

Part 2 describes the measures taken to promote science and technology in FY 2009 in accordance with the 3rd Science and Technology Basic Plan, with chapter and section headings of this report adopted from the aforementioned plan.

Chapter 1 Development of Science and Technology Policy

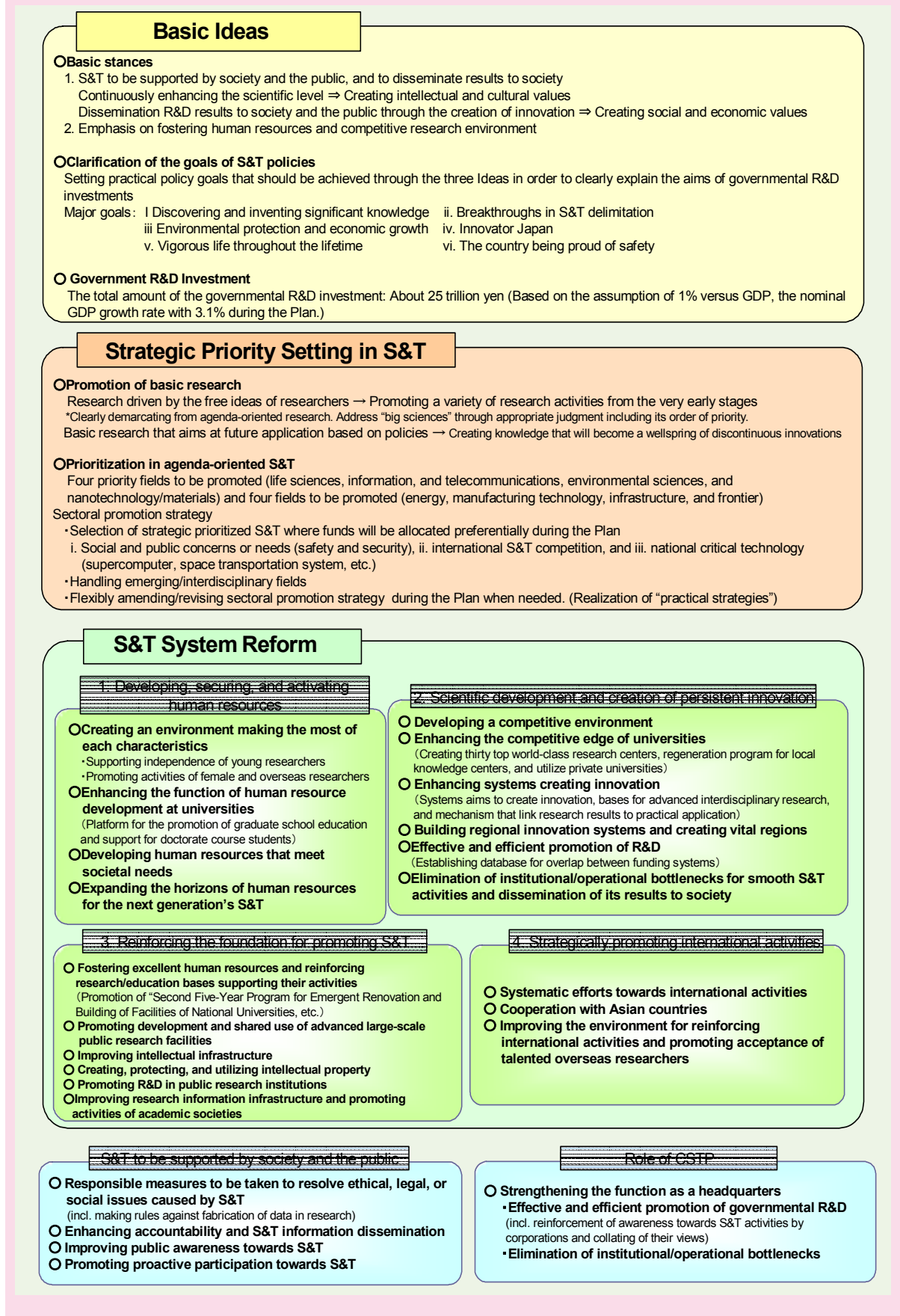
Section 1 The Science and Technology Basic Plan

The science and technology policy in Japan is administered comprehensively in a planned manner pursuant to the Science and Technology Basic Plan, which is determined every five years based on “The Science and Technology Basic Law” (Law No. 130, effective on November 15, 1995). Currently, the 3rd Science and Technology Basic Plan (Cabinet Decision of March 2006, hereinafter “Basic Plan”) is in effect from FY 2006 until FY 2010.

The Basic Plan clearly indicates six major objectives to be achieved with the S&T policy, based on the dual guidelines of “S&T to be supported by the public, returning benefits to society” and “Emphasis on fostering human resources and competitive research environments—Shift of emphasis from ‘hard’ to ‘soft’ resources; greater significance of individuals at institutions.” In addition, to realize these goals, efforts are made to enhance basic research while developing human resources and focusing on individual fields. Furthermore, the Basic Plan calls for maintaining the ratio of government investment in R&D against GDP at the level of major Western countries during the period of the Third Basic Plan, meaning that the total investment should be around 25 trillion yen. (The ratio of the governmental R&D expenditure during the term of the Third Basic Plan against GDP is 1%, assuming the average growth rate of nominal GDP is 3.1% during the same period.) (Figure 2-1-1)

However, since FY 2010 is the last year for the current 3rd S&T Basic Plan, governmental discussions are already underway regarding the Fourth S&T Basic Plan.

Figure 2 1 1 Outline of the Third S&T Basic Plan (FY 2006-2010)



Section 2

Council for Science and Technology Policy

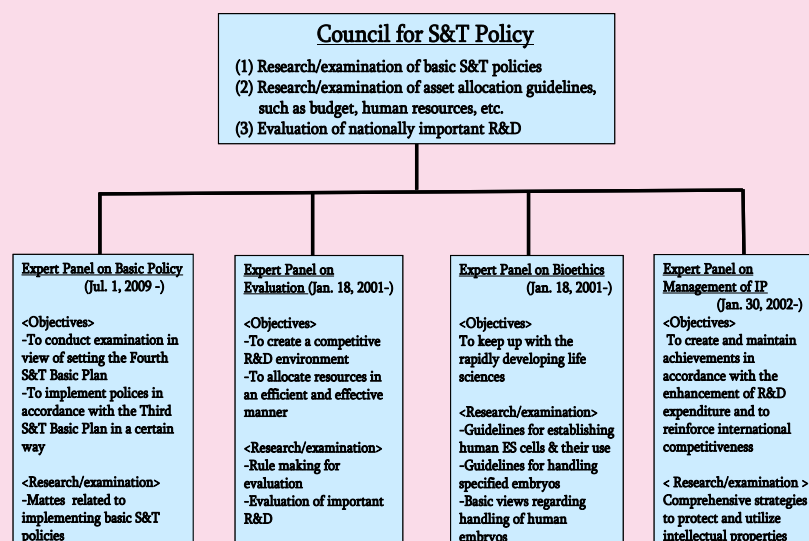
The Council for Science and Technology Policy (CSTP) is placed in the Cabinet Office as “a council for key policy” for vigorously promoting Japan’s science and technology policies, under the leadership of the Prime Minister. The Council is comprised of the Prime Minister, as the chairperson, related Cabinet members, expert Diet members, etc., with the twin missions of overseeing the nation’s science and technology efforts and offering comprehensive and fundamental policy plans and overall adjustment. (Table 2-1-2)

As of March 2010, there are four expert panels under the CSTP, including the Expert Panel on Basic Policy, for examining technical aspects of key issues. (Figure 2-1-3)

Figure 2 1 2 List of Diet members in the CSTP (as of April 1, 2010)

Cabinet members	Yukio Hatoyama	Prime Minister
	Hirofumi Hirano	Chief Cabinet Secretary
	Tatsuo Kawabata	Minister of State for Science and Technology Policy, Minister of Education, Culture, Sports, Science and Technology
	Kazuhiro Haraguchi	Minister of Internal Affairs and Communications
	Naoto Kan	Minister of Finance
	Masayuki Naoshima	Minister of Economy, Trade and Industry
Experts	Masuo Aizawa (full-time)	Former president of Tokyo Institute of Technology
	Tasuku Honjo (full-time)	Visiting professor of Kyoto University
	Naoki Okumura (full-time)	Former executive vice president of Technical Development Bureau of Nippon Steel Corp.
	Takashi Shiraishi (full-time)	Former vice president of National Graduate Institute for Policy Studies
	Toyoko Imae (part-time)	Professor emeritus of Nagoya University
	Reiko Aoki (part-time)	Professor of the Institute of Economic Research of Hitotsubashi University
	Ryoji Chubachi (part-time)	Vice chairman of Sony Corp.
	Ichiro Kanazawa	President of the Science Council of Japan *affiliated institution

Figure 2 1 3 Organization chart of the CSTP



1 Principle Projects of Council for Science and Technology Policy 2009

The “Funding Program for World-Leading Innovative R&D on Science and Technology” was established in the first supplementary budget of FY 2009 for supporting researchers’ cutting-edge R&D activities.

To implement this program, the 150 billion YEN “Leading-edge Research Promotion Fund” was established for the Japan Society for the Promotion of Science (JSPS) until FY 2013, allowing flexible funding for research activities.

From this fund, 100 billion YEN will be appropriated for the 30 main researchers selected on September 4, 2009, upon public calls for the fund, with the objectives of (1) reinforcing Japan’s mid- to long-term international competitiveness and inherent potential and (2) returning R&D benefits to society and the public. This program differs from past programs in terms of a “support team” created by the institutions assisting the research, allowing main researchers to concentrate on their research.

The remaining 50 billion YEN will be reserved for projects selected by the public in the future, with the CSTP determining researchers and research themes with the objectives of (1) supporting young or female researchers in the community who are expected to lead global S&T research in the future and (2) promoting both green (environmental) and life innovation as posted in the “New Growth Strategy (Basic Policies).”

2 Strategic Priority Setting and Comprehensive Promotion in S&T Policy

The CSTP is strengthening initiatives in anticipation of high-quality S&T budget appropriations. In FY 2010, strategic priorities were set forth to meet the expectations of citizens by “leading the world in S&T.” Meanwhile, the CSTP also pursued new projects enhancing the transparency of the budget preparation process while assessing public opinion on S&T policies to be prioritized and inviting public discussion.

(1) Guidelines for resource allocation, including the FY 2010 budget related to S&T (Voted for on Oct. 8, 2009, supplementary recommendation)

Based on the policy of the Hatoyama Cabinet, “Resource Allocation Guidelines for the S&T Budget in FY 2010,” clarifying issues to be focused on in FY 2010 were determined and supplementary recommendations were provided to the Prime Minister and other Ministers concerned.

Following resource allocation guidelines, the CSTP requested pertinent government offices to allocate a budget and other resources mainly to high-priority projects (such as the promotion of green innovation) and to the projects needing priority in implementation (realization of health and longevity and a society that values human lives).

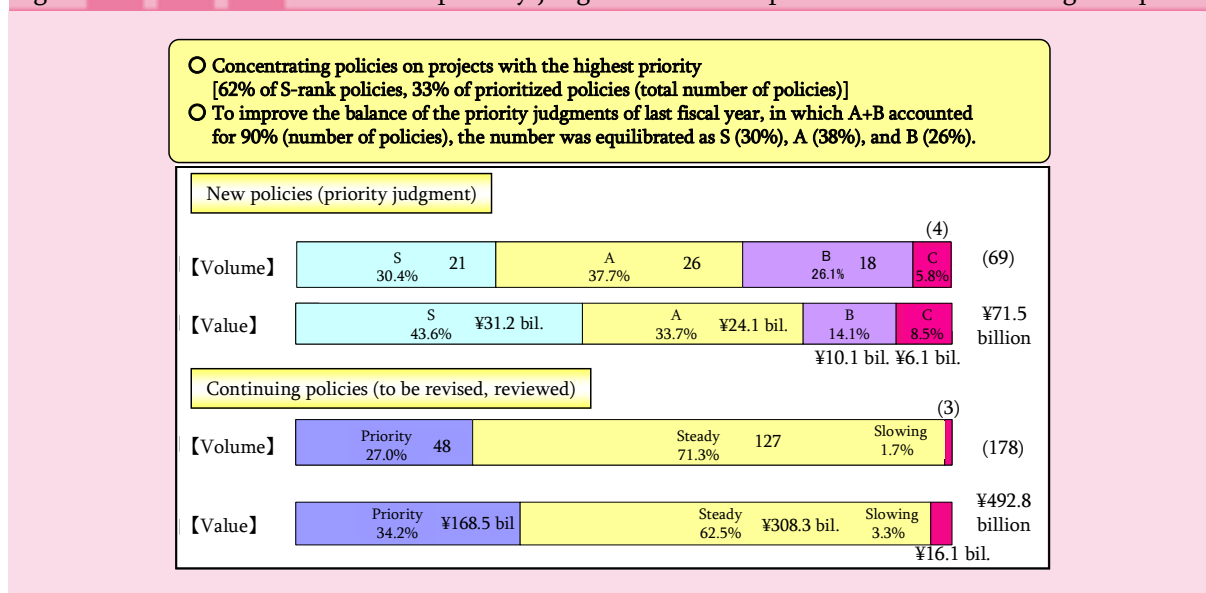
(2) Judgment on priority of S&T policies (December 2009)

The Minister of State for Science and Technology Policy and the expert Diet members from the CSTP conducted a press-released survey on S&T policy, for which relevant ministers requested

funds to allocate to high-priority policies. The Minister and CSTP team checked survey results to assess priorities, while asking for advice of external experts, and arranged the “Report on the Decision Regarding the Priority of S&T Policies in the FY 2010 Budget Request,” including an overall summary.

As a result of the priority assessments in relation to individual policies requested for the FY 2010 S&T budget, 62% of the new policies (based on total number of policies) that were evaluated as S rank were determined as the projects with the highest priority, as part of the priority promotion. (Figure 2-1-4)

Figure 2 1 4 Outline of priority judgments on S&T policies for FY 2010 budget request



(3) Assessing S&T activities in national universities, etc. and compiling opinions (December 2009)

As Independent Administrative Institutions (IAI), universities¹ which are engaged in activities related to science and technology receive “Government Subsidies for National University Corporations,” but there are limits to the extent, operations, and subsidies at the time of budget preparation. Thus, various indicators representing corporate output are investigated to facilitate adequate implementation of the Science and Technology Basic Plan.

Based on the above-mentioned investigation, expert Diet members from the CSTP sought opinions regarding the issues that have improved or need to be addressed further.

(4) In view of S&T budget preparation (Decision on Dec. 9, 2009, supplementary recommendation)

In view of budget preparation for S&T, considering also the judgments with priority, the CSTP adopted the supplementary recommendation “For S&T Budget Preparation FY 2010,” summarizing important points or points affecting budget preparation, and submitted it to the Prime Minister and other related ministers.

¹ Including Inter-University Research Institute Corporation.

(5) Efforts to set priority and enhance efficiency in S&T Budget (February 2010)

As new efforts to set priorities, enhance efficiency, increase transparency, and annualize the S&T budgeting process, the “S&T Important Policy Action Plan,” examining policies in cooperation with government offices prior to submitting a budget request, and “Basic Guidelines for Resource Allocation Policy,” indicating important issues for the next FY at budget appropriations time, were selected for inclusion in the CSTP plenary session.

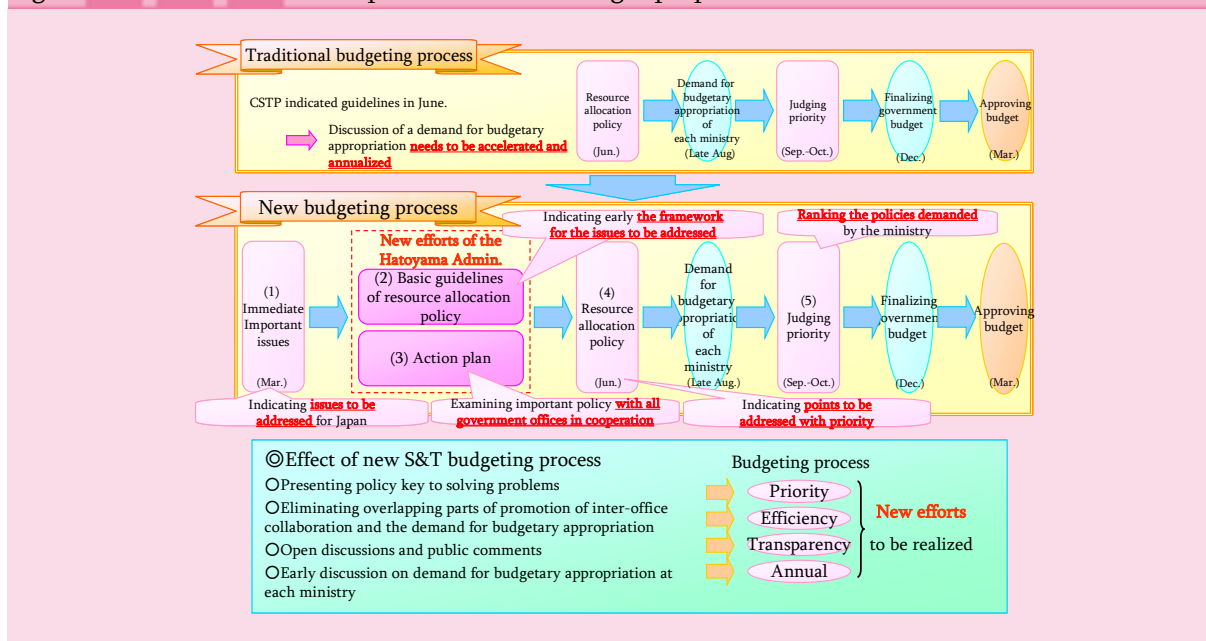
(6) Framework for setting the Action Plan

The Minister-experts working group decided on March 4, 2010, to organize the following three task forces for further discussion of the S&T important policy action plan.

- Green Innovation Task Force
- Life Innovation Task Force
- Task Force to Integrate Rules for the Use of Competitive Funds

Each task force will further examine “the indicators to measure the objectives to be achieved in relation to major policies necessary to realize principal points to be promoted in society (decided on March 25, 2010 by CSTP experts),” “major policies,” “how each innovation should be considered,” etc. They will then arrange individual policies to be incorporated in order of priority and additional policies necessary for partnership among different government offices.

Figure 2 1 5 New process for S&T budget preparation



(7) Execution of R&D evaluation

1) Follow-ups on preliminary evaluation of R&D of national importance (July 2009)

The “Regional Innovation Joint Creation Program” (Ministry of Economy, Trade and Industry), “Basic Research Promotion Program for Creation of Innovation,” and “Practical Technology Development Project for Promoting New Policy in Agriculture, Forestry and Fishery Policies”

[literal translation] (Ministry of Agriculture, Forestry and Fisheries) all received a preliminary evaluation in FY 2007. In July 2009, the Expert Panel on Evaluation interviewed the officials in the related government offices regarding the progress of implementation of R&D at the moment and the measures taken for the issues pointed out in the preliminary evaluation to confirm and to understand future issues.

2) Post-evaluation of R&D of national importance

The CSTP determined to execute a post-evaluation of the “Genome Network Project” (MEXT), which was given a preliminary evaluation by the CSTP, later completed in 2008, with investigation details examined by the Expert Panel on Evaluation.

(8) Pioneering projects for acceleration social return

Under the leadership of the CSTP, projects are implemented, with multiple ministries and public-private collaboration, to accelerate the return of research outcomes to society (dissemination) through feasibility experiments, while simultaneously conducting interdisciplinary R&D and system reform. More specifically, the following six projects are executed from FY 2008 until FY 2012.

- Realizing regenerative medicine for lost human physiological functions
- Establishing an information and telecommunication system useful at the time of disaster while delivering detailed disaster information to every citizen
- Realizing a safe and efficient road transportation system using information and telecommunications technology
- Realizing advanced home care and home nursing for the elderly, the ailing, and individuals with disabilities
- Utilizing comprehensively the biomass resources that contribute to solving environmental and energy problems
- Realizing voice communication technologies to overcome language barriers

3 Major Points to Be Discussed in Expert Panels

(1) Expert Panel on Basic Policy

The Expert Panel on Basic Policy was founded in July 2009 for sound implementation of the Basic Plan and for discussions aimed at setting forth the Basic Plan for the next term. In November, the “R&D System Working Group (WG)” was established to discuss the organization, management, and functionality of R&D institutions as well as matters related to R&D human resources and accounting systems. In January 2010, after the final discussions at “WG for discussing long-term policies for enhancement of basic research” and “WG for discussing measures to reinforce advanced S&T human resources in graduate schools,” final decisions were reached by this expert panel.

In addition, the “Expert Panel on Basic Policy Promotion,” a predecessor to this panel, executed thorough follow-ups concerning progress in implementation of policies set forth in the Basic Plan for the past three years, from 2006 through FY 2008. Furthermore, a Promotion Strategy Project Team (PT), positioned under the Expert Panel on Basic Policy, executed the following projects.

1) Follow-ups by Promotion Strategy Project Team

In relation to the implementation of the “Promotion Strategy” (Cabinet Decision of March 2006), project teams were organized for the four priority fields to be promoted (life sciences, information and telecommunications, environmental sciences, and nanotechnology/materials) and the four fields to be promoted (energy, manufacturing technology, infrastructure, and frontiers). Follow-ups were performed each fiscal year, and FY 2008 outcomes were determined in May 2009.

2) Promoting the Coordination Programs of S&T Projects

The “Coordination Programs of S&T Projects” are intended to eliminate overlapping policies executed by different ministries and to reinforce ministry partnerships to maximize the achievement of related policies. In 2009, programs were executed in six subject categories: (1) Clinical and Translational research; (2) Research on food and biological production; (3) Development of technologies for large-scale information integration and a foundation for its use; (4) Very large Information Integration and Application platform; (5) Integrated chemical risk management; and (6) Developing Nanotechnologies and engaging the public. Reports on the coordination programs are compiled upon individual completion.

(2) Expert Panel on Evaluation

Follow-ups were executed on the R&D projects of national importance, for which preliminary evaluation was executed in FY 2009. In addition, a post-evaluation plan was organized regarding the R&D of national importance completed in FY 2008. Furthermore, investigation into R&D evaluation progress by concerned ministries was executed as a follow-up of the “National Guideline on the Method of Evaluation for Government R&D.”

(3) Expert Panel on Bioethics

Investigations and discussions are conducted to address the bioethical issues accompanying the development of life sciences, such as research on utilization of human embryos. In FY 2009, the Minister of Education, Culture, Sports, Science and Technology requested advice from the CSTP regarding draft guidelines on both approval for cloned human embryo research and eased procedures for research using human ES cells. Considering the “Basic Policy on the Handling of Human Embryos” (submitted by the CSTP on July 23, 2004) and other literature, the above-mentioned guidelines were judged to be appropriate, and the CSTP submitted reports with advice on each guideline in April and July of 2009, respectively. In addition, the CSTP are currently studying findings regarding the revision of guidelines concerning germ cell production from sources such as human ES cells in response to a request from the Minister of Education, Culture, Sports, Science and Technology in February 2010.

(4) Expert Panel on Management of Intellectual Properties (IP)

This panel examines the formation of a system regarding intellectual properties (IP) for

promoting S&T policy, including principally the promotion of IP activities in universities¹. In June 2009, the panel adopted the “IP Strategies to Promote S&T Policy (2009)” [literal translation], which incorporates a variety of suggestions such as building an IP system to ensure a globally competitive edge, shifting to an innovation-promoting (pro-innovation) IP system, and enhancing the capacity to innovate intellectual properties, which are the source of national strength, and additionally provided advice to the ministers concerned. In addition, when implementing the policies set forth in the “IP Strategies to Promote S&T Policy (2009)”, follow-ups have been executed by setting up partnerships among related ministries and arranging their division of roles so that the policies requiring inter-ministry collaboration in particular would be implemented smoothly.

Section 3 Administrative Structure and Budget for S&T

1 Administrative Structure for S&T

In the national administrative structure, the Council for Science and Technology Policy (CSTP) is placed in the Cabinet Office, the operations of which include projecting plans and making overall adjustment regarding important governmental policies, with the Council providing a variety of advice on comprehensive strategies and resource allocation policies, including budget and human resources concerning promotion of science and technology. Based on its advice, the government offices concerned conduct research activities, promote research in various research programs, and develop an R&D environment at national experiment and research institutions, independent administrative institutions, universities, and so on.

The Ministry of Education, Culture, Sports, Science and Technology (MEXT) not only adjusts efforts related to the S&T of administrative institutions concerned while creating specific R&D plans for different fields and allocating the special coordination funds for promoting science and technology, but also conducts R&D in important and cutting-edge S&T fields and comprehensively promotes administrative tasks such as enhancement of creative and basic research activities. The Council for Science and Technology (CST) exists within MEXT to investigate and examine important matters related to overall promotion of S&T and other topics in general, upon request for advice from the Minister, while providing its own opinions voluntarily to the Minister. The CST's recommendations are as indicated in [Figure 2-1-6](#).

¹ Including inter-University Research Institute Corporations

Table 2 1 6 Recommendations of CST (FY 2009)

1. Title

“Basic Conception and Promotion Measures of Brain Science Research from Long-term perspective: aiming to establish comprehensive human science and to contribute to society (first report)” (Submitted on Jun. 23, 2009)

2. Recommendations

Date	Report
Aug. 7, 2009	<u>Subdivision on R&D Planning and Evaluation</u> Guidelines for implementing earth observation in Japan for FY 2010
Nov. 12, 2009	<u>Subdivision on Science</u> Summary of opinions for determining the Fourth S&T Basic Plan
Jun. 12, 2009	<u>Subdivision on Ocean Development</u> How R&D should regard exploration of marine mineral resources (interim report)
Nov. 26, 2009	<u>Technology and Research Foundation Section</u> Important considerations in determining the Fourth S&T Basic Plan
Jul. 21, 2009	<u>International Committee</u> Key future issues concerning promotion of S&T international activities (Interim report)
Nov. 30, 2009	Key future issues concerning promotion of S&T international activities; Future roles and challenges for Japan in the turbulent world
Aug. 31, 2009	<u>Committee on Human Resources</u> To promote training of human resources and their active roles in leading the intellectual infrastructure society
Dec. 25, 2009	<u>Special Committee on Basic Plan</u> For comprehensive S&T strategies with a middle- to long-term perspective of Japan; important policies governing the post-3rd S&T Basic Plan

In recent years, inter-ministerial liaison committees have been formed concerning a variety of research fields and related policies to promote establishment of guidelines, information exchange on research progress, and communication among researchers.

In addition, the Science Council of Japan (SCJ), comprised of 210 members and about 2,000 associate members, is placed under the authority of the Prime Minister as an institution representing Japan’s scientific community, engaging in policy suggestions, examining important matters related to science, facilitating collaboration with the scientific community or international academic institutions, and enhancing public awareness regarding the role of science. (Table 2-1-7)

Table 2 1 7 21st president and vice presidents of SCJ

President	Ichiro Kanazawa
Vice president (Organizational management)	Shinichiro Ohgaki
Vice president (Contacts with government)	Kotaro Suzumura
Vice president (International activities)	Hideaki Karaki

2 S&T Budget

The S&T expenditure in Japan's initial budget for FY 2009 was 3.564 trillion YEN, of which 3.019 trillion YEN was appropriated for the general account budget and 544.9 billion YEN for the special account budget. The funds for promoting S&T, which represent the principal expenditure in the general account, amounted to 1.378 trillion YEN. (Table 2-1-8)

Table 2 1 8 Trends in S&T expenditure

(Unit: 100 million yen)

Fiscal year		FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Item							
Funds for promoting S&T (A)		12,841	13,170	13,312	13,477	13,628	13,777
Comparison to previous year %		104.4	102.6	101.1	101.2	101.1	101.1
Other research expenditure (B)		16,823	16,345	16,667	16,428	16,770	16,414
Comparison to previous year %		256.7	97.2	102.0	98.6	102.1	97.9
S&T expenditure in general account (C) = (A) + (B)		29,664	29,515	29,979	29,905	30,398	30,191
Comparison to previous year %		157.4	99.5	101.6	99.8	101.6	99.3
Special account: S&T expenditure (D)		6,419	6,264	5,764	5,208	5,310	5,449
Comparison to previous year %		37.5	97.6	92.0	90.4	102.0	102.6
S&T expenditure (E) = (C) + (D)		36,084	35,779	35,743	35,113	35,708	35,639
Comparison to previous year %		100.3	99.2	100.1	98.2	101.7	99.8
National budget for general account (F)		821,109	821,829	796,860	829,088	830,613	885,480
Comparison to previous year %		100.4	100.1	97.0	104.0	100.2	106.6
National general appropriation (G)		476,320	472,829	463,660	469,784	472,845	517,310
Comparison to previous year %		100.1	99.3	98.1	101.3	100.7	109.4

Source: Prepared by MEXT

The S&T expenditure at each government office is indicated in Table 2-1-9.

In Japan, science and technology are overseen by several relevant ministries. To promote S&T efficiently and effectively while maintaining consistency nationwide, it is necessary to develop S&T-related policies in relevant ministries while eliminating redundancies, and making appropriate adjustments, such as strengthening partnerships among offices, based on the guidelines set forth by the CSTP.

For that purpose, MEXT compiles information regarding budgetary appropriation requests from relevant ministries while making efforts to eliminate redundancies among ministries through coordination with them.

Figure 2 1 9 S&T expenditure at each government office

(Unit: million yen)

Item	FY 2008				FY 2009			
	Funds for promoting S&T	Other S&T expenditure in general account	Other S&T expenditure in special account	Total S&T expenditure	Funds for promoting S&T	Other S&T expenditure in general account	Other S&T expenditure in special account	Total S&T expenditure
Diet	1,108	47	—	1,155	1,108	18	—	1,126
Cabinet Secretariat	—	63,774	—	63,774	—	64,264	—	64,264
Cabinet Office	14,520	3,621	—	18,141	14,620	3,403	—	18,023
National Police Agency	2,141	307	—	2,448	2,134	266	—	2,400
Ministry of Internal Affairs and Communications	49,243	17,391	4,200	70,834	48,168	20,100	2,600	70,868
Ministry of Justice	—	6,327	—	6,327	—	6,350	—	6,350
Ministry of Foreign Affairs	—	11,934	—	11,934	—	12,627	—	12,627
Ministry of Finance	1,171	333	—	1,504	1,142	328	—	1,470
Ministry of Education, Culture, Sports, Science and Technology	861,864	1,308,948	147,407	2,318,218	875,392	1,319,376	146,576	2,341,343
Ministry of Health, Labour and Welfare	113,530	1,439	21,455	136,424	114,530	1,340	19,211	135,081
Ministry of Agriculture, Forestry and Fisheries	118,704	11,481	1,400	131,585	118,650	15,464	900	135,014
Ministry of Economy, Trade and Industry	147,696	42,889	322,128	512,714	148,673	36,976	345,905	531,554
Ministry of Land, Infrastructure, Transport and Tourism	31,769	20,703	26,103	78,575	31,979	24,961	20,116	77,056
Ministry of the Environment	21,033	3,717	8,327	33,076	21,263	4,201	9,545	35,010
Ministry of Defense	—	184,088	—	184,088	—	131,745	—	131,745
Total	1,362,778	1,676,999	531,020	3,570,796	1,377,658	1,641,420	544,852	3,563,929

Source; Prepared by MEXT