THE HARMONIZATION OF THE PATENT SYSTEM
A GLOBAL PATENT SYSTEM IS POSSIBLE OR IMPOSSIBLE?

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ACKNOWLEDGEMENT

This is my research theme when I studied in Japan under the WIPO project. During the five months, the JPO and APIC of JIII organized and managed efficiently my research, I also got much help from different aspects. So, I would like to sincerely express my gratitude to:

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Tokyo, September 2007

It should be noted that opinions expressed in this report are purely personal and do not necessarily reflect those of the organization to which the author belongs.
ABSTRACT

As we have seen now, the harmonization of patent system is not a new thing, also not a new word. The sign of Paris Convention started the harmonization of patent system, but at that time, there was no the conception of harmonization. The conception was put forward in the end of last century; it was talked widespreadly during 2000-2004. At present, the harmonization has changed from the level of law to the level of operation. Not only the cooperation of tri-lateral offices, but also the “development agenda” provided by developing countries, all aimed to promote the harmonization and development of patent system. But the direction is different.

This report tries to know the realistic background, the history process and the present progress of harmonization. This report wants to analyze the benefits and disadvantages of harmonization for the government and enterprise in developed and developing countries. This report also tries to distinguish what had been harmonized, what need to be harmonized further, and then give the judgment of trend of harmonization.

Therefore, the chapter one was the introduction of the background and aim of why I select this tropic, and the introduction of hypothesis and mythology of my report. Chapter two introduced the realistic background of harmonization, explained why the international association, especially the developed countries, pay so much solicitude for international harmonization of patent system. Chapter three analyzed the history process and the achievement of harmonization, introduced the new progress on harmonization, and prospected the trend of harmonization. Chapter five explained the present achievement from the aspect of law and operation. Chapter six was the statistic results of questionnaire and interview opinions. Chapter seven analyzed how would the patent system develop, what did the developing countries deal with the new harmonization, what was the most important concern that the Chinese government should pay more attention to.

This report just is a summary of my study in Japan. The understanding and comprehension to some conception is very superficial. Some judgments maybe were not so exactly. I honestly wish you the reader give some comment and criticism.
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CHAPTER-ONE
INTRODUCTION

In 1999, an informal meet was taken between the developed countries including Canada, France, Germany, Japan, the United Kingdom, the United States and the European Commission in Tokyo. The meet discussed the industrial property matters including possible industrial property systems from a global perspective.

At that meeting, the developed countries think that simplification and convergence of patent systems is an essential and pressing task for a balanced development of the global economy. ¹

From then on, the patent system harmonization came into a new stage. During the past ten years, The SCP Standing Committee on the Law of Patents of WIPO has been devoting to do something about the patent system harmonization.

At its fourth session in November 2000, the SCP just discussed the harmonization generally and the first draft provisions include so many contents. But at its fifth session in May 2001, the draft just covered six issues mentioned above. During the seventh, eighth and ninth sessions of the SCP, further revised drafts of the SPLT were discussed. At the tenth session of the SCP, the United States of America, Japan and the European Patent Office submitted a joint proposal designed to focus on an initial package of priority items including the definition of prior art, grace period, novelty and inventive step.

At its eleventh session, held on June 1 and 2, 2005, the Director General submitted a recommendation² to the SCP. The recommendation considered that the harmonization discussion should focus on the six issues including prior art, grace period, novelty, inventive step, sufficiency of disclosure and genetic resources. The recommendation also

² The recommendation was a result of an informal consultation. The consultation were attended by delegates from Brazil, Chile, China, France, Germany, India, Italy, Japan, Malaysia, Mexico, Morocco, Russian Federation, Switzerland, United Kingdom, United States of America, the African Regional Industrial Property Organization (ARIPO), the Eurasian Patent Office (EAPO), the European Patent Office (EPO), the African Intellectual Property Organization (OAPI) and the European Union (EU). At the end of the meeting, all participants except the delegate from Brazil adopted this recommendation.
underlined the importance of the continued active pursuit of discussions and work within WIPO on issues related to development and intellectual property so that a robust, effective and actionable WIPO Development Agenda could emerge.3

Although the harmonization of patent system under the WIPO framework has always been opposed by developing countries, some progress has also been achieved. The internationalization of patent system is becoming closer and closer. As for developing countries, what does the international harmonization of patent system mean? How to harmonize patent system can it be beneficiary to domestic economic development? What strategy should a country adopt to deal with the patent system internationalization? These are problems that all developing and under-developed countries are striving to resolve. Through searching relevant information and analyzing those information, this paper attempts to reach some insightful conclusions about the above questions.

1.1 WHAT IS THE HARMONIZATION OF INTERNATIONAL PATENT SYSTEM?

Since the beginning of the 21st century, the globalization trend of world economy has become more and more obvious. Mutual permeation and inter-dependence between countries in politics, economy, society, culture and so on are deepening day by day. Even in the legal system, which has the strongest characteristic of national sovereignty, permeation and harmonization are underway without notice. Because patent system is the combination of technical, economic and law, the international convergence and harmonization of patent system are more active and advanced than any other fields. Since 1999, the harmonization of international patent system advocated by developed countries has become the main stream of the intellectual property rights field.

● What is the harmonization of international patent system?

The harmonization of international patent system is a trend, a process and a result in internationalizing the patent system. A trend means the intrinsic direction that the patent system possesses in the process of unification. A process means the whole courses that

The patent system in different countries tends to unification. A result means the final conclusion that the patent system in different countries tends to unification.

- **The harmonization of international patent system is the result of patent system development.**

In 1474, the Republic of Venice issued the first patent law in the world. Early patent systems grant patents only to domestic civilians to protect their interests. However, since the Paris Convention was signed, there is no country in the world that grants patents only to domestic civilians. Patent novelty was published just within the country in the early time. Later blended novelty standard was set up, while now the majority of countries in the world adopt absolute novelty standard. Since the Patent Cooperation Treaty was signed, the procedure of patent application for more than one country has been greatly simplified. Based on the minimum standards, the subject matter of IP protection has become more and more unified through the reconciliation of the Trade Related Intellectual Property Rights. Preliminary examination procedures of patents have also been unified gradually through PLT procedures. Moreover, right now developed countries are actively promoting the harmonization of substantive examination standards. This is the general trend of world patent system development and many countries are revising their patent laws to well adapt to it.

In April 2002, Japan revised the law and have claims become independent from specifications. It is only a minor change, but consistent with the draft SPLT. In 2000, the JPO's Examination Guidelines was substantially revised centering on method to judge inventive step. Through such revisions, differences between patent systems of WIPO member states have come to be reconciled.4

In the year of 1999, The Congress of United State passed the American Inventors Protection Act of 1999. It contained several provisions that brought some aspects of U.S. patent law in parallel with the patent laws of other countries. One key provision is that applications will be published 18 months after their filing since November 29, 2000.

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In the year of 2005, the reform of the Indian Patent Law provides that “inventive step” means a feature of an invention that involves technical advance as compared to the existing knowledge or having economic significance or both and that makes the invention not obvious to a person skilled in the art.  

The Revised Draft of the Patent Law of China in 2006 gave up the so-called "blended novelty standard", adopted the absolute novelty standard for the first time.

Various countries intentionally or unintentionally revising their patent laws to adapt to the trend of world patent development indicates that the harmonization of international patent systems possesses intrinsic motivation. This motivation comes out naturally with economic globalization and legal convergence of the world. It reflects the intrinsic motivation of the harmonization of international patent system.

1.2 THE OBJECTIVES OF THE RESEARCH THEME

1. Why I choose this topic?

- SIPO also faced the same workload challenge as the developed countries

In china patent applications have been growing rapidly since the implementation of the Patent Law on April 1, 1985. Until December 31, 2006, the SIPO has accepted 3,334,367 patent applications accumulatively. Applications exceeded the 1st million mark in January 2000, taking as long as fifteen years. However, by March 2004, that is only four years and two months later, the applications exceeded the 2nd million mark. The 3rd million mark was exceeded in June 2006, taking only two years and three months. These figures revealed the exponential growth in the number of patent applications. (See the Figure 1)

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5 The Indian Patent Law before 2002 the definition of “invention” is any new and useful. There is no inventive standard, but novelty standard. In the year of 2002, the definition of “invention” is revised to “inventive step means a feature that makes the invention not obvious to a person skilled in the art”. In the year of 2005, the definition is revised again as above said.
In SIPO, the increasing speed of application received is very high, especially in recent eight years (the average annual increasing rate exceeded 20%). (See the Figure 2). In 2006 the total amount of applications received by SIPO reached 573 thousand, among which 210 thousand are invention applications, 161 thousand are utility modal applications and 201 thousand are industrial design applications.

In recent years, the PCT applications in SIPO also increased rapidly, from 745 in 2000 up
to 3826 in 2006, which means the average annual increasing rate from 2000 to 2006 in SIPO is 31%.

All of these will give SIPO huge stress. This is one of the challenges the SIPO faced.

- **China owns the common benefit with other developing countries.**

China has the same position and view with the other developing courtiers in many fields. As a developing country, the same with other developing countries, China also expect the patent system promote the development of economy and technology. In the aspect of protect level and protect strength, China owns the same desire as the other developing courtiers. As for the protection of genetic resources, traditional knowledge, and biodiversity, China has the same demand as the other developing countries.

- **A more effective patent system is needed to stimulate the development of China in the future.**

China has joined the ranks of nations promoting economic growth through innovation. To protect such innovation, the patent regime is being reassessed and tightened. So in the recent future years, more and more inventors especially the MSE companies will make use of the patent system. According to the application forecast, the raising rate will maintain high speed. China, a relative latecomer to the construction of Intellectual Property (IP) law is both learning from the experiences of other countries and is innovating itself.

Therefore, on the one hand, China expects the patent protection system can suit for our developing level; on the other hand, China must pursue the developing step of patent system.

One object of this study is to find out the possibility of harmonization of international patent system. This study also wants to find out the proper harmonization way that is suitable for both developed countries and developing countries. At the end of this report, the author will give some suggestions on the harmonizing mechanism that the developed and developing countries could take.
2. Methodology of the research theme

- The process of the research theme

This research is conducted firstly by way of extensively collecting knowledge and information regarding the harmonization of patent system including Paris Convention, TRIPS, PCT, PLT, and SPLT etc. from books, the internet, and by interviews with experts, examiners of JPO, patent attorneys of the patent agency and patent staffs of enterprises, if necessary and possible.

After collecting the knowledge and information, it is the step to read and study the relevant materials earnestly so as to understand the materials thoroughly.

Then it is to make analyses of the materials read and studied in order to find the benefits and obstacles between the developed countries and developing countries and to analyze the possibility of the patent harmonization from the aspects of law and manipulation.

At last, it is to provide some suggestions regarding strategy of developing countries especially China in harmonization of patent system which may be useful to China.

- The hypothesis of my research theme

In the process of harmonization, this core principle had been fixed, that is having the public interest at their center. In another word, that is “The future evolution of the international patent system should provide an appropriate balance between the right of inventors and the general public.”

The core principle decides the aim and destination of the patent system harmonization. Promoting the raise of economic in different countries, eliminating the poverty, I think, that should be the purpose of the harmonization of patent system.

So the hypothesis of my research theme is that:

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The international harmonization of patent system is an inevitable trend in the development of patent system. The international harmonization of patent system should be and could be benefit to developed countries and developing countries.

- The means of my research theme

The following means have been adopted by focusing various issues in order to achieve the object of this theme.

(1) Analytical study has been made regarding the role played by Japan Patent Office and other agencies in IP administration in Japan to establish the role played by each in the overall system.

(2) Questionnaires have been administered to JPO, patent attorney and industrial companies, please see the Chapter SIX;

(3) Interviews were conducted with resource persons in JIPA and patent attorneys.

(4) Documents like annual reports, brochures, monographs published by Japan Institute of Invention and Innovation, literature on the website of WIPO and other agencies were reviewed; and

(5) Various expert lectures conducted at Asia Pacific Industrial Property Center and weekly seminars at the Tokyo Institute of Technology were attended in addition to formal and informal discussions with resource persons in JPO, JIII and APIC and this fellowship team come from IP office of India, Mongolia and Lao PDR government.
CHAPTER-TWO
THE REALYSTIC REASONS OF THE HARMONIZATION

The motive of patent harmonization is not coming from the heaven now. Not only the Paris Convention, but also the Patent Cooperation Treaty later, or the operation harmonization between the national offices, every harmonization has it’s own realistic reasons as the promote power. At present, beside the globalization of economic, the other reasons for harmonization include the heavy stress on national offices, especially for the main application countries; the patent obtaining becoming more complex; and as the development of technoledge, the patent system plays more important role in trade behaviors, so inventor and/or applicant emerge the new expect for patent system. That will be discussed in details within this chapter.

2.1 RAPID GROWTH OF PATENT APPLICATIONS

The rapid growth of patent application may become the main reason for patent harmonization. We can see this situation from three aspects. One is about the increasing rate; the second the applications through the PCT route is increasing; the third is about the numbers of filing countries.

1. The Sharp Increasing Rate

The number of patent applications filed worldwide is nearly 1.6 million in 2004. The average annual rate of increasing in total patent filings since 1995 is 4.75%. The patent offices of Japan and the United States of America are the largest recipients of patent filings, followed by China, the Republic of Korea and the European Patent Office. These five patent offices account for 75% of all patents filed in the world in 2004.\(^8\)

The number of patent applications filed at the “Big 5” offices is nearly 1.3 million in 2005. Therefore, through observing the changes of patent applications at the “Big 5” offices, we can generally learn about the changes of patents applications of the whole world.

The chart shows the total number of patent application filings in the top 10 patent offices from 1956 to 2005. From this chart, we can see that the application number increased sharply from 1970’s for Japan, from 1980’s for USA, from 1990’s for Korea and European, from 2000’s for China. We also can see that the JPO, USPTO, EPO, KIPO and SIPO constitute the main patent filing office in the world.

**Fig. 2-1 Total Number of Filings over the last 50 Years in the top ten countries**

![Chart showing total number of filings over the last 50 years in the top ten countries]

The chart below is the application increasing state for the five offices in the fifteen years. Beside Japan, all the other four countries’ application is increased from 2001, especially for China and American.

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9 The chart comes from the WIPO statistics database.

10 This figures come from the annual report of SIPO, JPO, EPO, KIPO, some come from an article Number of Utility Patent Applications Filed in the United States, By Country of Origin, Calendar Years 1965 to Present, the website is http://www.uspto.gov.us.
The following chart is about the increasing rate of invention application in China. We can see, the average increasing rate from 2001 is more than 25%.

2 The more application through PCT route

The average annual rate of increase in total patent filings since 1995 is 4.75%. Most of the increasing in patenting is in patent filings by non-residents (7.4% average annual increase since 1995) and within the category of non-resident filings, there has been a notable shift to filing via the PCT system (14.7% average annual increase since 1995).  

⑪ Come from the speech of JPO commissioner in 2006, the title is "Domestic and international Initiatives of the
The chart below shows the total number of PCT international applications filed worldwide from 1990 to 2005.\(^\text{12}\)

**Fig. 2-4 The total number of PCT international applications**

The number of PCT international applications filed per year has grown from 19,809 in 1990 to 135,602 in 2005. The average annual growth rate between 1990 and 2000 was 16.8%, and the growth rate has slowed to less than 10% since 2001.

The chart below shows the numbers of PCT applications filed by the “Big 5” offices.\(^\text{13}\)

**Fig. 2-5 The numbers of PCT applications filed by the “Big 5” offices**

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\(^\text{13}\) The data come from the WIPO Report. The data is the application number received by national office.
According to the above diagram, we can divide the “Big 5” offices into three groups by the number of PCT applications: the first group is USPTO. The number of PCT applications filed by USPTO is huge, more than 40000 each year; the second group is JPO and EPO. The number of PCT applications filed by these two offices is also great, basically from 10000 to 25000 each year. Especially the JPO, the number of PCT application filed by which increased very rapidly and the average annual increase rate from 2001 to 2005 was 20.07%; the third group is SIPO and KIPO. Both of them have a small number of PCT applications, less than 5000 each year. Specifically, SIPO filed 2438 PCT applications in 2005 and the average annual increase rate from 2001 to 2005 was 10.15%, while the average annual increase rate from 2001 to 2005 for KIPO was 19.29%.

3. More filing countries for one invention

The chart below shows the worldwide ratio of non-resident patent applications per resident patent application. 14

![Fig. 2-6 The ratio of non-resident applications per resident application](http://www.wipo.int/ipstats/en/statistics/patents/pdf/patent_report_2006.pdf)

This chart reflects a tendency for patent applicants to seek protection in an increasing number of countries. There has been a period of increase from 1995 to 2001, followed by relative stability from 2001 to 2004.

The following chart is the number of patent applications filed mutually between the

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14 The data come from the WIPO Report 2006. 
From this chart, we can see that the number of patent applications filed mutually is very big, especially between the EPO, USPTO and JPO. That means one invention will produce more than one application in more than one country sometimes. This phenomenon have resulted in much duplicate work for national offices, and much filing burden for applicants.

2.2 THE GREAT STRESS AND CHALLENGES ON IP OFFICES.

The rapidly growing applications result the workload for Patent Offices.

1. Annual expenditure is growing up

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15 The data come from the annual report of SIPO, JPO, EPO and KIPO. The data of USPTO come from the article Number of Utility Patent Applications Filed in the United States, By Country of Origin, Calendar Years 1965 to Present, website: http://www.uspto.gov.

16 Beside the number of application to SIPO is the sum of three types patent application, the number of application to other countries just include the invention application. But in SIPO, for overseas applicants, the application of utility modal and industrial design is very small.

17 The data come from the annual report of KIPO, JPO and USPTO.
The number of examiners increased greatly.

From the above diagram we can see that the number of examiners at the “Big 5” offices is growing year by year, especially that at SIPO and USPTO. Until the end of 2006, the number of examiners at SIPO, USPTO and JPO increased by 43%, 14% and 8% respectively than that of 2005; the number of examiners at EPO and KIPO at the end of 2005 increased by 2% and 30% respectively than that of 2004.

2.3 THE NEW EXPECT TO PATENT SYSTEM

1. The Expect to Simplify the Patent Obtaining Process
As the development of advanced technologies and the globalization of market, patent applications grow rapidly, which greatly increased workload on IP offices and resulted in long examine pending time. Meanwhile, the cost of obtaining patent increased a lot and obtaining patent in more than one country also become more complex. So the patent applications especially in developed countries seek to find a new system to solve those problems.

When seeking patent protection in multiple countries, applicants have to follow different processes according to the country because different countries have different patentability requirements. If you plan to obtain a patent in 10 countries, for example, you will have to respond to 10 different reasons of refusal separately issued by 10 central IP Offices. Such differences in patentability requirements may lead to different final decisions---the same subject matter is regarded as patentable in certain countries but not in other countries. Even the patentable case, the final claim may be different. Applicants, therefore, are required to follow different and complex processes with each of the Offices and yet are not able to easily foresee the patentability of their inventions.

If a standardized patentability criteria are put into practice, applicants will probably be able to obtain the same final decision on the same claim from the countries they sought protection by following the same processes with these countries. During the period when the efforts for substantive harmonization were suspended, WIPO member states individually revised laws and IP-related guidelines to improve their patent systems.

2. The Expect to Reduce the Duplicated Workload

According to the Trilateral Statistical Data for the year 2000, searches and examinations, in other words substantial workload, numbered about 260,000 at the JPO, 90,000 at the EPO, and 300,000 at the USPTO, making a total of about 650,000 searches and examinations. Among this workload, 24.4 percent of the total workload is duplicated.

Naturally, if this duplicated workload could be reduced exploiting search and examination results obtained by other IP Offices, it would greatly contribute to
workload reduction at each Office. 18.

It is needed to reform the patent system in the international area to simplify the patent obtaining process and to reduce the duplicate workload. So the concept of global patent system was put forward. This is the essential way to solve this problem--simplifying patent obtaining process and reducing the duplicate workload.

3. The Expect to shorten the Examination Pending Time

Although the pending time for substantive examination is shorter than before, or maintain the same, see the chart below 19, but the applicant even expect for more faster examination than before.

4. The Expect to Strengthen the Protection for Patent Right

- Broader Tropic Scope

With the development of technology, some subjects matter that need protection are out of the scope of present patent system. New upcoming technologies such as biological technology, software technology, business methods and etc. will produce enormous profits, but they cannot be protected by present patent system worldwide.


19 Substantive examination period means the average time period from the starting of substantive examination procedure to making substantive examination decisions for a patent application of invention.
In the meantime, with the development of technology, infringement judgment is becoming harder and harder. Enterprises are so sophisticated that they always can avoid patent rights’ protection scope. While the inventors of new technologies, especially some break-through inventions, expect a more comprehensive protection. Therefore, in pharmaceutical and biotechnological areas, the content of protection that applicants demand will be expanded larger and larger, and the quantities of patent application will be more and more.

**Fig. 2-11  Average Number of Claims in one Japanese Application**

![Average Number of Claims in one Japanese Application](image)

Source: Come from the Annual Report 2006 of JPO

- **Stronger Protection**

Patent protection ultimately manifests in the exploitation stage. Compared with traditional technology, exploitation of new technology brings much more profits. Therefore, enterprises require more effective protection methods to safeguard their profits. Such requirements are manifested in many aspects including explanation to claims, judgment of infringement behavior, compensation for infringement damage, refraining duplication and counterfeit and so on. Due to the limitation of legislation techniques and law enforcement, many developing and under-developed countries find still difficult to provide equally effective benefits security as developed countries do at present.
2.4 CONCLUSIONS

The heavy stress on IP office of main application countries; the increasing complexity on obtaining the patent right; and the new expect to patent system; those three factor constitute the main promotion power for the present harmonization. We also can get this conclusion from the answer of my questionnaire. When I asked the main reasons and benefit of harmonization, most of the answer choose to reduce workload and duplicate work.  

However, this is just the external reasons. Besides this, the patent harmonization has it’s own internal essential reasons, that is the higher expect to obtain the profit from the patent monopoly right. In another word, the enterprise expects to obtain higher monopoly profit from the more and more patent monopoly rights.

We can give a deeper thought about this problem. When we ask why the enterprise expects to obtain higher monopoly profit from the patent system? My personal understand is that the innovation cost is higher than before when the enterprise do the technical innovation. The following example can explain this.

One example is the increasing intersect license between the enterprises and the appearance of patent pool. As the increasing complexity for technical product, the same one product always include different patent right which own by different companies. In order to manufacture and sell those products, a lot of licenses, intersect license or patent pool is formed between different companies to avoid infringing. That is the social cost brought by patent right.

Another example is that the money that the enterprise pays for infringement or pays for staff for employ-invention is also increasing. For the employ-invention compensation money, the following is some typical case for employee-invention disputes.

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**CASE: FOR REMUNERATION OF EMPLOYEE-INVENTIONS**

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20 please see the Chapter six.

<table>
<thead>
<tr>
<th>Case One:</th>
<th>Heisei 3 (Wa) 5984 Decided April 28, 1994 Osaka District Court (ID: 27828238) Zojirushi Mahobin</th>
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<tbody>
<tr>
<td></td>
<td>“Method of manufacturing vacuum bottle”</td>
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<tr>
<td></td>
<td>The inventor claimed 150,000,000yen ($1.15M). The court awarded 6,400,000yen ($49,000) as a reasonable amount.</td>
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<th>Case Two:</th>
<th>Heisei 5 (Ne) 723;763 Decided May 27, 1994 Osaka High Court (ID: 27827381), Heisei 6 (O) 1884 Decided Jan 20, 1995 Supreme Court (ID: 28011673) Gohsen</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>“Method of manufacturing polyethylene terephthalate monofilament”</td>
</tr>
<tr>
<td></td>
<td>The inventor claimed 16,350,000yen ($126,000). The court awarded 1,660,000yen ($12,800). The Supreme Court confirmed the decision by the Osaka High Court.</td>
</tr>
<tr>
<td></td>
<td>Remunerations at the time of filing (P:5,000yen, UM:3,000yen) and at the time of granting (P:15,000yen, UM:10,000yen) are reasonable.</td>
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<th>Case Three:</th>
<th>Tokyo District Court awarded 2,000,000,000yen ($15.4M), and The high court gave the reconciling suggestion. Finally, Nichia Chemical paid the remuneration for 80,000,000yen.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nichia Chemical was sued in 2001 by Prof. Nakamura, who is the key inventor of various blue LED patents. Prof. Nakamura claimed 2,000,000,000yen ($15.4M).</td>
</tr>
</tbody>
</table>

That is to say, the patent system of stronger protect bring a higher social cost than the period of weak protect. From this point of view, the patent system seems to go into a strange circle. On the one hand, the patent system stimulates more innovation, and promotes more companies gain much profit; on the other hand, the patent system force more and more companies to pay the cost for innovation. That is a complicated economic problem. This report maybe can not acquire deep research conclusions. However, not only the advanced countries, but also the developing countries indeed to re-consider the direction for patent development.
3.1 HISTORICAL DEVELOPMENT ABOUT HARMONIZATION

The movement towards harmonization is not new; it has been going on for over 100 years. Notwithstanding the considerable progress in the field of international patent law harmonization already achieved, for example through the Paris Convention for the Protection of Industrial Property, the PCT and the TRIPS Agreement. The following will give a summary introduction about several important harmonization.

- **The Paris Convention**

Prior to the existence of an international industrial property regime it was difficult to obtain protection for industrial property rights in various countries of the world because of the diversity of their laws. In the field of patents, applications had to be made roughly at the same time in all countries in order to avoid the publication of an application in one country destroying the novelty of the invention in the other countries.

During the second half of the nineteenth century, the growth of industrial production, the increase in international trade and the development of a more internationally oriented flow of technology made the harmonization of industrial property laws become urgent in the fields of patents, trade marks and industrial designs.

The Paris Convention for the Protection of Industrial Property, signed in Paris, France, on March 20, 1883, is an important intellectual property treaties. On account of this treaty, intellectual property systems, including patents, of any contracting state are accessible to the nationals of other states party to the Convention. The Convention now has 171 contracting member countries\(^\text{22}\), which makes it one of the most widely adopted treaties worldwide.

In the year of 1886, the first conference of revise took place in Rome. From then on, until 1967, the Paris Convention had undergone eight revisions during the nearly one hundred

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years. The evolutionary process for Paris Convention is still going on.

The Paris Convention of 1883 was obviously significant as the first multilateral intellectual property convention. Although it had declined to address the important theoretical issues which were discussed in the 1878 Conference, the 1883 Convention contained a number of important substantive features: the requirement of national treatment, priority rights and the concept of an “Open Union”, with the possibility of revision and the extension of membership. The Paris Convention was to serve as a model for the subsequent international intellectual property agreements.23

- **The Patent Cooperation Treaty (PCT)**

The traditional patent system requires the filing of individual patent applications for each country for which patent protection is sought. Under the traditional Paris Convention route, the priority of an earlier application can be claimed for applications filed subsequently in foreign countries but such later applications must be filed within 12 months of the filing date of the earlier application. This involves for the applicant the preparation and filing of patent applications for all countries in which he is seeking protection for his invention within one year from the filing of the first application. This means expenses for translation, patent attorneys in the various countries and payment of fees to the patent Offices, all at a time at which the applicant often does not know whether he is likely to obtain a patent or whether his invention is really new compared with the state of the art.

Filing of patent applications under the traditional system means that every single patent Office with which an application is filed has to carry out a formal examination of every application filed with it. Where Patent Offices examine patent applications as to substance, each Office has to make a search to determine the state of the art in the technical field of the invention and has to carry out an examination as to patentability.

The principal difference between the traditional national patent system and the regional patent systems such as those mentioned above is that a regional patent is granted by one Patent Office for several States. Otherwise, the procedure is the same, and the

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explanations given in the preceding two paragraphs are equally valid.

In order to overcome some of the problems involved in the traditional system, the Executive Committee of the International (Paris) Union for the Protection of Industrial Property invited, in September 1966, BIRPI (the predecessor of WIPO) to undertake urgently a study of solutions to reduce the duplication of the effort both for applicants and national patent Offices. In 1967, a draft of an international treaty was prepared by BIRPI and presented to a Committee of Experts. In the following years, a number of meetings prepared revised drafts and a Diplomatic Conference held in Washington in June 1970 adopted a treaty called the Patent Cooperation Treaty.


As its name suggests, the Patent Cooperation Treaty is an international cooperation agreement in the field of patents. It has been considered as the most significant advance in international cooperation in this field since the adoption of the Paris Convention. It is, however, largely a treaty for rationalization and cooperation with regard to the filing, searching and examination of patent applications and the dissemination of the technical information contained therein. The PCT does not provide for the grant of “international patents”: the task of and the responsibility for granting patents remains exclusively in the hands of the Patent Offices of, or acting for, the countries where protection is sought (the “designated Offices”). The PCT does not compete with but, in fact, complements the Paris Convention. Indeed, it is a special agreement under the Paris Convention and open only to States that are also party to the Paris Convention.25

The systems of International Search Reports (ISRs) and International Preliminary Examination Reports (IPERs) under the PCT can be considered as part of the efforts towards elimination of duplicate work. The PCT is expected to grow into a more useful system through the reform currently discussed. With the PCT system alone, however, the critical situation that IP Offices are facing in recent years can't be overcome.26

26 Shinjiro Ono, deputy commissioner of JPO: “Substantive Patent Harmonization and Japan’s Stance”, Website:
The PCT represents the most notable progress made in cooperation in the patent field since the adoption of the Paris Convention. PCT simplifies the process of filing foreign patent applications; provides for the filing of a single international patent application having the effect of a national application in each designated State (128); regulates the formal requirements of the international application; results in a preliminary, non-binding opinion on the novelty, inventive step, and industrial applicability of the claimed invention.

The Trade-Related Aspects of Intellectual Property Rights (TRIPS)

The increasing pace of globalization engendered by faster and cheaper methods of transportation and communication, combined with the growing ease of imitation, produced a strong and continuing demand for improving the international legal framework for the protection and enforcement of IPRs.

Under the proposition of the USA and the European Community, some agreement related to Intellectual property protection, for example, the agreement on attacking counterfeit goods, was adopted as part of the GATT.

Before the WTO’s Uruguay Round, intellectual property laws were a matter for domestic policy. But the introduction of the TRIPS Agreement made it mandatory for all WTO members to provide internationally acceptable and enforceable patent protection for new inventions in all areas of technology.

The TRIPS Agreement was signed by all WTO member countries in 1994 and covers all types of intellectual property including patents, copyright and trademarks. It requires intellectual property rights to be protected in all WTO member countries. IPRs have moved rapidly from being an esoteric subject confined to specialist circles to becoming a major policy issue in international economic relations and a term recognized by the general public the worldwide.

The TRIPS Agreement came into effect on 1 January 1995 after the long and difficult negotiations of the Uruguay Round of the GATT. The negotiators of the TRIPS

Agreement appreciated that the exigencies of negotiation had produced a document that would require subsequent amendment and improvement. Built in to the Agreement itself was a reform agenda applying to a number of the specific substantive provisions; geographical indications (article 23.4); the patentability of biological inventions (article 27.3.b); and "non-violation" cases (article 64). Additionally, Art.71 requires the Council for TRIPS to review the implementation of the Agreement after the expiration of five years from the commencement of the Agreement and at two-year intervals after that. Also, the occasions of the Singapore, Seattle and Doha Ministerials have been used to broaden the subjects of review.  

The TRIPS agreement, which entered into force in 1995 and subject to specified transitional periods, has made minimum standards of IP protection mandatory for WTO members. But TRIPS is only one element of international harmonization. There are continuing discussions in WIPO aimed at further harmonization of the patent system, which may supersede TRIPS. Moreover, bilateral or regional trade and investment agreements between developed and developing countries often include mutual commitments to implement IP regimes that go beyond TRIPS minimum standards. Thus there is sustained pressure on developing countries to increase the levels of IP protection in their own regimes, based on standards in developed countries.

The Patent Law Treaty (PLT)

A broad draft harmonization treaty, which was negotiated between 1985 and 1991 under the auspices of WIPO, was never adopted due to divergences on issues such as the first-to-file versus the first-to-invent systems and the grace period. In 1994, Member States authorized WIPO to proceed with work on a treaty in respect of the harmonization of patent formalities, which resulted in the adoption of the PLT on June 1, 2000. The PLT entered into force on April 28, 2005. As of January 2007, the PLT was in force in 14 states.

The PLT treaty is designed to streamline and harmonize the administrative requirement

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set by the national or regional patent office. These requirements mainly include formal and procedural requirements for granting and maintaining patents, for example, according to filing date, content and form of application, representation, communication and notification. The PLT, however, expressly excludes substantive aspects of patent law.

The PLT treaty also provides the requirement relating to the international applications filed in accordance with the PCT. That is also the aim of PCT reform. So through the PLT treaty and PCT reform, the requirements and procedures applicable to national and regional patent applications, and the PCT international applications will be harmonized. The PLT treaty constitutes an important step on the road to harmonization of patent law.

- The Substantive Patent Law Treaty (SPLT)

The diversity of the legal system for granting patents is due to the principles of substantive law. An invention can lead to the grant of a patent in certain countries, but may be refused or invalidated by other countries. That would lead to additional costs for the inventor and applicants, as well as for patent office.

After the conclusion of the PLT, Member States of WIPO decided, in November 2000, to start discussions on harmonization of substantive patent laws throughout the world. In May 2001, the SCP examined the first draft of the SPLT with its regulations and practical guidelines prepared by the Secretariat of the WIPO international bureau. Recently, because of the conflict between developed country and developing country, no progress was received during the SCP seminar in February and June 2005, and April 2006.

The SPLT, which cover, in particular, the following issues: definitions of prior art, novelty, inventive step/non-obviousness and industrial applicability/utility, the drafting and interpretation of claims, and the requirement of sufficient disclosure. The discussion on three additional issues, namely first-to-invent versus first-to-file, publication of patent applications after 18 months and post-grant opposition, has been postponed. At this stage, while a considerable number of issues appear to find agreement in principle, some aspects are still subject to controversy.²⁹

The Substantive Patent Law Treaty (SPLT) is a proposed international patent law treaty aimed at harmonizing substantive points of patent law. In contrast with the Patent Law Treaty (PLT), signed in 2000 and now in force, which only relates to formalities, the SPLT aims at going far beyond formalities to harmonize substantive requirements such as novelty, inventive step and non-obviousness, industrial applicability and utility, as well as sufficient disclosure, unity of invention, or claim drafting and interpretation.

3.2 Main Achievements of harmonization

With the development of patent system, especially the development during the past more than one hundred years, the harmonization of patent system has achieved great success in the following aspects.

1. Established Several Important And Fundamental Principles

Prior to the Paris Convention, most countries established patent system mainly to protect the benefits of domestic inventors, patent rights were also granted mainly to domestic nationals and patent laws were made totally according to the need of domestic economic development or the intention of the government. However, the Paris Convention not only changed many countries’ view about patent system, but also changed the patent system itself. It is safe to say that patent system can never be so essential to economic development as it is today if there are no principles of national treatment, priority, compulsory license and etc.

(1) The Principle of National Treatment

In the Article 2 of the Paris Convention, it demands that countries that are members of the Union apply the same treatment to national of other member countries as they give to their own nations.

National treatment means that, as regards the protection of industrial property, each country party to the Paris Convention must grant the same protection to nationals of the other member countries as it grants to its own nationals. Just a few comments and observations on the national treatment rules are offered here.
The term “national” includes both national persons and legal entities. With respect to legal entities, state-owned enterprises of a member country or other entities created under the public law of the country are nationals of the country concerned. So also are legal entities created under the private law of that country. In terms of Article 2 (1) of the Paris Convention, the national treatment rule applies to all advantages that the various national laws grant to their nationals.

Implicit in the national treatment rule is that any requirement of reciprocity in the grant and scope of patent protection is excluded. 30

(2) The Principle of Priority Right

In the Article 4 of the Paris Convention entitles any inventor who has duly filed an application for a patent in a Convention country to have a priority of twelve months within which to file similar application in other Convention Countries.

These latter applications will then be regarded as if they had been filed on the same day as the earliest application. As such, these later applications enjoy a priority status with respect to all applications relating to the same invention filed after the date of the first application. They also enjoy a priority status with respect to all acts accomplished after that date which would normally be apt to destroy the rights of the applicant or the patentability of his invention.

In practice, the right of priority confers an advantage to an applicant entitled to benefit from the national treatment rule since he will have twelve months after filing on initial application for the protection of his invention to approach the other countries of the Paris Convention and seek protection in those countries based on his initial application.

A later application claiming priority must be treated in any Paris Convention country as if it had been filed on the date of filing of the initial application, and all acts accomplished between the time of filing the initial application and filing the later application (the so-called “priority period”) cannot destroy the rights of the later application claiming priority. As such, any publication of the invention during the priority period, or any filing

30 Come from "The nature and function of international patent system"; website is http://www.belipo.bz/e_library/articles/naturefunctioningpatent.pdf, download on 2007-6-6.
of the same invention by a third party during the priority period, will not destroy the novelty or inventive character of the application claiming priority.\(^{31}\)

(3) The Principle of Independence of Patent

The principle of “independence of patents for inventions” means that a patent for an invention cannot be refused, invalidated or otherwise terminated in any member country on the ground that a patent for the same invention has been refused or invalidated, or is no longer maintained or is terminated in any other member country of the Paris Convention. Put differently, the fate of a patent in Country A has no influence at all on the fate of the same patent in Country B, because the patents are subject to different national laws, administrative practices and jurisprudence.\(^{32}\)

(4) The Principle of Compulsory Licenses

The rationale for Article 5 is that patentees should work their patents in the country of grant. This will promote industrialization in the country and help to introduce the use of new technology in the country. Otherwise patentees, on the basis of their patents, would merely block the working of the invention in the country or monopolies the importation of the patented invention.\(^{33}\)

(5) The Principle of Minimum Standard

TRIPS set a minimum standard of protection. TRIPS stipulated that members may include more extensive protection than is required by TRIPS in their law as long as such protection does not contravene its provisions. As a rule, TRIPS only requires that the standards of protection it provides for will be accorded to nationals of other members. Theoretically a WTO member state could comply with TRIPS by granting the standard of protection TRIPS requires only to nationals from other members while denying it to its own nationals.\(^{34}\)

\(^{31}\) Come from "The nature and function of international patent system"; website is [http://www.belipo.bz/e_library/articles/naturefunctioningpatent.pdf](http://www.belipo.bz/e_library/articles/naturefunctioningpatent.pdf), download on 2007-6-6.

\(^{32}\) Come from "The nature and function of international patent system"; website is [http://www.belipo.bz/e_library/articles/naturefunctioningpatent.pdf](http://www.belipo.bz/e_library/articles/naturefunctioningpatent.pdf), download on 2007-6-6.

\(^{33}\) Come from "The nature and function of international patent system"; website is [http://www.belipo.bz/e_library/articles/naturefunctioningpatent.pdf](http://www.belipo.bz/e_library/articles/naturefunctioningpatent.pdf), download on 2007-6-6.

\(^{34}\) Come from "TRIPS- The basic principles". Website: [http://www.ipr-helpdesk.org/documentos/docsPublicacion](http://www.ipr-helpdesk.org/documentos/docsPublicacion), 2007-5-23.
2. Established An International Patent Application System

The signature of PCT thoroughly changed the traditional patent application system. The PCT system enables the filing, with a single patent office, submitting a single application, in one language, having effect in all other PCT countries in which the applicant seeks his patent to be protected.

Under the international patent application system, an international application is subjected to a formal examination by a single Patent Office, an international search by an International Searching Authority (ISA) and an international preliminary examination by an International Preliminary Examining Authority (IPEA). The international application is also given a centralized international publication by the international bureau.

The procedure of international search, international publication and international preliminary examination is commonly called “the international phase” of the PCT system. The international phase is followed by what is called the “national phase” of the PCT.

It should be emphasized that the PCT does not compete with the Paris Convention, because the PCT itself is a special agreement made in terms of Article 19 of the Paris Convention, and that the PCT does not provide for the grant of international patents, since the task of and responsibility for granting patents remains exclusively in the hands of the national and regional intellectual property offices.

3. Gave A Brand New Explanation To The Concept Of IPR

Through the reconciliation of TRIPS, the function and status of intellectual property was strengthened, the concept of intellectual property was enlarged and intellectual property was more closely involved with economic and trade development. We can see these in the following aspects:

—TRIPS, for the first time, make intellectual property to be included as a part of the rules governing the multilateral trading system, thus marrying trade law with intellectual property law.
—Enlarged the connotation of intellectual property and advanced several new types of IPRs obliged protection. That obliges protection of new types of IPRs even in developed countries, for example, undisclosed information that has never been the subject of any multilateral agreement before, integrated circuit designs that had no effective international treaty before, and the plan variety protection or performers’ rights that were geographically limited. Now these types are all included in the concept of IPRs.

[] Established the principle of minimum standard of protection and Most favored Nation Treatment and preliminarily unified the subject matter of patent protection in various countries. Some products that were not protected in most developing countries before, such as food, pharmaceuticals, chemicals, microorganism and software, are all required to be protected within regulated time limit. This made the subject matter of patent protection become preliminary unified worldwide. The most favored Nation Treatment principle expanded the protection scope from tangible products to intellectual property rights.

[] Constructed IPRs legal procedure and dispute settlement mechanism and combined IPRs dispute settlement with international trade sanction tightly, which enhanced the international protection level of intellectual property.

4. Unified the Formal Procedures in National Patent Law

The establishment of PCT international patent system, made some requirements on the form of patent application in a certain degree. However, as PCT doesn’t have any mandatory requirements on applications that apply for entering the national stage, thus no harmonization between various national patent laws has been done. The PLT, which was signed in 2000, for the very first time make international harmonization become a part of national patent law system. This is another great and successful step forward in the history of patent harmonization. Main achievements are as following: 35

(1) Standardized the date of patent application.

35 The filing date has three significant legal implications. Firstly, it determines the person with priority to obtain a patent. Secondly, it determines what will constitute prior art (that body of knowledge in the public domain prior to the filing date) and as such, will determine the patentability of the invention. Thirdly, the filing date will determine the priority date for purposes of Article 4 of the Paris Convention, that is, the date on which the twelve months period will begin to run.
The regulation relate to applicant has to file documents which show that they constitute a patent application, and which identify the applicant and his contact address, and which contain a description of the patent, or a drawing thereto.

( 2 ) **Identified the form or contents of an application.**

The requirements relating to the form or contents of an international application under the PCT, during both the international and national stages of an application, are referentially incorporated into the PLT. Also, the contents of a “request” of an international application under the PCT are referentially incorporated into the PLT and Contracting Parties are enjoined by Rule 3 (2) of the PLT Regulations, (“the Rules”) to accept request forms which are based on the PCT request form.

( 3 ) **Explicated some items related to patent representation;**

The regulation relate to powers of attorneys, record of change of name and address, or change in applicant or owner, certificates of transfer, record or cancellation of record of licenses or security interest, and requests to correct mistakes.

( 4 ) **Reduced all unnecessary evidence in support of an application,**

The evidence includes the evidence in support of an application, power of attorney, requests for record of change in name or address, declarations of priority or the authentication of translations. Evidence will only be required, where an intellectual property office has a reasonable doubt as to the truthfulness of a document, or the accuracy of a translation. Evidence is only required for very serious matters like requests for record to change the name of an applicant or patent owner, or record, and cancellation of record, of a license or security interest; and for signatures, evidence may be required pursuant to Article 8 (4) (b) where there is doubt as to authenticity, and, in terms of Rule 9 (6), digital signatures must be authenticated by attestation, notarization, authentication, legalization or by some other appropriate certification.

( 5 ) **Extended the time limit.**

Where any time limit for the doing of any act is fixed by an intellectual property office,
the PLT allows an applicant or patent owner to request an extension of time to do the said act. Such request must be made prior to the expiration of the time limit, and the extension proper will be for a period of at least two months from the expiration date. Also, an applicant or patent owner may similarly request from an intellectual property office an extension of a fixed time limit for at least two months from the expiration of the unobserved time limit. Such request may be made after the expiration of the unobserved time limit. Acceptance by the office of the first type of request is optional, but the office is required to accept the second type of request where certain circumstances as set out in the PLT and the Rules exist.

5. Defined the Working direction for further harmonization

At present, the work content of patent harmonization under the WIPO framework has been diverted from unification of forms to unification of substantive matters. Moreover, concrete content of substantive harmonization has been further specified, mainly including the subject matter of patent protection, prior art and substantive conditions of patent grant.

3.2 NEW PROGRESS AND TREND ABOUT HARMONIZATION

The harmonization of patent system has made new progress. The harmonization is not limited under the framework of international treaty and not only lead by WIPO. Now, harmonization under national framework is also actively undergoing in many countries and great results have been achieved so far.

After its inception in 1983, the Trilateral Cooperation (TC) concentrated initially on developing and implementing standards for electronic storage and retrieval of prior art documents, and facilitation of searching. This was later extended to electronic sharing of priority documents and to standardization and searching of DNA sequence databases.

Since the year of 2000, besides continuing program of the exchange the basic information and other program related to patent documents and automation, the Trilateral Cooperation emphasis has been placed on harmonization of searching and examining procedures.
In the year of 2000, for the first time, the Trilateral Office agreed to reinforce their cooperation in search and examination. The projects include exchange of search result, mutual understanding in search and examination. The Paris-Route pilot program is also provided in this year. To increase efficiency by improving the use of search results already available, and to achieve better understanding and promote harmonization of working practices become the ultimate cooperation goal.

In the year of 2003, the effective access and use of work results, mutual understanding in search and examination, and examiners’ exchange become the first cooperation project. The Trilateral Offices obtained a common view about the discussing principle on patent law harmonization and specific working path.³⁶

From the years of 2004, the effective access and use of work results had become the strategic issues. “The Pilot project on exchange of search history”, “Patent Prosecution Highway” and “New Route” were proposed by JPO in 2005. “The Patent Prosecution Tri-way” was also proposed by USPTO in 2005.

The harmonization of international patent subject matter under the Trilateral Offices framework mainly concentrates on specific work and practice. It is substantive harmonization that realized through agreements on working plan by both sides.

1. Patent Prosecution Highway  [PPH]—Proposed by JPO

This proposal is aiming to use accelerated examination in each office. ³⁷

If The Office of first filing (OFF) considers the invention claimed in an application to be patentable, the applicant can request an accelerated examination under PPH for a corresponding application in the Office of second filing (OSF). The claims in the OSF application must sufficiently correspond to the patentable claims of the application in the OFF.

The OSF decides whether the application can undergo the accelerated examination under

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³⁶ “Summary of the Trilateral Conference, Tokyo, 7 November 2003”, the website is http://www.trilateral.net, 2007-6-11.
³⁷ Come from the website: http://www.oepm.es/cs/OEPMSite/contenidos/. Download in 2007-6-11. The title is "Challenges and perspectives for the patent system ".

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PPH. If the request is acceptable, a special status is assigned to the application for accelerated examination and the OSF starts the procedure.

The Advantage of the PPH lies in:

(1) It would provide a mechanism that enables applicants who have already filed an application or obtained a patent at the OFF to request accelerated examination at the OSF in a timely and cost effective manner.

(2) To ensure the timely search and examination results

(3) To improve quality and mutual exploitation of work results between patent offices.

The JPO and the USPTO had started the one-year PPH pilot program on July 3, 2006. The both offices are now accepting requests for the PPH. The JPO and the USPTO aim at full implementation of the PPH after the evaluation of the pilot program. The EPO has been considering possible participation in the PPH pilot program. The JPO has already reached an agreement with the KIPO and United Kingdom on the PPH in 2007.

The JPO will develop the “Guidelines for the Use of Search/Examination Results of Foreign Patent Offices” (tentative name) by the end of FY2006, so as to promote the internal use of search/examination results provided by foreign patent offices.38

2. New Route Proposal—Proposed by JPO

The New Route for Applications Abroad is proposed by JPO at the Trilateral Conference held in Munich in 2005. The proposal can be called the third route, subsequent to the Paris Convention Route, which is the direct application route (also called the national application route), and the Patent Cooperation Treaty Route, which is the international application route.39,40

An application filed with the Office of First Filing (OFF) through the New Route is deemed to have been filed with the Office of Second Filing (OSF) on the filing date or priority date.

The OFF publishes the application 18 months after the filing or priority date. Then the OFF issues a search or examination report 4-26 months after the filing or priority date. Finally, the OFF publishes the search report at 26-28 months.

Based on the first office action received 24-26 months from the filing / priority date, an applicant decides whether to continue the procedure with the OSF. The time limit for an applicant to submit a translation at the OSF is 30 months from the filing / priority date.

The New Route is to be established by an agreement among a few countries. The International Bureau will not be a part of the New Route.

The Hilmer rule, and other national laws which distinguish the application in terms of the effect to defeat the later-filed application, are abolished in the New Route.

The Advantages of New Route lies in:

(1) The burden of translation is less, and the time limit for the translation to be provided to the OSF is longer (30 months);

(2) Filing date of the OSF is secured by filing at the OFF in the official language of the OFF;

(3) Total costs would be lower for IP Offices assuming an enhanced mutual exploitation of search and examination results

(4) The New Route does not have a double-layered structure consisting of an international stage and a national stage, the OFF can both make the search and examination as domestic procedure.

(5) The search is carried out later than as specified by the PCT, thus a more complete search can be accomplished.

3. The TRIWAY Proposal —Proposed by USPTO
The Triway proposal was proposed by USPTO in 2006. The proposal including the following steps:

**STEP 1:** A corresponding application has to be filed in each of the Trilateral Offices and each application must be ready for examination (alternative proposal: for search).

**STEP 2:** One of the 3 Offices is selected as the first Office to carry out the search and examination. It is suggested that applicants choose their national Offices when they are resident in one of the 3 countries.

**STEP 3:** The application in the first office is placed in the special status queue for action.

**STEP 4:** The first Office sends the search results and the resulting office action to the other two offices in the Trilateral Dossier Access System (TDA) within an agreed time limit.

**STEP 5:** The second and third Offices complete their respective searches within an agreed time limit and send their search results in the TDA to be available to all Trilateral Offices.

IF the Office of the first examination considers the claimed invention to be patentable, it waits to take its final decision until the other two Offices have sent their search results.

As an alternative, a Triway implementation could provide for Search results from the 3 Trilateral Offices to be sent simultaneously to promote competition between them, to the benefit of the applicant, who could then take advantage of a "shared" search, regardless of the status of prosecution in any particular office.

The advantages of Triway proposal lies in:

(1) Would permit each Office to take advantage of the two other's search expertise.

(2) Would allow, if the other two offices rely on the search from the first Office, to focus their search efforts on their primary search resources (USPTO would focus the search on US patent documents).

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(3) The quality of patents would be enhanced since the best art found by the Trilateral Offices would be available within a short time to all three Offices via TDA.

(4) The three Offices carrying out the search would find respectively the best patent documents in their own country. (USPTO would find the best U.S. patent documents, the EPO would find the best European patent documents and JPO the best Japanese patent documents).

(5) The Trilateral Offices would gain the efficiency of an initial search, followed by supplemental searches and the benefits of work sharing at the earliest possible time.

4. The development agenda-proposed by some developing countries

In the Thirty-First (15th Extraordinary) Session Geneva, September 27 to October 5, 2004, the Secretariat of WIPO received a formal proposal from Argentina and Brazil relating to the establishment of a new development agenda within WIPO. Sequently, the Group of Friends of Development submitted a proposal about “To establish a development agenda for the WIPO.

The proposal put the problem of development into an important position.

“Intellectual property protection is intended as an instrument to promote technological innovation, as well as the transfer and dissemination of technology. Intellectual property protection cannot be seen as an end in itself, nor can the harmonization of intellectual property laws leading to higher protection standards in all countries, irrespective of their levels of development.”

“The basic proposal of the “Development Agenda” is that development should be a central dimension in any negotiation involving IP systems.”

The proposal provided four important suggestions for WIPO:

(1) Elements for the review of the mandate and governance of WIPO;

(2) Promoting pro-development norm-setting in WIPO;

(3) Principles and Guidelines for WIPO’s Provision of Technical Assistance and evaluation;

(4) Guidelines for future work on transfer and dissemination of technology and related competition policies.

After three meeting (inter-sectionals intergovernmental meetings) for discussing the proposal, The WIPO decided to constitute a Provisional Committee to take forward the process and complete the discussions on proposals and report the recommendations to the General Assembly at its September 2006 Session. The first session of the Provisional Committee was held in February, 2006. At this session, the Chairman prepared a set of clusters and requested the Member States/Groups to place their respective proposals in the most appropriate cluster. The clusters and proposals were to form the basis for discussions at the Second Session of the PCDA. The second session of the PCDA was held in June 2006. At this session, several proposals were discussed but there was no consensus. The General Assembly in its meeting held in September - October 2006, the reviewed the discussions during the two sessions of the Provisional Committee. Now the proposals had come to 111. In 5-7 February 2007, a meeting was held by India in New Delhi. At this meeting, the 111 proposals had been narrowed to a manageable level of 20 to 25 proposals.\(^\text{44}\)

### 3.4 CONCLUSION

Through the analyses made in this chapter, we can reach the following conclusions:

1. Patent system is the result of economic development to a certain degree and will continue developing as economy develops. During the past more than one hundred years, due to the development of world economy, the international harmonization of patent system never stopped. This is an inevitable trend. Intrinsic motivation for harmonization exists in all countries, whether they are developed countries or developing countries.

2. Viewed from the history of international patent harmonization, successful harmonization must be the harmonization that could bring benefits to all member

\(^{44}\) That information comes from Dr. K.S. Kardam who is an assistant controller of Patent & Designs of India IP office. Here I would like to send my thanks for him.
countries, and such harmonization always turned out successfully promoted economic development and technology advancement. For instance, the principles established by the Paris Convention have become the foundation of many countries’ national patent system so far. Another example is the Patent Cooperation Treaty, which make international application become much simpler and more efficient, and bring patent system development into a new stage. Without doubt, all of these achievements will play a positive role in promoting national economic development.

3. Harmonization that out of reality can hardly achieve any significant result. SPLT is a case in point. Despite of its good intention and tempting future, SPLT was not commonly agreed, therefore postponed for the time. Because the content of SPLT is beyond most countries’ needs, especially the needs of developing countries.

4. After SPLT was blocked, the USTPO, JPO and EPO proposed several harmonization programs in mutually acknowledging search and examination results between the three offices, which formed a regional substantive harmonization. As the economic development level of these three countries is much the same, it is easy for them to reach agreement. Moreover, such harmonization also provides a good example and useful experience for the international patent harmonization.
CHAPTER-FOUR
THE BENEFIT AND DISADVANTAGE ANALYSIS

With the development of industrialization, patent system develops very rapidly around the world. According to statistics, 22 countries established patent system in 1873, 45 countries in 1890, 73 countries in 1925, 99 countries in 1958, 120 countries in 1973 and 158 countries in 1984. Until today, more than 175 countries and regions have established patent system worldwide. ⁴⁵

<table>
<thead>
<tr>
<th>Developed countries</th>
<th>Developing countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>British</td>
<td>1624</td>
</tr>
<tr>
<td>USA</td>
<td>1790</td>
</tr>
<tr>
<td>Spain</td>
<td>1811</td>
</tr>
<tr>
<td>France</td>
<td>1848</td>
</tr>
<tr>
<td>German</td>
<td>1877</td>
</tr>
<tr>
<td>Japan</td>
<td>1885</td>
</tr>
<tr>
<td>Canada ⁴⁷</td>
<td>1869</td>
</tr>
<tr>
<td>Mexico</td>
<td>1840</td>
</tr>
<tr>
<td>Brazil</td>
<td>1859</td>
</tr>
<tr>
<td>South Korea</td>
<td>1961</td>
</tr>
<tr>
<td>Indian ⁴⁶</td>
<td>1970</td>
</tr>
<tr>
<td>South African</td>
<td>1978</td>
</tr>
<tr>
<td>China</td>
<td>1985</td>
</tr>
</tbody>
</table>

There is no doubt that patent system has played an important role in promoting the development of technology and economy. However, due to differences in industrialization, economic development phase and the time of establishing patent system between developed and developing countries (see the following table), different countries have different needs in developing patent system. Therefore, with the progress of patent

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⁴⁶India had inherited The Patents and Designs Act 1911 from the colonial times that provided for protection of all inventions except those relating to atomic energy and a patent term of 16 years from the date of application. A new Patents Act was adopted in 1970.

⁴⁷The essential provisions of the Trademarks Act were enacted in 1953, the Patent Act in 1935, the Copyright Act in 1921, and the Industrial Design Act in the latter part of the nineteenth century. See “international IP Law-New Development”, General Editor Dennis Campbell, First published in the United Kingdom in 1995.
system development, these differences exist not only in subject matter, patent protection level, standards of patent grant, requirements in patent application and examination procedure standards, but also in the need to patent system by economic and technological development. Nowadays, people are actively advocating patent harmonization and development. We cannot ignore these differences. On the contrary, only by taking a right attitude to these differences and find the common demand for development, can we effectively promote the development of patent system. The major task of this chapter is to analyze the different interest’s needs of countries that are in different development levels during the process of patent harmonization and development.

4.1 ANALYSIS FOR THE DEVELOPED COUNTRIES

During the recent 100 years, patent system development has achieved great success. However, this success also brings great challenges. As for developed countries, these challenges mainly include heavy work burden on patent examination offices caused by too many domestic patent applications, increase in application fees and complexity of application procedures that caused by too many abroad applications, and problems that how to develop patent system so as to promote domestic economic development. Because of these new challenges, as technology origin and output countries, USA and Japan had started the patent harmonization by the end of 20 century. As the patent harmonization was started and prompted by technology origin and output countries, they will definitely gain more benefits than disadvantages they may subject to. Benefits than disadvantages analysis from perspective of both government and enterprises will be illustrated in the following.

4.1.1. The Benefit and Disadvantage Analysis for the Government

As for developed countries, the origin of patent system was industrialization. The Venice Patent Law, issued in 1474, was the first page of modern patent system. Then, the British Monopoly Law and the US Patent Law came out in 1623 and 1790 respectively. After that, patent law was issued in Spain, Russia, the Netherlands, Austria, France, Canada and Japan one after another. Obviously, this was no incidence. These countries that issued patent laws in an early time have all become developed countries now, whether in economy or in technology. It is known to all that patent system played an important role
in promoting these countries’ economic and technological development during the past hundreds of years. What benefits will new progress in patent harmonization bring to these developed countries?

- **What are the advantages?**

During the 21st century, which takes knowledge as the major motivation force, it is not hard to understand that developed countries have again proposed patent harmonization around the world to keep a strong momentum in economic and technological development. As for developed countries, patent harmonization can bring them the following benefits:

1) **The most urgent job is to resolve the pressure from patent application backlog, reduce the working cost of government and improve working efficiency through new international harmonization.**

According to statistics of 1998\(^{48.49}\), one application produced more than 28 overseas applications on average. Large quantities of overseas patent applications of developed countries means obtaining patent rights in different countries and these granted rights have to be exploited and protected in different countries. To guarantee applicants obtaining patent rights timely and conveniently and secure effective exploitation of patent rights, different countries should have consistent and unified standards in patent system, or harmonize differences through international rules. However, considerable variances still exist among different countries at present. Although present international rules have unified the form and procedure rules, differences in substantive rules are still difficult to harmonize.

2) **Meet the new needs of market globalization through new international**


\(^{49}\). In 1998 the total number of applications not departing from the domestic area, named the Pure-Domestic Applications, only amounts to 600,000. On the other hand, the total number of applications transcending national borders, named Oversea-Filed Applications, stands at 5.1 million. A striking fact is that these 5.1 million oversea-filed applications originated from a mere 180,000 original applications, named Oversea-Oriented Domestic Applications. Of these 180,000 international-oriented domestic applications, 32% are of U.S. origin, 26% come from EPC member states, and another 26% originate in Japan.
harmonization

Developed countries such as USA and Japan have realized that knowledge economy is a high-input and high-output economy, thus have all developed their own intellectual property rights strategy. These strategies, on the one hand, will promote and encourage input and R&D in high technology; on the other hand, will secure these kinds of input and R&D. As for developed countries, protecting domestic inventors’ interests, especially their overseas interests, is protecting national and public interests, because the interests of inventors embody national and public interests. The development of new transportation tools and communication technology provides a favorable environment for market globalization. Global communication about new products and new technologies has come into reality. Obviously the present patent system is falling behind the requirement of economic development. A new patent system is needed to maximize market profits and protect national interests worldwide.

Applicants and patentees use patent rights in an increasingly international environment. Intellectual property assets are of greater importance than ever before in our increasingly knowledge-based, cyber-linked world and are regarded as an indispensable down payment on a decent future that promises economic, social and cultural growth for all nations.

3) Expand policy space for developed countries through new international harmonization

The integration degree of law system in intellectual property rights field is higher than other fields. However, the unique right form and the special characteristic of knowledge make IPRs integration have to exceed the basic bound of law regulation continuously. The essence of integration in law regulation will intervene other countries’ law sovereignty, expanding domestic administrative sovereignty to other countries, thus

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50 Come from “The integrating intellectual property right and development policy”, Chapter one. The author thought that a characteristic of knowledge is that one person’s use does not diminish another’s (for example, reading this report). Economists therefore say that knowledge has the character of a non-rival public good. The other aspect of knowledge, or products embodying knowledge, is the difficulty - often intrinsic - of preventing others from using or copying it. Economists refer to this latter characteristic as contributing to market failure.
enlarging their domestic policy space. The aim to expand domestic policy space roots in economic expansion. To safeguard their economic benefits, it is natural for developed countries attempting to impose their domestic policy on other countries.

- **Questions that developed countries should consider during the international harmonization process**

New international harmonization will bring great benefits to developed countries. But it is not always like that. There are also many questions that need careful consideration for developed countries.

1) **The more patent rights, the more beneficial it will be to technological and economic development?**

New international harmonization will bring more patent applications and patent rights, we need to consider whether this situation will promote or hinder economic development? Because the fundamental aim of establishing patent system is not granting patent rights but promoting innovation and economic development.

Thus, as Merges and Nelson point out: “Ultimately it is important to bear in mind that every potential inventor is also a potential infringer. Thus a "strengthening" of property rights will not always increase incentives to invent; it may do so for some pioneers, but it will also greatly increase an improver's chances of becoming enmeshed in litigation… When a broad patent is granted…its scope diminishes incentives for others to stay in the invention game, compared again with a patent whose claims are trimmed more closely to the inventor's actual results. This would not be undesirable if the evidence indicated that control of subsequent developments by one party made subsequent inventive effort more effective. But the evidence, we think, points the other way.”

In advanced high-tech industries, it is normal that a company cannot conduct research and development or manufacturing by its own intellectual property rights alone and must obtain licenses for other companies’ intellectual property rights.

We need to create better ways of obtaining property rights for applicants; we have to

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consider how to guide the development of patent system.

2) How to deal with the patent rights produced by developing countries?

With the gradual establishment of technology innovation capability in developing countries, patent applications from these countries will also gradually go up. Take China as an example. Among all invention patent applications, more than half are coming from domestic inventors. Under the new harmonization mechanism, how would developed countries accept these rights after being granted?

![Fig. 4-1 The comparison between residents and non-residents applicants in China](chart)

*Source: Come from the Applications for Three Kinds of Patents Received from Home and Abroad, SIPO website.*

During the past ten years, even in developing countries, the number of patent rights granted by overseas countries is also going up steadily. See the following chart. China’s patent rights granted by USA in 2006 are nearly six times of that of 2001, while Indian increased more than two times during the same time period. These patent rights are all potential obstacles to future inventions and will make technicians feel difficult to conduct new technology research and development for the developed countries.
3) Whether developing countries’ advantageous fields are considered in the new international harmonization?

As developed countries have advantage in technology, the new patent harmonization mainly focuses on how to effectively protect new technology and how to convert technology advantage into economic advantage.

Then what are the developing countries advantages? What are their chips in this new round harmonization?

In fact, developing countries have already found their own chips. That is traditional knowledge and biological and genetic resources. Whether developed countries could treat developing countries’ these advantages in an objective and peaceful attitude and consider these along with their own technology advantages?

China, Indian, ASEAN, Brazil, Mexico and South Africa are all developing countries that are rising up. The total population of these countries accounts for nearly half of the world population, and these countries are also very rich in traditional knowledge and biological
and genetic recourses. The development of these countries will improve lives of half of the world’s population. This, without doubt, will be an important mark on the world’s journey forward progress and bright future. If the new harmonization can take into account, this will be the most favorable result of the new century.

4.1.2. The Benefit and Disadvantages Analysis for the Domestic Enterprises

- What is the benefit?

1) To obtain higher investment return

The Tuft University makes analysis of the expenditures for R&D since more than 25 years. According to their recent report published in December of 2001, the expenditures for R&D have almost tripled in the last ten years. The average costs for the development of one new pharmaceutical presently are US$ 802 Mio. The increase of the cost is considerably above the inflation rate. In 2001, the US innovative research based pharmaceutical companies spent more than US$ 30 billion for research and development. Biotechnology is already presently playing an important role in drug discovery and in the development of new pharmaceuticals. As of December 2000 out of 10583 biotech and recombinant compounds 9% were already in the market, 13% just before marketing, 16% under registration, 20% in clinical trials phase III and 26% before phase III clinical trials.

It becomes evident that the one making the investment must have a timely limited exclusivity to recoup his investment and to make the profits he needs for further investments. Investment must be protected and patents, which provide the inventors and investors with the necessary exclusivity, are one of several tools. Governments certainly are realizing that in a system, where major contributions to technical and medical developments are made by the private sector, the private investors must be given incentives for his risky investments, namely patent protection.

2) To form a more effective mechanism to protect their benefits

Despite of the higher and higher investment needed by technology research and

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development, enterprises are still willing to conduct new product and new technology
development with large high-risk input. The reason is that under the current environment
and intellectual property rights framework, especially in the high technology field, R&D
input brings larger and larger profits. This is the major characteristic of knowledge
property economy.

Meanwhile, effective intellectual property rights policies are more and more
indispensable to the survival and development of enterprises. At present in Japan, the
companies had integrated three kinds of strategies into corporate management strategy;
the three kinds of strategies are Business strategy, R&D strategy and Intellectual Strategy.
Intellectual Strategy is equally important with business strategy and R&D strategy for
enterprises. With the expansion of overseas markets, the need to guarantee profits in high
technology fields is not limited to domestic market, but also including overseas markets.
Therefore, patent harmonization between nations will be the most effective strategy.

3) To meet enterprises’ new needs

As the development of patent system, the enterprise arise some new needs. That is:

□ 1□ Broader Tropic

With the development of technology, many subjects matter that need protection are out of
the scope of present patent system. New upcoming technologies such as biological
technology, software technology, business methods and etc. will produce enormous
profits, but they cannot be protected by present patent system worldwide. Through
harmonizing the subject matter of patent protection, more content that enterprises expect
protection will be comprehensively protected.

In the meantime, with the development of technology, infringement judgment is
becoming harder and harder. Enterprises are so sophisticated that they always can avoid
patent rights’ protection scope. While the inventors of new technologies, especially some
break-through inventions, expect a more comprehensive protection. Therefore, in
pharmaceutical and biotechnological areas, the content of protection that applicants
demand will be expanded larger and larger, and the quantities of patent application will
be more and more.

2 Stronger Protection

Patent protection ultimately manifests in the exploitation stage. Compared with traditional technology, exploitation of new technology brings much more profits. Therefore, enterprises require more effective protection methods to safeguard their profits. Such requirements are manifested in many aspects including explanation to claims, judgment of infringement behavior, compensate for infringement damage, refraining duplication and counterfeit and so on. Due to the limitation of legislation techniques and law enforcement, many developing and under-developed countries find still difficult to provide equally effective benefits security as developed countries do at present.

(3) Expecting to obtain patent rights in a more convenient, rapid and less-costly way

At present, one invention or technology always needs to obtain patent protection in more than one country, which is very different from traditional patent protection. Nowadays, patent system in different countries differs not only in form, but also in substantive aspects. Applicants usually have to deal with different application procedures and entities in different countries. Eventually, the same invention probably gets quite different examination results and protection scope, and the application cost is also expensive. These bring much inconvenience to enterprises and cost them much more time and money.

All the above needs and challenges require reform of present patent system. Moreover, it is reform in not only domestic patent system, but more importantly, in other countries’ patent system.

- Questions that enterprises need to reconsider

Objectively speaking, the above requirements of enterprises are reasonable, and these are contents that need to consider during the development of patent system.

However, there is a concern that the excessive protection of intellectual property rather
diminishes innovation. How to harmonize? Can present way of harmonization certainly decrease application cost and be beneficial to enterprises?

In the U.S., theories that broad rights should be granted to prior basic inventions were prevailing in the past, but theories that rights of prior inventions should be narrowed to promote late inventions have become conspicuous from the 1990s onward. In order to balance the protection of prior inventions and the promotion of late inventions, it is necessary to put a brake on the expansion of exclusive scope of patent rights based on the equivalent doctrine.  

4.2 THE BENEFIT AND OBSTACLE FOR THE DEVELOPING COUNTRIES

We cannot deny that the establishment and development of patent system will bring developing countries enormous benefits and space for development. Granting inventors patent rights will create a good environment for investors and attract foreign capital and advanced technology, thus drive domestic industry and technology development.

The development of patent system enhanced domestic enterprises’ capabilities in utilizing this system. In 2006, filings from developing countries saw a 32% increase as compared to 2005, representing 8.3% of all international applications filed. The table and figure below shows the number of PCT international applications filed by applicants from developing countries.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total application</th>
<th>From developing countries</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>67,007</td>
<td>1,197</td>
<td>1.79%</td>
</tr>
<tr>
<td>1999</td>
<td>74,023</td>
<td>1,745</td>
<td>2.36%</td>
</tr>
<tr>
<td>2000</td>
<td>90,948</td>
<td>3,152</td>
<td>3.47%</td>
</tr>
<tr>
<td>2001</td>
<td>103,947</td>
<td>5,379</td>
<td>5.17%</td>
</tr>
<tr>
<td>2002</td>
<td>114,048</td>
<td>5,359</td>
<td>4.7%</td>
</tr>
<tr>
<td>2003</td>
<td>115,199</td>
<td>6192</td>
<td>5.38%</td>
</tr>
<tr>
<td>2004</td>
<td>122,627</td>
<td>7464</td>
<td>6.09%</td>
</tr>
<tr>
<td>2005</td>
<td>136,639</td>
<td>9322</td>
<td>6.82%</td>
</tr>
<tr>
<td>2006</td>
<td>147,500</td>
<td>12301</td>
<td>8.34%</td>
</tr>
</tbody>
</table>

The above table and figure show that, from 1998, a remarkable growth of patent applications made by applicants from developing countries, especially for Korea and China.

In the year of 2001, almost 104,000 international applications were filed in accordance with the Patent Cooperation Treaty (PCT), which represents an increase of 14.3 per cent on 2000. Use of the PCT by developing countries increased by 70.6 per cent in 2001 (3153 in 2000 and 5379 in 2001). Between 1997 and 2001, the number of international applications received from these countries increased from 680 to 5379, representing an increase of 791 per cent in the use of the system by applicants from developing countries. In 2001, the strongest increases in percentage terms among these countries were recorded by China (188.4 per cent), India (102.6 per cent), Republic of Korea (53.1 per cent) and...
Mexico (50.7 per cent). In 2001, of the 115 States parties to the PCT, 61 were developing countries.\(^{54}\)

These data indicate that applications from developing countries accounts for a larger and larger proportion in the international patent applications, developing countries’ capability in utilizing patent system is improving, and developing countries should have equivalent interests with developed countries during the international patent harmonization process.

However, the development of patent system also brings great challenges. The challenges mainly embody in the impact of the internationalization of patent system to national policies and to domestic economy and society. The following will analyze the advantages and disadvantages of patent harmonization also from the views of government and enterprises respectively.

### 4.2.1 The Benefit and Disadvantages for the Government

#### What Is The Benefit For Government?

Due to the limited benefits brought by patent harmonization during the past hundred years in developing countries, while restrictions are know to all, developing countries have kept suspicious about and boycott patent harmonization. However, patent harmonization is an irreversible trend that cannot be stopped. To avoid falling behind the time, developing countries should actively take part in this process and try their best to make it more beneficial to their domestic economic development. Although it seems that developing countries have no other choices, it will also bring them some benefits. Sometimes, a challenge is a chance. In my opinion, if developing countries can treat patent harmonization positively, it will bring the following benefits:

1) **Build up domestic technological innovation capacity as soon as possible through new international patent harmonization**

During the international patent harmonization process, developing countries should build up domestic technological innovation capacity as soon as possible. The development of

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\(^{54}\) AZIZ BOUAZZAOUI: “The impact of the international patent system on developing countries”, Website: [http://www.wipo.int/](http://www.wipo.int/), 2007-6-18
domestic technological capacity has proved to be a key determinant of economic growth and poverty reduction. This capacity determines the extent to which these countries can assimilate and apply foreign technology. 55

Developing countries have to recognize that establishing patent system is not just for attracting foreign investment and technology. We need to obtain technology to develop our own innovation capacity and make patent system become a system that can really protect domestic technology.

If a country has no domestic technological innovation capacity, or a country doesn’t want to develop domestic technological innovation capacity, then there is no sense in establishing patent system.

Moreover, we have to realize that domestic technological innovation capacity will not automatically come along with the establishing of patent system. Some developing countries also established patent system very early. However, two hundred years have past since that time; they still haven’t build up their domestic innovation capacity yet. Only patent systems that promote and protect domestic innovation capacity are vigorous systems, otherwise they are only other countries system tools.

2) Improve national patent protecting system as soon as possible through new international patent harmonization

Improve national patent protecting system includes improving patent obtaining system, exploitation system and restriction system. We know, the innovation capability of enterprises become very active in countries that have a mature patent system, and enterprises in these countries also have a strong capability in utilizing patent system. There are many reasons for this situation, among which one of the most important is the maturity of other relevant systems.

USA has the most successful patent system in the world. Tracing the development of its patent system and other relevant systems, we can conclude that the success of its patent system is a natural thing.

55 Come from the “Integrating the Intellectual Property Right and Development Policy”, Chapter One.
The United States issued Sherman Act in 1890, Clayton Act and Federal Trade Commission Act in 1914. These act effectively refrained patent monopoly and make patent protection become more reasonable. Then in 1982, the United States Court of Appeals for the Federal Circuit (CAFC) was founded, which further improved the US patent protection system. Since then, a series of acts that in the aim of stimulating technology innovation and transference have been published, such as the Steven-White technology innovation Act and Bayh-Dole Act of 1980, the American Inventors Protection Act of 1999 and so on. These systems and patent laws together constitute a sound protection system for USA and are stimulating the development of its patent system.

In my opinion, as a developing country, China has to take this new patent harmonization as a chance to perfect national patent system as soon as possible. How to perfect national patent system through new international harmonization will be explained in chapter 6.

3) Find subject matters that are beneficial to developing countries and actively participate in the international patent harmonization as soon as possible.

We have to admit that developing countries also have their own subject matter in the new international patent harmonization process. Problems such as protection to traditional knowledge, biological genetic resources and folk arts, relationship of public health and intellectual property rights protection and so on are all new subjects for IPR system development, and also a new balance that developing countries could seek for their national interests. In my opinion, developing countries should make full use of these advantages and find practical ways through in-depth analysis and research to make them become part of the new patent harmonization.

- Questions that developing countries need to further consider

1) Shrink of national policy space resulted from international harmonization

Every country would develop national policies and laws according their own development stage, history and social background. However, with the signature of more and more international treaty, policy space for various governments has been shrinking continually, especially in the intellectual property rights field. Every international treaty
is a confinement to national government power. For example, the signature of the Paris Convention constrained member countries’ confinement on subject of rights owner. The minimum protection standards in TRIPS further confined member countries’ flexibility in patent protection subject matter. There are many other examples. What confinement will new international harmonization bring? What kind of policy space can we accept? What confinement is not acceptable? These questions are developing countries should find out in the new patent harmonization process.

2) New international harmonization will impact domestic economic and technological development

New international harmonization may bring a great shock to countries that are under-developed in economy and technology. That’s because the objects protected by patent system are different in developed and developing countries. As for developed countries, the protected groups represent the leading force of national economic development and determine the direction of national economic and technological development. While for developing countries, the protected groups only partially represent the leading force of domestic economic development, another part of the protected groups represent the competitors of domestic enterprises----foreign enterprises. Therefore, excessive patent protect is in favor of some domestic enterprises, but is equally beneficial to their competitors. Thus, developing countries should impact the direction of international harmonization, adjust its economic development and effectively combine them together according national industry development stage and aims.

4.2.2 The benefit and advantages for the domestic enterprise

It is common that enterprises in developing countries are weak in utilizing patent system. The number of patent application for invention in China reached 170 000 in 2003, but among which 46% are from other countries. Among the domestic applications, only about 30000 pieces are applied by domestic enterprises. And about 99% Chinese

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56 Before the Paris Convention was signaled, the patent law refused the oversea citizens to obtain patent right in most of countries, including United State and Japan. The principle of national treatment constrained the member countries to give those regulations.
enterprises have never applied a patent. Other developing countries are no better than China.

What impact may the new international harmonization have on them?

- **Stimulate large and capable enterprises to increase R&D input and expand to international market**

New international harmonization will simplify patent examination procedure and lower the cost of obtaining a patent. These would enable large and capable enterprises in developing countries obtain patent protects in several countries and provide them security in exploiting international market.

At present a number of enterprises that have strong R&D capacity and overseas market utilizing capability have appeared in China. Such as Huawei Technologies Corporation, which has been NO.1 in patent application in China for successive years, and its PCT patent application quantity reached NO.13 in the world in 2006. Another example is Shanghai Zhenhua Port Machinery Corporation, which has been founded only seven years, but has obtained more one hundred patents and own more than twenty unique and leading technologies in the world, with over 50% market share in global market. As China’s biggest steel enterprise, Baosteel Group has applied 1861 patents during the past three years and almost one patent each day in recent two year.. Until the end of 2003, the accumulated number of foreign investment enterprises has reached 7470, and Chinese investment has reached $11.428 billion. At present, many state owned enterprises such as Haier, TCL, Sinopec and so on are walking out of China and entry the world market. Without doubt, the new patent harmonization will provide these giant enterprises much better patent protection.

- **SMEs development will be blocked and space for SME technology development will shrink**

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At the same time, we have to realize that the majority of enterprises in developing countries are SMEs, which are less competitive in technology research and development and limited in domestic market. Confronted with new international harmonization, they will encounter much greater obstacles and feel constrained in technology innovation.

**4.3 CONCLUSION**

No matter the developed countries or developing countries, the intellectual policy has both positive and negative effects on the economy development. It is necessary to promote examination to find out a system design that extends the positive effects and restrains the negative effects by strictly considering both effects.
As mentioned above, after more than one hundred years’ harmonization, especially under the compulsory restraint of Trips, the various countries' exclusive law tends to gradually in many basic contents and the principle aspect be consistent, though still exist many slight differences, the distinction in some aspects is still big, for example, the dispute over patentable subject matter.

The differences of each country’s patent system manifests in the different stages while rights acquired, rights determined, and rights exercised, as well as in different levels of legal system, legal provisions and legal practice. To understand international patent harmonization must confront directly the legal differences in the harmonization. It will be elaborated in this chapter.

5.1 THE PROCEDURE OF PATENT FILING AND EXAMINING

Patent application and examination procedure belongs to the content of law practice, each country has its own application and examination procedure based on domestic law stipulations and technology conditions. PCT has unified the procedure at international phase from the perspective of international patent application, but has not touched regarding the national phase. The consultation of PLT launched since 1984 began the harmonization of domestic legal system of each country, even including the harmonization at law practice level. This is the sign that the harmonization has progressed onto a new stage, and also indicates the beginning of the entry of patent harmonization into national law stage from international law stage.

However because USA, Japan and Europe and most developed countries, as well as major developing countries including China and India have not joined the treaty, therefore, this treaty only has the symbolic significance at present.

Patent Co-operation Treaty functions importantly regarding the harmonization of
format requirements of national and regional patent offices as well as simplifying the procedure of patent acquisition and maintenance. At the present, what is needed is the principle based on which PCT was signed, as well as the further effort at practical level, then PCT can really function as it suppose to.

The harmonization of patent application and examination content does not relate to national sovereignty, Patented claim and examination content coordination because does not involve the national sovereignty, does not touch the economic interest, therefore it is relatively quite easy to achieve the mutual recognition. The benefit brought by the harmonization of this part content is also most remarkable. At the moment, patent applications increase dramatically and quickly, multi-country applications increase fast, it is the right time to consider coordination of examination procedure and formats. The coordination of patent application, examination procedure and formats mainly includes the following:

1. **The Definition of Prior art Date**

At the moment there are two ways to define the period of prior art. one way takes the inventing time as its dividing line, namely first-to-invent country, for example: USA. The United States is currently the only country in the world that gives priority to the application that claims the earliest invention date, regardless of which application arrives first. Another way takes application time as its dividing line, namely first-to-file country. There also exists some subtle differences among countries which takes application time as a dividing line as to prior art, generally, application time is decided by the date, but some countries decide the time by hours or minutes, e.g.: Japan. Due to the above mentioned differences, which leads to the different results as to defining prior art, novelty, inventiveness and duplicated grants. This is the primary obstacle to stifle the mutual recognition of examination and searching results.

Since most countries applying patent systems in the world adopt first-to-file system, and define application day as the dividing line of prior art time. So the harmonization of this part relates to few countries, only USA and Japan, it is relatively easy to reach a unified standard.
It is a great pleasure to know that the United States may make a very important reform about the First-to-Invent System. In April 4, 2007, The United States (U.S.) patent legislation proposed the Patent Reform Bill of 2007 (H.R. 1908, S. 1145) in the 110th United States Congress. The first-inventor-to-file process specified in Section 3 of the bill would harmonize U.S. patent law with that of other countries to a significant degree, add greater clarity to the patent system by replacing the subjective determination of the first inventor with the objective identification of the first filer, and reduce or eliminate the unpredictable and often substantial costs of interferences and litigation associated with determining the first inventor.

2. The requirement of filing request

Various countries have different requirements as to application formats and content, those differences generally will not bring differences in substantive requirements but only customary formats. However they bring lots of troubles to applicants, they have to prepare various different application forms when file in different countries, if one application fails to reach the requirements of a country, this will delay the subsequent examination time and even leads to failure of acquisition of patent rights.

As to the harmonization of application formats, at the Trilateral Conference held in Nov. 2006, JPO, USPTO and EPO have reached an agreement in this respect, they had started a pilot project with applicants from a practical perspective from fiscal year 2007, and adopt necessary measures, which include amendment of PCT provisions and domestic implementing regulations, aiming to employ new standard format from Apr.2009. If this new format can get recognition of other countries, this will remove applicants a lot of unnecessary trouble

3. Substantive Examination Request

As to whether applicants have to make a substantive examination request to initiate substantive examination procedure, and the time limit to make such a request have been unified basically, except for USA, most countries demand applicants to make a substantive examination request within 3 years from application day. So the harmonization of this part needs USA to amend its patent examination procedure suitably
to be in line with other countries. In addition, the formats of substantive examination request needs to be unified like applications to reduce the burden of applicants to fill in forms.

4. Search and Examine Procedure

According to present practices of each country, there are two ways to search and examine applications. As to the first way, searching and examination is done separately, namely, firstly to search then provide applicants a search report, applicants will decide whether to make a substantive examination request based on the results of search report; As to the second way, searching and examination is done simultaneously, patent office will initiate searching and examination procedure depends on applicants’ substantive examination request, search reports and office actions are provided to applicants at the same time. Two ways have advantages and disadvantages respectively, relatively, the first way benefits applicants and patent offices more. Since the first way always comes with the separation of searching and examination fees, for applicants they can reduce unnecessary examination fee, and predict examination results, as for patent offices, unnecessary examination will be reduced as well as workload. The disadvantages of the first way lie in the little bit complicated procedure, especially the fee-charging procedure.

Whether searching and examination procedure should be separated can be discussed in the procedure harmonization, this will benefit the mutual recognition of searching and examination results.

5. The requirement for the specification and claim

Each country has many format and substantive requirements as to specification and claims drafting. For example, rule 18, rule 20-23 of implementing regulations of the patent law of PR.C are about the format requirements of drafting specification and claims. Rule 18 of implementing regulations of the patent law of PR.C requires to describe the optimally selected mode in specification, while USA patent application requires to describe the best mode. Rule 23 of implementing regulations of the patent law of PR.C requires that any multiple dependent claims which refer to two or more claims shall refer

60 See the 35 U.S.C.112.
to the preceding one in the alternative only, and shall not serve as a basis for any other multiple dependent claims; Japan law has not this kind of limitation.

Other countries have similar requirements as to the drafting of specification and claims. Different requirements as to the drafting of specification and claims very possibly will bring applicants delay in examination due to format failure, even influence the acquisition of patent rights. In patent harmonization it is necessary to state format requirements to draft specification and claims depending on the necessity.

6. The amendment to the specification and claim

Each country stipulates differently as to the amendment opportunity, amendment restriction and amendment standard to specification and claims. For example, Chinese Patent Law and Japanese Patent Law stipulate differently regarding the opportunity to amend on applicants’ initiative61. Japan added one provision to restrict amendment while amending its patent law in 200662, such stipulation cannot be found in other country.

Art 33 of Chinese Patent Law stipulates the amendment standard, Rule 51 of The Implementing Regulations of Chinese Patent Law stipulates the opportunity to amend on its own initiative and the passive amendment of applicants, Rule 60 stipulates the amendment when applying for a reexamination and Examination Guidelines stipulates the amendment in invalidation process. Similar stipulations about amendment exist in examination instructions of each country. It is necessary for each country to further consider in the future harmonization the possibility of unification and consistency.

7. Stipulation related to the priority

The various countries also have the difference in the stipulations about the domestic priority. For example, regarding the time the early application deemed to be withdrawn while claiming domestic priority, China and Japan has different stipulation.

Where the domestic priority, Chinese Patent Law rule 33 regulate that the earlier application shall be deem to be withdrawn from the date on which the later application is

filed; but Japanese Patent Law regulate article 42 that the earlier application shall be
dem to have been withdrawn at the expiration of one year and three months from the
filing date of that earlier application.

8. Divisional application

Although various countries’ definition of unity has basically been the same, there still
exist differences as to the detailed stipulations about divisional applications. For example,
regarding the time to submit divisional applications, China and Japan has different
stipulations, Rule 42 of The Implementing Regulations of Chinese Patent Law stipulates
applicant can submit a divisional application anytime within two months from the date
of receipt of the notification of patent authorization, while in Japan in principle only
within the time limit of amendment divisional application can be submitted, in 2006
when the patent law was amended an exceptional stipulation was provided that within 30
days of patent granted or rejected divisional application can also be submitted, referring
to Art 44-1 of Japanese Patent Law, namely, the time limit to submit divisional
application in Japan is even stricter than in China. In addition, Rule 42 of The
Implementing Regulations of Chinese Patent Law also stipulates that the divisional
application may not change the kind of protection of the initial application, while Japan
has no such stipulations.

5.2 THE REQUIREMENT OF OBTAINING THE PATENT RIGHT

This section mainly states the issues related to substantive conditions of patent granting.
The author believes, harmonization and unification of substantive conditions of patent
authorization correlates closely with national sovereignty and economic development,
therefore, compared with the form and the procedure harmonization, the various
countries’ difference will be bigger, it is also more necessary to carry on the consultation
in democratic and harmonious platform.

The substantive standard of patent authorization mainly includes the range of prior art,
patentable subject matter, conditions of patent authorization, grace period, disclosure
requirement of specification and the interpretation of claims, moreover, patent types can
also be included.
The following two tables show the comparison of the substantive conditions of patent authorization of primary developed countries and part Asian countries. It will be explained respectively.

### Table 5-1  The Substantive Granted Standard For Invention

#### In Some Developed Countries

<table>
<thead>
<tr>
<th></th>
<th>Japan</th>
<th>U.S</th>
<th>Germany</th>
<th>United Kingdom</th>
<th>EPO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Filing system</strong></td>
<td>First-to-File</td>
<td>First-to-Invent</td>
<td>First-to-File</td>
<td>First-to-File</td>
<td>First-to-File</td>
</tr>
<tr>
<td><strong>Grace period</strong></td>
<td>6 months</td>
<td>12 months</td>
<td>6 months</td>
<td>6 months</td>
<td>6 months</td>
</tr>
<tr>
<td><strong>Publication</strong></td>
<td>18 months</td>
<td>18 months</td>
<td>18 months</td>
<td>18 months</td>
<td>18 months</td>
</tr>
<tr>
<td><strong>Publicly use at home/abroad</strong></td>
<td>Complex</td>
<td>at home and abroad</td>
<td>at home and abroad</td>
<td>at home and abroad</td>
<td>at home and abroad</td>
</tr>
<tr>
<td><strong>Inventive step</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Practical application</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Specification Requirement</strong></td>
<td>Sufficiently clear and complete</td>
<td>Sufficiently clear and complete</td>
<td>Sufficiently clear and complete</td>
<td>Sufficiently clear and complete</td>
<td>Sufficiently clear and complete</td>
</tr>
<tr>
<td><strong>Claim Explanation</strong></td>
<td>Description and drawings</td>
<td>Description and drawings</td>
<td>Description and drawings</td>
<td>Description and drawings</td>
<td>Description and drawings</td>
</tr>
<tr>
<td><strong>Pre- and Post-granted procedure</strong></td>
<td>6 months of publication of the grant; Invalidation</td>
<td>Re-examination; Invalidation</td>
<td>3 months of publication of the grant; Revoke and Invalidation</td>
<td>Revoke</td>
<td>9 months of publication of the grant; Invalidation</td>
</tr>
<tr>
<td><strong>Term of Patent</strong></td>
<td>20 years</td>
<td>20 years</td>
<td>20 years</td>
<td>20 years</td>
<td>20 years</td>
</tr>
</tbody>
</table>

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63. An application shall not be published if that application is (i) no longer pending; (ii) subject to a secrecy order; (iii) a provisional application; or (iv) an application for a design patent.
### Table 5-2  The Substantive Granted Standard For Invention In Some Asia Countries

<table>
<thead>
<tr>
<th></th>
<th>China</th>
<th>Korea</th>
<th>India</th>
<th>Thailand</th>
<th>Philippines</th>
<th>Malaysia</th>
<th>Viet Nam</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Filing system</strong></td>
<td>First-to-File</td>
<td>First-to-File</td>
<td>First-to-File</td>
<td>First-to-File</td>
<td>First-to-File</td>
<td>First-to-File</td>
<td>First-to-File</td>
</tr>
<tr>
<td><strong>Grace period</strong></td>
<td>6 months</td>
<td>6 months</td>
<td>12 months</td>
<td>12 months</td>
<td>None</td>
<td>12 months</td>
<td>12 months</td>
</tr>
<tr>
<td><strong>Publication</strong></td>
<td>18 months</td>
<td>18 months</td>
<td>18 months</td>
<td>18 months</td>
<td>18 months</td>
<td>No</td>
<td>19 months</td>
</tr>
<tr>
<td><strong>Publicly use at</strong></td>
<td>At home</td>
<td>At home and</td>
<td>At home and</td>
<td>At home and</td>
<td>At home and</td>
<td>At home and</td>
<td>At home and</td>
</tr>
<tr>
<td><strong>home/abroad</strong></td>
<td></td>
<td>abroad</td>
<td>abroad</td>
<td>abroad</td>
<td>abroad</td>
<td>abroad</td>
<td>abroad</td>
</tr>
<tr>
<td><strong>Inventive step</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Practical application</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Specification</strong></td>
<td>Sufficiently clear and complete</td>
<td>Sufficiently clear and complete</td>
<td>Sufficiently clear and complete</td>
<td>Sufficiently clear and complete</td>
<td>Sufficiently clear and complete</td>
<td>Sufficiently clear and complete</td>
<td>Sufficiently clear and complete</td>
</tr>
<tr>
<td><strong>Requirement</strong></td>
<td>Description and drawings</td>
<td>Description and drawings</td>
<td>Description and drawings</td>
<td>Description and drawings</td>
<td>Description and drawings</td>
<td>Description and drawings</td>
<td>Description and drawings</td>
</tr>
<tr>
<td><strong>Claim Explanation</strong></td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Pre-granted Opposition</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Post-granted Revoke or Invalidation</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Term of Patent</strong></td>
<td>20 years</td>
<td>20 years</td>
<td>20 years</td>
<td>20 years</td>
<td>20 years</td>
<td>20 years</td>
<td>20 years</td>
</tr>
</tbody>
</table>

Notice: The information of some Asian countries in this table and next table come from the participants of JPO/IPR training course. Here I would like to send my thanks to them for their kindly help.

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64 Depend on the applicant and examiner.
1. **Range of Prior Art**

The range of prior art is a basic problem in patent system. It relate to how to determine the prior art time, the prior art territory and conflict application etc.

One of the key areas for harmonization of the definition of prior art relates to the extent to which non-written disclosures, for example through use, can form part of prior art for assessing novelty and inventive step. Currently the vast majority of countries recognize such material however the US is a notable exception recognizing only such disclosures made in the US. This issue is particularly important in the context of ensuring that patents are not granted for inventions based for example on traditional knowledge which most often originates from developing countries and which has not been disclosed in written form. It is likely that any harmonization will be based on a broad acceptance of unwritten disclosures as prior art. Whilst being “TRIPS plus”, this will nevertheless benefit developing countries and would be consistent with the recommendation of the UK’s Commission on Intellectual Property Rights. {65}

The Patent Reform Bill 2007 which is proposed this year gave many amendment on Prior Art content for example about §102(a) (1), §102(a) (2), §102(b) (1), §102(b) (2), §102(a) (3) (A), §102(a) (3) (B), and §102(b) (4). Especially, the bill planed to abolish the Hilmer Doctrin. This amendment will give the benefit of an earlier filing date to the priority date for the application filed in the first country, and eliminate the existing inequality in treatment between US applications and foreign applications arising from §102(e).

The absolute novelty standard is to be adopted by the Third Revised Draft of Chinese Patent Law. This means prior art also includes public use or other means of disclosure outside of China.

So, the definition of prior art is nearly the same between countries after above-mentioned amendment.

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2. The patentable tropic

The patentable subject matter is still the topic in hot dispute at the present. For developed countries, they hope there is no restriction as to subject matter, for example USA has granted a patent on the method to play trapeze; while for developing countries, from the perspective of national public security and economic development, they hope to have some restrictions as to some subject matter.

Whether to grant patents to pharmaceuticals has been clarified in the lowest protection standard of TRIPs, however developing countries still do not stop complaining about this; developed countries hope to include business method and computer software into patentable subject matter, while developing countries hope to protect traditional knowledge and folk culture and arts as IP; developed countries hope developing countries respect its investment and intellectual contribution on knowledge and technology development, while developing countries hope developed countries really respect its biological genetic resources.

Even among developed countries, as to subject matter there still exist disputes. The first point is whether technical nature should be made a requirement for obtaining a patent. Japan has been taking a position that inventions without technical nature be regarded as unpatentable. Consequently, Japan agrees to Article 12 of the current SPLT draft. On the other hand, the U.S. is in the position that technical nature is not essential. Thus, discussion about this point should be continued. It is the same situation as to the protection of business method applications. Japan strictly limits the granting of business methods, this differs greatly from USA.

These divergence and disputes involve some fundamental questions, it cannot easily be identified which side is more reasonable. From its own national interests perspective, it should say that all these requirements are reasonable.

With the technology development, the increase of fund on pharmaceutical R&D and investment on technology, risks also rise along, as the main force of pharmaceuticals

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R&D, private companies must seek better IP protection. This has been perfectly illustrated in the signing process of TRIPs. Pharmaceuticals Companies, such as Pfizer, dominated the whole process to bring IP into Trips and succeeded\(^67\).

The inclusion of business method and software into IP protection is obviously against the preliminary principles of IP protection. As the typical rules and methods for mental activities, in the early days, business method and software were firmly unpatentable. With the technology development, it becomes more necessary to adjust subject matter, who can say this is not the direction of IP development?

In the early days of enactment of patent system, unarguably, the invention not applying natural rules would not be identified practically applicable and can not be patented, but since the second medical use of pharmaceuticals can be patented, as technology develops, the barrier between inventions and discoveries is blurring more and more. In the future, what kind of subject matter will be included into the category of protection? Gene sequence? Pharmaceuticals experiment data? Or some kinds of innovation ideas? LU XUN\(^68\) has said “there is no road in the world, only when enough people walked on it, then it became a road”.

3. The Patentability—Novelty, Inventive Steps and industry applicable

As to the patentability of an invention, the main difference of novelty standard lies in the identification of prior art (mentioned above), there is no difference in terms of understanding of novelty.

As to the standard of inventiveness and practical applicability, there is no much difference among main, but detailed practice standards varies from each other. This is because the height of inventiveness standard is a lever for a country to adjust patent policy. When a government believes it is necessary to reduce patent granting, it can increase inventiveness standard, on the contrary, it will lower the standard.

The typical example in this respect is the several changes when USA applied patentability


\(^68\) He was a famous writer of China.
standards. Before the Federal Circuit Court of Appeals established, American courts embarked from strict restriction of monopoly, it set a very high standard to grant invention patents. A lot of patents have been invalidated. After the establishment of FCCA, to effectively promote innovation, government has adjusted patentability standards, majority patents have been maintained during invalidation process, In recent years, American government believes again that too much patents have been granted, the formed patent jungles is not good for economic development. The latest SKR decisions from The Supreme Court has shown that USA has improved the standard of non-obviousness,

The stipulation of industrial applicability is similar to that of inventiveness. It is easier to harmonize the legal stipulations, but when comes to the practice, the difference is huge. For example, the treatment method of human body is deemed to have no industrial applicability, but there exist exceptions in practice. Each patent office can only decide whether it is an exception under what conditions according to each individual case, it is hard to have a general rule. In Japan, there still exist disputes regarding whether the apparatus to diagnose and treat human body is patentable subject matter.

The differences existing in the detailed practices showed, though the standards to grant patents can be harmonized in legal documents, it is relatively easier. From the above two tables, it can also be seen that no matter developed or developing countries, the legal stipulations about inventive step and industrial applicability have been unified, but it is almost impossible to unify standards from practice operations. The various countries can have the difference while subjectively or objectively implementing authorization standards.

4. Grace period

The disputes about grace period mainly exist among developed countries, especially among USPTO, JPO and EPO. Between Japan and USA, due to the difference of first-to-file and first-to-invent system, therefore stipulations about grace period is different.

Grace period is very important in that it is expected to act as a bridge between the
First-to-File system and the First-to-Invent system. The two systems are both very basic patentability requirements but completely different from each other. Existence of such different principles has been casting heavy burden on applicants who wish to file an application with multiple countries.

In addition, Japan and Europe also have difference regarding grace period. Japan's current grace period system allows a wider scope of grace period than Europe’s.\(^\text{69}\). At the moment, USPTO, JPO and EPO are positively negotiating as for grace period issue.

5. **The requirement for the specification**

Regarding the requirements of specification drafting, the stipulation of each country is basically the same, referring to the above two tables. The Japanese Patent Law stipulation about full disclosure of specification is “in a manner sufficiently clear and complete for the invention to be carried out by a person having ordinary skill in the art to which the invention pertains”\(^\text{70}\). It is totally the same as Art 26 subsection 3 of Chinese Patent Law. American Patent Law also has the same stipulation (The 35 U.S.C. 112).

Though each country’s legal stipulation has been unified, similarly important is that whether the implementation of above mentioned standards is consistent. The examination guidelines of each country have further detailed stipulations as to implementation of above mentioned legal stipulations, these stipulations leads to difference when each country handle the standard of disclosure of specification.

For example, Japanese Examination Guidelines has the stipulation about enablement requirement, American Examination Guidelines also has the same stipulation, and explains enablement requirement as an undue experimentation factor. European Examination Guidelines has the similar stipulation as Chinese Examination Guidelines, namely, enable a skilled person to put the invention as claimed into practice.

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\(^{70}\) See the Japanese Patent Law Article 36-4.
It is easy to find that even among developed countries, due to the difference of legal and culture background, the practical standard of full disclosure is difficult to be unified after comparing the cases of full disclosure from various countries.

6. Claim Interpretation --The determining of the extent of protection

Each country all stipulates that the protection scope is determined by claims, but specification and drawings can be used to explain claims. Since the different interpretation of claims will lead to the difference in protection scope, so how to interpret claims in practice is always a disputable problem for each country to clarify rights and judge infringement. Especially, whether to interpret claims characterized by functions to get a wider protection scope or a smaller one is always swinging in American examination and law practice. The similar situation also exists in various countries.

7. The different patent types

Various countries have different patent types when establish their own patent protection system, and system designs also vary from each other, see the following table. Some countries apply different law to protect inventions, utility models and industrial designs respectively, for example, Japan and Korea; some countries protect all of them in one law, for example, China and USA; in some countries, inventions and utility models can be converted mutually, like Japan, Korea, View Nam, Thailand and Philippines etc, while some countries restrict this kind of convert, like China.

In addition, regarding legal system designs there also exists difference. Especially for the design protections, the regime of law exist many differences. For example, in Japan, industrial designs are protected primarily under the Design Law, but also depending on their type, partly under the copyright Law, the Unfair Competition Prevention Law and the Trademark Law. In United Kingdom, the design is protected by Copyright, Design and Patent Act 1988(hereafter referred to as CDPA 1988). However, according to CDPA1988, a design is classified into three schemes, protection by means of a copyright; protection by means of design right; and protection by means of the registered design. In European, the EU community Design Regulation protected the design. It can be divided into Unregistered Community design right (enforced on March 6, 2002) and registered
Community design right (enforced on April 1, 2003).\textsuperscript{71}

In United States and Japan, the design protection is based on a patent-oriented approach, however, in European; Design Laws are copyright-oriented approach.

<table>
<thead>
<tr>
<th>Countries</th>
<th>USPTO</th>
<th>JPO</th>
<th>SIPO</th>
<th>KIPO</th>
<th>EPO\textsuperscript{72}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility model</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Substantive examination</td>
<td>--</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>--</td>
</tr>
<tr>
<td>Converted into invention</td>
<td>--</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>--</td>
</tr>
<tr>
<td>Inventive step</td>
<td>--</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>--</td>
</tr>
<tr>
<td>Expiration (years)</td>
<td>--</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>--</td>
</tr>
<tr>
<td>Industrial design</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Substantive examination</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>--</td>
</tr>
<tr>
<td>Inventive step</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>--</td>
</tr>
<tr>
<td>Converted into invention</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>Expiration (years)</td>
<td>14 after granted</td>
<td>20 after granted</td>
<td>10</td>
<td>15 after granted</td>
<td>--</td>
</tr>
</tbody>
</table>

\textit{Note: If no explanation, the term of protection is calculated from the filing day.}


\textsuperscript{72} EC (EPO) does not protect the industry design, but the European Economic Community had passed the Community Design Regulation in 2001. It include the Registered Community Design (RCD) and Unregistered Community Design (UCD).
### Table 5-4  The different patent types in some Asia countries

<table>
<thead>
<tr>
<th>Countries</th>
<th>India</th>
<th>Laos</th>
<th>Mongolia</th>
<th>Viet Nam</th>
<th>Thailand</th>
<th>Philippines</th>
<th>Malaysia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility model</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Petty Patent</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Substantive examination</td>
<td>--</td>
<td>--</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Converted into invention</td>
<td>--</td>
<td>--</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>?</td>
</tr>
<tr>
<td>Inventive step</td>
<td>--</td>
<td>--</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Expiration (years)</td>
<td>--</td>
<td>--</td>
<td>7</td>
<td>10</td>
<td>6 +2+2</td>
<td>7 years</td>
<td>10(^{73})</td>
</tr>
<tr>
<td>Industrial design</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Substantive examination</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Inventive step</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No(^{74}).</td>
</tr>
<tr>
<td>Converted into invention</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<td>No</td>
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<tr>
<td>Expiration (years)</td>
<td>10+5</td>
<td>6</td>
<td>10</td>
<td>5+5+5+5</td>
<td>10</td>
<td>5+5</td>
<td>5 years(^{75}).</td>
</tr>
</tbody>
</table>

**Note:** If no explanation, the term of protection is calculated from the filing day.

In addition, it is also a commonly used means to adjust the system of other types of patent except invention patent so as to adjust domestic patent policy. For example, Japan, though utility model system has made the incredible contribution to Japanese technology innovation, but considering the balance between patentees and the public, Japanese government amended Utility Model Law in 1993 and cancelled the substantive examination system of utility model, shortened its protection period. However when realizing the shortcoming of this amendment, government adjusted this system again in 2005 to enhance its attraction. This adjustment further extends the protection period of utility models from 6 years to 10 years from the application day (art. 15, utility model

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\(^{73}\). Need to renewable every year during the ten years.

\(^{74}\). The novelty shall only be limited to domestic novelty.

\(^{75}\). The term can be renewed twice for five years each.
law), and reduces the annual fee (art. 31, utility model law), expands the allowable amendment scope (art 14 section 2, utility model law), after registering utility model, within 3 years counting from the application day, based on the registered utility model, patent application can still be submitted (art 46 section 2, patent law). After this adjustment, utility model applications began to rise. 76.

That is to say, after the harmonization of Trips, basically speaking, regarding patent law which standardizes invention patents has tended to be the same, while as to legal stipulations of utility model and industrial designs there still exist relatively big difference.

5.3 THE SUPPORTING SYSTEM RELATED TO PATENT FILING AND EXAMINATION

Restricted by technology level, supporting examination system of various countries varies dramatically. At the present JPO and KIPO has the highest automation level, followed by USA and Europe. SIPO has made great effort in this respect recent 10 years, but influenced by domestic general automation level, the effect is not outstanding, It is be explained from perspective of application system, examination structure and searching system respectively.

1. The filing system

Japan and Korea has implemented e-filing system totally. In 1990, the rate of e-filing was 43%, and reached 96.7% in 2006. The following graph illustrates the e-filing percentages in EPO JPO KIPO and USPTO. Except these countries, other countries including China have a low e-filing rate, even no e-filing system.

76 In 2005, the application number of utility modal was 11,386, but in 2004, just 7,983, increased 43%.  
2. The Examination system

The automation within examination system was earlier than e-filing. For example, Japan, acceptance of application, preliminary examination, public publishing before substantive examination, registry of appeal and publishing after granting have all be automatically controlled, or been done with the aid of computer. The automation of examination procedure improves the examination efficiency of JPO.

TABLE 5-5 THE AVERAGE PROCESSING TIME

<table>
<thead>
<tr>
<th></th>
<th>Before 1990</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formality</td>
<td>2 weeks</td>
<td>3-4 days</td>
</tr>
<tr>
<td>Patent</td>
<td>36 months</td>
<td>26 months</td>
</tr>
<tr>
<td>Design</td>
<td>26 months</td>
<td>7 months</td>
</tr>
<tr>
<td>Trademark</td>
<td>30 months</td>
<td>6 months</td>
</tr>
</tbody>
</table>
Korea and Japan has the highest automation level of application and examination procedure. Influenced by technology and resource factors, the automation level of various countries varies dramatically. For example, the e-filing rate in China is only 0.5%, majority developing countries still have not realized the automation of application and examination.

3. The search system

Except for paper searching system, each office has its own searching system. Regarding patent documents only, various countries have very big difference in terms of resource collection, processing, documentation classification, data processing, searching technology and platform etc, see the following table.

In addition, non-patent searching, and professional database searching like gene sequence retrieval, computer software and business method, all of these searching rely on more professional database. Regarding data exchange and retrieval system technology share in these fields, wide and further technology co-operation and technology support are important.

In recent 10 years, the Trilateral office carried out co-operation and coordination in the fields of data exchange, database exchange, harmonization of classification system, machine translation system and non-patent system. The co-operation scope needs to expand to other countries.

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77 For the country whose number of application is relatively smaller, the motivation to realize E-application and paperless examination is not strong. Because the cost will be higher.
5.4 THE LAW SITUATION ANALYSIS ON POST-GRANTED THE PATENT RIGHT

Regarding the harmonization of the procedure after patents granted, it is rarely touched in international patent harmonization. An important reason is that it is more difficult compared with harmonization of process and formats, conditions to grant patents. The following illustrate the procedure flowchart after patents granted. The outstanding difference can be seen in the flowcharts, and embodied mainly in:

1. **The first examination organization of invalidation.** SIPO and JPO are both the first examination organizations of invalidation, while in India, IIPO only can examine the invalidation application within one year after the patent being granted, after one year, invalidation application can only be submitted to Appellate Board.

2. **The appeal organization.** Japan established IP high court in 2005 to be fully responsible for IP cases appealing, China and India has not such specific courts. At

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78. JPO search system include the domestic patent database, foreigner patent database and non-patent database etc. The software of ADABAS and SHUNSAKU are used.

79. India Intellecture Property Office.
the moment, only Germany, UK, USA, Thailand, Korea, Singapore and Japan have established specific IP high courts. 80

3. The appeal process. In China, invalidation cases are examined by one level administrative organization and two levels judicial organizations. Japan is similar to China in this respect. In India, it is done by one level administrative organization and one level judicial organization, only important cases can be appealed to Supreme Court. In China, patent infringement cases normally be examined by two levels judicial courts, important cases can be appealed to Supreme Court. India is similar to China. While in Japan, patent infringement cases need three levels hearing.

For China

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For Japan

Supreme Court

IP high Court

Appeal department in JPO

Local Court

The dispute of Infringement

1. Appeal for the rejection;
2. Invalidation for the patent;
3. ...

For Indian

Supreme Court

High Court
Delhi, Mumbai, Kolkata, Chenna

State High Courts (27)

Patent Office (Legal Section)

Within one year from the publication of grant

Appellate Board

At any time after the publication of grant

District Court

The dispute of infringement
In order to get more opinions about patent harmonization, I design a questionnaire and interview questions. Under the organization and help of JPO and APIC, I got two chances to interview with the staffs from Japanese Intelecture Property Association (JIPA) and Asamura Patent Office. I also received 99 answers about my questionnaire. Those interview and answers gave me much valuable inspiration; expanded my thought to harmonization; and help me obtain some effective result. I am deeply grateful to all the persons that sent their answers to me, or accept my interviews. Here I would like to send my great thanks to them. The following is the results of my questionnaire and interview.

6.1 THE QUESTIONNAIRE AND THE STATISTICS RESULT

For my questionnaire, the answers come from JPO’s government office (? copies of answers, Group I thereafter), patent attorney offices and associations (11 copies of answers, Group II thereafter), and Japanese companies (40 copies of answers, Group III thereafter). The following are the questionnaire and the statistic results for the answers.

1. Are you familiar with the harmonization of international patent system?

   a. YES.                     b. NO.

   ![Graph of questionnaire results]

2. If you are, could you tell me what the harmonization of international patent
system is?

a. It is related to simplification of patenting procedure;
b. It is related to simplification of substantive law;
c. It is related to unification of patenting procedure;
d. It is related to unification of substantive law;
e. Others.

3. If you are not, can you image what the harmonization of international patent system is?

a. It is related to simplification of patenting procedure;
b. It is related to simplification of substantive law;
c. It is related to unification of patenting procedure;
d. It is related to unification of substantive law;
e. Others.

4. From your point of view, do you know what the main reasons for the harmonization of international patent system are?
a. Strengthen the patent right protection;
b. Accelerate the technology transformation;
c. Reduce the workload and duplicate work;
d. Improve the IP environment of the countries;
e. Others.

You can choose either of them or multiple, please write down your explanation.

5. In the future harmonization of patent, in your opinion what would be the core principle?

a. Strengthen the patent right protection;
b. Accelerate the technology transformation and information utilization;
c. Safeguard the public interest;
d. Accelerate the economical development;
e. Others.

You can choose either of them or multiple, please write down your explanation.
6. In the future harmonization of patent, in your opinion what would be the reforming direction?

   a. Realize the unification of substantive grant standard;
   b. Form a one-size fits all patent system;
   c. Built a more effective patent system to encourage the innovation;
   d. Built a more effective patent system to accelerate economical development;
   e. Others.

You can choose either of them or multiple, please write down your explanation.

7. In your opinion, what would be the benefit or disadvantage for the government in developed countries?

   **Benefit:**
   
   a. Reduce the workload and duplicate work;
   b. Enlarge the policy-space of the government;
   c. Enhance the international influence;
   d. Improve the IP environment of the countries;
   e. Increase the foreign investment;
   f. Increase the R&D investment;
   g. Others.
Disadvantage:
   a. Reduce the policy-space of the government;
   b. Reduce the foreign investment;
   c. Reduce the R&D investment;
   d. Deteriorate the environment of the innovation;
   e. Others.
You can choose either of them or multiple, please write down your explanation.

8. In your opinion, what would be the benefit or disadvantage for the government in developing countries?

Benefit:
   a. Reduce the workload and duplicate work;
   b. Enlarge the policy-space of the government;
   c. Enhance the international influence;
   d. Improve the IP environment of the countries;
e. Increase the foreign investment;

f. Increase the R&D investment;

g. Others.

Disadvantage:

a. Reduce the policy-space of the government;

b. Reduce the foreign investment;

c. Reduce the R&D investment;

d. Deteriorate the environment of the innovation;

e. Others.

You can choose either of them or multiple, please write down your explanation.

9. In your opinion, what would be the benefit or disadvantage for the company or enterprise in developed countries?

Benefit:
a. Reduce the cost of obtaining the patent right;
b. Make the patenting process easy;
c. It will be easy to do new innovation for the domestic company or enterprise;
d. It will be easy to open the oversea-market;
e. Others.

Disadvantage:
a. Increase the cost of patenting an invention;
b. Make the patenting process difficult;
c. It will be difficult to do new innovation for the domestic company or enterprise;
d. It will be difficult to open the oversea-market;
e. Others.

You can choose either of them or multiple, please write down your explanation.

10. In your opinion, what would be the benefit or disadvantage for the company or enterprise in developing countries?

Benefit:
a. Decrease the cost of patenting an invention;
b. Make the patenting process easy;
c. It will be easy to do new innovation for the domestic company or enterprise;
d. It will be easy to open the oversea-market;
e. Others.

Disadvantage:
a. Increase the cost of obtaining the patent right;
b. Make the patenting process difficult;
c. It will be difficult to do new innovation for the domestic company or enterprise;
d. It will be difficult to open the oversea-market;
e. Others.
You can choose either of them or multiple, please write down your explanation.

11. In the future harmonization process, what common benefits do you expect between the developed countries and the developing countries?

a. Reduce the workload and duplicate work;
b. Enlarge the policy-space of the government;
c. Improve the IP environment of the countries;
d. Increase the foreign investment;
e. Increase the R&D investment;
f. It will be easy to do new innovation for the domestic company or enterprise;
g. It will be easy to open the oversea-market;
h. Others.

12. What is the **main obstacle** in the future harmonization of patent?

   a. The different law systems in different countries;
   b. Because of the national sovereignty factor, it is difficult to harmonize;
   c. The economical development is unbalance in different countries;
   d. The interest of developed countries vs. developing countries;
   e. Others.

Please just choose one of them as the main obstacle, and write down your explanation.

13. For the national sovereignty factor, do you think what **important things** the WIPO and national IP offices should consider?

**For the WIPO:**

a. Establish a better research and invest environment;
   b. Respect the invention achievement, repay the R&D investment better;
c. Reduce the international interference, respect the national sovereignty;
d. Form a more democracy harmonization mechanism;
e. How do the future patent system develop?
f. Others.

For the national IP office:
   a. Establish a better research and invest environment;
   b. Respect the invention achievement, repay the R&D investment;
   c. Reduce the international interference, respect the national sovereignty;
   d. Form a more democracy harmonization mechanism;
   e. How do the future patent system develop?
   f. Others.

14. What kinds of economical contribution did the patent protection produce for the developed countries and the developing countries in the post harmonization?

For the developed countries:
   a. Improved the economical increase more quickly;
   b. Encourage more and more the innovation and creation;
   c. The publics obtained much more technology information;
d. Established a better invest and developing environment;
e. The enterprise developed more quickly;
f. Others.

For the developing countries:

a. Improved the economical increase more quickly;
b. Encourage more and more the innovation and creation;
c. The publics obtained much more technology information;
d. Established a better invest and developing environment;
e. The enterprise developed more easily and quickly;
f. Others.

15. What kinds of social costs did the developed countries and the developing countries undertake in the post harmonization?

For the developed countries:

a. The price of new production became higher;
b. The further research and development became more difficulty;
c. The cost of new technology became higher;
d. The enterprise is more difficulty to open over-sea market;
e. Others.
**For the developed countries:**

a. The price of new production became higher;

b. The further research and development became more difficulty;

c. The cost of new technology became higher;

d. The enterprise is more difficulty to open over-sea market;

e. Others.

16. In your opinion, what kind of strategy JPO and Japanese government should adopt in the future harmonization of patent?

(1) They should promote bilateral, plural, and multilateral discussion with countries, and reinforce the approach to resolve the North-South conflicts;

(2) Aiming for development of systems as a leader of patent information provider in the world;

(3) Reinforcement of communication and adjustment system with each country;

(4) Homogenization of examination quality, improvement of applicants’ predictability;

(5) Proposing international institutionalization of first-to file system;
(6) Suggesting the harmonization of system, operation, examination standard, and information system, hoping for the mutual recognition;
(7) Better development of the patent system of own country;
(8) The realization of the harmonization among JPO, USPTO and EPO;
(9) Establishment of Asia patent office;
(10) We want the government to be more concerned about the protection of our country’s businesses(by, for instance, penalizing such countries or businesses where the infringement of the rules is the name of the game);
(11) Necessary to induce third country in addition to Japan, USA, Europe in the “Highway idea”;
(12) The prevention of the infringement of sights and unfair competition;
(13) The patent system should be controlled so that technology may not be merely diffused and the cost may meet the effect;
(14) Balance policy of Examination level;
(15) It is necessary to take the policy which will promote the patent harmonization and the activities which will aim to realize the establishment of the world standard of the examination;
(16) Should work according to the guidance of WIPO;
(17) Enrichment of the examination system(number of staff members and their quality);
(18) The adjustment of interests among the countries;
(19) The international cooperation through prompt examination;
(20) Establish harmonized policy among the countries;
(21) Collaborating with China and Korea, the harmonization should be proceeded first in Asia, them in the world;
(22) Revising of IP law for the international harmonization;
(23) Should play an important role as a leader, paying attention to the harmonization with other countries;
(24) The introduction of patent system harmonization system through the cooperation of each country;
(25) To support the preparation of IP environment;
(26) To restrain the independent policy of USA by collaborating with European countries;
(27) Show leadership as the advanced country of patent;
(28) Increase of PPH;
(29) Revising of examination guideline;
(30) The adoption of domestic small entity system;
(31) To take leadership for making database of more English technical information;
(32) Consideration for developing countries that departed later.
(33) To bridge the gap between the pro-patent USA and European countries that try to protect their sound patent systems while maintaining the harmony in society.
(34) Unlike other Western countries, both Japan and China have achieved substantial economic growth by implementing the IP System through trial-and-error processes. It will therefore be necessary for both countries not only to exchange their experiences but also widely provide such experiences for other developing countries.
(35) Being the country with the largest number of applications for patents and the highest number of accepted applications in the world, Japan is also a country that has most significantly benefited from patent law harmonization, it is required to assert its leadership in the international deliberation of harmonization issues.
(36) The present domestic system should be further improved in terms of convenience for the user and, as a result, the efforts would lead to the harmonization and unification of the system on the global level to have the system accepted on the world level.
(37) The Japanese government is constantly aware of the expansion of its trading rights. The important factor is to create an advantageous environment overseas that allows Japanese businesses to easily operate. This is the starting point for the businesses to create their strategy.
(38) A strategy to come up with a system in balance with the sovereign authorities of various countries.
(39) It is essential for overseas companies to promote in Japan and for Japanese companies to encourage in overseas countries toward the future patent law harmonization.
(40) To cooperate in search efforts and to establish search tools for the benefit of patent offices around the world.
(41) An environment must be firmly established in which the inventor who discloses the invention shall be properly paid for his or her efforts and all third parties can conveniently utilize the invented information.
For the realization of the mutual recognition of examination results, it is essential to integrate the database and search system that store patent documentation, as well as the harmonization of the legal and procedural aspects.

17. In your opinion, what kind of strategy SIPO and Chinese government should adopt in the future harmonization of patent?

(1) They should promote communication with both developed and developing countries, as China is the major nation in Asia.
(2) Establishment of effective IP protection system within the nation.
(3) Development of the domestic legal systems and strengthening its operation;
(4) Homogenization of examination quality, improvement of applicants’ predictability;
(5) Development of legal system for IP protection;
(6) Earlier establishment of the using system and its transparency;
(7) Establishment of Asia patent office;
(8) We want them to promote awareness of the Chinese people of the need for protecting IP, we expect them to serve as a modal in the utilization of the system since the country is expected to assume the role of the staple players of the global market;
(9) Necessary to change the awareness of the nation to respect the IP, In order for that, the fairness should be secured,(If the mind, in which personal connection is regarded as more important than the law, won’t changed, China cannot be ranked with Japan, USA Europe in the IP field);
(10) Should supervise the patent system so that it may be utilized effectively;
(11) Increase the public awareness on the observation of the law;
(12) Rearrangement of the circumstance surrounding the patent system, establishment of the patent system and its proper management, dissemination of the cultural climate where people respect the patent law;
(13) Should try to improve examination level;
(14) Enrichment of the public education in order to enhance the awareness to respect IP, complete removable of the imitation;
(15) To proceed the policy that IP is considered to be important;
(16) More efforts towards the international standardization are needed;
(17) Arrangement of law system, Homogenization of examination level, Establishment of
the fair system of trial;
(18) Realization of “international justice court” related to IP;
(19) Collaborating with Japan and Korea, the harmonization should be proceeded first in Asia, them in the world;
(20) International harmonization, respect of IP law;
(21) The policy in which even foreign people can get right easily should be taken, for example, application in English may be accepted;
(22) The introduction of patent system harmonization system through the cooperation of each country;
(23) The preparation of IP environment, the dissemination of public awareness;
(24) Based on the thought that more commitment for the global economy will be an extreme benefit of China and Chinese people, restrain the independent policy of USA by collaborating with Europe and Japan;
(25) Respect established right and their complete protection;
(26) Introduction of PPH;
(27) Rearrangement of the law, rearrange of the administration of justice;
(28) The establishment of the fair lawsuit system;
(29) Making database of Chinese technical information;
(30) The promotion of regional cooperation and the cooperation between two countries.
(31) Unlike other Western countries, both Japan and China have achieved substantial economic growth by implementing the IP System through trial-and-error processes. It will therefore be necessary for both countries not only to exchange their experiences but also widely provide such experiences for other developing countries.
(32) China, which is now on its way to establish their own system for the protection of intellectual property rights, should endeavor to execute the system in advance of the future implementation of the system anticipated after the coming harmonization of rights, namely, the specific grace period, bail-out plan for the applicants, new trade name, genetic resources, etc.
(33) The exchange of necessary information should be promoted to improve the domestic system so as to strike a balance with the systems of other countries of the world.
(34) It is essential to adopt the “enforcement” of the intellectual property rights in China’s domestic markets. It is particularly important to ensure the awareness of the country’s
local governments. Harmonization is difficult unless the domestic situation improves.

(35) Implementation of international standards against the protection of patent to promote investments from abroad and Chinese domestic markets.

(36) To intensify the education of intellectual property for Chinese people.

(37) We should aim to intensify the protection of intellectual property as well as the harmonization of the domestic and other systems among JPO, EPO, USPTO, etc.

6.2 THE INTERVIEW

1. Interview with JIPA and patent attorney of Asamura Patent Office

JIPA was established in 1938. The association aims at contributing to the business of its members by endeavoring to make full utilization of intellectual property systems and to improve them. It also aims at contributing thereby to the progress of technology and development of industry. Until May 10, 2007, there was 902 regular members and 246 associate members.

Asamura Patent Office was established in 1891. This was the first Patent attorney office in Japanese history. The first president Saburo Asamura was an examiner for the Japan Patent Office. With the encouragement of Korekiyo Takahashi, the first Commissioner of JPO, Mr, Saburo Asamura established the firm in Osaka. Until Apr. 2007, the office owned the patent attorneys 49 persons, total staffs 170 persons.

During interview with JIPA and Asamura Patent Office, the following questions were asked, and very valuable opinions were gotten.

(1) What is the direction and aim of present harmonization for Japan: Because of the globalization of economic and heavy stress of workload, (From the 70th, the application numbers began to increase quickly.) the harmonization is very nature. The harmonization steps include: the first step is to realize the one application; the second is one search; the third is one examination; the last step is to realize the one patent right. Now the harmonization direction is in someday to realize the one application in different countries. So recently, the formality harmonization is very important and urgent, for example, to unify the form of specification and application.
(2) **What is the most successful aspect for Japanese patent system?** The patent system is very important and useful for enterprise. It is a means to encourage the innovation, and to promote the competition. But for social publication, they didn’t use the patent system to earn money, but the patent information is very important. So two of those should be considered.

(3) **What is the conflict between developed countries and developing countries for patent harmonization?** Now most of the countries had established the patent system. This proved that the patent system is necessary for innovation and invest. The conflict between developed countries and developing countries is not an isolated thing, it related to many other things.

(4) **What is the direction of development for future patent system?** The patent system should be more flexibility to protect different field’s technology. For example, the term of patent right should be different according to the technique difficulty and economic effect.

(5) **Could you give some suggestions for developing countries?** Don’t think the patent system is an ideal system, it just a practice system. The companies want to earn money; a more efficient system is needed.

**6.3 SOME CONCLUSIONS FROM THE QUESTIONNAIRE AND INTERVIEW**

The following conclusion can be gotten:

1. For the 99 answers, most of them (more than 70%) knew about the harmonization. That means that the harmonization is very popular in Japan, and the answers is believable.

2. Most of the people (nearly all of the answers) thought that the harmonization is the simple and unification of patent procedure, just a few answers thought that it related to the unification of substantive law. But when I asked what the reforming direction is, most of the answers (more than 60%) thought that it is to realize the unification of substantive grant standard. I think the former is the understanding of present
harmonization; the letter is the understanding of future harmonization.

3. More than 80% of the people thought that the main reasons to harmonization were to reduce the workload and duplicate. So they thought that the main benefit for government (because there were more than 80%) was to reduce the workload and duplicate; the main benefit for enterprise (because there were more than 60% or 70%) was to reduce the cost of obtaining the patent right and to make the patenting process easier. The common benefits for developed and developing countries was reducing the workload and duplicate work(87%) and improving the IP environment(50%).

4. More than 30% of the people thought that strengthen the patent right protect and improve the IP environment of the countries were also the reasons for harmonization.

5. For the core principle of harmonization, more than 40% thought that it is to strengthen the patent right protect; more than 45% thought that it is to accelerate the technology transformation and information utilization. Only more than 10% thought that to safeguard the public interest should be the core principle.

6. Most of the answers (more than 70%) did not think there were any disadvantages for harmonization. That is to say, for Japanese government, companies and patent attorneys, they just saw the benefit of harmonization. Most popular disadvantages include: reduce the policy-space of the government (25%) for developed and developing government; deteriorate the environment of the innovation (18%) for developing government; difficult to do new innovation for the domestic companies (24%) for the developing country’s enterprise; others (17%) for the developed country’s enterprise.

7. For the main obstacle of harmonization, 70% choose the different law systems in different countries; 30% choose the national sovereignty factor, it is difficult to harmonize; 44% choose the economical development is unbalance in different countries; and 61% choose the interest of developed countries vs. developing countries.

8. The important things the WIPO and national IP offices should consider are “Form a more democracy harmonization mechanism” (more than 40%); and “How do the
future patent system develop” (more than 40%).

9. For China, many useful and valuable suggestions were provided. As I understand, the most important suggestions include: (1) As China is the major nation in Asia, They should promote communication with both developed and developing countries. (2) Establishment of effective IP protection system within the nation. (3) Increasement of the public awareness on the observation of the law.
7.1 THE ADJUSTING ON STRENGTHENING THE PROTECTION AND LIMITING PROTECTION—THE HISTORY ANALYSIS ON AMERICAN PATENT POLICY

The USA is generally recognized as the country applies patent system most successfully, though the establishment of patent system is not the only factor leading USA to the most powerful nation in the world, at least it is one of the important factors. The study of the history of American patent system, as only to the factor of patentability requirements, its patent policy always keeps on adjusting as the economic development so that its patent system can effectively perform its function to encourage invention and promote economic development.

Like other countries which established patent system early, in the initial stages, USA didn’t conclude the standard of non-obviousness into patentability requirements. This low patentability standard, together with cheap application cost in the early days, and USA attached great importance to the dissemination of patent information, all of these make patent system deeply rooted in the minds of the public, and also fulfill its function to encourage invention.

During the early and middle period of last century, the American government realized that the policy to encourage patent applications created too much monopoly rights, so several anti-trust acts were enacted during this period, and at the same time the ratio of invalidation decisions increased dramatically, in 1952, the standard of non-obviousness was introduced into substantive patentability requirements. In this period, monopoly actions including patent were limited strictly, economics developed pleasantly in a very free competitive environment.

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81 This section refers to some reports of Yinxintian of SIPO and the master degree thesis of Hanrui of 2006 in East China Normal University. Here I would like to pay my honestly grateful to those two authors.
82 “Intelecture Property and Economic Development: Lessons from American and European History”, The study paper 1a of report of <Integrating IPR and Development Policy>.
83 For example, the Sherman Act in 1890, Clayton Act and Federal Trade Commission Act in 1914 etc.
Until 70s-80s last century, with the accumulative maturity of Japanese economics, as well as the fast development of Asian economics, USA began to review its industries and technology development. Patent system was once again viewed as an important policy tool to promote economic development. In its adjustment of technology and economy policies and legal system, the establishment of the American Federal Circuit Court was extremely influential and representative. The establishment of AFCC unified the standards of identification of patent scope and infringements, the ratio of invalidation decisions dropped dramatically. The protection of patents was unprecedentedly prosperous in USA. From 1985 to 2006, patent applications in USA have increased four times, patent granted increased almost three times.

In 2003, the American Federal Trade Commission promulgated the report promote innovation-the appropriate balance between competition and patent policy. According to the report, patents granted so far are too much and the quality is bad, this situation had intensified “patent war” among American big companies, not good for economic development. Due to the influence of this report, the Supreme High Court made the latest decision as to the standard of non-obviousness, which is also a new direction of USA to adjust its standard of non-obviousness.

The multiple adjustments of patentability standards of USA indicates that patent system as an important policy tool for government to adjust economic policy keeps changing as its economics develop, and only when patent system suits the then economic development phase of a country, patent system can stimulate economic development, on the contrary, it will stifle economic development. This conclusion has been proved by more than 200 years history of the development and practice of American patent system.

As we have known, different countries have their own process of program. The processes of technological change in rich countries, where firms are innovating by pushing the knowledge frontier further, are fundamentally different from such processes in developing countries, where innovation primarily takes place through enterprises learning to master, adapt and improve technologies that already exist in more technologically

84 The American NBC had broadcasted a TV program in 1980 : “ If Japan Can Do It, Why Can’t We” . The program summarized the success of Japanese economic to four reasons, one of the reasons is the patent application. See Guntram Rahn, “ The role of industrial property in economic development: The Japanese Experience” . 14 IIC 451,1983.
advanced countries. Policies to promote technological development should be different in technologically leader countries from those in follower countries, including LDCs (Least developed Countries).\textsuperscript{85}

However, hard to understand, the experience used by the country successfully applied patent system and proved successfully is required to be stopped being used in the course of international patent harmonization currently. According to present international patent harmonization ideas, it is not allowed for each country to establish its patent mechanism based on its economy and technology development phase, instead, basically the same protection level and standard is demanded. This kind of harmonization ideas can be very difficult for majority nations to understand and support.

\textbf{7.2 TO ESTABLISH A WORLD PATENT SYSTEM SHOULD NOT BE THE BASIC AIM FOR HARMONIZATION}

After Trips, international patent harmonization has these features: (1) developed countries are in a positive position and benefit from it, while developing countries in a passive position and follow developed countries; (2) the international harmonization transfer from harmonization of international treaties to domestic laws, for example PCT and PLT these two treaties are substantively different; (3) the international harmonization transfer from harmonization of legal criterion to harmonization of practice criterion, before practice criterion was influenced by legal criterion, while currently the harmonization of substantive result and legal criterion is realized by the unification of practice criterion.

From one point of view, the road to world patent harmonization follows four steps. The first-step is to establish one application mechanism, second, one search, thirdl one examination, fourth, one patent. According to this view, the ultimate purpose of international harmonization of patent system is to establish a world wide patent system. This is also some people’s belief towards patent harmonization at the moment.

Since the establishment of Trips, patent system as a private right has been puffing up dramatically unprecedented, should the development of patent system continue this puffing? Or after the review of social cost which instituted patent system, to balance the interests of patentees and the public? How to develop patent system will benefit global

economic development most? Is it the best development direction of patent system to fulfill the mechanism of applying in one country and get patents effective in various countries? These are the questions the author has been thinking from the beginning of the research. I think it is hard to get an ideal answer within my capability in this report, but I hope with these questions being raised, many peers who care about the IP development or myself in the future will study thoroughly, and expect to get some useful conclusions.

**But as the author I firmly believe that world patent is not the ultimate purpose of the patent harmonization.**

As we know, the fundamental purpose to establish a patent system is to promote economic development and technology innovation, and finally to eliminate poverty and get prosperous together by granting inventors appropriate exclusive rights and the dissemination and use of patent information. So, the core principle of patent harmonization is to make the public interests as the attention focus. This principle has been clarified in patent agenda of WIPO.

> “The future evolution of the international patent system should provide an appropriate balance between the rights of inventors [and their investors] and the general public, while at the same time taking into account the implications for the developing world.”

> “The increased integration between intellectual property and trade, coupled with acceleration in international trade and commerce, call for a cooperative international approach to the evolution of an effective international patent system that holds to its core principles that have the public interest at their center.”

The purpose and the direction of patent harmonization is to establish such a patent system, which can better promote economic development, technology innovation, and to better harmonize patent system and domestic economic and social system.

One of the prevailing questions for the international patent system in 2002 is that of patent law harmonization, and indeed the continuing suggestions that the international

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87 Come from the WIPO patent agenda: The Impact of the international patent system on developing countries (A/39/13 Add. 3) page 14.
system might produce what already commonly exists in the public imagination – the “world patent.” But it is necessary to recall that patent law harmonization is not an end in itself, but a tool – a means to an end. It is not, perhaps, important exactly what legal form or structure harmonization this takes. What matters is to give national and regional patent authorities access to a common operational platform that permits them to cooperate, exchange information, share resources, and reduce duplication in their work.\textsuperscript{88}

To fulfill the above mentioned purpose, the author believe that international patent harmonization should be carried out in a more democratic environment. The democratic environment here means that to follow the core principle of patent harmonization, that is make the public interests as the focus of patent harmonization, respect and take into account the root interests of countries at different development stages, and make the ultimate purpose of IP system which is to promote economic development of each country together but not only protect the interests of few multinational companies. IP rights are not natural rights, they are granted by government, it can never overtake basic rights like life rights and health rights. The ultimate purpose to establish IP is not to grant more and more private rights, but to promote global economic development together.

7.3 ANALYSIS ON THE GENERAL TREND OF THE HARMONIZATION

The author believes, under the continuing development of international and domestic economy and technology, patent harmonization is the necessary trend. No matter in developed or developing countries, there exists intrinsic motivation of the harmonization of patent system. There doesn’t exist the feature which patent harmonization only benefits developed countries but not developing countries, though at the present it is a fact in general.

By analysis on the current development of international harmonization, compared with the enactment of the Trips, the content and power of current patent system harmonization present a multi-development feature. On the one hand, the content of international harmonization comprises not only the harmonization of patent act and procedure, the harmonization of supporting system is also being included gradually; on the other hand, the power of international harmonization also change dramatically, developing countries

\textsuperscript{88} Come from the WIPO patent agenda: Options for Development of the International Patent System A/37/6, Annex I p3.
have gradually formed their capability to use and develop patent system.

So, the trend of international harmonization of patent system is to go ahead necessarily, but as to where to go there is not a conclusion yet, which depends on the content development and environment construction of international harmonization as well as power presentation of developing countries, it will be explained in the following respectively.

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**7.4 SOME SUGGESTIONS TO CHINA**

Facing international patent system harmonization, Chinese government needs to consciously understand domestic IP development status and locate its position clearly. The author believes, based on the description of the above and the understanding of the harmonization trend, except for the suggestions given in 3rd section of Chapter 2, Chinese government needs to strengthen the work in the following three aspects to positively face the current international IP system development.

1. **To develop domestic innovation capability as soon as possible**

If the core competition among countries in 20th century is the competition of productivity, then in 21st, it should be the competition of intelligence. The intelligence competition featured innovation and invention as its core has become the main stream of national power competition.

However, compared with developed countries in terms of science and technology, at the present, our gap between them in the respect of science and technology is huge. It mainly
presents as the following: (1) the ownership rate of independent key technology is low, the rate relying on foreign counterparts reaches 50%, while USA and Japan only 5%; (2) the number of patents owned by Chinese enterprises is too small, 99% Chinese enterprises have never applied for patents; (3) the quality of science research is not high, and the citation of academic dissertation is low, in this respect, USA is 12.2% while China 2.8%; (4) lack of top talents; (5) investment in science and technology is not efficient and diversified. In total, the investment during the past 10 years is 1/36 of American’s, 1/2 of Korean’s, the average funding of Chinese research staff is only 1/7 of Korean’s, 1/13 of American’s.

Though in recent 20 years we have shortened the gap between developed countries by importing technology, we have to admit at the same time that the imported technology is not all advanced and core technology, instead they have entered into mature and declining period, even facing knock out. Large number of chinese enterprises producing under the authorization of other's brands are consuming our precious energy, resources and environment, and exchange marginal profits with cheap labour, at the same time majority profits has been taken away by foreign enterprises. The root reason for this obvious market shares imbalance is due to lack of our own products, technology and IP. Without our own independent IP, China will be insulated with high profits.

Before the formation of national innovation capability, there is not necessary link between patent system and national innovation capability. Patent system as a designed mechanism to promote domestic innovation capability, its basic point lies in that a nation has its own basic innovation capability. Without domestic innovation capability, patent system means nothing to a nation. The more capable for a nation to create new science and technology and culture and arts, the more benefits it will get to protect IP, this is a generally known fact. Presently, the aim of developed countries positively advocating patent system unification is to transfer IP protection into a means of economic competition. So without the safeguard of solid innovation capability, Chinese patent system is not possible to become the core motivation for economic productivity, and

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89 Come from the speech of Zhang jingan of Science and Technology Daily : “Build the innovation country, and uphold the domestic innovation” in April 17 2006, http://theory.people.com.cn/
China is also hard to become a big country in terms of patent and a strong country, hard to get enough benefit shares in the development process of patent system.

2. To perfect domestic IP system as soon as possible  

A full set of framework and mechanism to protect IP internationally has been established as Trips its symbol. To overturn this mechanism totally and establish a new one is not practical. As a developing country, China needs to perfect its IP system within Trips framework as soon as possible.

As to patent system, China needs to further study some mechanism designs from foreign counterparts which is beneficial to current development stages, for example: patent of addition system, Series patent system, correction system after granting, and to construct more rationally trial organization and procedure in the field of IP, etc.

The current international patent harmonization trend focuses on invention patent system, not much attention has been put on utility model and design system, so China should make full use of current utility model and design system to promote developing domestic innovation capability while positively facing international invention patent harmonization.

From the perspective of patent system developing history, the post-progress countries such as Japan and Korea, in the first stage of technique development, those countries successfully made use of utility modal system to promote the formality of domestic innovation capacity. In China, the systems of utility modal and industrial design need to be further perfected, for example, to strength the search report system of utility modal; to establish the search report system of industrial design; make the judicial trial procedure of utility modal and industrial design more quickly (suggest to use simple procedure); establish the converting system between invention and industrial design; etc.

With the development and perfection of international patent system, patent as a monopoly

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90. The suggestions in this part are just the author’s tentative proposals, haven’t been deeply researched and strictly verified.
91. Japan established the utility modal system in 1905. Until the 1980, during the 75years, the applications of utility modal were always more than invention. During the 50th-70th of last century, the utility modal had a sharp increasing period. After 1980, the application of invention increased stably, and the application of utility modal kept stable. In 1993, the law of utility modal was revised, the application decreased sharply. Even though, the Japanese government didn’t give up the utility modal system. In 2004, the report “strength the attractive of utility modal ” was published; the law was revised again. The process proved that the utility modal play an important role on the development of science and technique of Japan, and will bring into play role on SEM.
rights will be disseminated widely around the world. The developed countries since established patent system for a long time, and the legislation of restricting patent monopoly rights is relatively complete⁹², while developing countries lack either standards of restricting IP abuse or practice experience. This is a very dangerous situation. With the international patent system process quickening, this will bring large quantity of monopoly rights, if these rights lack effective limitation, this will bring extremely disadvantageous impact to the national economy, technology, even the culture. This kind of condition needs to give special attention in China.

The fast developing economy and huge market attracts patent applicants from the world, which ranks China the No.1 among developing countries in terms of patent applications. Confronted already-existed and still dramatically increasing monopoly rights (half of the monopoly rights are foreign enterprises’ rights), at the present China only get patent law and the law against unfair competition to restrict patent rights, still no specific anti-trust law to limit monopoly acts in patent field. With the increase of trade and technology communication in Chinese market from both Chinese and foreign enterprises, the need for the law and regulations to restrict monopoly rights is very urgent, China needs to accumulate the experience of law enactment and practice in this respect, to avoid being in a unbeneficial position.

3. To strengthen the dissemination and use of information, popularize the awareness of IP

What impress me most in this study in Japan is the effort Japan has contributed in promoting and making use of patent information. The Japanese IP e-library provides applicants, patentees, IP practitioners and the public IP information of patents, trademarks, utility models and industry designs. Patent maps provide technology development status in related fields in an easy-to-understand way, and become the demonstration model to analyze and make use of patent information. JPO provides free and quality information service specifically designed for SMEs, eg: information consulter, and provides free searching service for SMEs. The capability of Japan to disseminate and use patent

information effectively increases the position and function of IP in economy and technology development, which is the experience deserves promotion.

As we know, the ultimate purpose of patent system is not to grant more and more private rights, instead, it is to let the general public make use of patent information to produce more and more inventions, and promote the development of social science, technology and economy.

Technology is not simply technological means (such as machinery and equipment) and technological information (such as instructions and blueprints), but also technological understanding (know-how). The latter is tacit and depends on learning through training and experience. 93

So in some sense, the social value of wide and effective dissemination and use of patent information is bigger than granting and examination of patents. China needs to work harder in promoting the dissemination and use of IP information.

In addition, due to the short history of the enactment of Chinese IP system, awareness of the general public to respect and protect IP is not strong. To strengthen the dissemination and spreading of IP and IP related knowledge is also an urgent task at the present.

Based on the research to patent harmonization, the following main conclusions were reached:

1. I think the patent harmonization is a trend that can not be reversed. Faced to the trend, there are some advantages and disadvantages for developing countries, even for developed countries. Not only the developed countries, but also the developing countries need to think how to promote the patent harmonization, how to guide the developing direction of patent system.

2. As the development of patent system, especially after the TRIPS, the patent system in national countries had been harmonized greatly, especially the substantive grant standard. In the future, the harmonization will concentrate on the harmonization of procedure and formality that base on application examination. Just only this kind of

harmonization can reduce the workload stress, decrease the cost of patent obtaining, and make the system convenient to applicant.

3. For the developing countries, they should guide the harmonization to the director that benefit to developing countries instead of following the trend. The developing countries should have their own project to lead the harmonization.

4. The developing countries should establish the domestic innovation capability in order to utilize the patent system more effectively. Besides this, perfect the law system which relates to patent, strength the utilization of patent information, and popularize the patent awareness is also very important to developing countries.
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