,580	—	—	10,580	—	—	—	—
Ministry of Finance(MOF)	1,306	992	57	1,364	—	—	—	—	1,282	965	—	1,282	—	—	—	—
Ministry of Education, Culture, Sports, Science and Technology (MEXT)	2,251,217	887,302	214,482	2,465,699	742,796	289,944	299	743,095	2,182,600	875,664	132,481	2,315,081	201,671	126,938	4,606	206,276
Ministry of Health, Labour and Welfare (MHLW)	156,950	116,136	5,632	162,582	8,747	1,202	—	8,747	160,196	123,578	2,441	162,637	5,614	—	—	5,614
Ministry of Agriculture, Forestry and Fisheries (MAFF)	102,628	99,174	388	103,016	21,872	21,872	—	21,872	93,083	90,261	—	93,083	13,000	10,000	—	13,000
Ministry of Economy, Trade and Industry (METI)	134,200	100,677	378,474	512,674	152,511	63,251	—	152,511	130,807	101,726	390,380	521,187	94,235	77,226	53,700	147,935
Ministry of Land, Infrastructure, Transport and Tourism (MLIT)	52,449	27,070	18,416	70,865	1,527	1,328	1,290	2,817	50,258	26,782	18,643	68,901	3,645	3,161	200	3,845
Ministry of the Environment (MOE)	28,037	24,563	37,040	65,077	3,384	3,384	—	3,384	31,324	24,844	45,476	76,800	2,765	2,065	1,499	4,264
Ministry of Defense (MOD)	105,584	—	2,048	107,631	—	—	—	—	164,393	—	2,476	166,869	14	—	—	14
Total	2,986,327	1,313,550	706,267	3,692,594	1,006,703	439,729	14,453	1,021,156	2,957,700	1,300,749	652,002	3,609,702	335,214	220,627	98,135	433,349

Note: Because of rounding, cumulative amounts in some columns may not equal the totals.

Source: MEXT