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Possibility of Intellectual Property Right Education in Thailand

Senshu Yoshii[#1], Tanasin Yatsungnoen[*2]

[#]*Faculty of General Education, National College of Technology, Miyakonojo College*
Yoshio 473-1, Miyakonojo, Miyazaki 8858567, Japan
[1]senshu@cc.miyakonojo-nct.ac.jp

[*]*Faculty of Information Technology, Thai-Nichi Institute of Technology*
[2]tanasin@tni.ac.th

***Abstract* – In ASEAN countries, Japanese companies have established many factories and produced a large number of products. Higher education graduates will contribute to technology transfer between Japan and ASEAN countries. Additionally, product development activities have been conducted in the factories of the respective ASEAN countries in recent years. In current higher education, however, it is difficult for students to consider in terms of enabling technology transfer. Foreign students from ASEAN countries prefer to seek employment in Japanese companies in their home country in order to transfer technology. However, the current curriculum is inadequate to follow up for these students in higher education. In higher education, therefore, the time to incorporate technology transfer in the curriculum is coming, especially the possibility of Intellectual Property Rights education in Thailand.**

***Keywords* – Intellectual Property Rights, Thailand, Japan**

I. INTRODUCTION

In ASEAN countries, Japanese companies have built and operated a large number of factories. Many university graduates will work for technology transfer between Japan and ASEAN countries. Additionally, product development activities have been conducted in the factories of the respective ASEAN countries in recent years. For technology transfer, it has been considered that students need high technical expertise for industrials, especially in making products, in some engineering subjects. Conversely, there are not enough lectures about Intellectual Property Rights (IPR) and Re-engineering (RE).

When students are able to learn more technology transfer skills, IPR and RE can channel their work into inventing new products. However, IPR and RE feature in too few curricula in most ASEAN universities including Japan. In particular, students do not have enough knowledge of IPR, despite it being one of the key literacies for technology transfer.

Why does knowledge of IPR contribute to technology transfer? It is easy to answer this question: new technology is founded on layers of former engineering. It is permissible to use another's patent following the expiry of 20 years since its invention. No products are born without the contributions of previous researchers. Therefore, just as a patent map may be made to grasp a precedent patent, in the case of product development, we start in Japan and perform product development after having understood existing inventions.

For these technology transfers and product improvements, knowledge of IPR (such as patents, inventions, and trademarks) is required. International students who return to their home countries after graduating from universities will require knowledge commensurate to not simply take advantage of the technology that they have learned in the initiative, but also apply their skills for IPR management. Likewise, among the Japanese students, its graduates to shape in overseas factories increases are expected to simultaneously possess essential knowledge of intellectual property globally.

II. OVERVIEWS OF JAPAN

2.1. Intellectual Property Policy in Japan

The Japanese government proposed the "Nation Declaration Policy by Intellectual Property" in 2002.

Prime Minister Junichiro Koizumi made a policy speech on the strategic use of intellectual property at the Diet on February 4, 2002. He announced that Japan was to become an "Intellectual Property Country," a country endeavoring to make intellectual property a key driving force behind national prosperity.

The first point to be discussed is the Japanese IP policy. The term "Intellectual Property Right" (IPR) is defined in the IP Basic Act Article 2-2 as follows:

> *"intellectual property right" as used in this Act shall mean a patent right, a utility model right, a plant breeder's right, a design right, a copyright, a trademark right, a right that is stipulated by laws and regulations on other intellectual property or right pertaining to an interest that is protected by acts.*

The guideline of the Strategic Formulation of the Intellectual Property of July 2002 led to the enactment of the IPR Basic Act in December that year. Since 2003, "The IP Strategic Program" has been published. The issues regarding IP education at National Institute of Technology (NIT) colleges and in higher education were first mentioned in this publication. (Table 1) How has IP education been introduced to NIT colleges?

Table 1. Strategic Policies of "IPR Country" in Japan

1998	Patent Office published "the Standard Textbook for Studying Industrial Property Rights" and started "School Assistant Programs for IPR Education."
2001	METI established "IPR Curriculum."
2002	PM Koizumi speech "Intellectual Property Country" (February) Intellectual Property Strategy Formulation Guideline (July) Intellectual Property Basic Act (November)
2003	Intellectual Property Strategic Program 2003 announcement
2011	MEXT added IPR education to industrial, commercial and agricultural high schools.

IPR education, the Japanese scholars, as well as students had to say enough educational content and are also provided (INPIT 2010). As highlighted in Yoshii (2012) in particular, systematization of intellectual property teaching through college tuition is insufficient from the subjective standpoint of supervising teachers only be expanded curriculum has not been sufficiently built up there. Compared with the educational institutions in Taiwan and Singapore that actively use up the curriculum and problem-solving techniques, at present, we are not yet keeping pace with Japan's level in this domain. To ensure promotion of the internationalization of college future, the time has come for us to regard the curriculum to become the global standard, even for intellectual property education, and, to understand the current state of intellectual property in the ASEAN countries.

Most NIT students cannot fully understand the IPR legal system due to its complexity. Therefore, IPR has been taught as a special subject, and only a few NIT colleges have offered IPR subjects.

It is currently difficult to conduct the IPR Strategic Program due to the disorganized offices at the Japanese Government. It is commonly thought that the Ministry of Economy, Trade and Industry (METI) handles administrative duties and policymaking. METI controls its sub-organizations and administers the Japanese patent policy formulated by them. For example, the Patent Office, one of METI's sub-organizations, is an administrative office for patents, design registration, and trademarks. The National Center for Industrial Property Information and Training (INPIT), another METI sub-organization, was formed to run the Industrial Property Digital Library (IPDL).

In 1998, aware of the importance of IP education, the Patent Office published the "Standard Textbook for Studying IPR" and began to support school programs for IPR education. Based on this textbook, the Patent Office and IPDL produced "the Standard Curriculum for IPR" and launched "School Assistant Programs for IPR Education."

Although METI and its sub-organizations have contributed greatly to the dissemination of IPR knowledge, METI has not given enough opportunity to students to study IPR at school. Because the Ministry of Education, Culture, Sports, Science and Technology (MEXT) has ultimate authority over educational divisions, METI could not spread IPR education among schools. Until 2002, the Japanese education system did not feature IPR on its curricula, and MEXT had no plans to train secondary education teachers on the subject. Only a few teachers have been aware of the importance of IPR, and they have taught this subject without licenses. In fact, there are only nine lines that mention IPR among the 230 pages of the most-used Japanese social science textbook for secondary educational students.

Since IP's role in higher education is at an early stage, there are several issues concerning the start of new education in this field. Osaka Kyoiku University launched a program called "the Education System for Teachers to Teach IPR" in 2005. The Patent Office and Yamaguchi University also conducted a study titled "the Research Project of IP Education at the University" in 2006.

Professors can teach students high technology skills and many awareness from their aspect. However, there are not enough lectures on "creating new ideas," such as mind maps, quality control circles, etc.

2.2 IPR Education in Japan

How has IPR education been conducted in higher education in Japan, especially in NIT? According to NIT's syllabus, only 8 of the 61 schools (13 %) teach IPR subjects. However, the number of NIT colleges joining the "School Assistant Programs for IPR Education" is 15. About half of those schools have no lecture titled IP but rather teach IPR in lectures with different names or club activities. Surveying the actualities from a different standpoint, lectures in NIT colleges are separated into two types: "Product-based teaching" (PBT) and "Classroom based teaching" (CBT). PBT consists of product developing, while CBT involves teaching on the IPR legal system and the patent application process. In NIT colleges, many of the IPR lectures given are PBT (Table 2).

Table 2. Details of IP education lectures in NIT

Year	Product-based teaching	Classroom-based teaching
2006	10	3
2007	10	3
2008	10	3
2009	10	3
2010	12	3

Source: INPIT (2007:2008:2009:2010:2011)

One of the best PBT is a lecture at Tokuyama NIT. Tokuyama NIT is the pioneer in the present situation surrounding the IPR education. Kadowaki (2008) says that Tokuyama NIT has twenty-four students doing the patent application for five years, and they donate a part of the benefit to IPR education. Its students can create products with an advice of teachers having experience in enterprise.

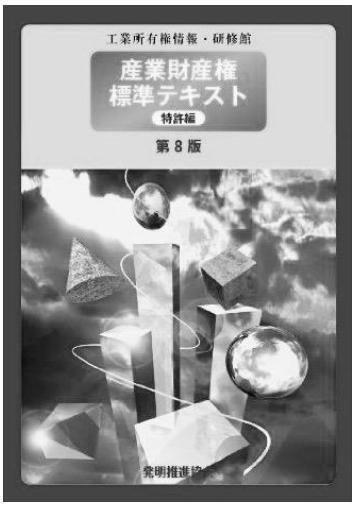

Figure 1. The Standard Textbook for Studying IPR


Figure 2. IPR Lecture at NIT, Miyakonojo College

Most NIT colleges have taught IPR using "the Standard Textbook for Studying Industrial Property Rights" with the "IPR Curriculum." By using this textbook, most students can understand the concepts of IPR with only twenty-five hourly lessons. Additionally, this textbook is provided free-of-charge by INPIT, so students taking PBT lectures can use free textbooks.

An exceptional example of IPR education among the standard technical NIT colleges is the NIT, Miyakonojo College. At this college, a professor delivers intellectual property rights education of practices that are rare in Japan. In addition to explaining the legal system, the professor trains his students in "the thought process to lead to the invention," using mind mapping and the KJ -Method.

IPR education through both PBT and CBT provides opportunities for students to understand IPR. Nowadays, there are many IPR education lectures at NIT colleges. In 2007, INPIT researched when the teachers had begun to study IPR. The results are shown in Table 3. It must be noted that many of the teachers at NIT colleges have no experience of or license in IPR education.

Table 3. Timing of teachers studying IPR in Japan

	High School	NIT	Total	%
At school	7	4	11	10%
Employment in enterprise	15	9	24	20%
Employment in NIT	31	6	37	32%
On this Program	32	2	34	30%
Aftertime	9	0	9	8%
Total	94	21	115	100%

There is a further point that needs to be clarified. The IPR curriculum established by INPIT lacks some elements: while it provides an effective means for students to understand IPR legal systems within a short time, it offers no guidance on "creating new ideas."

III. OVERVIEW OF THAILAND

3.1 Intellectual Property Policy in Thailand

The Department of Intellectual Property (DIP) of Thailand was established in 1992, under the supervision of the Ministry of Commerce. The strategy is the main organization for protecting IPR and enhancing its competitiveness and sustainable trade. The DIP's main tasks comprise: organization of the country's main hub of registered patents; coverage in both domestic and international; fostering creativity; and management and exploitation of IP in terms of commerce.

The diagram in Figure 3 shows the dip handles of intellectual property in several categories, such as Patent, Copyright, Trademark, Layout-Design of Integrated Circuit, etc. For example, in 2014 through the filing of an application for registration of the property. Issues in the invention (Invention) and design (Design) Over 12,007 entries and the number of IPRs that have been registered in Thailand total 3,763 entries for the records dating from 2010 to 2014 inclusive. Table 4 shows that the number of IPR registrations in Thailand is increasing.

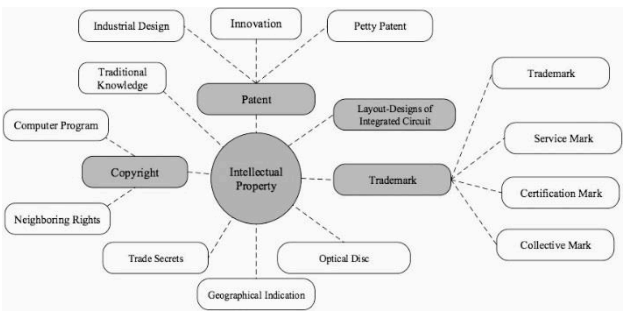

Figure 3. Intellectual Property Right in Thailand

Table 4. Number of Granted Patent Applications in Thailand

	2010	2011	2012	2013	2014
Invention	772	900	1,008	1,149	1,286
Design	1,332	1,253	2,107	2,858	2,477
Total Patent	2,104	2,153	3,115	4,007	3,763

However, the number of patent acquisitions among Thai nationals (individuals and corporations) is very low. Among 4,300 patent applications in 2012, only 169 cases (12.1%) were Thai. It is, therefore, necessary for the Thai government to implement a national strategy to increase the number of Thai patent applicants.

Table 5. Patent Applications in Thailand (2012)

	Japan	Thailand	Europe	Northern America
Thailand	731 (52.3%)	169 (12.1%)	318 (22.7%)	181 (12.9%)

(Unit: Number)
Source: Patent Office of Japan (2013:255)

In Thailand, the government has published a new "National Economic and Social Development Plan" (NESDP) every five years since 1961. The 11th NESDP, from 2012 to 2016, emphasizes the importance of IPR strategy:

> *Promote registration, utilization and protection of intellectual property rights in order to encourage research, innovation, creativity and local insight that benefit commercial applications to help drive the economy. Source: 11th NESDP (2012:86)*

Conversely, however, there are not enough ways to spread IPR strategy in Thailand.

3.2 IPR Education in Thailand

On investigating education in Thailand, we found that engineering faculties require students to work in a foreign company or industry, especially in Japan, which is recognized as having better technology and engineering in the world. Nowadays, Japan was established many companies in Thailand. Therefore, students need to apply for a job in a Japanese company or industry, especially in Thailand.

At present, Thailand has 156 universities and institutions of higher education, and 43 private universities. From the information survey of the websites of each engineering faculty in the private university group, we found a few RE and IPR subjects in their courses, as shown in Table 5.

From Table 5, the findings are summarized as follows: Among the 43 private universities: 1) two universities have an RE subject (4.15%), 2) six universities have an IPR subject (12.50%), and 3) only one university has both IPR and RE subjects (2.32%).

Table 6. IPR and RE courses of Private Universities in Thailand

	RE	IPR	RE&IPR	Total
Number	2	6	1	43
Percentage	4.16%	12.50%	2.32%	100%

Only one university has IPR and RE subjects. It is clear, therefore, that only a few Thai universities promote subjects conveying important knowledge on transfer technology from abroad. In particular, student engineering faculties have direct knowledge and understanding of technology transfer. Therefore, students who graduate without sufficient do not have the requisite knowledge to transfer technology from abroad.

IPR, as one of the most important fields of knowledge for transferring technology, is only a "required subject" in law faculties or in the legal field. It is not a "required subject" of engineering, but is only included as an "elective course."

IV. ANALYSES OF THE SITUATION

For this research, we conducted interviews with six Japanese companies in Thailand from June 6-22. We found the information detailed below concerning hiring preferences and IPR skills.

Table 7. The number of Patent Applications in Thailand (2011)

	Company	Nationalities	Number
1	Honda Motor Co. Ltd.	Japan	137
2	Panasonic Corp.	Japan	72
3	Thailand National Science and Technology Development Agency	Thailand	69
4	Mitsubishi Electric Corp.	Japan	41
5	Thailand Institute of Scientific and Technological Research (TISTR)	Thailand	39
6	Chiangmai University	Thailand	38
7	Kao Corp	Japan	37
8	Sanofi Sa	France	36
9	F Hoffmann-La Roche Ltd,	Switzerland	35
10	Sumitomo Rubber Ind. Ltd.,	Japan	33
10	Unicharm Corp/	US	33

Source: Patent Office of Japan (2013:253)

First, graduate appointments, lifetime employment, and a seniority wage system are not popular when hiring in Thailand. Therefore, they do not train their workers to develop IPR abilities. If they need to deal with IPR, they hire specialized legal services for this purpose. They do not need to hire patent agents or other employees with detailed knowledge of IPR to work in their companies.

Second, the studied companies do not need to create products in Thailand. Most technological inventions come

from foreign countries, and the Patent Cooperation Treaty (PCT) applies most of the patents filed in foreign countries to Thailand (see Table 7).

Third, there is enough attention to IPR in Thailand. When creators, including universities, obtain patents, they need ten years or more. This application system does not give enough benefits for companies developing technology. These situations are supported by social consensus.

V. CONCLUSIONS

The Thai government determines the country's IP strategy, including promoting, and service information about knowledge and patent to people. At present, the number of patents in Thailand is becoming larger. Thus, people are also becoming more aware of IP. The difficult problem is that most people do not know how to transfer technology from ASEAN countries to Thailand.

In particular, private universities in Thailand do not include IPR in the "required subjects" of engineering faculty courses, leading to students graduating without knowledge and expertise in technology transfer from ASEAN countries, especially Japan. It has becomes necessary to introduce IPR in school education to enable the Thai economy to develop more effectively. There will be many problems, including training teachers to deliver IPR education in Thailand and making the future IPR curriculum like that of Japan.

In addition, I want to emphasize the following points. Through IPR education, Thailand's economy will be advanced by students learning about manufacturing and the processes of applying for and protecting patents. When a product conceived by a student acquires a patent, venture companies are born, leading, in turn, to social class movement.

IPR education provided in Japan suffers some problems, but the future Thai economy will be greatly changed if IPR education like that in Japan is effectively introduced in Thailand. Many overseas companies now operate in Thailand, which functions as a production base for them. However, the development of IPR education in Thailand will shortly change it into a country where product development in own countries.

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