26 Necessity of Giving Special Consideration to Research at Universities, etc. in the Patent Law System

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The research environment and forms of research at universities and public research institutes (hereinafter referred to as "universities, etc.") have been rapidly changing. Universities, etc. have become deeply committed to the industry as a result of their exploitation of research achievements as intellectual property rights and strong promotion of returning research achievements and research functions to society through industry-academia collaboration. Consequently, it is impossible to deny the possibility that universities, etc. will become subject to claims of patent rights.

Therefore, this research examines the necessity of giving special consideration in the patent law system in terms of performance of research and education at universities, etc. Specifically, actual condition surveys were conducted with regard to changes in the relationships between universities, etc. and the industry, the relationships between universities, etc. and researchers at universities, etc., and universities as entities exercising rights, in light of the public interest nature of research at universities, etc. and requests of society for such research, as well as changes in the industrial structure and increasing social importance of intellectual property, and the survey results were analyzed. The results of the analysis and examination revealed the necessity of giving special consideration to research at universities, etc. in the patent law system.

I Introduction (Background of Research)

The research environment and forms of research at universities and public research institutes(*1) (hereinafter referred to as the "universities, etc.") have been rapidly changing. Under the science and technology creation-based nation policy, started with the Basic Act on Science and Technology in 1995, the intellectual property-based nation policy was advocated, and various policies were carried out to bring changes to universities, etc., such as increase in joint research projects and commissioned research projects through industry-academia(-government) collaboration (hereinafter industry-academia collaboration includes industry-academia-government collaboration), establishment of university technology licensing organizations (university TLOs), shift to the principle of attributing research achievements of universities, etc. to universities, etc., development of university intellectual property headquarters, and conversion of national universities to incorporated agencies. Universities, etc. have come to have a deep and forward-looking relationship with the industrial world by promoting industry-academia collaboration based on joint research and commissioned research through active exploitation of research achievements as intellectual property. As a result, a situation is expected to occur in which universities, etc. become subject to claims of patent rights. In order to cope with such a situation, it is necessary to conduct actual condition survey on changes in the relationships between universities, etc. and the industry, the relationships between universities, etc. and researchers at universities, etc., and universities as entities exercising rights, in light of the public interest nature of research at universities, etc. and requests of society for such research,

(*1) In this report, universities and public research institutes refer to universities, inter-university research institutes, colleges of technology, national institutes engaged in R&D, public test and research institutes, and special corporations and incorporated administrative agencies engaged in R&D in Japan.

as well as changes in the industrial structure and increasing social importance of intellectual property, to analyze the survey results from the legal viewpoint, and then consider problems that become obvious through the analysis.

II Identification of the Problem (Subject of This Research)

With the development of biotechnology, research tool patents have become a social issue, and the issue of patents worked in the research process has become obvious also at universities and other research scenes. Due to incorporation of national universities, etc., universities are required to conduct operation and management more independently. However, they do not have clear guidelines for coping with this issue, and thus, there is also concern about withering of research at universities. However, at the present time, there is no judicial precedent that presents a standard to solve the issue. Regarding exception to the effect of a patent right against experiment or research under Article 69(1) of the Patent Act, the theory in which application is interpreted in a limited manner (Someno theory) is also regarded as the popular theory for this issue. According to the popular theory-based view, working of a research tool patent in the process of research at a university, etc. does not fall into “experiment or research” under said paragraph.

In this regard, the following three points are considered to become problems. The first point is the necessity of firmly understanding and legally analyzing the current position of universities, etc. that have gone through unprecedented changes in the environment and the actual conditions of research scenes. The second point is the necessity of consideration from the standpoint of direction toward solutions in actual scenes. That is, while universities, etc. are expected to perform and continue their research due to the public interest nature of their research, fairness is particularly requested. It is necessary to examine a comprehensive solution with regard to the infringement of patent rights in terms of working of patented inventions in research at universities, etc. as well as demands for injunction and claims for damages due to such infringement, taking into account the public interest nature of research and the fairness required for management and operation. The third point is the necessity of considering the significance of the provision on exception to the effect of a patent right under Article 69(1) of the Patent Act in the present day.

Therefore, this research clarifies legal problems, that is, what are the problems in relation to patented inventions that are worked in the course of research at universities, etc. and in what circumstances the problems occur, through analysis of facts, and examines the necessity of giving special consideration to research at universities, etc. in the patent law system, focusing on the three problems cited above.

III Survey on the Actual Conditions Surrounding Research at Universities, etc. and Analysis Thereof

1 Hearing survey

In this research, a hearing survey was conducted targeting persons concerned in research activities at universities, etc. as part of actual condition surveys designed to study and analyze the current position of universities, etc. that have gone through changes in the environment and the actual conditions of research scenes.

The hearing was conducted with persons concerned in the following.

① Departments dealing with industry-academia collaboration and intellectual property, such as intellectual property headquarters at universities, etc.

②Technology licensing organizations at universities, etc.

③Departments dealing with intellectual property in companies

④Researchers at universities, etc.

2 Actual conditions surrounding research at universities, etc. and analysis thereof

(1) Environment surrounding research at universities, etc.

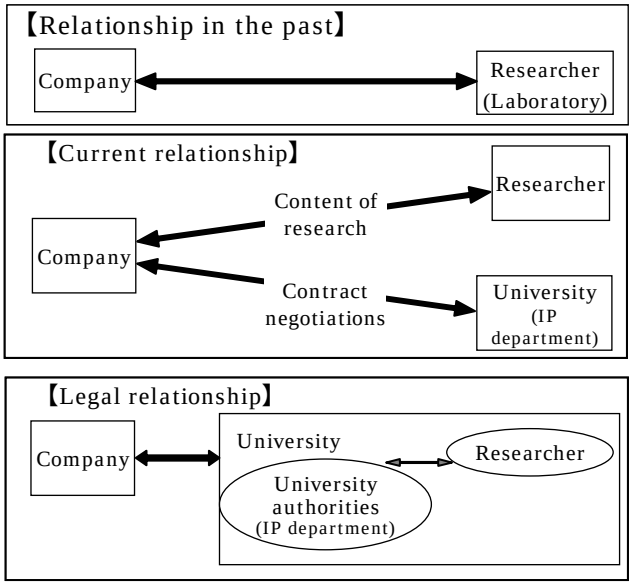
① Changes in the relationships with the industry

Relationships with the industry have been shifting from personal relationships between researchers at universities, etc. and the industry to relationships between organizations such as universities and the industry.

In the past, research achievements were in principle attributed to individuals, and patents for research achievements were obtained by individual researchers or by partner companies. Research achievements have become in principle attributed to organizations, and universities, etc. including intellectual property headquarters have come to play the above-mentioned role in place of individual researchers. Patents are obtained by universities, etc. in the case of independent research by a researcher and based on agreement between parties concerned in the case of joint research through industry-academia collaboration. Values for patents are paid to universities, etc. as values for intellectual property rights.

Industry-academia collaboration is divided into two forms, specifically, joint research and commissioned research. However, actually, financial assistance for research through scholarship contributions is also included. In terms of changes in the form of industry-academia collaboration, collaboration cases through provision of research contributions have been decreasing along with an increase in joint and commissioned research projects. Although the details of contracts were determined between researchers and companies in the past, at present, models of research contracts have been prepared by each university, etc. and secretariats at universities, etc. conduct contract negotiations.

The following figure shows the change in the relationship between universities, etc. and the industry.



② Facts and legal relationship regarding research at universities, etc.

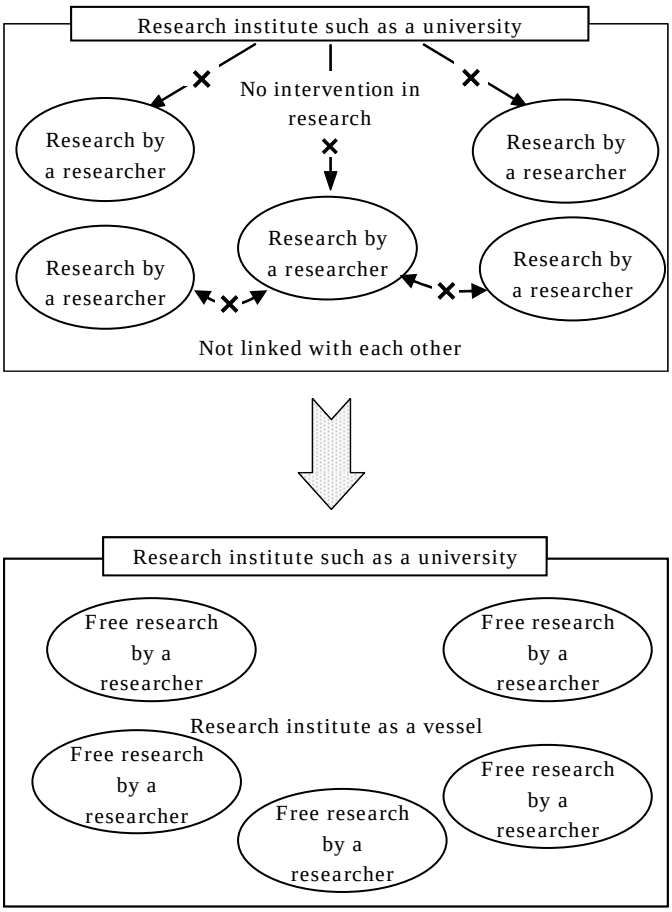
a. Facts

The research-related role of universities, etc. is mainly to serve as organizations in charge of office duties. Researchers at universities, etc. are not under the control of universities, etc. in regard to the content of their research. On the contrary, companies have control over the content of research conducted by their researchers. Companies can give the freedom of research to in-house researchers or completely control their research. However, in fact, they often ensure the freedom of research for in-house researchers in order to maximize the research ability and creativity of researchers. While companies can understand and manage research activities by researchers, including problem establishment, supposed achievements and research contents, at universities, etc., individual researchers (or research groups) freely conduct research in-house, and universities, etc. do not get involved in research, except paperwork for research funds, etc., though they get an understanding of research in terms of office work. Universities, etc. are nothing more than vessels to provide space and facilities necessary for researchers to conduct research.

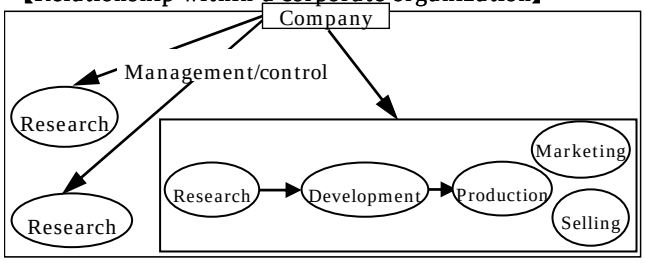
The following figure indicates the in-house relationship between universities,

etc. and researchers at universities, etc. and the in-house relationship between companies and researchers at companies.

【Relationship within the organization of a university, etc.】



【Relationship within a corporate organization】

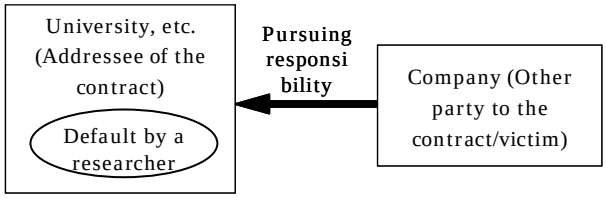


b. Legal relationship

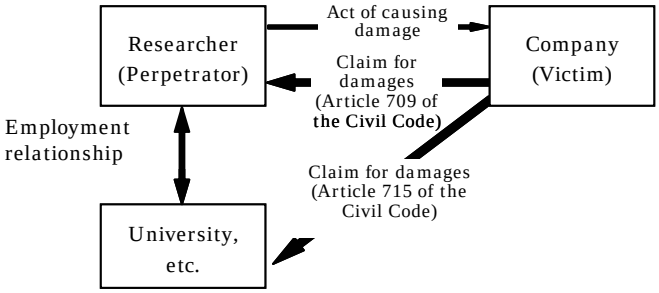
Looking at the relationships between universities, etc. and third parties in terms of research at universities, etc., there is responsibility for a default (Article 415 of the Civil Code) in the case where universities, etc. have not performed contracts and responsibility for a tort (Article 709 of the Civil Code) that arises in the research process as civil responsibilities that universities, etc. assume. Responsibility for a default arises based on joint research contracts or other contracts. Responsibility for a tort is employer's responsibility that universities, etc. assume in terms of the acts of their researchers, including infringement of rights, based on the employment relationship (Article 715 of the Civil Code).

The following figure shows the relationship between parties concerned in the case where a default or a tort is established with regard to a researcher's act.

【Responsibility for a default】



【Responsibility for a tort】



(2) Forms of exercise of patent rights

① Method of exploiting patents

The methods of using patents as intellectual property rights can be roughly divided into four groups according to the method of exploiting them. The first group is for the forms of business, such as those in the pharmaceutical and chemical industries, in which core patents produce huge profits and profits are ensured through monopolization of patents by personally working patented technologies. The second group is for the forms of business, such as those in the machine and metal industries, in which plants or patents for processes of manufacturing are important or self-owned technologies dominate the securing of profits though many patents are used. The third group is for the forms of business, such as those in the electric appliance industry, in

which profits from products are ensured by exploiting many patents, including not only self-owned patents but also other persons' patents through cross-licensing with other persons (companies). The last group is for the forms of business in which profits are ensured not by commercializing products using self-owned patented technology but by income from licensing patents to other persons (companies).

② Claims of rights and response thereto

The processing flow of claims of patent rights is as follows. A party (company) claiming that its right has been infringed gives warning to a party (company) accused of infringement of the right. Then, the warned party considers related matters, such as the possibility that the accused technology infringes the right, in-house. If the warned party determines that the warning is clearly groundless, it will ignore the warning. If the party determines that there is the above-mentioned possibility, it will examine the possibility for circumventing the right. If it is impossible to circumvent the right or if it is problematic to ignore the warning though there seems no fact of infringement, the warned party will negotiate with the other party. If parties cannot find a solution through negotiations and either party thinks that it has an advantage (including the intimidating effect) in filing a lawsuit, it will bring a case before the court. On the other hand, the party accused of infringement often makes a request for invalidation proceedings. Companies cope with warnings in a comprehensive manner, taking into account managerial viewpoints (including intellectual property strategies of the companies) in addition to technical and legal knowledge.

(3) Universities, etc. as entities exercising rights

① Obtainment and exploitation of patents

Universities, etc. obtain intellectual property rights for their research achievements through obtainment of patents. Universities, etc. that do not conduct industrial activities get values for patented inventions not by working such inventions on their own but by granting licenses (exclusive and non-exclusive licenses) or transferring patent rights to others. Regarding technology transfer activities, there are cases where intellectual property headquarters of a university, etc. conduct these activities and cases where TLO of a university, etc. does so. In the latter case, there are cases where TLO conducts the activities upon receipt of delegation of the authority of representation for licensing and cases where it does so upon receipt of transfer of relevant patent. For research achievements obtained through joint research in cooperation with companies, universities, etc. claim compensation fees as compensation for non-working.

② Composition and functions of departments in charge of intellectual property

a. Personnel and costs for ensuring activities

Intellectual property headquarters in charge of intellectual property-related activities at universities, etc. are often composed of office personnel of universities, etc. and former company employees. The fulfilling level of personnel significantly differs depending on the size of a university, etc. and whether or not a university, etc. is designated as one of the institutes subject to the "Project for the Establishment of University Intellectual Property Headquarters" conducted by the Ministry of Education, Culture, Sports, Science and Technology from fiscal 2003.

Incomes brought to universities, etc. from the intellectual property headquarters or through industry-academia collaboration activities include incomes from intellectual property rights, including patent royalties, incomes from provision of materials, and overhead costs that universities, etc. charge other parties for collaboration in joint research or commissioned research. Incomes from patent royalties are not much. Many universities, etc. set overhead costs, which they collect in industry-academia collaboration, as 10-15% of research costs (direct costs).

b. Obtaining intellectual property rights for research achievements

Universities, etc. hold seminars for their researchers in order to have the researchers understand the meaning of notifying their inventions to universities, etc. and give them precautions in publishing research achievements in papers or at workshops. Universities, etc. also understand research activities of their researchers at an early date and provide advice on the way of carrying forward research on the premise of obtainment of patents. Research for which a patent application is filed is selected based on the procedure of each university. Such activities significantly differ depending on the fulfilling level of intellectual property headquarters of universities, etc. In particular, advice to researchers on their research is given only to understanding researchers who have personal relationships with intellectual property headquarters staff. Even at universities with a large-scale intellectual property headquarters, such function is possible only for some researchers.

c. Technology transfer activities

Not many universities have intellectual property headquarters with a system and personnel to actually conduct technology transfer activities, including visits to companies, to a satisfactory extent. Symposiums on industry-academia collaboration as well as explanatory meetings and panel exhibitions for new technologies are held as activities to understand the seeds of researchers at universities, etc. and the needs of companies.

d. Contract negotiations

Also in terms of contract negotiations, actual practice varies depending on the actual conditions of each university, etc. Many universities, etc. make formal confirmations in a matter-of-fact style. The authorities at universities, etc., including intellectual property headquarters, often conduct negotiations on behalf of researchers after some sort of trouble occurred. Universities, etc. neither conduct contract negotiations in light of individual situations nor conduct negotiations for the profit of the entire operation. In contract negotiations, universities, etc. claim their benefits in terms of the amount of research funds as temporary profit and income and compensation for non-working of research achievements.

e. Activities to coordinate industry-academia collaboration

The major emphasis of activities of universities, etc. to realize effective industry-academia collaboration has been shifting to coordination of various projects and intellectual property management activities. Universities, etc. are conducting coordinating activities in which they make active approaches to smoothly realize industry-academia collaboration, in addition to setting up contact points in the industry and developing relevant procedures.

f. Support for establishment of venture companies

The establishment of a venture company based on research achievements of universities, etc. is regarded as one of the important means of putting technologies, which are research achievements of universities, etc., into practical use to return them to society. The major activities of universities, etc. to support start-up and development of business are provision of information necessary to start business and permission to use on-campus facilities.

g. Active claims of intellectual property rights

According to the hearing survey conducted in this research, no case example was reported in which a university, etc. actively claims its patent right against another person (company or other university, etc.) and sends a letter of warning. With regard to research tool patents, one university, etc. answered that it would like to conduct proactive activities in the future using activities of universities in the United States and university TLOs as a guide. However, all other universities do not plan to conduct such activities and also cannot afford to conduct them.

(4) University as the user of other persons' (companies') patents

Scenes where other persons' (companies') patents are used in the operations of universities, etc. are scenes of actual research and education. As users of other persons' (companies') patents, universities, etc. purchase products involving patented technology, or purchase kits as research tools, and receive licenses for research tool patents. However, universities do not necessarily use such products and tools in reality, and researchers and students in the scenes of actual working of patented inventions or in the scenes of purchase of kits do so.

(5) Present situation of researchers concerning research tools

① Awareness of other persons' (companies') patents

Researchers in research scenes at universities, etc. are little aware of other persons' patents. In the hearing survey in this research, out of 24 researchers, only one researcher had an understanding of exception to the effect of a patent right against "experiment or research" (Article 69(1) of the Patent Act) as the popular theory-based view. The researcher has great interest in transferring technology to society by obtaining patents for his research achievements, and thus conducts studies on patents on a daily basis and also actively participates in seminars. Actually, most researchers have never thought of the possibility of infringing other persons' (companies') rights.

② Method of using research tools in research

In the hearing survey targeting researchers, it seemed that researchers had difficulty in understanding research tools in relation to their own research since they are not much aware of research tools in their daily research activities. Research tools used vary depending on the research field and research method. There are also various methods of acquiring research tools. Some researchers said that they created programs as analysis tools while other researchers said that they often purchased programs to reduce the amount of time required though they could create them. In addition, some researchers answered that researchers frequently conduct exchange of "bacteria." Regarding laboratory equipment, a great deal of the researchers answered that they made it for themselves or asked manufacturers to make it through special order. This result may be because researchers conduct research on subjects that have yet to be put into the market.

Researchers use various equipment, substances and analysis programs to carry forward their research, and also make them to perform research. It can be said that researchers are rarely aware of other persons' patents in terms of research tools.

③ Regarding preliminary search on prior art (patents)

The main reason for researchers to search the patent database is to file patent applications for their own research achievements. Therefore, researchers search the patent database at the time when research achievements are judged to be able to be subject to a patent application. There are some researchers who have never conducted patent search though they have filed a patent application for research achievements. According to researchers, the major reason for not searching patents is "no need to do so."

(6) Relationships between universities, etc. and researchers

① Relationships between universities, etc. and researchers

At some universities, etc., researchers are involved in obtainment of intellectual property rights for research achievements, technology transfer and industry-academia collaboration activities. However, only some researchers are deeply engaged in such intellectual property activities. Universities, etc. provide only clerical support to researchers.

② Intellectual property activities at universities, etc. and academic freedom

There were no case examples in which

academic freedom becomes a problem in terms of relationship between various intellectual property-related activities at universities, etc. and freedom of research at universities, etc. In this hearing survey, all universities, etc. answered that they would give first priority to academic freedom.

③ Relationships between researcher's act of conflict of interest and universities, etc.

Universities are promoting formulation of policies for the conflict of interest and establishment of a system, including various procedures. Almost all procedures for conflict of interest taken in actual operations relate to dual occupation. To the best of the survey, they are based on researchers' self-declarations. There are no outstanding conflicts relating to conflict of interest between universities, etc. and researchers.

④ Relationships between public research institutes and researchers

Public research institutes also tend to emphasize contributions to technical innovation through industry-academia collaboration and development of business using their own research achievements. However, there are various purposes for establishing a public research institute, and the environment surrounding a public research institute varies depending on its particular mission. Public research institutes also have departments in charge of paperwork, which are equivalent to the intellectual property headquarters of universities, etc. However, such departments mainly carry out paperwork relating to procedures for notifying inventions and serve as contact points for outsiders. Thus, the level of public research institutes' involvement in their researchers in terms of intellectual property is low compared to that of universities. Since no publicly supported project like the Project for the Establishment of University Intellectual Property Headquarters exists for public research institutes, different from universities, intellectual property activities of many public research institutes are on a small scale.

IV Consideration

1 Public interest nature of research at universities, etc. and universities as educational institutions

(1) Public interest nature of universities, etc. and ensuring of fairness

Universities are based on missions of education, research and social contribution. In addition, public research institutes are established based on particular missions. Universities, etc. are requested to work on research with ingenuity and strategic flexibility. However, they are above all required to conduct appropriate and fair research activities. In terms of the handling of intellectual property, appropriate use and management are requested to keep fairness.

(2) Ensuring "academic freedom" and "freedom of research"

The Constitution guarantees "academic freedom" (Article 23 of the Constitution). "Academic freedom" includes "freedom of academic research." The Constitution requires that "freedom of research" be guaranteed and that interference and intervention in science and technology be restricted.

(3) Education relating to intellectual property

The importance of intellectual creation and its appropriate protection and utilization has been recognized. It is necessary to disseminate to society a mechanism of the intellectual property system, importance of intellectual property rights and exploitation thereof, as well as respect for other person's rights. Taking into account the importance of "creation of knowledge," of which researchers take charge, and the public interest nature inherent in scientific research, it is necessary to promote research and education under appropriate rules while respecting other persons' rights.

2. Necessity of giving special consideration to research at universities, etc.

(1) From the standpoint of change in the position of patent rights in society

The position of intellectual property in society has changed. Under the intellectual property-based nation policy, society as a whole has been oriented toward “creation, protection and exploitation of intellectual property.” Universities, etc. have become expected to conduct lively intellectual creation activities and have come to play a role in the intellectual creation cycle. Inventions created through research at universities, etc. are patented and transferred to society. To effectively return “knowledge” of universities, etc. to society, the principle of attributing rights (research achievements) to organizations was indicated. Thus, universities, etc. have come to obtain intellectual property rights and manage and exploit them in one lump. In the past, the issue of handling of patent rights obtained particularly for research achievements of universities, etc. has not come to the surface as it was regarded as an issue only in the industry. As universities, etc. have become established entities exercising rights, intellectual property rights including patent rights have become issues to be dealt with by universities, etc., and entities that do not belong to the industry have come to conduct various intellectual property activities, from obtainment of patents to transfer of rights, under the market rules for industrial property. On the other hand, the patent system has developed as a legal system to be utilized in the industry, and thus, there have not been sufficient discussions on special consideration to be given when entities such as universities utilize the system. Therefore, it is necessary to examine problems in the patent law system in consideration of the particularity of entities that do not belong to the industry, such as universities, with the understanding of increasing social significance of intellectual property rights and the requests of society arising from changes in the system to return scientific research to society.

(2) From the standpoint of change in the research environment at universities, etc.

The research environment for researchers at universities, etc. has changed due to promotion of industry-academia collaboration and change in desirable industry-academia collaboration. Although industry-academia collaboration was based on personal relationships between researchers at universities, etc. and companies in the past, it has come to surface as relationships between universities, etc. and companies. Claims made by universities, etc. with regard to research funds and handling of research achievements caused confrontation between universities, etc. and partner companies. Companies also have come to require specific achievements from joint research and commissioned research conducted in cooperation with universities, etc. more than ever. Moreover, companies are trying to strategically use the research function of universities, etc. A situation is expected to arise in which multiple companies confront one another around one university, etc. Then, there arises a need for a system to ensure the public interest nature of research at universities, etc. in consideration of interest in the industry so as to prevent unexpected damages to the industry and obstacles to R&D in the industry. It is necessary to consider problems in the patent law system while taking this point into account.

(3) From the standpoint of differences between universities, etc. and the industry

Universities, etc. intervene in research conducted by their researchers only in terms of clerical work. Thus, it is necessary to consider problems in the patent system on the premise that researchers at universities, etc. deal with patents in the research process.

Universities, etc. are not able to take strategic actions, like those which are commonly taken in the industry, against claims of rights by other persons (companies). In addition, there is a limit to the effort of

universities, etc. to improve their own organizations and abilities to cope with claims of rights by other persons (companies) due to their missions and required costs. Therefore, it is necessary to consider problems in the patent law system on the premise that universities, etc. cope with claims of rights by other persons (companies) as part of their research-related clerical work, separately from strategic intellectual property right activities.

(4) Fairness required for research at universities, etc. and avoidance of withering of research

Researchers at universities, etc. conduct research activities using various tools in a flexible manner through mutual cooperation among them based on their intellectual curiosity. Such tools include technologies and substances for which other persons (companies) have obtained patents. It is difficult for individual researchers at universities, etc. to conduct research while dealing with all patents that are worked in the research process. In addition, it is not realistic that universities, etc. intervene in research under the veil of the need to deal with other persons' (companies') patents, and such intervention may be excessive. Excessive intervention is problematic from the viewpoint of request for "freedom of research." On the contrary, if any problem occurs (for example, universities, etc. become subject to a claim for damages or demand for injunction for the reason of patent infringement), fairness socially required for research at universities, etc. and awareness thereof may have undue impact on the universities, etc. and may have the effect of withering research activities.

Moreover, universities, etc. are required to establish an appropriate system to keep fairness in advance of occurrence of infringement due to the social public interest nature that they must have. This is required not only in terms of research at universities, etc. but also in terms of education.

(5) Public interest nature of research at universities, etc. and exclusive nature of patent rights

If patents worked in research and education at universities, etc. also fall into patents worked "as a business" under Article 68 of the Patent Act and do not fall into patents worked for "experiment or research purposes" under Article 69 of the Patent Act, patentees will be able to seek injunction against such working (Article 100(1) of the Patent Act) and demand the removal of facilities used for the working (Article 100(2) of said act). The missions of universities, etc. are to conduct research and provide education. Therefore, injunction against research and education is a critical issue for universities, etc. It is also expected to have significant adverse effect, taking into account the public interest nature of research at universities, etc.

3 Conclusion

Considerations so far reveal the necessity of giving special consideration to research at universities, etc. in the patent law system.

First of all, for various patent rights that are not supposed to be used in research or experiment, it is necessary to keep fairness in research at universities, etc. by recognizing exception to the effect of a patent right in terms of research at universities. In this regard, the definition of "research tool patents that are obtained on the premise of being worked in experiment and research" and use thereof matter. Moreover, it is also necessary to recognize exception to the effect of a patent right in terms of patents that are worked in research and experiment conducted in the course of education.

Next, due to the public interest nature of research at universities, etc. and the necessity of continuous research, it is necessary to restrict demands for injunction that are claimed on the ground of infringement of a patent for research tool that is used in the research process. Obtainment of a license for the research tool is required to continue research. If the

relevant right holder does not grant a license or if license fees are inordinately expensive, it will be virtually impossible to continue research. Therefore, it is necessary to consider making the compulsory licensing system available for research at universities, etc.