

Section 2 Promotion of Effective STI policies

The 4th Basic Plan positions STI policies as a part of “policies for society and the general public” and promotes the planning of policies based on objective evidence, establishment of the PDCA cycle, and innovation of the R&D system.

1 Enhancement of Policy Planning, Making and Promotional Functions

In the 4th Basic Plan, from a viewpoint of positioning STI policies as a national strategy and their more intensive promotion, the government will establish a "STI Strategic Headquarters (tentative name)" by strengthening overall coordinating functions and reorganizing the Council for Science and Technology Policy (CSTP), in order to greatly strengthen the functions of policy planning and promotion.

(Experts' workshops to promote STI policies)

The cabinet office held the “Experts' Workshop on Science, Technology and Innovation (STI) Policy Promotion,” composed of experts in various fields, five times from November 11 to December 19, 2011, under the Minister of State for Science and Technology Policy to review the system plan for promoting STI policies. The report from this committee (December 19, 2011) proposes strengthening the function of the “Control Tower” for STI policies.

(Strategic funds for the promotion of S&T)

The government established Strategic Funds for the Promotion of Science and Technology in 2011 to strategically promote STI policies. These funds are used for necessary measures taken to implement policies planned based on the comprehensive review of measures taken by ministries and agencies by CSTP. MEXT performs administrative work in accordance with the policies made by CSTP. In addition, in response to the environmental impact by radioactive substances released by the Accident at TEPCO Fukushima Daiichi NPS, MEXT flexibly promoted investigations and research on distribution conditions of radioactive substances and development of technologies to remove radioactive substances in agricultural lands.

(Science for RE-designing Science, Technology and Innovation Policy: (SciREX) program)

MEXT, in cooperation with the National Institute of Science and Technology Policy (NISTEP), the Research Institute of Science and Technology for Society (RISTEX), and the Center for Research and Development Strategy (CRDS) has implemented the “SciREX” program since 2011, and it is aimed at realizing “objective evidence-based policy making,” where effective policies are made to respond to issues, drawing on a multifaceted grasp and analysis of economic, social and other factors (Figure 2-5-1). MEXT promotes the program by holding the “SciREX Steering Committee” which integrates programs as a whole and gives advice on basic procedures for carrying out programs and other issues that affect each program.

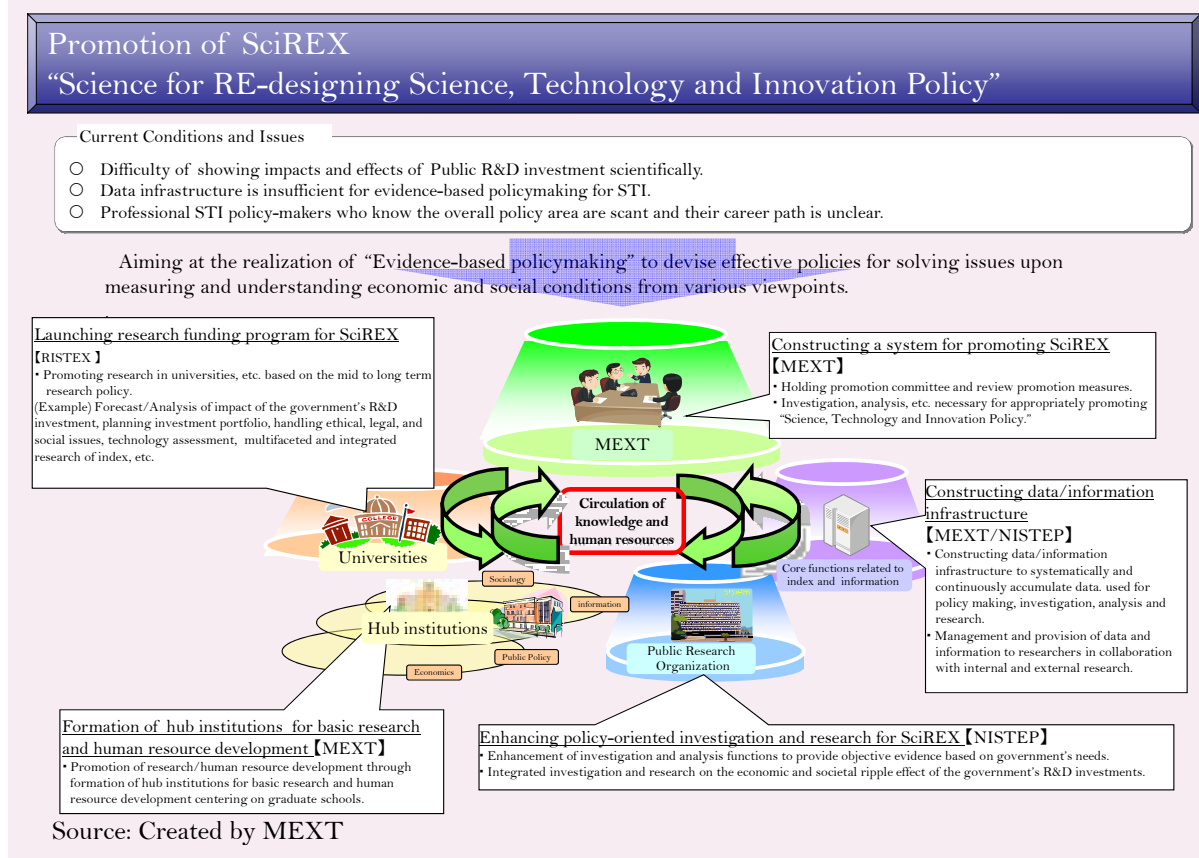
MEXT creates hub institutions (universities) for the development of policy-makers to conduct policy-forming based on objective evidence and researchers that will lead the development of the frontiers

of emerging research field of SciREX. In addition to create hub institutions, MEXT constructs a community of SciREX by establishing a broad network among hub institutions and other universities etc. In 2011, five hub institutions (six universities) were selected among 16 entries in response to public invitations for universities: National Graduate Institute for Policy Studies, The University of Tokyo, Hitotsubashi University, Osaka University (Kyoto University), and Kyusyu University.

The NISTEP conducts investigations and analysis based on the government needs, such as the investigation and research of economic and societal ripple effects caused by government R&D investments. In addition, it has been constructing data/information infrastructure to systematically and continuously manage and accumulate data used for policy making, investigation, analysis, and research concerning STI.

The RISTEX, aims to contribute to mid-term and long-term policies, and understands and analyzes social issues, the present situation and possibilities of S&T required to deal with those issues. Based on this evidence, RISTEX supports activities to research and develop measures and indices to develop policies through rational processes. RISTEX supports them through the public offering projects. In 2011, six R&D projects and two project planning investigations were adopted out of 56 entries.

Figure 2-5-1/ Promotion of Science for RE-Designing Science, Technology and Innovation Policy



2 Enhancement of the Assessment and Allocation Functions in the Research Funding System

(1) System reform for effective and efficient judgment and allocation of research funds

Based on Basic Policy¹, the government will consolidate research funding systems across ministries and agencies, in order to combine those that have similar purposes or similar focuses in R&D. The government promotes efficient R&D through system reform, such as consolidation of 17 competitive fund systems into five systems, abolishment of Special Coordination Funds for Promoting Science and Technology in MEXT, and consolidation of three competitive fund systems into two in MOE.

In order for research funds to be convenient to use and effective, based on “2011 Action Plans for Science and Technology Priority Measures” (July 2010), efforts to streamline and standardize documents required for carry-over, and efforts to unify rules for the use of the competitive funds are being made in all relevant ministries, agencies and fund distribution organizations, that fall under the leadership of Council for Science and Technology Policy (CSTP).

¹ The report on Consultation No. 11 “Japan’s Science and Technology Basic Policy Report” requested to CSTP (December 24, 2010).

Column
2-8

Reform of multi-year research funds in Grants-in-Aid for Scientific Research Program (foundation)

The Grants-in-Aid for Scientific Research Program (hereinafter referred to as KAKENHI) is the largest competitive fund system¹ that subsidizes funds necessary for researches based on researcher's creative ideas (scientific research), and the various results of these researches fosters seeds of innovation, and leads to breakthroughs in S&T that contribute to society.

In 2011, so as to allow researchers a flexible usage of their grants in a long span, the relevant laws were amended and the innovative system reform, a creation of the "Grants-in-Aid Fund" within the Japan Society for the Promotion of Science, was realized.

Although most research with KAKENHI continues over multiple years, grants were disbursed as single-year research funds because Japan's accounting system is based on the single-year budgeting system. Meanwhile, scientific research supported by KAKENHI, which started with a certain plan, does not necessarily follow the initial research plan, and moreover, unexpected discoveries often lead to new breakthroughs; therefore, research funding system on a single-year basis can sometimes limit the research. Although it was possible to carry over funds to the next fiscal year in the previous system, there were complicated processes in which researchers needed prior procedures and had to return the surplus of research funds to the government once before carrying those funds over to the next fiscal year. Researchers strongly hope for the flexibly to carry over KAKENHI to the next fiscal year without these procedures and to use funds ahead of schedule when research progresses faster than planned.

In this light, from 2011, the "foundation" that allows many researchers to use multi-year funds were introduced in three small-scale research categories: Scientific Research (C), Challenging Exploratory Research, and Grant-in-Aid for Young Scientists (B). This "foundation" is targeted for new research projects adopted in FY 2011 or later, and is applied to approximately 80% of the newly adopted research projects funded by KAKENHI.

Advantages of the KAKENHI "foundation" are as follows:

- *It becomes possible to conduct research scheduled for the next year or later ahead of schedule when the research progresses faster than planned, thus energizing research activities,
- *It becomes possible to procure goods across fiscal years and eliminates wasteful "year-end spending" of research funds, which leads to efficient and effective grants usage.
- *Researchers can advance research without worrying about when fiscal years end, and can concentrate on research without the burden of prior carry-over procedures that were previously needed to carry over research funds to the next year.

In severe financial conditions, further activation of research activities, effective and efficient use of research funds, and development of various scientific researches can be expected through the expansion of funds and through a system of reform that allows flexible use of research funds over multiple years.

	1 st year	2 nd year	3 rd year	4 th year
Scheduled grant usage	1 million yen	1 million yen	1 million yen	1 million yen
Actual usage based on needs	1.3 million yen	0.7 million yen	0.8 million yen	1.2 million yen

↙ 0.3 million yen
↘ 0.2 million yen

Drawn forward by request
Carried over without any processing

Image of research funding improvement by "Foundation"

Source: Created by MEXT

(2) Improvement and enhancement of the competitive fund system

The competitive fund system is a core research fund system for the establishment of a competitive research environment and for the consistent development and ongoing commitment of researchers to various and creative R&D activities. Until now, efforts have been made to secure budgets and improve and enhance the system (Budget in 2011: 451.4 billion yen. Table 2-5-2).

¹ KAKENHI (263.3 billion yen) accounts for about approximately 60% of the entire budget for competitive funding in Japan.(approximately 451.4 billion yen).

Concerning indirect costs, in the competitive fund system, a fixed percentage of the research grant is allocated to institutions that employ researchers who have won competitive funds in an attempt to promote competitiveness among research institutions. Also, the government has been striving to implement action for securing 30% of the direct costs.

Regarding R&D management work including public invitation and the application of competitive funds, the “cross-ministerial research and development management system (e-Rad)” is used to improve convenience for researchers and to avoid illogical overlaps and excessive concentration of fund allocations.

In order to ensure fair, transparent, and high quality examination and evaluation of research proposals, the government ensures diversity in age, gender and affiliation of examiners. It also aims to eliminate stakeholders, develop an examiner evaluation system, specify methods and criteria for examination and adoption, and disclose examination results.

For example, the examination of KAKENHI applications is done via a process of peer review conducted by more than 6,000 examiners.

JSPS selects examiners by carefully avoiding too much concentration on certain research organizations and considering the aggressive promotion of young and female researchers using the database of examiner candidates (59,000 registered names as of 2010). The disclosure of examination results and associated information has been improved year by year. In addition to numerical information, such as roughly ranking all unsuccessful research subjects and the average score of each evaluation element, detailed items in each evaluation element that examiners have judged as inadequate are disclosed in order to give applicants a more detailed evaluation of the results. In the “Analytical Report for 2010 Expert Survey on Japanese S&T System and S&T Activities by Fields” (May 2011, National Institute of Science and Technology Policy), the examination of KAKENHI is evaluated as “fair and highly transparent for applications.”

As for measures to prevent the inappropriate use of competitive funds and other public research funds, CSTP provided common “measures to prevent inappropriate use of research funds” (August 31, 2006) and MEXT created the implementation standards, “Guidelines for Management and Audit of Public Research Funds at Research Institutions (implementation standards)” (February 15, 2007) to call for research institutions to establish necessary systems. MEXT assesses the situation through a “Self-Assessment Checklist on the Improvement of the System and Other Matters” submitted by research institutions. The assessment includes on-site investigations, seminars for research institutions, and annual disclosure of a report summarizing the analysis results of the checklist in order to steadily promote activities that prevent the fraudulent use of funds.

MAFF informs the screening and evaluation committee of research subjects and objectives, and the committee then screens subjects for adoption and evaluates implemented subjects. Improvement points and other feedback based on results of interim and annual evaluations are conveyed to the researchers by program officers who consistently control research subjects to ensure that research plans are implemented in accordance with the objective of these projects. In particular, for research subjects in the interim evaluation, instructions including a review of the research plan are given to the researchers according to the progress of their research subjects. Measures, such as the prompt posting of screening results at each stage on the website¹, have been taken in order to further visualize the screening process of adopting

¹ http://www.s.affrc.go.jp/docs/research_fund.htm

subjects.

Table 2-5-2 / List of Competitive Funds

Ministry/ Agency	Sponsor	Program	Program outline	FY 2010 Budget (Unit: million yen)	FY 2011 Budget (Unit: million yen)
CAO	CAO	Research and development programs for food safety risk assessments	To implement relevant studies and research by contracting with researchers toward setting forth guidelines and standards on risk assessments, aimed at promoting science-based risk assessments for food safety.	343	242
Cabinet Office, Government of Japan Subtotal				343	242
MIC	MIC	Strategic Information and Communications R&D Promotion Program (SCOPE)	To publicly invite proposals for unique and novel research subjects in the field of information and communications technologies from various fields including universities, independent administrative agencies, corporations, research institutions of local authorities, and to offer contract research to the institutions after competitive selection by external evaluation committee so that these persons implement research of advanced technology with self-direction.	1,787	1,654
MIC	MIC	Promotion program for Reducing global Environmental load through ICT innovation	To promote R&D from ICT seeds to create ICT innovation realizing significant reduction in CO ₂ emission. Excellent projects are selected from proposals invited publicly by an external evaluation committee, and the R&D is implemented intensively during the period of the first committee of the Kyoto Protocol.	566	868
MIC	National Institute of Information and Communications Technology	Financial aid for promotion of advanced technology development in telecommunications and broadcasting	To create new businesses in the communications and broadcasting sectors by supporting private-sector companies, including venture companies engaged in R&D activities related to advanced technology.	210	151
MIC	National Institute of Information and Communications Technology	Program for Promotion of Private-Sector key Technology Research	To invite proposals for experimental and research themes related to communications and broadcasting technologies from the private sector and to entrust the private-sector companies with experiments and research concerning selected themes in order to promote investigational efforts that will help strengthen the foundation of the national economy and people's lives.	1,400	-
MIC	Fire and Disaster Management Agency	Promotion Program for Fire and Disaster Prevention Technologies	In order to promote science and technology related to the prevention /mitigation of fires and other disasters to yield a safe and comfortable society, research is conducted on actual disaster prevention /mitigation activities while pursuing relevant technologies and promoting industry-academia-government coordination and research activities by local government.	254	159
Ministry of Internal Affairs and Communications Subtotal				4,217	2,832
MEXT	MEXT/JSPS	Grants-in-Aid for Scientific Research (KAKENHI)	The Grants-in-Aid for Scientific Research aims to advance academic research (research based on researcher's creative ideas) across all fields including the humanities and social sciences as well as natural sciences, including basic and applied research. The program supports creative and pioneering research that will support the foundation of a rich society. From FY 2011, the "Grants-in-Aid for Scientific Research" were created within the Japan Society for the Promotion of Science, and the system reform (foundation) that allows using research funds in multiple years was realized for newly adopted subjects of a part of categories.	200,000 (Grants allocated to researchers: 200,000 (Note 1))	263,300 (Grants allocated to researchers: 220,363 (Note 1))
MEXT	JST	Strategic Basic Research Programs (Note2)	To create a timed research system beyond the frame of organizations (virtual institute) in line with the policy set by the government based on social and economic needs, to promote R&D for creation of new technology contributing to important issues.	-	56,749
MEXT	JST	Strategic Basic Research Programs (including research and development projects of science and technology for society)	To promote basic research on "strategically prioritized S&T" topics in line with the "strategic sector" set by the government, supporting social and economic needs, to further advance S&T and create new technologies leading to creation of new industries.	52,519	-
MEXT	JST	Advanced Low Carbon Technology Research and Development Programs	To enable continuous and steady reduction of greenhouse gas emissions during the mid to long term, to promote research and development of innovative technology (Game changing technology) that would significantly reduce greenhouse effect gas emissions and to change existing technologies based on new scientific and technological knowledge.	2,500	-
MEXT	JST	Industry-Academia Collaborative R&D Programs (Note 3)	To promote R&D utilizing intellectual properties conducted by selected companies and universities (researchers) and R&D utilizing a platform conducted by multiple academic researchers and the industry, in order to create innovation by promoting practical application of academic research output through industry-academia collaboration.	-	22,895
MEXT	JST	Adaptable and Seamless Technology Transfer Program for Target-driven R&D (A-STEP)	To comprehensively and seamlessly promote industry-academia collaborative research by setting appropriate funding plans meeting the characteristics of each situation and issues of seeds search which examines the realization of joint R&D aiming at actual implementation.	16,580	-
MEXT	JST	Industry-Academia Innovation Acceleration Project	To promote effective industry-academia projects which specifically and effectively speed up innovations such as R&D strengthening foundations of basic research and technological research, and large-scale industry-academia R&D.	6,224	-
MEXT	JST	International Collaborative Research Program (Note 4)	To promote international S&T research partnerships with developing Asian and African countries by utilizing Japan's excellent S&T in cooperation with ODA, to solve world-wide issues in the fields of environment, energy, disaster management, infectious diseases, and biological resources. To promote international joint research in the target countries, regions and fields, which the government specified as strategically important, based on intergovernmental agreements, aiming at constructing developed countries including Europe and the U.S., and	-	2,877

MEXT	JST	Science and Technology Research Partnership for Sustainable Development	East Asia Science & Innovation area. To promote international S&T research partnerships with developing Asian and African countries by utilizing Japan's excellent S&T in cooperation with ODA, to solve world-wide issues in the fields of environment, energy, disaster management, infectious diseases, and biological resources.	1,807	-
MEXT	JST	Strategic International Cooperative Program (Joint Research Type)	To promote international joint research in the target countries, regions and fields, which the government specified as strategically important, based on intergovernmental agreements.	417	-
MEXT	MEXT	Core National Research & Development Promotion (Note 5)	A competitive fund to adopt excellent proposals for research activities targeted for implementation by the government, with a view to realizing S&T policies.	-	20,436
MEXT	MEXT	Promotion of R&D for Key Technologies	To promote R&D in the fields of 1) life sciences 2) information communications 3) Nanotechnology and Materials in the competitive environment in order to advance R&D on key technologies playing a core role for Japan's sustainability and development, such as facilitating activities for Japan's economic development and securing safety and security.	18,349	-
MEXT	MEXT	Program for Promotion of Humanities and Social Sciences to Satisfy Policy and Social Demands -Program for promoting social science research aimed at solutions of near-future problems-	To implement solution-oriented research by assembling researchers from various fields, especially the social sciences, and by applying empirical research methods to problems that Japan will face in the near future. The results will be actively offered as proposals to society.	114	-
MEXT	MEXT	Development of Environmental Technology using Nanotechnology	To promote basic R&D of environmental technologies through improving problem-solving type research centers, to utilize the potential of nanotechnology research as a breakthrough, in which Japan has great potential	410	-
MEXT	MEXT	Program for the Development of Advanced Sensor Technologies to Search for Marine Resources	To promote technology development for tools, such as sensors, to help acquire high-precision data on existing amounts of marine resources such as submarine hydrothermal deposits and cobalt rich crust.	700	-
MEXT	MEXT	Coordination funds for promoting space utilization	With a view of creating markets for industrial space use, to implement R&D on issues that were adopted after a review by outside experts, to expand base of space use by developing the use of satellites under the competitive environment existing among industry, academia, and government.	492	-
MEXT	MEXT	Innovative Nuclear Research and Development Program	To implement, amid a competitive environment, R&D related to nuclear reactor and fuel cycle technologies targeted for promotion by the government, plus related basic research, with a view to realizing an innovative nuclear system.	4,144	-
MEXT	MEXT	Initiatives for Atomic Energy Basic and Generic Strategic Research [literal translation]	To promote research by setting more strategic program themes based on policy needs, in basic and generic strategic research for the use and development of atomic energy.	997	-
MEXT	MEXT	Global COE Program (NOTE6)	To support the formation of excellent world-class education and research centers. In particular, to emphasize the development of young researchers and the formation of international centers.	26,474	-
MEXT	MEXT	World Premier International Research Center Initiative (WPI) (Note 6)	To establish "visible centers" which boast excellent research environments and an elevated research level to attract front-line researchers from all over the world by strongly supporting initiatives boosting formation of research centers with a core of high-level researchers and by prompting the introduction of system reform.	7,283	-
MEXT	MEXT	Program for the Promotion of Improvement of Distinctive Joint Research Centers (Note 6)	To develop Joint Usage/ Research Center for distinctive subject areas, including the humanities and social sciences, utilizing maximized potential of existing organizations with extensive scholarly literature and data, etc., to develop Joint Usage/Research Center	430	-
MEXT	MEXT	Special Coordination Funds for Promoting Science and Technology	A competitive, policy-guided fund which is operated by MEXT in line with CSTP. Toward the full-scale execution of the Third Basic Science and Technology Plan, public participation related to science and technology system reform will be invited for agile and strategic utilization.	29,643	-
MEXT	MEXT	Japan EOS Promotion Program	To conduct technology development and observational research in fields where Japan should play the leading role, based on proposals selected from public submissions, with a view to the establishment of a global observation system advocated by the Earth Observation Summit.	35	-
Ministry of Education, Culture, Sports, Science and Technology Subtotal				369,120	366,257
MHLW	MHLW	Health and Labour Sciences Research Grants	To provide grants to researchers in universities to enhance their technical level and to maintain scientific promotion of administrative policies regarding medical care, welfare, and hygiene for people.	43,389	37,551
MHLW	Pharmaceuticals and Medical Devices Agency	Program for Promotion of Fundamental Studies in Health Sciences	To promote research to establish a broad technical foundation for development and discovery of innovative medicines, based on seeds and know-how of universities and public research institutions.	6,301	4,599
Ministry of Health, Labour, and Welfare Subtotal				49,690	42,150
MAFF	MAFF	Research and development projects for application in promoting new policy of Agriculture Forestry and Fisheries	To promote technology development for practical application by using the proposal and public participation method in order to promote agricultural, forestry, and fishery policies and solve field problems, for agriculture, forestry and fisheries, and food industry development as well as regional revitalization.	6,183	5,151
MAFF	National Agriculture and Food Research Organization	Program for Promotion of Basic and Applied Researches for Innovations in Bio-oriented Industry	To supply funds for the development of technology seeds leading to the creation of new technology and business in the agriculture, forestry, fishing, and food industries, plus R&D to yield applied results by inviting proposals from the public.	5,994	5,565

Ministry of Agriculture, Forestry, and Fisheries Subtotal				12,178	10,716
METI	NEDO	Support fund for industrial technology research	To invite research theme proposals from young researchers at universities, incorporated administrative agencies, etc., fund individual research efforts to discover technology seeds and develop human resources that meet the needs of the industrial sector as well as society from the viewpoint of enhancing Japan's success in industrial technology.	3,092	2,628
METI	NEDO	Grant for Practical Application of University R&D Results under the Matching Fund Method	To provide financial aid for industry-academia joint R&D projects aimed at commercialization of university research results.	1,242	518
METI	NEDO	Research and Development Program for Innovative Energy Efficiency Technology	Commission and support energy saving technology development aimed at innovative technology research and leading research aimed at practical application/demonstration.	7,000	10,200
METI	METI	Regional Innovation Creation R&D Program	To implement R&D by establishing research entities blending regional resources for the purpose of regional economy revitalization by new business and industry creation.	3,382	1,000
METI	Japan Oil, Gas and Metals National Corporation	R&D for Promotion of Oil and natural gas development	To conduct basic to applied research, based on proposals selected from public submissions, for unique and innovative technologies concerning oil and natural gas exploration and development.	267	80
Ministry of Economy, Trade, and Industry Subtotal				14,982	14,426
MLIT	MLIT	Construction Technology Research and Development Subsidy Program	To publicly invite proposals from researchers concerning research and development of technologies contributing to the sophistication and enhancement of international competitiveness of construction technologies.	250	250
MLIT	Japan Railway Construction Transport and Technology Agency	Program for Promoting Fundamental Transport Technology Research	To seek to establish new technologies contributing to traffic safety, the preservation of the environment and the development of advanced traffic services by publicly inviting unique and innovative research proposals.	273	270
Ministry of Land, Infrastructure, Transport and Tourism Subtotal				523	520
MOE	MOE	Environmental research and technology development fund (Note 7)	To promote R&D by commissioning environmental researches on relevant R&D to institutions such as experimental research institutions, which employ researchers who submitted superior proposals utilizing wisdom in industry, academia, and governments.	5,269	8,007
MOE	MOE	Research grants for promoting the sound material-cycle society	To promote research on S&T related to treatment of disposals, and then to promote administrative policies regarding the safety and appropriate treatment of disposals and the formation of a recycling society. Also, to support enhancement of technical capabilities.	1,738	-
MOE	MOE	Program for development of technology to prevent global warming	To invite proposals from many areas of society and to commission (partially funded) to the public such as private corporations for R&D on technology to reduce emissions of energy-derived CO ₂ which needs to and can be realized at an early stage.	5,022	6,200
Ministry of the Environment Subtotal				12,029	14,207
Total				463,082	451,350

* The accumulations and the numbers in the totals may not match due to the rounding of.

* Apart from this list, using the "Leading-edge Research Promotion Fund" established in 2009, the "Funding Program for World-Leading Innovative R&D on Science and Technology" (100 billion yen), and the "Funding Program for Next Generation World-Leading Researchers" (50 billion yen) have been implemented as projects through FY 2013.

Note 1: The budget does not represent the grants of said fiscal year because research expenditures used for the next fiscal year or later are included in the budget (foundation part) due to the introduction of "foundation" in part of the categories in FY 2011. Therefore, both budgets and grants are specified.

Note 2: The Strategic Basic Research Programs (including research and development projects of science and technology for society) and the Advanced Low Carbon Technology Research and Development Programs were regrouped as the Strategic Basic Research Programs in FY 2011.

Note 3: The Adaptable and Seamless Technology Transfer Program for Target-driven R&D (A-STEP) and the Industry-Academia Innovation Acceleration Project were reorganized as the Adaptable and Seamless Technology Transfer Program for Target-driven R&D (A-STEP) in FY 2011.

Note 4: The Science and Technology Research Partnership for Sustainable Development and the Strategic International Cooperative Program (Joint Research Type) were regrouped as the International Collaborative Research Program in FY 2011.

Note 5: The Promotion of R&D for Key Technologies, the Program for Promotion of Humanities and Social Sciences to Satisfy Policy and Social Demands (a program for promoting social science research aimed at solutions of near-future problems), the Development of Environmental Technology using Nanotechnology, the Program for the Development of Advanced Sensor Technologies to Search for Marine Resources, the Coordination Funds for Promoting Space Utilization, the Innovative Nuclear Research Development Program, and the Initiatives for Atomic Energy Basic and Generic Strategic Research [literal translation] were reorganized as the Core National Research & Development Promotion in FY 2011.

Note 6: Changed to non-competitive type funding in FY 2011.

Note 7: The Environmental research and technology development fund and the research grants for promoting the sound material-cycle society were consolidated in FY 2011.

Source: Created by MEXT

3 Enhancement of R&D Implementation Systems

(1) Reform of the R&D Corporation

The R&D Corporation refers to 37 corporations in the Research and Development Enhancement Act (as of November 1, 2011) as independent administrative institution which carries out R&D, etc. During the additional resolution of the Upper and Lower Houses, when this act was formed, it was agreed to consider the most appropriate modalities of the R&D Corporation. Moreover, In reference to the "Basic Policy on Review of Administrative Systems/Projects of Independent Administrative Agencies" (Decided by the Cabinet on December 7, 2010), the government will establish a new system concerning national R&D institutions to achieve reform, etc. in organizational governance and management and strengthen the R&D Corporation function, considering the characteristics of R&D (long-term nature, uncertainty, unpredictability, and expertise).

On January 20, 2012, the government made a Cabinet decision concerning the "Basic Policy on Review of Administrative Systems / organization of Independent Administrative Agencies" ,in which a "Corporation type whose important policy objective is maximization of R&D achievement contributing to the public interest" whose content is to be established governance focusing on characteristics of R&D, is positioned as an "R&D type" in the new corporation system. Based on this, the government made a Cabinet decision concerning a "bill for partial amendment of the Act on General Rules for Incorporated Administrative Agencies" on May 11th. In this bill, the administrative agency whose objective is to maximize output of administration systems and projects related to R&D contributing to the public interest, is positioned as the "National R&D Administrative Agency (literal translation)," and rules based on R&D characteristics, such as the establishment of the advisory council for the evaluation of R&D and the assignment of foreigners to the committee, and the change of the upper limit of the mid-term objective period from five years to seven years, are incorporated. In implementing the Act on General Rules after amendment, consideration shall be given to characteristics of administrative systems and projects of administrative agencies, including the National R&D Administrative Agency.

In the "Liaison Committee to Review Appropriate Procurement in R&D Program" and the "Study Committee for Appropriate Procurement in R&D Program," the modalities of procurement considering characteristics of R&D projects were reviewed. On December 1, 2011, both committees summarized the "Appropriate modalities of Procurement in R&D program (interim report)" and recognition of rational and effective contract methods, which support the characteristics of R&D was shared among agencies. Based on this interim report, efforts will be made to realize both the maximization of research output and efficiency of procurements through the following methods: 1. Trial implementation of more rational and effective contract methods and its analysis and evaluation, 2. Establishment and operation of information sharing system, 3. Understanding and improvement of the current status of competitive bidding, 4. Consideration of standards that can be by optional contract, 5. Review of system and operation of the government procurement.

(2) Development of a system for promoting research activities effectively

In order for universities and public research institutions to promote research activities effectively and efficiently, it is necessary to develop, in addition to researchers, a system enabling active employment for

various personnel specialized in management of overall research activities, management/ operation of intellectual properties, maintenance/management of facilities and equipment, etc. However, it is pointed out that each research institution is insufficient in securing specialized personnel and that researchers do not have enough time for their research. In response, the government will strengthen efforts to improve these conditions.

With these situations, MEXT supports fostering and securing human resources who conduct research management in universities and other institutions (University Research Administrator) (refer to Part 2, Chapter 5, Section 1, 1 (3)).

In order to create industries with international competitive strength, the Japan Patent Office has dispatched intellectual property management experts, “Intellectual Property Producers” to universities and R&D consortiums where public funds are injected and innovative output is expected through the National Center for Industrial Property Information and Training

4 Establishment of PDCA Cycle in STI Policy

(1) Ensuring the effectiveness of PDCA cycle

In order to promote STI policies effectively and efficiently, it is necessary to set clear performance targets, such as policies, measures and implementation systems. It is also necessary to appropriately conduct timely follow-ups, to ensure progress, and to reflect upon results in reviews of policies and resource allocation. Finally, it is necessary to plan new policies by establishing the PDCA (Plan-Do-Check-Action) cycle. For this reason, the government will promote efforts for ensuring the effectiveness of the PDCA cycle.

In the “Toward Formulation of the Science and Technology Budget for FY 2012” (December 15, 2011 Decision by CSTP), it is agreed that CSTP will make efforts for the establishment and further prioritization of the PDCA cycle through activities such as “grasp and review” measures conducted by ministries and agencies concerned in order to steadily implement policies concerning the Action Plan and the priority policy package necessary to achieve this goal.

(2) Improvement and enhancement of R&D evaluation systems

In order to effectively and efficiently promote internationally high level R&D which contributes to both society and the economy, and to the development of new science fields, it is important to further improve the R&D evaluation system.

All ministries and agencies conduct R&D evaluation, based on their own detailed guidelines which specify evaluation methodologies that have been formulated in accordance with the National Guideline on the Method of Evaluation for Government R&D (October 31, 2008 decision by Prime Minister). In the evaluation committee of CSTP, a study is in progress that will further improve and enhance the R&D evaluation system in order to respond to the integrated development of STI policies and the establishment of the PDCA cycle, under the premise of revising the National Guideline

As to specific measures, MEXT formulated the “Guideline for Evaluation of Research and Development in MEXT” (February 17, 2009 decision of Minister of MEXT) and evaluation is conducted in accordance with the objective, political position, scale, etc., of each research project. It is based on the nature of a wide range of R&D covering everything, from scientific research stemmed in the researcher’s free thinking and personal motivation for conducting R&D, to large projects that realize a specific policy objective.

Regarding important subjects, the appropriateness of budget requests is judged by conducting a preliminary evaluation using external evaluation. Interim evaluation is then conducted to confirm the necessity of making changes to the plan, and a post evaluation is conducted for application to the next deployment. As for basic research, since much research leads to unexpected development over the years, care is taken to avoid evaluations that expect hasty output based upon uniform and short-term points of view.

In order to review projects with similar objectives and to clarify the mutual relationship of each project, METI, while considering the direction of the field as a whole, has introduced and implemented “policy evaluation for technology” since 2008, where the interim and post evaluation of related projects once conducted separately over different fiscal years, are now conducted together.

Meanwhile, independent administrative agencies and national university corporations conduct evaluations of their performance in accordance with the Act on General Rules for Independent Administrative Agency (Act No.103 of 1999) and the National University Corporation Act (Act No. 112 of 2003), respectively. Ministries and agencies conduct policy evaluations in accordance with the Government Policy Evaluations Act (Act No.86 of 2001).

Section 3 Expansion of Research and Development Investment

The government set the expanded target of R&D investment to 4% or more of the GDP in all government and private sectors by FY 2020 in the New Growth Strategy. The 4th Basic Plan states, “comprehensively, considering that the percentage of the Japanese government’s burden of research costs is lower than that of foreign countries, considering that the government’s investments are expected to produce the synergetic effect of promoting private-sector investment, which is currently hampered by a weak economy, and considering that many foreign countries are increasing S&T investment by setting targets, an expansion of investment is required.” (Figure 2-5-3)