3   Creation, Protection and Utilization of Intellectual Properties

In order to make unique and innovative achievements in research and return the benefits to society and people, it is essential to revitalize the cycle of creation, protection and utilization of intellectual property, with various proactive initiatives.

The Council for Science and Technology Policy (CSTP), in the report on the formulation of the 4th S&T Basic Plan, presented measures to review IP rights systems and to foster reformation of systems which involve IP activities, while coping with the changing environment of global innovation and implementing strategies for international standardization.

(1) Establishment of a system for the management of intellectual properties at universities and related institutions

Under the University Intellectual Property Headquarters Development Project implemented for five years from FY 2003, progress has occurred in issues related to intellectual property, such as the unification of the management of intellectual property organizations and the establishment of intellectual property rules, and the number of patent applications and licenses has increased annually at institutions such as universities. Thus, the headquarters has been playing a more important role as an organization supporting industry-academia-government collaborations at universities and similar locations. (Table 2-3-19) (Figure 2-3-20) In addition, the "Program for Promoting Self-Sustaining Management of Industry-Academia-Government Collaboration in Universities, etc." was implemented to provide support, prioritizing acquisition of international basic patents for universities and construction of IP activity systems among universities in partnership, while promoting smooth return of university research achievements to society. The same project began supporting efforts to create bio-ventures with firm technical and managerial foundations, while arranging to deploy IP strategies for IP portfolio creation. This project involves collaboration of independent administrative R&D agencies and universities, etc., for the purpose of creating promising patents that are expected to be utilized effectively within Japan and overseas.
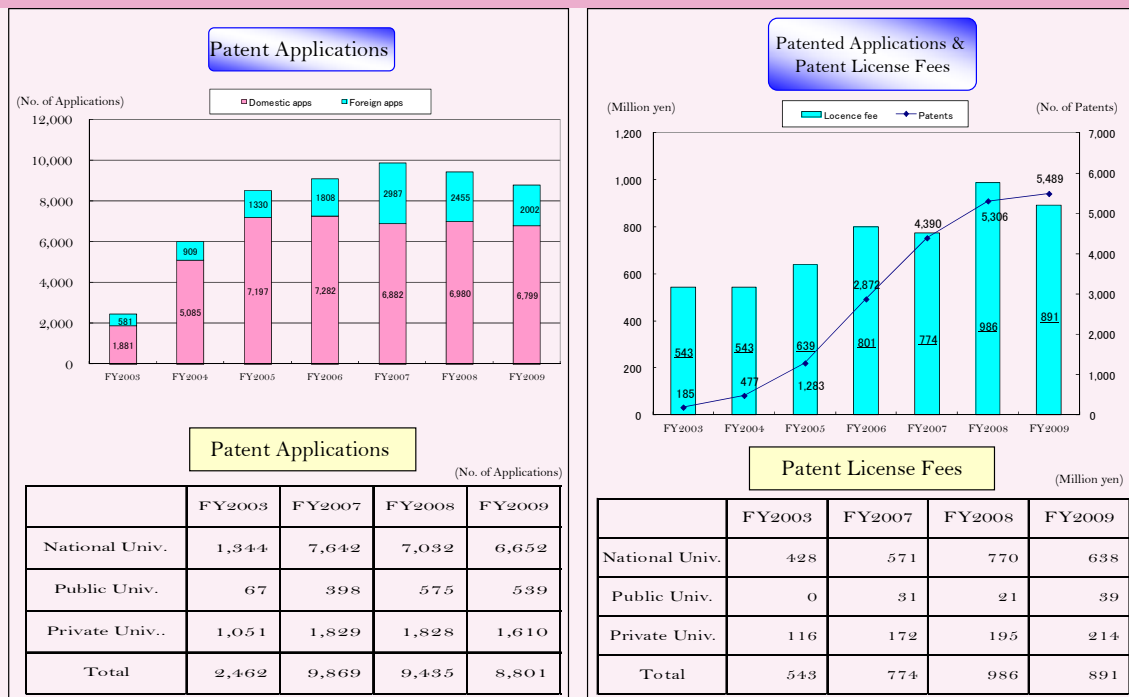
METI provides support for technology-transferring start-up businesses for approved TLOs and foreign patent acquisition in relation to universities' research achievements. It also provides assistance for a broad range of TLOs for strategic utilization and commercialization of research achievements while promoting strong partnerships between, and unification of, organizations.

Chapter 3

Table 2-3-19/ The Status of Development of System for Management/Utilization of Intellectual Properties (University Intellectual Property Headquarters, etc.) (FY 2009)

	Already developed	To be developed	Not to be developed	No. of respondents
Total number	216　(197)	171　(170)	510　(514)	897　(881)
National univ. etc.	74　(74)	3　(3)	14　(14)	91　(91)
Private univ. etc.	113　(99)	151　(141)	444　(453)	708　(693)
Public univ. etc.	29　(24)	17　(26)	52　(7)	98

Note: Figures in parentheses refer to the previous year's numbers.
Source: Created by MEXT

Figure 2-3-20/ Creation, Protection and Utilization of Intellectual Properties at Universities, etc.

Patent Applications

	FY2003	FY2007	FY2008	FY2009
National Univ.	1,344	7,642	7,032	6,652
Public Univ.	67	398	575	539
Private Univ..	1,051	1,829	1,828	1,610
Total	2,462	9,869	9,435	8,801

(No. of Applications)

Patent License Fees

(Million yen)

	FY2003	FY2007	FY2008	FY2009
National Univ.	428	571	770	638
Public Univ.	0	31	21	39
Private Univ.	116	172	195	214
Total	543	774	986	891

As of Aug. 6, 2010　*Inquiry into national universities, public universities, private universities, etc.
*Universities include junior colleges, national colleges of technology, and Inter-University Research Institute Corporation
*"Total" and sum of sub-totals may not match due to rounding off.
*Patented applications include consented patents, transferred patents, and patents at a stage of agreement.

Source: MEXT "States of Industry-Academia-Government Collaboration FY 2009"

(2) Promotion of activities related to intellectual property

　　In order to enable universities to secure and exercise rights to their excellent intellectual property, MEXT supports applications for foreign patents, etc. through JST's Technology Transfer Support Center.

　　In addition, JST, with a view to facilitating excellent research outcomes, manages a database of related information to support the R&D and research outcomes and distributes such information widely through the internet. Specifically, there are databases of information related to public research organizations including universities, researchers, research themes, and research resources (ReaD), and a database that

connects research outcomes achieved by public research organizations including universities with relevant patents (J-STORE). There is also a system that enables integrated searches of online information related to technology seeds made public by universities, providing enterprises with direct access to researchers (e-seeds.jp). The "Science and Technology Commons" was established to provide a research environment without restriction from patents, etc. and to activate patent utilization and research activities, by allowing the use of patents held by universities, etc. free of charge for the purpose of basic research.

In light of advancing economic globalization and open innovation, JPO has been promoting international work sharing as there are calls for international coordination in the patent system and patent examination. As part of this movement, JPO launched the "Patent Prosecution Highway (PPH)" in cooperation with institutions in 13 countries. In addition, in January 2010, the United States and Japan launched another patent prosecution highway called the PCT-PPH, based on the positive written opinions and international preliminary reports on patentability according to the Patent Cooperation Treaty (PCT). This PCT-PPH program was expanded later in the year to include Finland in July, and Spain in October.

In addition, JPO extended the trial operation of the "Super Accelerated Examination System" in October 2009 to meet the needs of applicants with different demands regarding the time to obtain patent protection. It also furthered accelerated examination through the addition of patent applications for green inventions (pertaining to energy-saving, CO_2 reduction, etc.) in November 2009.

MAFF promotes creation of new demands and industries, construction of the MAFF IP network, and training of talented personnel supporting intellectual properties at a working level. In addition, as for the selection process for competitive funding, it sets selection items from the perspective of intellectual property. Furthermore, MAFF provides assistance to MAFF-approved TLOs through the "Research Project for Utilizing Advanced Technologies in Agriculture, Forestry and Fisheries" for practical use regarding research outcomes produced in the test and research Independent Administrative Agencies.

The Japan Patent Office (JPO) sends "University Intellectual Property Advisors" to universities to develop an IP management system in the future through INPIT (involving 18 universities in FY 2010), while providing matching services for local governments and technology licensing organizations (TLO) by sending patent licensing advisors (83 advisors as of March 2011) for the purpose of authorizing SMEs and venture businesses to utilize transfer-ready patents or patents licensed to be used (open patents). In addition, it provides public information of open patents through the patent license databases, while offering the research tool patent database[1] to promote the use of research tool patents, among others, in the life science field. Meanwhile, the "Patent Distribution Adviser Dispatch Operations [literal translation]" were discontinued in FY 2010.

Coordination between IP policies and R&D is also required in the projection of R&D policies through patent information use in R&D strategies. JPO monitors technological trends and provides comprehensive analysis regarding "patent application trends," with primary consideration to "R&D trends" and "market trends" in the "four priority fields to be promoted" and "four fields to be promoted" of the 3rd Basic Plan and ensures that results of its activities are made public.

Moreover, JPO, through INPIT, operates the Industrial Property Digital Library (IPDL), which allows

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1   A major database constituting the "integrated database in relation to research tool patents in the life science field [literal translation]," with research tools and other related tangible objects registered.

users to search for necessary patent-related information through the Internet. In FY 2010, the INIPT added color scheme changes and voice-activated software index options to the top page and second top page in order to accommodate the visually impaired.

The Science Council of Japan (SCJ) looked into systems for intellectual property rights as they ought to be, to further activate the creativity of universities and research organizations, following the "IP Promotion Plan 2009" (Intellectual Property Strategy Headquarters decision of June, 2009), and published its report on the "Intellectual Property System for the Way of the Future as Seen from the Scientific Community [literal translation]" (August 4, 2010).

4   Active Efforts towards Standardization

Based on the "Intellectual Property Promotion Plan 2010," a strategy to comply with international standards was drawn up in order to strengthen leading Japanese technology in specific strategic fields, with cooperation between the state and people.

MIC is promoting aggressive and strategic activities to comply with international standards for the five major areas for the standardization, proposed by the "Review Team on International Standardization Strategies" under the "Task Force on ICT Policies in the Global Era."Furthermore, to enhance user choices and strengthen Japan's international competitiveness in the ICT industry, while trying to build coordination with de jure standardization institutions, including the International Telecommunications Union (ITU[1]), and de facto standardization entities in the private sector, MIC is promoting cooperation on standardization of ICT and other technologies, reducing the environmental burden.

Based on the "New Growth Strategy" and the "Intellectual Property Promotion Plan 2010," METI is strategically promoting activities to comply with international standards for the purpose of promoting innovation through dissemination of R&D achievements and reinforcing Japanese industrial competitiveness. In FY 2010, METI actively participated in the standardization efforts of the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC), etc. while providing suggestions for establishing advanced Japanese technologies as world standards.

In April, 2010, the "Asia-Pacific Industrial Science & Technology and International Standardization (IST2) Cooperation Program," a new alliance with Asian countries in the standards certification field, was established. Based on the standardization program, in the FY 2010 supplementary budget, the "Asia Standards Conformance Promotion Project [literal translation]" was appropriated for the promotion of joint development with its Asian neighbors, such as developing performance assessment methods supporting Japan's ability to receive adequate recognition for its technology, international standardization of the assessment methods, and support to improve each country's ability to achieve standardization. Moreover, the "International Standards Proposal on R&D Projects [literal translation]" was implemented for advanced fields such as environmental energy, including smart grid-related technology, with globally-superior products and technologies developed in Japan as its base, along with consecutive and intensive added experiments, tests and inspections with 42 themes for standardization, in order to accelerate the standardization process.

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1   International Telecommunication Union

In addition, the National Institute of Advanced Industrial Science and Technology (AIST) and U.S. National Institute of Standards and Technology, the world's top Japanese and American research organizations, established a R&D collaboration to achieve international standards under four themes, in the fields of nanotechnology, energy, environment, biotechnology, etc. Meanwhile, basic standardization activities were consistently implemented domestically, including plans by JIS and others which contribute to improving the social environment for safety, security, the elderly, and people with disabilities.

To address human resources training for standardization, the planned application of educational materials development for educational standardization, as well as training for educational standardization specialists to achieve success in international standardization activities, are being implemented in universities (both undergraduate and graduate schools) and industries. Also, to foster human resources capable of proactively working at international standards organizations and also human resources capable of aggressively promoting Japan's international standardization activities, industrial standardization operation awards are being implemented.

5 Improvement of the Research Information Infrastructure

The research information infrastructure is regarded as a critical lifeline for research activities. Therefore, improving it in response to the rapid progress in information and communications technology is essential for securing the international competitiveness of Japan's R&D activities. The government is taking concrete actions towards this end, such as the development and upgrading of networks between research institutions and the development and provision of databases.

(1) Provision of networks

Computers and information networks are key systems in our modern society. These were first developed through R&D, and applied to variety of different field. In order to carry out cutting-edge R&D, performance enhancements are necessary for networks.

Using the Advanced Network Testbed for R&D (JGN2plus), which is operated by NICT, MIC promotes R&D and demonstration experiments in the information and communications field, connecting 384 related organizations as of the end of March 2011, for the purpose of creating a large ripple effect on improving Japan's technological capacity, enhancing industry-academia-government collaboration, creating new business and industry, promoting regional computerization, and fostering ICT-personnel. In addition, investigations are underway for implementing the next-generation communications network testbed (JGN-X), scheduled for changeover in 2011.

MEXT established and operates the Science Information Network 3 (SINET 3[1]) as a base for the National Institute of Informatics (NII) to support academic research and all educational activities at Japanese universities and elsewhere. As of the end of March 2011, 740 institutions were connected to SINET3. In addition, to realize an even faster and more sophisticated network, the ministry is further discussing the next academic information network (SINET 4), which is expected to be put into use from FY 2011.

MAFF established and operates the Ministry of Agriculture, Forestry and Fisheries Research Network

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1   A world-class network which provides Internet access at the maximum speed of 40 Gbps

(MAFFIN), which mutually connects research institutions related to agriculture, forestry, and fisheries. As of the end of March 2011, a total of 92 institutions were connected through MAFFIN. As MAFFIN is linked to the Philippines, this network is now used as a backbone for the distribution of research information overseas.

(2) Creation and provision of databases

Perusal, copying, lending, and other services for source materials for scientific papers, etc. are being offered at libraries and a variety of other organizations. The construction of databases of primary literature that these various organizations have, including the literature's bibliographic and location information, facilitates swift, accurate and easy searches of increasingly large amounts of information.

The National Diet Library, which collects every publication issued in Japan based on the legal deposit system, has an online database for its materials.

MEXT creates and provides databases on titles and locations of academic books and magazines available at university libraries and other institutions through NII, with the cooperation of institutions nationwide such as national, public, and private universities. Furthermore, support is being provided for the construction of institutional repositories for each university.

JST has established a basic information database of Japanese and overseas S&T documents, patents, researchers, etc., and is offering the J-GLOBAL service for providing mutually-related information. JST also improved a database of Japanese-language abstracts, etc. of S&T documents, and provides a document information retrieval service (JST Document REtrieval system for Academic and Medical fields II 〔JDreamII〕)with a fee through the Internet.

MAFF creates and offers information on documents related to agriculture, forestry, and fisheries, as well as information on the locations of books and materials, such as providing the Japanese Agricultural Sciences Index (JASI) of articles published in academic journals related to the agriculture, forestry, and fisheries fields. Furthermore, the ministry maintains and provides databases including an agricultural information database that is a full-text information database integrating digitized research reports in the agricultural, forestry, and fisheries sector written by independent administrative agencies engaged in experiments and research, national and public research organizations, and universities; a database of Japanese and foreign agricultural research documents; a database of satellite images; and a database of themes of research conducted by research organizations.

Table 2-3-21 shows the outlines of major research information infrastructure related measures implemented in FY 2010.

● Table 2-3-21/ Main Measures for the Research Information Infrastructure (FY 2010)

Ministry/ Agency	Organization	Subject
Diet	National Diet Library	- Acquisition and development funds for science and technology-related resources at the National Diet Library
Cabinet Office		- Strengthening the information collection function of R&D data funded through the government budget
Ministry of Internal Affairs and Communications	National Institute of Information and Communications Technology	- Establishment of an advanced network testbed for research and development (JGN2plus)
Ministry of Education, Culture, Sports, Science and Technology	Japan Science and Technology Agency	- Establishment and Utilization Promotion of Basic Science and Technology Information (J-GLOBAL, etc.) - Development of engineering ability and operation of "failure knowledge database" ("Web Learning Plaza" etc.) - Operation of Institute for Bioinformatics Research and Development (BIRD, GBIF etc.) - Computerization and Internationalization of Science and Technology Papers (J-STAGE, etc.) - Providing document information on S&T (JDream II, etc.)
	Japan Agency for Marine-Earth Science and Technology	- Information infrastructure operating costs
	National Institute of Informatics	- Development of Scientific Information Network ("SINET 3")
Ministry of Health, Labour and Welfare	National Institute of Infectious Diseases	- Budget for the Infectious Disease Surveillance Center - Research project expenses for collecting, analyzing, and assessing safety data on biological drugs
Ministry of Agriculture, Forestry and Fisheries	National Agriculture and Bio-oriented Research Organization	- Agriculture, Forestry and Fisheries Research Information Technology Center (JASI, MAFFIN, etc.)
Japan Patent Office	National Center for Industrial Property Information and Training	- Operation of Industrial Property Digital Library (IPDL)
Ministry of Land, Infrastructure, Transport and Tourism	Hydrographic and Oceanographic Department, Japan Coast Guard	- Promotion of collection, management and provision of hydrographic and oceanographic data and information - Development of Geographic Information System (GIS) database for the coastal area
Ministry of the Environment		- Improvement of Promotional Budget for the World-Wide Integrated Biodiversity Information System
Cabinet Office Ministry of Education, Culture, Sports, Science and Technology Japan Patent Office	Japan Science and Technology Agency National Center for Industrial Property Information and Training	- Improvement of a comprehensive search system for patent and document information
Cabinet Office Japan Patent Office Relevant Ministry/ Agency	National Center for Industrial Property Information and Training	- Development of Research Tool Database (RTDB)

6　Promotion of the Activities of Academic Societies

Academic societies are voluntary organizations made up of researchers of organization such as universities. They play an important role in terms of research evaluation, and also information exchange and personnel interaction, beyond the framework of individual research organizations. Major contributions are made to the advancement of academic research through activities of academic societies, such as the dissemination of the latest exceptional research results via academic research meetings,

lectures, and symposia, and through the publication of academic journals.

To support these activities by academic societies, MEXT supplies the "Grant-in-Aid for Publication of Scientific Research Results," which is one of the categories of Grants-in-Aid for Scientific Research, in order to support activities such as international conferences with the participation of overseas researchers, symposia that provide youths and adults with up-to-date information on research trends, and the publication of academic journals. The SCJ continuously conducts deliberations on measures for promoting self-improvement of academic societies, and sponsored the symposium, "Meeting for Announcement of Recent Information on Applying for Public Interest Corporations" with the participation of academic societies and researchers, among others.

(Enhancement of international competitiveness of academic societies)

The JST, with a view to enhancing Japan's capability to disseminate information concerning research results, has supported globalization efforts related to academic journals and research papers by establishing the Japan Science and Technology Information Aggregator, Electronic (J-STAGE), which is a comprehensive system for transmission and distribution of S&T information that computerizes processes such as contributions of scientific papers to academic journals and examination/screening and disclosure thereof.

7　Promotion of Research and Development at Public Research Institutions

With regard to public research institutions, the "R&D Corporation [literal translation]" was defined by the "Act on Enhancement of Research and Development Capacity and Efficient Promotion, etc. of Research and Development, etc. by Advancement of Research and Development System Reform." However, it is decided by the Act and its supplementary resolutions that examinations and measures must be carried out by October 2011 to decide how the "R&D Corporation" ought to be. In response, the "Functional Enhancement Investigation Team for Corporations Performing R&D [literal translation]," which consists of the Vice Ministers and the Parliamentary Secretaries of relevant ministries, prepared the interim report in April, 2010. In addition, the "R&D System Working Group [literal translation]" of the CSTP Expert Panel on Basic Policy compiled issues in the R&D system including issues for functional enhancement of the independent administrative agencies engaged in R&D in December 2010. CSTP is reevaluating the R&D systems in collaboration with related government ministries to formulate new systems of the government's R&D agencies consistent with the special characteristics of R&D, with the aim of becoming competitive at the highest international level. In the report on the formulation of the 4th Science and Technology Basic Plan (Part 2, Chapter 1, Clause 1), it is clearly written that "based on 'Basic Policy on Review of the Administrative Work and Projects of Independent Administrative Agencies [literal translation]' and the special characteristics of R&D (long-term nature, uncertainty, unpredictability, specialization), Japan is formulating new systems to realize reforms on governance and management of the organizations."