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# STANDING COMMITTEE ON THE LAW OF PATENTS

## Twelfth Session
## Geneva, June 23 to 27, 2008

REPORT ON THE INTERNATIONAL PATENT SYSTEM

*prepared by the Secretariat*

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EXECUTIVE SUMMARY

1. Pursuant to the decision by the 34th WIPO General Assembly held in September/October 2007 to submit a Report on the International Patent System to the Standing Committee on the Law of Patents (SCP), the present document is submitted by the Secretariat as a working document for the twelfth session of the SCP, to be held from June 23 to 27, 2008. It contextualizes the existing situation of the international patent system, and attempts to cover the different needs and interests of all Member States. The Report covers three broad issues: Chapters II to IV address the economic rationale of the patent system and its role in innovation and technology dissemination, Chapters V to VIII address legal and organizational aspects relating to the patent system and Chapters IX and X focus on issues that are particularly relevant to broader policy considerations and development concerns.

*Economic Rationale for Patents and Different Interests and Needs in the International Patent System (Chapter II)*

2. The fundamental role of the patent system from an economist's perspective is to address market failure and restore the incentives to invest in production of knowledge. The patent system is intended to correct market failure and under-provision of innovative activities by providing innovators with exclusive rights to prevent others from exploiting their inventions without the patentee's consent. To correct the potential inefficiencies of the market power which may be created through exclusive rights, the patent system provides for, among other mechanisms embedded in the system, public disclosure of the patented matter. The disclosure of the technical details of the invention through the patent system expands the public stocks of technical knowledge and creates competition among innovators. A third function of the patent system is to encourage technology transfer by creating tradable property rights to improve the efficiency of knowledge flows.

3. Inconclusive empirical evidence on the role of the patent system to encourage research and development (R&D) and technology transfer makes it difficult to draw any clear-cut conclusion about the effectiveness of the patent system for economic development. Nevertheless, since the mid-1990s, demand for patents has been increasing at a rapid rate in the majority of countries under both national systems and the PCT international system. There has also been an increase in the share of non-resident filings, reflecting the increasing level of internationalization. The usage of the patent system varies significantly from one country to another. In recent years, however, the number of patent filing originating from emerging economies has been rapidly increasing.

*Technology Disclosure through the Patent System (Chapter III)*

4. The technical information derived from patent information serves various functions and user groups. It is widely used in business in formulating a firm's R&D activities, analyzing technology and competitors' trends and facilitating licensing and technology transactions. Further, patent information can be used by policy makers as an industrial policy tool, such as monitoring national technology performance, and as an input into R&D policy. In recent years, patent information is increasingly available via the Internet, free of charge. The expansion of industrial activities around the world results in increasing number of patent documents published in non-European languages. Although technical information derived from patent information is widely available on the Internet, information concerning the legal status of granted patents is more difficult to obtain through an on-line service.

*Technology Diffusion and the Patent System (Chapter IV)*

5. Transfer of technology may be achieved through different means, such as publications, cooperative research and development agreements, joint venture arrangements or foreign direct investments. In many cases, patent and know-how (trade secret) licensing agreements play an important role for successful technology transfer. In this Chapter, the international dimension of technology transfer is discussed in conjunction with the increasing transnational trade flows and globalization. A further dimension of technology transfer is the transfer of basic research results from research institutions to the industry that is capable of developing the research results to tangible products for the market.

6. From the viewpoint of competition policy, in general, technology diffusion through licensing agreements promotes competition in the market. However, where any provision in a licensing agreement conflicts with the prohibition of anti-competitive practices, the agreement is usually considered null and void. Many national competition authorities issue guidelines that clarify licensing practices that are considered to restrict or distort competition. Another issue relating to competition law and patent law relates to the effect of patent pooling agreements on competition.

7. Technological standards play an important role for interoperability of different technological components and for diffusion of technology. A number of questions have been raised with respect to balancing the interests of patent holders whose inventions are essential for the implementation of standards, other producers who need access to the patented invention and the public which seeks a wide choice of interoperable products.

8. Against the backdrop of increasing R&D costs, particularly in the area of complex, and often newly emerging, technologies, various initiatives to support collaborative research that could attract a wide range of researchers and investors have been developed in the recent past. In this Report, some of those collaborative research projects, namely, open source, a proposal for a Medical Research and Development Treaty and public-private collaboration, are summarized.

*Current Multilateral Framework (Chapter V)*

9. In the field of patents, currently, five multilateral treaties, namely, the Paris Convention for the Protection of Industrial Property (Paris Convention), the Patent Cooperation Treaty (PCT), the Strasbourg Agreement Concerning the International Patent Classification (Strasbourg Agreement), the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure (Budapest Treaty) and the Patent Law Treaty (PLT), are administered by WIPO, and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement), which is an Annex to the Agreement Establishing the World Trade Organization (WTO), is administered by the WTO. The coverage, scope and objectives of those treaties vary significantly, ranging from general principles to an international patent classification standard. In Chapter V, the current international legal framework is briefly described from five different angles: framework principles, substantive norms, formalities, administrative cooperation and an international filing and processing system. Further, recent discussions on substantive patent law harmonization, i.e., the draft Substantive Patent Law Treaty (SPLT) are summarized.

*Patent Systems and Existing Forms of Cooperation (Chapter VI)*

10. Although a number of international treaties have brought national legal frameworks closer together, there are differences in the architecture of national and regional patent systems, accommodating different national interests and needs. Chapter VI focuses on some key elements of the patent system and describes how those elements are implemented in the national patent systems. Further, it describes existing forms of direct and indirect cooperation among Member States.

11. The first set of elements relates to the patenting procedure before a national/regional patent office. It starts from filing an application, processing the application by the office (this may include searching prior art and substantive examination of patentability) and deciding on the grant/refusal of a patent. In certain countries, administrative opposition proceedings are available before the patent office. The second set of elements concerns substantive requirements under the patent law. In this Report, issues such as prior art, novelty, inventive step, grace period, sufficiency of disclosure, patentable subject matter and exclusions from patentability and exceptions and limitations to the patent rights are highlighted. Although patent laws have been constantly reviewed in the face of new technological developments, patents in the fields of biotechnology and information technology, in particular, raise a number of concerns. Therefore, challenges in the field of emerging technologies are addressed in this Chapter. Chapter VI also touches upon one management issue that is important for the functional patent system, i.e., patent quality management.

*Support Structures for the Patent System (Chapter VII)*

12. It is generally recognized that the patent system should be viewed in the context of national economic and development policies and strategies in order to truly empower the patent system as a tool for technological development and economic growth. While the patent law provides the legal framework, a number of other features need to be in place, including human resource development, education and effective and efficient administration, and judicial systems. As a specialized professional, patent attorneys (patent agents) provide an important service for the “checks and balances” of the national patent system. Their qualification and functions, however, are different from one country to another. In particular, differences with respect to the recognition of a professional privilege with respect to the communications between a patent attorney and his clients cause concerns at the international level.

13. In order to foster the transaction of technology supported by the patent system, measures have been taken by a number of Member States to create a marketplace for technology transfer and to support the funding and transferring of technology. Some of those initiatives are described in Chapter VII.

*Perceived Threats to the Effectiveness of Patents as Incentives to Innovation (Chapter VIII)*

14. In Chapter VIII, two issues, namely, litigation and patent thickets are considered as to their effects on the functioning of the patent system. With respect to litigation, accessibility to court procedures, legal certainty and timely judgments play an important role for the wheel-functioning of the patent system. This becomes increasingly important considering the greater than ever international dimension of litigation. Further, with the ever-increasing complexity of technology and the development of patent-based business models, the question as to whether the current level of trade-off between exclusive patent rights and the obligation

to disclose the invention is an effective incentive to boost future innovation has been raised. Certain business strategies, such as patent trolls, and phenomena of patent thickets in particular fields of technology, are seen by many as contributing to unjustifiable increases in the transaction costs, and thus as obstacles to a functioning patent system and to further innovation and research.

*The Innovation Incentive in the Context of Public Policy Objectives (Chapter IX)*

15. As a policy tool, the patent system was established to grant exclusive rights that would harness private interest sufficiently to create public goods, i.e., produce new technologies effectively made available to the public. On the other hand, in the fields where the public interest is most significant, such as the life sciences and technologies that provide for basic human needs, market-oriented incentives created by the patent system are considered to be not always effective. In this Chapter, the innovation effect of the patent system in the context of public policy is analyzed in three distinct areas: impacts of the patent system on public health; synergy and mutual supportiveness between the patent system and the conservation, sustainable use of biological resources and traditional knowledge and equitable sharing of benefits arising from such use; and ethical concerns relating to, in particular, life science research.

*Development Related Concerns (Chapter X)*

16. Although many issues that have a bearing on the development dimension are addressed in the preceding Chapters, Chapter X specifically reviews some of the major concerns raised by member States in different fora. Development is one of the most urgent challenges that the international community is facing today. In the context of the WIPO Development Agenda, a Committee on Development and Intellectual Property (CDIP) held its inaugural session in March 2008. In view of the innovation capacity gap not only between developed and developing countries but also among developing countries, questions have been raised as to whether, and to what extent, the international patent system is supportive of national efforts for development. Such concerns include the costs for utilizing and benefiting from the international patent system, the costs for fully benefiting from the disclosure mechanism under the patent system and from access to patent information, and those for tailoring a national patent system in such a way that it responds to national policy objectives and, at the same time, meets international obligations and facilitates international procurement of technology. Many of those concerns have already been expressed in past sessions of the SCP.

## I. INTRODUCTION

17. The WIPO General Assembly, at its 34th session held in September/October 2006, requested its Chair to conduct informal consultations for the purpose of discussing and recommending a work program for the SCP to the WIPO General Assembly in September/October 2007. The consultations held by the Chair of the General Assembly were not able, in terms of the substantive contents of a working program for the SCP, to overcome all differences among the various positions, but nevertheless resulted in the following recommendation which was submitted by the Chair to the WIPO General Assembly in September/October 2007.

18. The recommendation stated that the WIPO Secretariat should establish a report on issues relating to the international patent system covering the different needs and interests of all Member States, which would constitute a working document for the next session of the SCP. The Report would contextualize the existing situation of the international patent system, including reference to the WIPO Development Agenda process, and would contain no conclusions. The Report would be made available to all members and observers of the SCP by the end of March 2008. The WIPO General Assembly in September-October 2007 unanimously adopted the recommendation by the Chair of the General Assembly.

19. Accordingly, this report is submitted by the Secretariat as a working document for the twelfth session of the SCP, to be held from June 23 to 27, 2008. As mandated by the WIPO General Assembly, it follows closely the indicative draft outline adopted by the WIPO General Assembly in September-October 2007. The order of the Chapters, however, was revised with a view to provide a better structure of the report into three main areas: Chapters II to IV address the economic rationale of the patent system and its role in technology disclosure and dissemination, Chapters V to VIII address legal and organizational aspects relating to the patent system and Chapters IX and X focus on issues that are particularly relevant for broader policy considerations and development concerns. A considerable number of issues relating to the international patent system have a bearing on development, and many of those are addressed in the various chapters of this document. Chapter X, however, more specifically reviews some of the major concerns raised by member States in different fora, including in WIPO. Since the issue of costs associated with the international patent system relate to a number of aspects of the patent system, that issue is addressed under various topics covered by this document.

20. As the title suggests, the Report covers the so-called “international aspects” of the patent system. The content of the Report, however, is not limited to the international instruments or the international norms. It attempts to cover various issues relating to the patent system that have been debated at the international level or that appear relevant to international discussion and consideration. In order to limit the size of the main Report, additional information has been included in the Annexes.

21. The statistics in this document, where not otherwise indicated, are taken from the WIPO Statistics Database, which is based on information supplied to WIPO by Patent Offices in annual surveys. Each year, WIPO request statistics from national patent offices, including the number of patent applications filed and patent granted and enforced, broken down by country of origin, date and a number of other criteria. Further sources of statistics and indicators used for this report are referenced in the relevant parts of the document itself.

## II. ECONOMIC RATIONALE FOR PATENTS AND DIFFERENT INTERESTS AND NEEDS IN THE INTERNATIONAL PATENT SYSTEM

22. Over the past two decades, intellectual property rights have been high on the policy agenda. Important changes in the patent system have taken place across the world and the general view is that the world has moved towards strengthening and harmonization of the patent system.

23. With the move towards a knowledge-based economy,[1] intangible assets (such as trade secrets, patents, trademarks, etc.) have become important resources of businesses. It is common for businesses to treat intangible assets as a strategic business issue.

24. Both developed and developing countries are investing heavily in knowledge production activities. For example, the latest available data shows R&D expenditure of the countries which are members of the Organisation for Economic Co-operation and Development (OECD) amounted to around 772 billion US dollars. China's R&D expenditure amounted to 115 billion US dollars, making it the third largest country in terms of R&D expenditure.[2] Patent data provides a similar picture about the worldwide innovative activities and these figures show the increasing importance of knowledge assets to modern economies.

25. Changes to the patent system, and a considerable increase in patent activity, national and international patent systems have come under close scrutiny. The discussions have focused on three broad issues: functioning of the patent system,[3] effectiveness of patents as a policy instrument to promote economic development, and the use of the patent system by developed and developing countries. This chapter will focus on the latter two issues.

26. The first section will highlight the economic basis of the patent system. It should be noted that the debate surrounding the economic rationale for patents is not a new one – economists have been debating this issue for more than one hundred years. The aim of the chapter is not to provide a detailed analysis and critique of the economics of the patent system, but to outline briefly the main theory behind the patent system.

27. The second section will provide statistical evidence on the use of the national and international patent system. It will provide an overview of patenting activity at the national and international level for both developed and developing countries.

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[1] For example, in recent years expenditure on intangible assets has been increasing at a faster rate than expenditure on physical assets in the OECD countries. Investment in intangible assets amount to around 10% of GDP in the OECD region. Recent estimates in the United States revealed that investment in intellectual assets by US business in the 1990s was around 800 billion US$, which is similar in magnitude to the amount invested in tangible assets.

[2] Developing countries R&D expenditure has been increasing at a faster rate than the increase observed for the major developed countries. China's R&D expenditure increased by 18%, a year since 2000 and South Africa's R&D expenditure increased by around 8.5%, a year since 1997 (R&D expenditure of the OECD countries increased by 2.2% since 2001). Non-OECD economies account for a growing share of the world's R&D expenditure.

[3] There has been a considerable amount of discussion on the impact of increase in patent applications on the patent offices. With the increase in workload, questions have been raised about the ability of patent offices to process applications in a timely manner and maintain high quality level.

(a) Economic Rationale for the Patent System

(i) Incentives to Innovate

28. Technology and knowledge are classified by economists as public goods. Public goods are those that are "non-rival" (they can be used simultaneously by many people) and "non-excludable" (people cannot be excluded from freely using the public good). Public goods distort the normal cost-benefit dynamics that regulate the efficient production and use of goods in a competitive market, and are prone to under-provision (e.g. public radio) or to over-use (e.g. roads, fishing resources). This is known as market failure.

29. The fundamental role of the patent system from an economist's perspective is to address market failure and restore the incentives to invest in production of knowledge. In the absence of a patent system, competitive markets will fail to provide sufficient incentives to innovators to undertake costly and risky investments in innovation because of market failure (Arrow, 1962).[4]

30. In the case of intellectual property rights, the public good nature of knowledge means that, once an invention has been created, it can be freely used by others at no additional cost. This means that the inventor, who must invest to create a new invention, cannot capture the full benefits of the invention by selling it in the market and so incentives to invent are diminished. Free riders can copy or imitate the invention and undersell the original inventor because they do not bear the cost of development. This would reduce the expected returns of the original inventor and would result, in theory, in under-provision of new inventions.

31. The patent system is intended to correct the market failure that would result in under-provision of innovative activities, by providing innovators with exclusive rights to prevent others from exploiting their invention and thereby enabling the innovators to appropriate the returns of their innovation. Patents provide the owner with an exclusive right for a limited time period, which would increase his/her incentive to innovate. However, where the exclusive right allows the firms to establish a monopoly position, it may lead to market distortions. A monopoly typically results in overall loss of efficiency in a market because of higher prices and under-provision of the final goods. In the case of patents, the potential inefficiencies of monopoly are higher prices for the finished goods and under provision of the finished goods, but not of the inventive activity. The monopolistic market situation means that overall social benefits may not be maximized.[5] This loss of efficiency compared to competitive markets is known as a static deadweight loss.

32. To correct for the potential inefficiencies of the monopoly market power, the patent system provides for, among other mechanisms embedded in the system, public disclosure of the knowledge, thus ensuring that society can, eventually, fully benefit from the inventive activity. The disclosure function of the patent system is discussed in the next section.

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[4] Arrow, K. "Economic Welfare and the Allocation of Resources for Inventions." In The Rate and Direction on Inventive Activity: Economic and Social Factors. Edited by R. R. Nelson. Princeton, NJ: Princeton University Press.

[5] Social welfare is not maximized because the marginal cost of production and dissemination of knowledge is near zero after the invention. Resources are allocated efficiently if prices are equal to marginal cost. However by allowing the inventors to charge a price above the marginal cost resources are not allocated efficiently.

33. To summarize, the patent system involves a trade-off between providing incentives to private agents to invest in innovative activities on one hand and the potential inefficiencies of short-lived monopoly power. An unreasonably weak protection of inventors' work may lead to underinvestment in innovative activities, whereas an inappropriately strong patent protection may lead to excessive monopoly distortion. The challenge for the policy makers is to design an optimal protection that will provide enough incentives to investment in innovative activities and at the same time minimizes the deadweight loss caused by the monopoly situation. The patent system is the second best solution that corrects the market failure by restoring the incentives to innovate. The first best solution – providing incentives to undertake socially desirable level of R&D investment without monopoly distortion – is unattainable.

*Empirical evidence*

34. At an aggregate level Kanwar and Evenson (2003)[6] analyzed the impact of stronger intellectual property rights (IPR) on R&D expenditure for 32 countries. They report that stronger IPR has a positive and significant impact on R&D investment. Chen and Puttitanun (2005)[7] analyzed the impact of IPR on innovation for 64 developing countries and report a positive impact of IPR on innovation and suggest a U-shaped relationship between IPR and economic growth, i.e., there may be an optimal level of IP protection beyond which the costs exceed the benefits in terms of economic growth. (Mansfield 1986)[8] provides empirical evidence in support of the view that patents are quite effective in encouraging innovation in pharmaceuticals and chemical industries.

35. There is also ample evidence on the limitations of the patent system in encouraging innovation activities. Sakakibara and Branstetter (2001)[9] analyzed the impact of the 1988 patent reform in Japan and concluded that R&D effort and innovative output in Japan was unresponsive to the change in patent scope. Hall and Ziedonis (2001)[10] studied the semiconductor industry of the United States of America and concluded that stronger patent protection did not drive the innovative effort of firms.

36. Inconclusive empirical evidence on patent strength and innovation relationship makes it difficult to draw any conclusion about the effectiveness of patent system to encourage R&D investments. For example, a recent study concluded that stronger patent protection provided for in "patent laws by itself do not promptly stimulate domestic innovation". However,

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6 Kanwar, S.and R. Evenson (2003), "Does intellectual property protection spur technological change?", Oxford Economic Papers, 55(2), pp. 235-264.

7 Chen, Y. and T. Puttitanum (2005), "Intellectual property rights and innovation in developing countries.", Journal of Development Economics, 78, pp.474-493.

8 Mansfield, E. (1986), "Patents and innovation: an empirical study.", Management Science, 32(2), pp. 173–181.

9 Sakakibara, M, and L. Branstetter (2001), "Do stronger patents induce more innovation? evidence from the 1988 Japanese patent law reforms.", Rand Journal of Economics, 32(1), pp.77-100.

10 Hall, B. and R. Ziedonis (2001), "The patent paradox revisited: an empirical study of patenting in the U.S. semiconductor industry, 1979-1995.", RAND Journal of Economics, 32(1), pp. 101-128.

implementation of patent laws will stimulate innovation in countries with high level of economic development, education and economic freedom (Qian, 2007).[11]

(ii) Disclosure of Knowledge in the Public Domain

37. Patent holders are given exclusive rights to prevent others from exploiting the patented inventions and, in return for the exclusive rights, patent holders are required to disclose information relating to the invention. The disclosure of information is an essential element of the patent system. It is the basis of the balance between inventor's interests and those of society.

38. For each patent, applicants are required to provide technical details of the invention, which are made publicly available after 18 months.[12] At the end of the patent term, others may use the claimed invention. Even during the term of the patent, others are free to incorporate the information into new inventions as long as it does not infringe the granted patent. Granted patents may also encourage others to invent around the patent. For example, others can use the disclosed information to develop new technologies that fall outside the exclusive rights of the issued patent. In this respect, the patent system creates competition which benefits consumers in the long-run.

39. In the absence of a patent system, or in the absence of the public disclosure function of the patent system, inventions would tend to remain secret and the information regarding the invention would not reach the public domain. The patent system facilitates the disclosure and dissemination of information and access to knowledge. This results in the expansion of public stocks of technical knowledge and an increase in the overall social benefits. Since the mid-1980s, on average, more than a million patent applications were filed and published each year across the world. This makes patent information one of the most important resources for information about technological knowledge.

40. The Patent system also has the potential to reduce duplication of R&D: the availability of information in patented technology provides innovators with an indication about a competitor's research activities and the evolution of technology. Companies can target their research efforts accordingly. They will also clearly not undertake R&D to duplicate something that has already been invented.

(iii) Technology Transfer, Commercialization, and Diffusion of Knowledge

41. A third important function of the patent system is to encourage technology transfer, nationally and internationally, by creating tradable property rights. In the absence of a patent system, firms will be reluctant to share technology know-how when there is a high risk of imitation by the prospective buyer or a third party. An effective deterrence of imitation will reduce the costs of enforcing contracts and at the same time increase the expected returns on foreign direct investment (FDI) and licensing, which will have a positive effect on technology transfer. Patent rights encourage technology transfer by providing owners with legal

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[11] Qian, Y. (2007), "Do national patent laws stimulate domestic innovation in a global patenting environment? a cross-country analysis of pharmaceutical patent protection, 1978–2002.", Review of Economics and Statistics, 89(3), pp. 436-453.

[12] Public disclosure after 18 months is the norm in most jurisdictions. However, some conditions may apply in certain countries.

certainty. Technology transfer takes place through different channels: trade, FDI, licensing, and joint ventures (Maskus, 2000).[13]

42. The patent system contributes to the creation of markets for technology that facilitate transfer of technology by improving the efficiency of knowledge flows[14] (Arora, et. al., 2005).[15] By creating transferable property rights, patents can help to structure a complex transaction that also includes unpatented knowledge, such as know-how (Foray, 2004).[16]

43. There is evidence of a growing international technology market (Arora, et. al. 2001)[17] estimated the size of the global technology market to be around US$ 35 billion in the mid-1990s. A recent survey by the Economist (2005)[18] estimated that technology licensing generates around US$ 45 billion (annually) in the United States of America and US$ 100 billion worldwide. Athreye and Cantwell (2007)[19] estimated the size of the technology market to be of a similar magnitude.[20]

44. At the national level, the patent system also plays a crucial role in technology transfer between public (e.g. university) and private sectors. In recent year, there has been an increase in the level of patenting by universities, especially in the United States of America. This issue has received a considerable amount of attention from both researchers and policy makers. In addition to the commonly used argument for patent system (incentives to innovate), university patenting encourages knowledge transfer between university and companies and facilitates the commercialization of knowledge by creating a market for technologies.

*Empirical evidence*

45. Technology transfer via trade: The results from various empirical studies support the view that stronger IPR protection can lead to higher trade flows between countries. Maskus and Penubarti (1997)[21] analyzed the exports from 22 OECD countries to a sample of 25 developing countries. They conclude that stronger patent laws in developing countries

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[13] Maskus, K. (2000), "Intellectual Property Rights in the Global Economy", Institute for International Economics, Washington D.C.

[14] The patent system can improve the efficiency of knowledge flows in several ways. Direct cost of knowledge transfer is lowered when knowledge is codified and organized in a systematic way. The patent system provides incentives to codify knowledge. Know-how is costly and contracts for know-how are inefficient which increases transfer costs. The patent system improves the efficiency of the licensing contract and the tacit knowledge component of the technology is included in the licensing contract.

[15] Arora, A., A. Fosfuri, and A. Gambardella (2001), "Markets for technology and their implications for corporate strategy.", Industrial and Corporate Change, 10(2), pp. 419–451.

[16] Foray, D. (2004), "The economics of knowledge.", MIT Press, Cambridge.

[17] Arora, A., A. Fosfuri, and A. Gambardella (2001). o*p. cit.*

[18] The Economist (2005), "A market for ideas: a survey of patents and technology.", The Economist, October 22nd, 2005.

[19] Athreye, S. and J. Cantwell (2007), "Creating competition?: globalisation and the emergence of new technology producers.", Research Policy, 36(2), pp. 209-226.

[20] It should be noted that the figures on revenue generated by technology licensing include patent licensing, royalty receipts, copyrights, know-how, and other types of intellectual assets.

[21] Maskus, K. and M. Penubarti (1997), "Patents and international trade: an empirical study.", Edited by K. Maskus, P. Hooper, E. Leamer, and J. Richardson, Quiet pioneering: The international economic legacy of Robert Stern (Ann Arbor: University of Michigan Press), pp. 95-118.

have a positive impact on bilateral imports into both small and large developing countries. Smith (1999)[22] examined the exports of United States of America (at state level) to 96 countries and found that the effect of IPR depends on the ability of local firms to imitate the exporter's technology. Smith's finding suggests that weak IPR system is a barrier to the United States exports for those countries that pose a strong threat of imitation.

46. Technology transfer via FDI: A number of empirical studies found a positive relationship between IPRs and flows of FDI.[23] Branstetter et al. (2006)[24] examined whether technology transfer behavior of US multinational firms changes in response to IPR reforms. They found evidence that changes in the IPR regime abroad lead to increase in technology transfer by US multinationals to IPR reforming countries.[25] In a firm level study, Smarzynska-Javorcik (2004)[26] found that a weak IPR regime deters foreign investors in technology intensive sectors that depend heavily on IPRs. An OECD (2002)[27] study reported a positive association between patent rights and FDI. The effects of IPRs on FDI vary by country's level of economic development and by industry.

(b) Use of the Patent System

(i) Worldwide Patent Activity

47. Figure 1 represents the recent trends in worldwide patent filings. From the mid-1980s to mid-1990s, the number of worldwide patent filings was relatively stable (averaging around one million per year). However, since 1995, patent filings have grown at a rapid rate. In 2005, the total number of worldwide patent filings exceeded 1.6 million, a substantial increase from the 1995 level (1 million). Approximately half of the worldwide filings originated from Japan and the United States of America.[28] The share of worldwide patent filings originating from Japan decreased from 38.3% to 31.4% between 1995 and 2005. In contrast, the shares of China, the Republic of Korea and the United States of America increased over the same period.

48. The distribution of worldwide patent filings by residents and non-residents applicants shows that the share of non-resident patent filings has been increasing. In 2005, non-resident

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[22] Smith, P. (1999), "Are weak patent rights a barrier to U.S. exports?", Journal of International Economics, 48, pp. 151-177.

[23] Ferrantino (1993), Mansfield (1993), and Maskus and Eby-Konan (1994) find no effect of IPR on FDI. However, Maskus (2000) questions the validity of these studies and points out that they suffered from limited specification of models and employed poor measurement of IPRs.

[24] Branstetter, L., R. Fishman, and C. Foley (2006), "Do stronger intellectual property rights increase international technology transfer? empirical evidence from U.S. firm-level panel data.", Quarterly Journal of Economics, 121 (1), pp. 321-349.

[25] They analyze the effects of IPR reform on the royalty payments, R&D expenditures of US multinational affiliates and the level and growth rate of patent filings by non-residents.

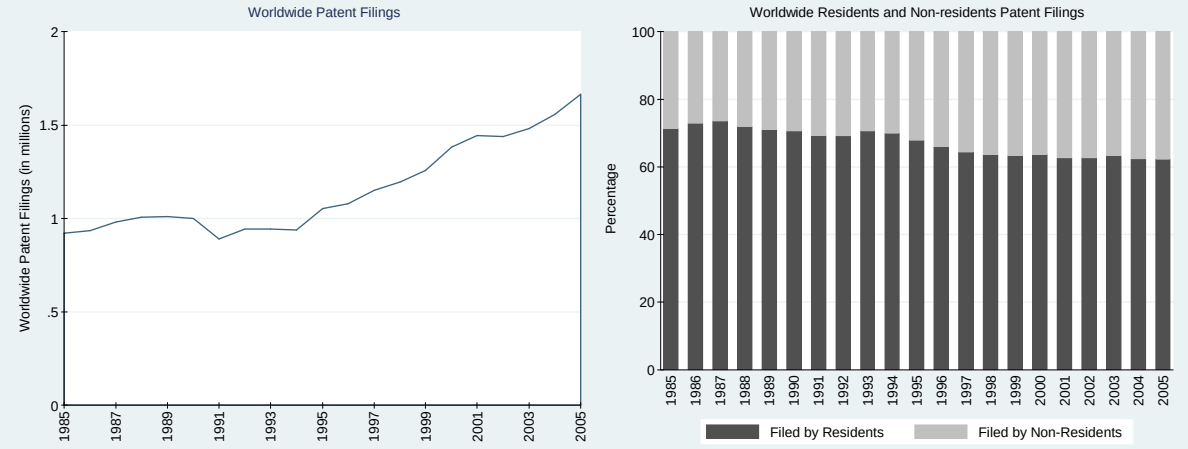
[26] Smarzynska-Javorcik, B. (2004), "The composition of foreign direct investment and protection of intellectual property rights: evidence from transition economies.", European Economic Review, 48(1), pp. 39-62.

[27] OECD (2002), "The impact of trade-related intellectual property rights on trade and foreign direct investment in developing countries.", OECD Trade Directorate, Trade Committee Discussion Paper, TD/TC/WP(2002)42/FINAL.

[28] Those two countries also account for roughly 60% of OECD-wide R&D expenditure.

patent filings accounted for 37.8% of the worldwide patent filings, which represents a 5.6 percentage point increase from the 1995 figure.

Figure 1: Trends in Worldwide Patent Filings: 1985-2005




Source: WIPO Statistics Database

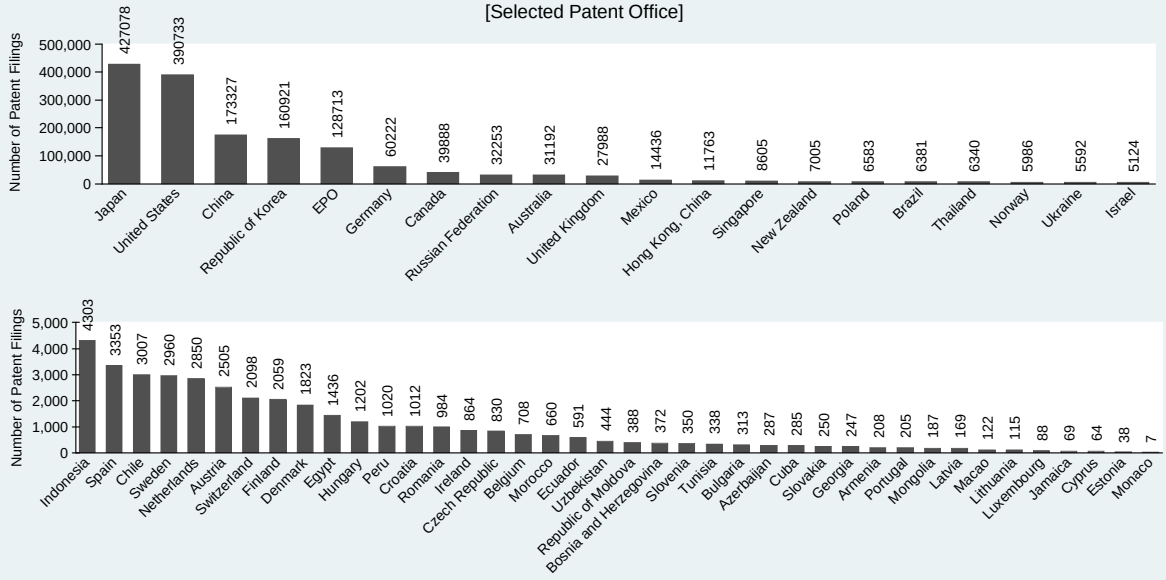
49. There is a significant variation in the volume of patent filings received by national and regional patent offices (see figure 2). The patent offices of Japan and the United States of America[29] received the highest number of filings in 2005. Since the mid-1990s, the majority of patent offices have experienced an increase in the level of patent filings. This has caused an increase in the workload of the patent offices. Patent offices face a major challenge with regard to processing filings in an efficient and timely manner, while maintaining a high quality level. For example, in 2005, the backlog of applications awaiting a first review by an examiner at the USPTO was around 600,000 and this figure is expected to increase to above 1,000,000 by 2010.[30]

[29] The volume of filings received by patent offices depends on factors such as market size, R&D investment, economic development, etc. The large number of patent filings in China, Japan, and the United States of America is due to their market size and R&D expenditure.

[30] www.uspto.gov/web/offices/com/speeches/2005sep08.pdf.

Figure 2: Patent Filings by Patent Office: 2005

[Selected Patent Office]





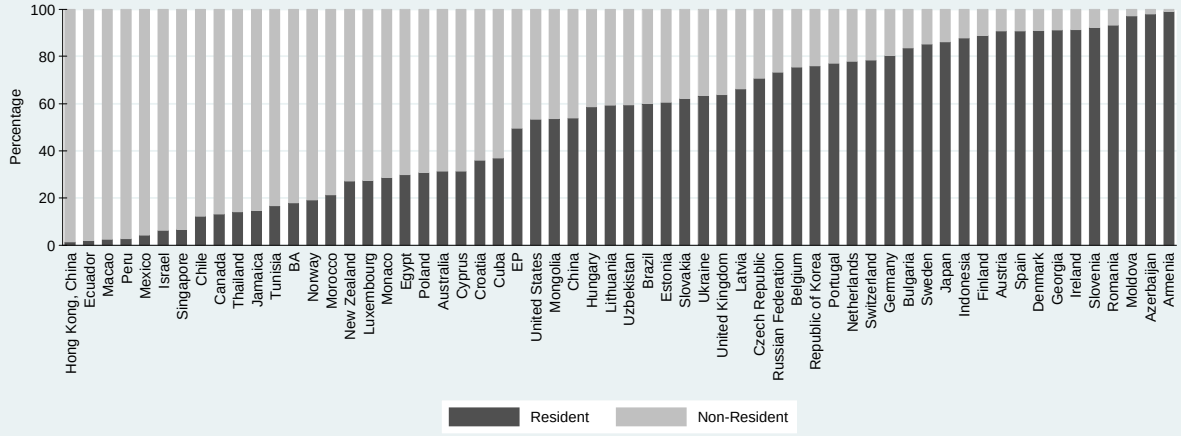


Source: WIPO Statistics Database

50. There has been an increase in the level of internationalization of patent filings. Applicants are increasingly filing for patent rights in foreign markets. The share of resident and non-resident patent filings varies across patent offices (see figure 3). In 2005, non-resident patent filings accounted for 98% of total filings in Hong Kong SAR, China. In contrast, non-resident filings accounted for less than 1% in Armenia. Hong Kong SAR, China, Ecuador, Macau, Peru, and Mexico have a high share of non-resident filings: more than 95%. Non-resident patent filings share is low in Central/Eastern European countries, Nordic countries, Austria, Spain and Japan: non-resident filings in those countries accounted for less than 15% of the total filings.[31] In most patent offices, the share of non-resident filings was higher in 2005 compared to mid-1990s.

[31] Low share of non-resident filing with the Offices in European countries may be explained by the existence of parallel patent system in Europe – i.e., existence of national patent office and European Patent Office.

Figure 3: Resident and Non-Resident Patent Filings by Patent Office: 2005



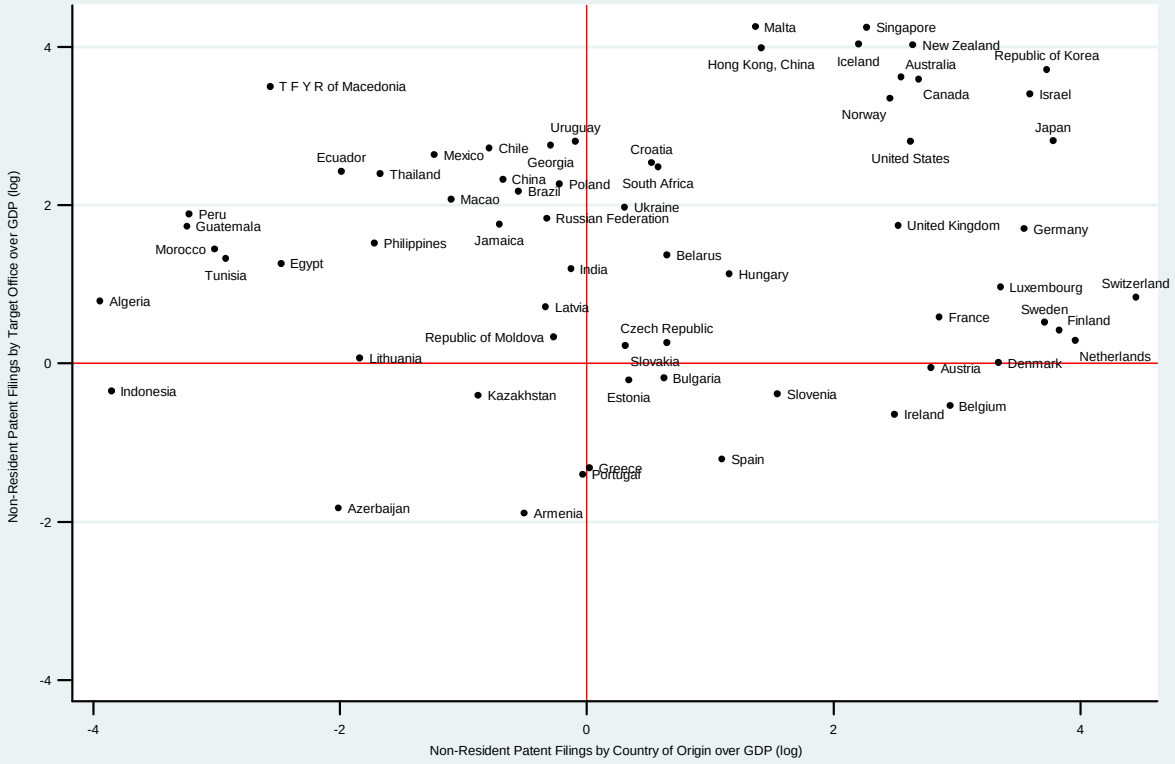

Source: WIPO Statistics Database

Note: BA (Bosnia and Herzegovina) and EP (European Patent Office).

51. Figure 4 presents non-resident patent filings by country of origin and target office (patent filings normalized by GDP). The country of origin is the source of patent filings and the target office is the patent office where protection is being sought. Countries such as Australia, Canada, Japan, the Republic of Korea and the United States of America, have a high non-resident filing to GDP ratio, both as a country of origin and as a target office. This indicates that they are heavy users of the patent system (with regard to filing abroad) and attractive target countries (with regard to receiving demand for patent rights from non-residents). A group of national offices in the European countries (EPO member countries) has a high ratio of non-resident filing to GDP, as an origin country, but low non-resident filing to GDP ratio, as a target office. This could be due to the existence of a parallel patent system in Europe – i.e. existence of national patent office and European Patent office (for European countries, figure 4 includes only direct filings to the national patent office). In contrast, emerging and developing countries such as Brazil, China, and South Africa are high target countries (i.e. attracts high numbers non-resident filing), but they are not heavy users of the patent system.

52. These differences in usage patterns reflect different needs in different parts of the world. Those patent offices that receive relatively large numbers of non-resident patent filings have different needs from those that tend to receive more filings from their own residents, or from those that have relatively low levels of patent filing activity. For example, solutions to the problem of increasing workloads may be different for countries that tend to receive non-resident patent filings (that are often duplicated in other offices) compared to those that are receiving a high proportion of first filings.

Figure 4: Patent Filings by Patent Office and Country of Origin

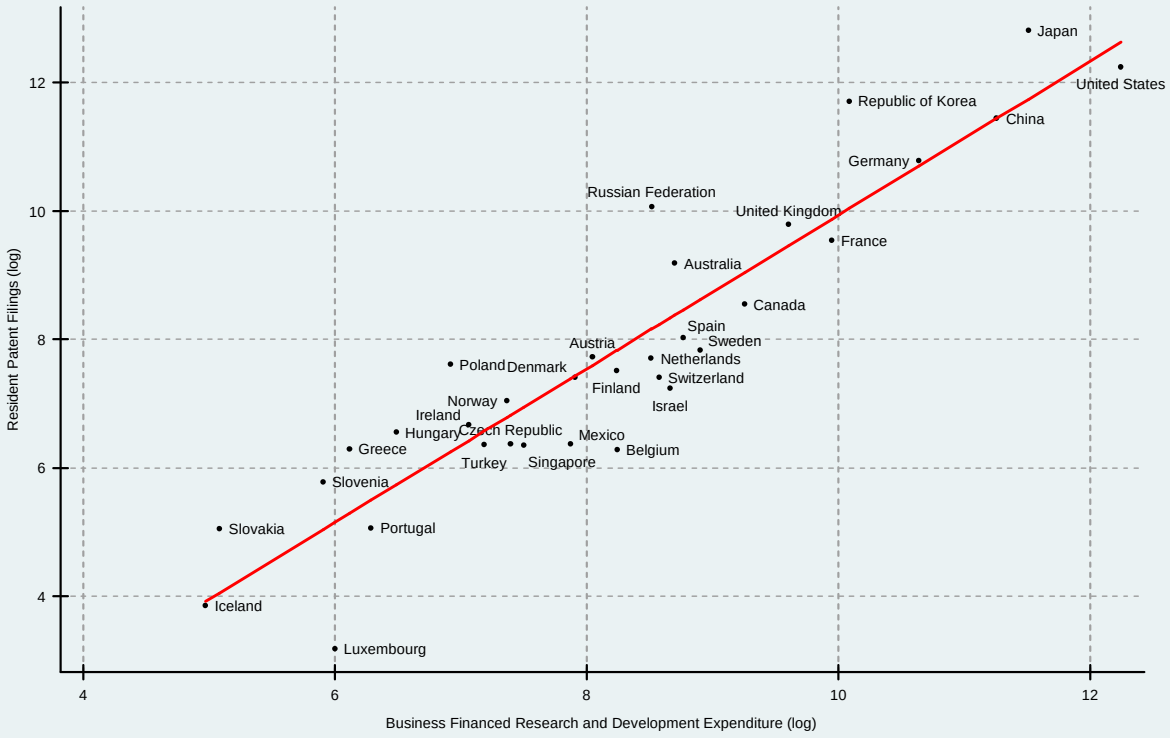



Source: WIPO Statistics Database

(ii) Patent Activities and Research and Development

53. Traditionally, patents are considered to be an output measure on innovative activity. Expenditure on R&D and innovation is considered to be an input measure. The relationship between patents as an intermediate output resulting from R&D inputs has been investigated extensively. Figure 5 shows that there exists a strong correlation between business financed R&D and resident patent filings (R2=0.85). Countries with a high level of business financed R&D expenditure (such as China, Japan, the Republic of Korea and the United States of America) also have a large number of patent filings. In contrast, Iceland, Luxembourg, Portugal and Slovakia have low levels of business financed R&D expenditure and resident patent filings.

Figure 5: Resident Patent Filings and Business Financed R&D: 2005




Source: WIPO Statistics Database, Eurostat and OECD

Note: Business financed research and development expenditure (R&D) is lagged by 1 year.

(iii) Non-Resident Patent Filings and Foreign Direct Investment

54. As mentioned above, one of the main arguments in favor of the patent system is that it facilitates transfer of technology across countries. A number of empirical studies report a positive relationship between IPRs and FDI. Figure 6 shows a positive correlation between inward foreign direct investment and non-resident patent filings (note that Figure 6 plots FDI with non-resident patents instead of IPRs). Countries with high level of inward foreign-direct investment receive a large number of non-resident patent filings. Developing economies such as Brazil, China, Mexico, Poland and the Russian Federation have attracted a significant amount of foreign direct investment as well as a large number of non-resident patent filings.

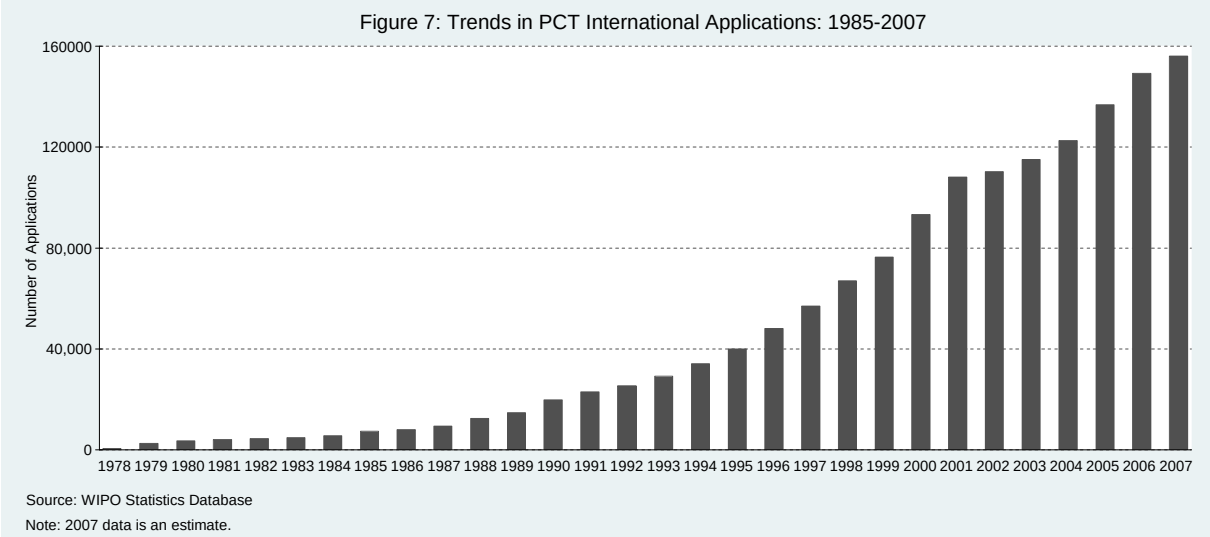
Figure 6: FDI Inflows and Non-Resident Patent Filings: 2000-2005 Average


Source: WIPO Statistics Database and UNCTAD

(iv) International Applications Filed under the Patent Cooperation Treaty (PCT)

55. The PCT procedure makes it possible to seek patent protection for an invention simultaneously in a large numbers of countries by filing a single “international” patent application. The PCT procedure has become a popular method for filing international patent applications. The latest available data shows that around 156,100 international applications were filed in 2007,[32] representing a substantial increase from the mid-1980s level (see figure 7).

[32] 2007 data is WIPO estimate.




56. Although there are 139 member states of the PCT (as of April 10, 2008), there is a significant heterogeneity across the countries with regards to their use of the PCT system (Table 1). In 2006, 18 countries, classified as intensive users, accounted for 94.8% of total PCT filings (see figure 8). In contrast, medium and low users consist of 102 countries, but they accounted for 5% of total filings. Between 1995 and 2006, medium and low users had a higher growth rate than the intensive users, and increased their share in total PCT filings. In 2007, the largest number of PCT filings originated from the United States of America (33.3%), Japan (17.8%) and Germany (11.5%). Between 1995 and 2006, the share of the United States of America decreased by 9.5 percentage points, while Japan increased its share by 10.9 percentage points.

Table 1: Distribution of PCT Filings by User Type, 2006

| | "Intensive" User[1] | "Medium" User[2] | "Low" User[3] |
|---|---|---|---|
| Number of Countries | 18 | 26 | 76 |
| Number of PCT Filings | 141 369 | 6 812 | 656 |
| Average Annual Growth Rate (1995-2006, %) | 12.6 | 14.4 | 18.8 |
| Share in Total PCT Filings (%) | 94.8 | 4.6 | 0.4 |
| Change in Share of Total PCT Filings (1995-2006)[4] | -0.9 | 0.7 | 0.2 |

1. Intensive users: more than 1000 PCT Filings in 2006.
2. Medium users: between 50 and 1000 PCT Filings in 2006.
3. Low users: less than 50 PCT Filings in 2006.
4. Percentage points.

57. The Republic of Korea and China are increasingly using the PCT system to file for foreign patent rights. Between 1995 and 2007,[33] the number of PCT filings originated from the Republic of Korea and China increased by 34.9%, and 38.9%, a year, respectively. The

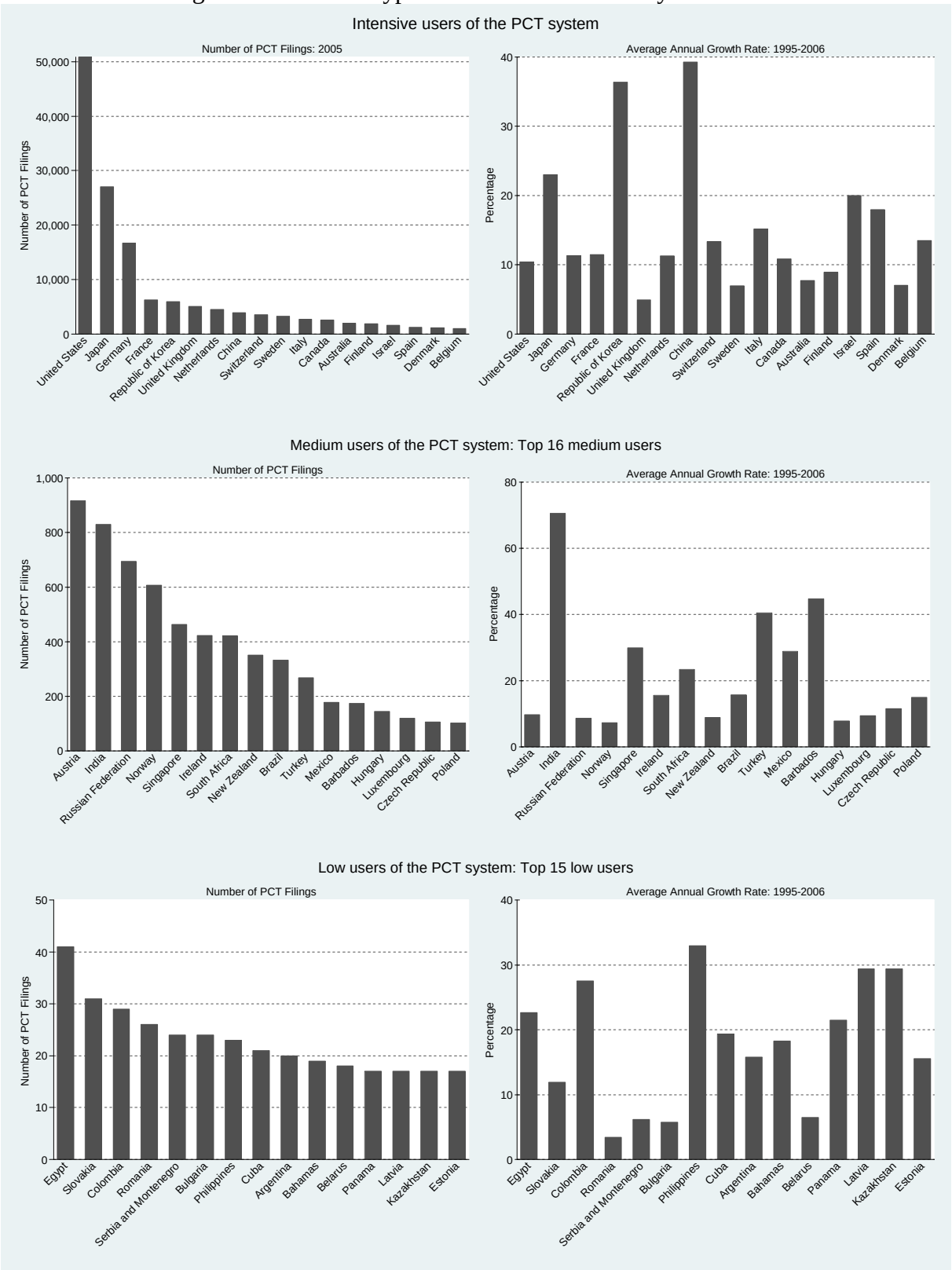
[33] 2007 data is WIPO estimate.

average annual growth rate of those two countries is far above that of the other “intensive users” countries. In 2007, the Republic of Korea and China are ranked fourth and sixth, respectively.

58. The medium user group consists of 26 economies, which are mostly small open economies (such as Austria, Ireland, Norway and Singapore), and emerging economies (such as Brazil, India, the Russian Federation and South Africa). Although starting from a low base, most of the countries from this group recorded a high growth rate between 1995 and 2006.

59. Although the number of PCT filings originating from the low user group has been increasing at a faster rate than the other groups, the total number of PCT applications originating from the low user group is relatively small. In 2006, their combined share in total PCT filings was around 0.4%, a slight increase from the 1995 share.

Figure 8: Different Types of Users of the PCT System: 2006




Source: WIPO Statistics Database

(v) Need for Further Investigation

60. Economists have analyzed the rationale for a patent system quite extensively. However, the majority of the studies have focused on developed countries. The effect of a stronger patent system on stimulating innovation, especially in developing countries, is open to debate. Therefore, further work in this area will enhance the existing literature and contribute to our understanding of the role of a patent system in the context of developing countries.

61. Over the last two decades, the patent system has evolved towards a more inclusive system. Data presented in this report shows that the usage rate of the patent system differs across countries. There is a lack of empirical studies on the usage of the patent system and the effectiveness of the existing international patent system to meet different user needs. Further work in this area could contribute to the debate on the effectiveness of the patent system in knowledge transfer. Those issues may include: extensive literature review on the economics of the patent system; empirical study on the relationship between IP and innovation, with specific focus on developing countries; interaction between patents and other forms of IP, including trademarks, copyrights, and trade secrets; develop more detailed indicators at industry and country level on the use and value of the patent system from the developing countries perspective; empirical study on international collaboration and knowledge flows between developed and developing countries.

## III. TECHNOLOGY DISCLOSURE THROUGH THE PATENT SYSTEM

### (a) Background

62. The patent system is based on the fundamental principle of society granting an inventor a temporary exclusive right in return for the inventor’s disclosure of his invention to society. This balances the provision of a temporary exclusive right which, although it rewards the inventor for his ingenuity and creativity, nevertheless may impose restrictions on the free use of the invention, and the public disclosure of the invention which aims to stimulate further innovation and economic growth. In recent years, because of the increasing ease in accessing and retrieving patent information via the Internet, this balance has shifted in favor of the positive benefits derived from such disclosure.

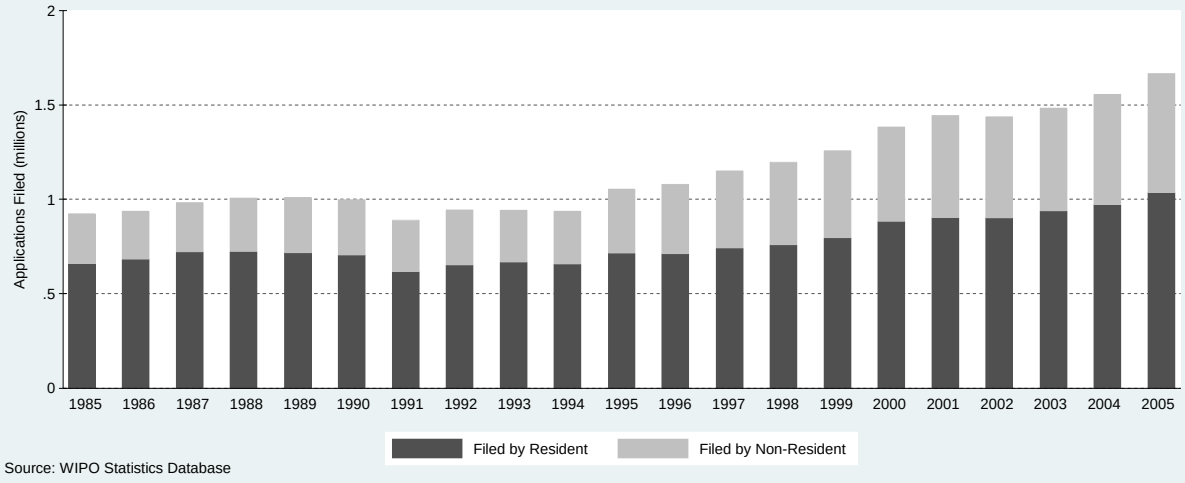
63. The balance between protection and disclosure is further differentiated in that protection is territorial and refers to one country or region, whereas disclosure is global. This means that manufacture and marketing are restricted within the territorial and legal scope of protection but the information disclosed may be freely used by anyone. The patent system also allows the legal use of technology and knowledge when the patent has expired or been abandoned and the knowledge enters the public domain, useable by everyone.

64. In recent years, the generation and dissemination of knowledge, led by the development of communication and information networks such as the Internet, has become more important in industrialized economies. The patent system plays a key role in the knowledge-based economy, not only in providing protection for the underlying inventions by encouraging investment, the availability of venture capital and making products marketable, but also in disseminating technical information and knowledge.

65. The recent increase of the number of patent applications filed reflects the continued importance of innovation in modern economies. It also reflects an increasing volume of

technical knowledge that is disclosed worldwide. Figure 9 represents total patent application numbers filed worldwide per year.

Figure 9: Number of Patent Applications Filed Worldwide (millions)

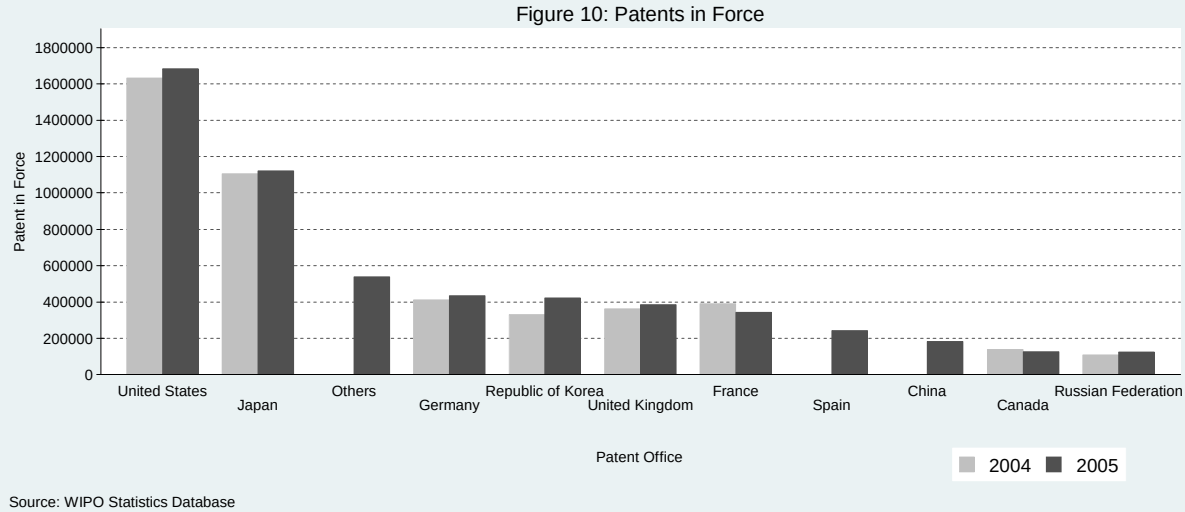



Source: WIPO Statistics Database

66. Given that at the end of the year 2005, more than 4.9 million patents were in force (see figure 10), a very substantial proportion of patent documentation is now in the public domain.

67. In 2005, approximately 5.6 million patents were in force worldwide. The majority of the of the total patents in force were granted by the patent office of the United States, Japan, Germany, the United Kingdom and France. However, their share in total patents in force has been following a downward trend over the past five years. In contrast, the share of patent in force for patent granted by other patent office, most notably China and Republic of Korea, has been increasing over the same period.

Figure 10: Patents in Force




Source: WIPO Statistics Database

(b) The Role of Patent Information in Business

68. The technical information derived from patent information serves various functions and user groups. It is widely used in business in formulating a firm's IP strategy, as an input into research and development processes, to facilitate licensing and technology transactions, for technology transfer and for analysis of markets and competitors.

69. Patent information is indispensable for formulating IP policy at the company level. A company must decide what to patent, how to draft patent applications effectively, the extent of geographical coverage for patent applications, how long a patent should be maintained in force in each jurisdiction, and must monitor potential infringement or freedom-to-operate issues. These decisions are driven by the need to use resources efficiently so as to obtain maximum benefit from expenditure on IP. In this respect, patent information is a critical part of the decision-making process.

70. Patent information also plays an important role as an input into research and development activity from the outset of planning, when it assists in forecasting market trends and needs in specific technical fields, as well as indicating problems and solutions in a particular technology. Patent information is important when assessing the current state of the prior art in a specific technical field in order to realize what has been invented to date and make sure that time and energy is not squandered on inventions already invented. The availability of this knowledge avoids "reinventing the wheel" and duplicating R&D which results in the waste of resources. It is also important in the evaluation of developments in a specific technical field, where patents directly reflect the output of research and development and indicate whether a technology is growing, in a mature state or in decline.

71. Once this information is known, it stimulates further innovation by helping to develop technology which surpasses the known technology (also known as "leapfrogging"), encourages alternative solutions for the same problem, or it may indicate how to solve comparable problems in other technical fields. In all these cases, the availability of technical information through patents is a stimulus for further innovation.

72. By creating a legally enforceable property right, the patent system also makes the invention an intangible asset which can be traded, such that the invention becomes part of the economic process itself, creating new "goods" and value in the economic process. Patent information is, therefore, an important contribution to market information regarding technology licensing and technology transfer. It provides more information to buyers and sellers and helps to make technology markets more efficient.

73. The technical information contained in the description of a patent document is a source of inspiration for inventors and engineers. But patent information is also valuable for analysis and monitoring of markets and competitors. The fact that patent owners and inventors are disclosed in a patent document means that the information can be used to analyze firms and industries, especially when combined with other sources of information. A company's patenting behavior can reveal its activity in certain technological fields and the level of development achieved. Similarly, the future direction of a company's technology can be derived from its present patenting activity. This information can be valuable for competitors, financial analysts, financial institutions and others wishing to assess the current and future value of a company.

74. Research and Development departments and financial institutions or government officials, for example, require a sound analysis of patent information before deciding on important issues such as investment and research strategies, strategic planning, technology transfers, joint-ventures, licensing or financing an industrial project or industrial polices.

(c) The Role of Patent Information in Industrial Policy

75. At the national level, patent information can be used as a part of industrial policy in several ways. It can be used to monitor national technology performance, as an input into R&D policy and to encourage the use of information to make technology dissemination more efficient. Moreover, detailed empirical information can be used to validate theoretical models in various fields including companies' strategic behavior, competition policy, etc.

76. Patent information can be used in monitoring national technology performance in specific technical fields, in particular to highlight strengths or weaknesses. Moreover, patent activity can be used as an indicator of knowledge production, acquisition and for cross-country comparisons.

77. Patent information can also serve as input into a national industrial policy strategy in general or into R&D policy more specifically. Often patent analysis is also required before state funding is approved for public projects.

78. A national industrial policy should in return promote the dissemination of patent information in order to encourage national technology markets, in particular technology transfer from public institutions to private companies or cross-licensing between private firms for a more efficient use of national technology resources.

79. The role of patent information in economic development is especially important for emerging economies, which benefit not only from the available knowledge derived from prior art, but can identify potential licensing and technology transfer partners. The role of patent information in development is reflected in the recently adopted WIPO Development Agenda, which includes several proposals for increasing the availability of patent information in developing countries.

(d) Development of Patent Databases – Access to Patent Information

80. Patent information is increasingly available via easily-accessible services that are delivered over the Internet. There are two main categories of database service available: free services, typically provided by patent offices and other public sector institutions, and fee-based services provided by the private sector.

81. The availability of a wide selection of free databases provides for the basic needs of patent searches carried out by non-professionals, particularly individual inventors, students and small and medium enterprises (SMEs). Such services are provided mostly by national and regional patent offices, by WIPO and by academic institutions.[34] Even if these free-of-charge databases are initially intended only to provide very basic functionality, the

[34] WIPO provides the PATENTSCOPE® Search Service http://www.wipo.int/patentscope]. The URLs of other databases are available at: http://www.wipo.int/ipdl/en/resources/links.jsp.

decreasing cost of information technologies has enabled the free public sector database services to develop rapidly and to provide more powerful search functionalities for users.

82. Commercial patent information providers tend to provide more sophisticated and value-added services. Such services may be tailored to specialist user groups, and they often match patent data with other technological and commercial information, as well as providing more sophisticated analysis, monitoring and reporting tools.

83. The success of searchable patent databases to identify relevant technical knowledge has been greatly assisted by the fact that all patents are classified according to specific patent classification systems, allowing a far more effective retrieval of such documents. Many technical and scientific papers, articles and documentation, the so-called non-patent literature (NPL), is now also being systematically classified according to technology-specific classification and, in some cases, patent classification as well.

84. Patent information is also playing a role in making the patent system more efficient. Given the growing number of patent applications across the globe, many patent offices are currently experiencing difficulties in mastering their workload. By searching the state of the art in patent information databases prior to drafting and filing patent applications, thereby providing a better indication of prior art, applicants increase the likelihood of obtaining patents on their inventions, and at the same time, assist patent office examination procedures. Moreover, this is also the case when third parties or peers provide examiners during a patent granting procedure with prior art relevant in deciding whether to grant or refuse a patent application.

(e) Non-Patent Literature

85. The accessibility and retrieval of non-patent literature is rapidly developing, expanding and complementing the existing search possibilities of technical information in general, which until recently could only be searched using classified patent databases. Moreover, in certain technical fields, such as biotechnology, medical technology and computing, NPL provides the most important contribution within the available prior art. However, unlike basic patent documentation, which is made available free of charge by patent offices around the world, access to NPL is not always available free of charge and is often only available via subscription.

(f) Patent Information Dissemination Policies

86. In providing patent information, every patent office follows a patent information dissemination policy which can differ from country to country. The policy normally takes into consideration the role of the public sector, principally the patent offices which are subsidized by patent fees, and the private sector, which takes the raw information from the patent offices and develops it into value-added services and products.

87. In some countries, a strong private patent information industry is encouraged, sometimes by direct funding of public or semi-public enterprises, or by contracts with patent information providers that guarantee a certain level of patent information dissemination within the country. In these cases, the patent office itself typically provides minimal services directly. In other countries, the patent offices support free and wide distribution of patent data and this can spawn a very active private sector with very sophisticated uses of patent information, although the office itself may not actively participate in creating the private

sector except by making data easy to access. While other offices in some countries only provide basic information in paper-form in gazettes with no electronic documents, in which case wider dissemination of patent information is more difficult.

88. Patent offices, policymakers and international bodies should encourage the availability of more reliable and timely information from patent offices. Today, it is difficult to easily access information concerning the legal status of patents granted all over the world (for example, on the Internet), which creates uncertainty and hinders efficient decision-making by companies and by policymakers. Such legal status information includes, for example, information as to whether a patent is still in-force, abandoned or expired, any correction made to a patent and any change in ownership of a patent.

(g) Current Issues in Patent Information

89. The changing nature and importance of the patent system, demands of users and availability of new information technologies, combined together, pose new challenges for the effective use of patent information. This section briefly outlines some of the current issues.

(i) Coverage of Patent Data and Status Information

90. Although there are currently 184 member states of WIPO, patent data is only available in electronic format for around 80 patent authorities. Much of that data is simple bibliographic data records, often without a title or an abstract for search and retrieval purposes. Full text of patent documents is only available for a minority of patent authorities. Similarly, detailed status information, regarding the ownership and legal status of patents, is only available in electronic format for a small number of patent authorities. This means that it can be very difficult to obtain reliable information about the geographical coverage and legal status of patents in different parts of the world, particularly in developing countries.

91. In many cases, patent authorities devote their limited resources to processing and examining patent applications rather than dissemination of patent information. Such offices need technical assistance for the digitization and dissemination of their patent data, in order to improve the accessibility of information nationally and internationally.

(ii) Linguistic Diversity of the Prior Art

92. Since the industrial revolution, most of the world’s technology has been documented in European languages, the majority in English, German and French, and more recently in Japanese. However, the dramatic growth of new users of the patent system means that there is now a very large volume of technical information which is only available in Asian languages, especially Japanese, Chinese and Korean (see Table 2). The expansion of industrial activity around the world can be expected to add more languages to this base in the future.

Table 2: Number of PCT International Patent Applications by the Language of Filing

| Languages of Filing | 2007 | 2007 Share |
|---|---|---|
| English | 91'114 | 58.4% |
| Japanese | 27'106 | 17.4% |
| German | 18'336 | 11.7% |
| Chinese | 5'009 | 3.2% |
| Korean | 4'931 | 3.2% |
| French | 4'540 | 2.9% |
| Italian | 1'288 | 0.8% |
| Spanish | 1'175 | 0.8% |
| Russian | 587 | 0.4% |
| Finnish | 526 | 0.3% |
| Swedish | 515 | 0.3% |
| Dutch | 512 | 0.3% |
| Norwegian | 179 | 0.1% |
| Danish | 136 | 0.1% |
| Hungarian | 46 | <0.1% |
| Slovenian | 21 | <0.1% |
| Czech | 20 | <0.1% |
| Portuguese | 19 | <0.1% |
| Turkish | 17 | <0.1% |
| Slovak | 11 | <0.1% |
| Croatian | 10 | <0.1% |
| All Others | 2 | <0.1% |
| Total | 156'100 | 100% |

Source: WIPO Statistics Database
Note: 2007 data is an estimate.

93. This increasing linguistic diversity makes it more difficult for patent offices to conduct extensive prior art searches, which affects the legal certainty of the patenting process. The diversity of languages also makes it more difficult for users of patent information to access the full range of available information.

94. Several solutions are being proposed to increase the accessibility of information in different languages. Because manual human translation is very expensive given the volume of information, most work is being conducted in the area of machine translation and cross-language tools. Human translation is still the basis for legally-authentic translations, and will probably continue to be so for the foreseeable future.

95. The development of machine translation has greatly assisted these efforts and constitutes the basis of understanding different language documents. However, languages with certain scripts and structural differences create difficulties for machine translation systems, e.g. between Chinese and English. Patent documents also tend to contain very specialized language forms and terminology which are difficult for commercial machine translation systems to work with effectively. Patent offices are investing in specialized patent translation systems and terminology databases in order to improve the reliability of machine translation.

(iii) Role of the Public and Private Sectors

96. The primary role of the public sector, i.e. of patent offices, should be to ensure that reliable information is available in a usable format. Some patent offices may need assistance to achieve this goal. In general, the public sector should encourage dissemination and

effective use of patent information, either by providing such services itself, or by encouraging the private sector to do so.

97. The wider national and international dissemination of patent information can result in a loss of control over the information by the authority that created it. Patent information dissemination policies should take into account the right of patent offices to maintain rights on the use and re-distribution of their data, in particular the right to receive income from the commercial use of the information.

(iv) Effective use of Patent Information

98. Patent information is currently under-used in developing countries and in SMEs around the world. Effective use of patent information should be further encouraged by patent offices by providing information materials, training and online services.

## IV. TECHNOLOGY DIFFUSION AND THE PATENT SYSTEM

### (a) Licensing and the Transfer of Technology

99. Although there is not much hard evidence on the subject, research generally suggests that a functioning patent system, including adequate enforcement measures, does rather encourage technology transfer and foreign investment,[35] but that it is only one among many other factors influencing such a transfer, which include the size of the market, the faculty to absorb the technology, financial incentives and the existing infrastructure, among others. At the same time, it is recognized that too strong a protection of patent rights, in particular, in the early stage of industrialization when learning takes place through reverse engineering and duplicative imitation, or an abusive use of such rights, may also hinder a transfer of technology,[36] and increase the cost of licenses. As to how the owner of a patent can exploit his invention, he can either do it himself (through his enterprise or by creating a business for manufacturing and marketing the product resulting from the invention) or by exploitation through third parties, by assigning his right or by granting licenses to others. The latter choice, licensing, means the manufacturing and marketing of the product resulting from the invention through an enterprise other than the intellectual property right owner against royalties (license fees). Licensing agreements are one means through which a transfer of technology can be carried out. This part will address, more specifically, the role of licensing in relation to some aspects of technology transfer (in particular to developing countries), anticompetitive practices and patent pools.

(i) Transfer of Technology

100. Technology transfer may be achieved through several means, such as publications, cooperative research, development and marketing agreements between governments and research institutions, joint venture arrangements or foreign direct investments. The mere existence of dozens of millions of publicly available patent documents is in itself a giant

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[35] Among others, Arora, et. al., 2005; Maskus and Penubarti, 1995; Xu and Chiang, 2005.

[36] Among others: L. Kim, Technology Transfer and Intellectual Property Rights: Lessons from the Korean Experience, UNCTAD-ITCSD Issue Paper, 2002,

source of technological knowledge that can be used to identify business partners and licensors, as is described in Chapter III above.

101. In many cases of transfer of technology, patent licensing agreements play an important role, as they allow access to the technology in question. In addition, licensing agreements frequently also contain clauses on technical assistance and know-how needed to work the invention and, in the case of some products, to obtain regulatory approval. It goes without saying that, for a patent licensing agreement to work properly, patent protection in the relevant jurisdiction must exist. With the increase of globalization and transnational trade flows, the link between patents and technology transfer has been increasingly recognized at the national and international levels, as can be seen, for example, from Articles 7 and 8 of the TRIPS Agreement or Article 16 of the Convention on Biological Diversity. This relationship is generally understood to have both positive aspects, namely where useful technology is indeed transferred to the recipient, and a negative component, namely where patent rights or an abusive use of such rights, may equally hinder a transfer of technology.

102. Beyond this international dimension to transfer of technology as described above, there is a further aspect that needs to be looked into, namely the transfer from results of research institutions to real, tangible products for the market. One example is the Bayh-Dole Act in the United States of America, through which research institutions and universities can obtain patent protection for their inventions and thus enter into licensing agreements with industry. This allows some of them to generate considerable income and to finance further research. In addition, the practical result of such agreements may result in the creation of spin-off companies enriching the economic landscape of a given country. In view of these examples, a number of developing countries have also established patent and technology transfer systems in the public sector.

103. One argument that is put forward in favor of technology licensing in developing countries claims that such policies would create incentives for building technical know-how and expertise in those countries, which could encourage the creation of local industries. On the other hand, some question whether licensing is sufficient to achieve this purpose, considering that the licensing agreements do not necessarily disclose all the know-how necessary to exploit the technology, and suggest that more should be invested in tuition and education, as well as in improved public-private partnerships. In addition, it is sometimes also argued that in certain specific areas, for example, the health sector in developing countries, a licensing system based on the existing patent system will not produce the desired results, as this may rather attract funding into research that may result in profitable patents, but will not foster research into diseases targeting particularly developing countries, because developing markets cannot afford the costs of the resulting products. If institutions in developing countries aim their research toward obtaining patents to generate licensing income, they too are likely to pursue research on topics for which there is a market to generate industry licensing interest. Some data suggest that increased technology licensing has not significantly altered research priorities in the United States of America.[37] At the same time, as developing countries are in the process of building and expanding their research ability, one of the major objectives to consider in those countries is to encourage incentives increasing that capacity. In this respect, a sensible use of the patent system, and of its use for both international transfer of technology and public-private partnerships at the different stages

[37] Gregory K. Sobolski et al., Technology Licensing: Lessons From the US Experience, *JAMA*.2005; 294:3137-3140.

of research and development should be considered carefully, taking into account the flexibilities that the system offers in order to avoid abuses.

104. An issue which is different from the question of whether and which national licensing policies should be adopted by the various countries relates to making technologies from industrialized countries available to developing countries at affordable conditions, in order to increase flows of technology to developing countries. While many governments, sometimes for constitutional reasons, may not be in a position to dictate the conditions at which their companies have to give away their technologies, they may nevertheless provide various incentives, for example, of a fiscal nature, for such a transfer. In addition, they may consider establishing technology transfer programs that cover state-owned technologies. It should again be recalled, however, that such efforts may only be useful if they are accompanied by measures that foster economic growth in developing countries and by actions that ensure that such technologies can be absorbed in a given country.

105. In the past decades, the discussions on transfer of technology have gone through different phases:[38] while in the 1970s, countries focused on the differences among countries in respect of technology development, the weakness of companies in developing countries compared to those in industrialized countries and the effects of the patent system, in the 1990s, the accent was placed more on capacity-building and a better understanding and assimilation of technology. Today, while at least some of the concerns just mentioned are still valid, the focus is more on how to bridge the still existing technological divide, on how to have all countries participate in norm-setting, and how to best make use of existing flexibilities. The relationship between patents and transfer of technology is clearly a multifaceted one. In the further analysis that may be made on the subject, aspects such as the impact of patents on transfer of technology in respect of the decision to transfer, the method chosen to transfer technology, the effects on local innovation, and the broader issue of how the legal framework is adapted to contribute to technology transfer may be considered.

(ii) Anticompetitive Patent Licensing Practices

106. Licensing is important for economic development and consumer welfare, as it helps disseminate innovation. But equally important is competition as one of the main driving forces of innovation, and it is thus important to find the right balance between protecting competition and protecting intellectual property rights.

107. Under general legal principles applicable to contracts, parties are free to determine the contents of contracts and may derogate by mutual consent from the provisions relating to license contracts only where they are not barred by law. However, licensing agreements can also be used for anti-competitive purposes. For instance, when two competitors use a license agreement to divide markets between them, or when an important licensor excludes competing technologies from the market. Therefore, provisions in licensing agreements having monopoly effect or conflicting with the prohibition of antitrust or anti-competitive practices are usually considered null and void. The most important forms of abuse include, for example, tie-in clauses, export bans, tied royalties, grant-backs, conditions preventing challenges to validity and coercive package licensing. Tie-in clauses provide that the licensee

[38] Among others, Pedro Roffe, Technology transfer on the international agenda, in International Public Goods and Transfer of Technology, edited by Maskus and Reichman, 2005.

may purchase materials only from certain sources; grant-back clauses secure exclusive rights to improvements in favor of the licensor.

108. The above restrictions of the freedom of contract are reflected at the international level, as is shown by the following non-exhaustive list of examples:

- WTO Members are free, according to the TRIPS Agreement, to provide in their legislation licensing practices or conditions that may in particular cases constitute an abuse of intellectual property rights having an adverse effect on competition in the relevant market. A WTO Member may adopt, consistently with the other provisions of the Agreement, appropriate measures to prevent or control such practices in the light of the relevant laws and regulations of that Member.

- Article 81(1) of the EU Treaty prohibits agreements which may affect trade between Member States and which have as their object or effect the prevention, restriction or distortion of competition within the common market. Under Article 81(3) an anti-competitive agreement may be exempted from the prohibition of Article 81(1) if the positive effects brought about by the agreement outweigh its negative effects, through so-called "block exemption" Regulations and Guidelines. The block exemption Regulation creates a safe harbor for most licensing agreements.

- In the United States the Department of Justice adopted certain antitrust guidelines that are similar to the European guidelines, which make it clear that antitrust concerns may arise in a licensing agreement if the restraints harm competition among entities that would have been actual (or likely) potential competitors. Further, a restraint in a licensing agreement will be subject to antitrust scrutiny "if it facilitates market division or price-fixing". The Guidelines also provide for a safety zone, with comparable objectives as the European block exemption.

- In Japan, the Unfair Trade Guidelines list several types of clauses as being highly likely to be deemed to be unfair trade practices, such as restricting the price of goods, imposing obligations after the termination of the agreement or expiration of the patent, imposing limitations on research and development programs of licensee.

(iii) Patent Pools

109. One issue that is at the heart of the potential conflict between patent law and competition law concerns the situation where many patent rights cover one technology, so that the sum of the licensing fees becomes prohibitive, not mentioning the difficulty to negotiate separate agreements with all rightholders. One way to deal with the situation where different patentees own a number of patents relevant to a technology is called a patent pool, which is an agreement enabling participating patentees to use the pooled patents, provide a standard license for the pooled patents to licensees who are not members of the pool, and to allocate each member of the pool a portion of the licensing fees in accordance with the agreement. Such patent pools are most frequent in the process of standardization, which, in certain areas such as digital technology and telecommunication, frequently involves many patents. One of the most successful patent pools is a pool established for the MPEG-2 standard: MPEG-2 is a widely used digital technology for video compression. A patent pool was established in order to ensure a fair, reasonable and non-discriminatory way to access the patented technology incorporated in the standard. In accordance with the pooling agreements, patentees license their MPEG-2 related patents to an administrative body, MPEG LA. It

offers a license that allows access to the pooled patented technologies on the same terms at fixed rates under a single license. In addition, it constantly reviews new patented technologies which merit inclusion in the pool. The pool covers over 120 “Essential Patents” and many more “Related Patents”.

110. Although many jurisdictions recognize that patent pools can have pro-competitive effects, there are also concerns that they might have negative effects. For example, patent pooling agreements could include concerted pricing practices or contain grant back provisions, to the effect that licensees would have to grant licenses to the pool on patents derived from the pools patents.

(b) Standards

(i) The Need for Standards

111. Interoperability is the key to the interplay of different technological components, in particular in, but not limited to, the field of information and communication technologies (ICT). More and more products need to be compatible and to interoperate, and this is often achieved by so-called technical standards, which are technical specifications allowing the replacement of one part of a given product with another part, or the assembly of such parts. Standards reduce transaction costs by providing uniform technical platforms and economies of scale for all the companies involved in a particular technical field. Standards create predictability, interoperability and competition between implementations, without imposing homogeneity. In sum, standards are considered vital to wide adoption of new technologies in the market place, in particular in the field of electronics and telecommunication.

112. A vast majority of products currently on the market were developed in compliance with one or more standards. Beyond ensuring interoperability, standards can also contain information about the quality, safety, reliability or a product’s effects on the environment.

113. Generally speaking, there are two categories of technical standards: *de facto* standards and *de jure* (or “formal”) standards. A *de facto* standard exists when a particular technology is widely implemented and deployed in the market. *De jure* standards are set up by standard setting organizations, which are often under some governmental influence. The standard setting organizations may be international (for example, the International Organization for Standardization (ISO)), regional (for example, the European Telecommunications Standards Institute (ETSI) and the African Organization for Standardization (ARSO)), or national (for example, the American National Standards Institute (ANSI)). These organizations are independent and coordinate and facilitate a voluntary standard-setting process through the involvement of technology suppliers. In certain cases, companies form a consortium to establish technical standards in a particular field, mainly in the telecommunication and computer technologies. The Internet Engineering Task Force (EITF) and the World Wide Web Consortium (W3C) are major international standard setting organization for the Internet and the world-wide-web.

114. Implementation of standards is, in general, voluntary and market-driven, safe exceptional cases such as public safety and health.

(ii) The Relationship between Patents and Standards

115. Patents and standards serve common objectives, insofar as they both encourage investment in innovation as well as the diffusion of technology. Filing a patent application allows technology producers to disclose their achievements openly and early. Patent protection works as an incentive for companies to contribute their technologies to standardization and allows licensing to implementers. In the framework of a standardization procedure, technical specifications, frequently incorporating patented technology, can be disclosed early for the benefit of industry and of the public. In the absence of such a possibility, technology producers may well opt for keeping their developments secret or for disclosing just the minimum required by the standardization procedure.

116. At the same time, inherent tensions exist between patents and standards, which become apparent when the implementation of a standard calls for the use of technology covered by one or more patents. Indeed, on the one hand, the objective of a standard setting organization (SSO), which in many cases consists of companies interested in the development of the technology in question, is to establish standardized technology that can be used as widely as possible in the market. On the other hand, patent owners in the relevant area may have an interest in the adoption, in the standard, of their own patented technology in order to benefit, at a later stage, from royalties.

117. In order to balance these competing interests, many SSOs have established patent policies that encourage the parties involved in the standard-setting process to disclose, to other members of the SSO, the existence of any relevant patents (and, sometimes, also patent applications) on technologies essential for the implementation of the technical standard under consideration, so that this fact can be taken into account during the standard setting process. In addition, SSOs typically require the patentee to agree to license the patented technology on reasonable and non-discriminatory (RAND) terms. If the patentee does not agree with such condition, the standard under consideration may not be adopted, and the SSO may decide to further review the standard. Some SSOs, for example W3C, have adopted a royalty free (RF) licensing policy, according to which patent holders are required to enter into reciprocal RF licenses. In other words, the patent holder makes his technology available royalty free provided that the licensee makes his patented technology, which is necessary to implement the standard, on the same RF condition. Even when they are royalty free, SSOs' IPR policies typically provide for other reasonable and non discriminatory conditions, such as field of use, reciprocity or restrictions on sublicensing.

(iii) Main Issues under Discussion

118. In recent years, the relationship between patent rights and standards has been increasingly debated. This is due, *inter alia*, to factors such as the greater attention given by companies to patents as important intangible assets, the rising number of standards that involve patented technologies (this being the case at least in certain specific technologies, such as ICTs) and issues relating to the perceived consequences of patents on the development and implementation of standards for consumers, competitors and society in general.

119. From a policy standpoint, the most essential objective appears to be, while keeping in mind the encouragement of innovation, to strike a balance between the interest of patent holders in exploiting their patents, the producers who want to license and produce the goods covered by the standard at a reasonable price, and the public which seeks the widest possible

choice among interoperable products. Some of the main concerns that have been put forward as possibly threatening this balance are: firstly, the possibility that a patent owner may conceal (or at least not adequately disclose) existing or pending essential patent rights during the process of adopting a standard, and disclose the rights only after such adoption (also called patent ambush), thus potentially allowing the patent holder to block the implementation of the standard.[39] Secondly, some competition issues are at the heart of the debate, such as the situation where the patent holder requires a level of royalties that makes it very difficult to produce the standard or leads to a significant impact on the price of the standardized technology;[40] perhaps to a lesser extent, there is the issue that possible price agreements during the standardization process have the potential for excluding third parties from that process. The patent policies adopted by many SSOs aim precisely at minimizing the risk of such conflicts and at assuring the smooth and wide dissemination of standardized technologies.

120. With the growing importance of standards, several avenues are being pursued to prevent conflicts from arising: one is to improve the self-regulatory mechanisms of SSOs, i.e., their patent policies, including considering patent searches, further encouraging early disclosure of essential patents and patent applications, and finding solutions to the issue of cumulative royalties by introducing criteria and mechanisms such as RAND or FRAND (fair, reasonable and non-discriminatory) criteria in respect of licenses granted by patent holders. A second avenue which is being looked into involves the application of legal mechanisms either internal or external to the patent system. The latter relates, in particular, to competition law that allows addressing certain aspects of the problem, such as abuse of a dominant position in fixing license fees or the violation of a SSO patent policy. However, where a company does not participate in a standard-setting process, or where no dominant position is abused, competition law may not offer a satisfactory solution. The former legislative approach addresses the issues from within the patent system, and may cover options such as limited exceptions, compulsory licensing or limitations on the enforcement of the patent rights. The advantage of those solutions is that they are universal, and also apply to non-members of a standard-setting process. Opponents to a legislative approach argue, however, that interfering too much in the standard-setting process via legislative measures would stifle this mainly industry-driven process and prevent the adoption of the optimal technologies in a standard.

(iv) Open Standards

121. Among technology standards, there is particular interest for “open standards”. While there is no universally accepted definition of that term, all open standards have the following common characteristics: (i) the specification is publicly available without cost or for a reasonable fee to any interested party; (ii) any IP rights necessary to implement the standard are available to all implementers on RAND terms, either with or without payment of a reasonable royalty or fee; and (iii) the specification should be in sufficient detail to enable a complete understanding of its scope and purpose and to enable competing implementations by

[39] For example, a San Diego federal court ruled in August 2007 that Qualcomm had engaged in standards abuse and aggravated litigation misconduct for deliberately concealing two patents as a committee developed the H.264 video standard. Qualcomm declared it would appeal the decision.

[40] In January 2008, the U.S. Federal Trade Commission has settled a complaint against Negotiated Data Solutions, a company that owns patents to a widely used Ethernet standard, saying the patent owner was attempting to collect huge license fees despite a prior commitment to the contrary (see http://www.ftc.gov/os/caselist/0510094/index.shtm).

multiple vendors. Some define open standards as publicly available technical specifications that have been established in a voluntary, consensus-driven, transparent and open process, others appear to add to this definition the requirement that an open standard has to be available royalty-free. The defenders of the first definition favor patent policies on a RAND basis, which they believe to maximize flexibility through a commitment to license combined with the right of patent holders to receive reasonable and adequate compensation for their sharing of their technology, and trust in the co-existence of this model and a royalty-free model. They also question how, in a royalty-free environment, investments in research and development could be maintained in the long run and how a broad participation in standard-setting processes could be maintained. On the other hand, the advocates of the latter approach are convinced that society as a whole would benefit from the open and royalty-free access to standards, as it is the case, for example, in the Internet context, which had been established precisely in order to allow the free publication and retrieval of information from the web. According to them, this model would best ensure interoperability, greater innovation and consumer welfare. In addition, they argue that, even where a royalty-free policy is adopted, the benefit of standardization may outweigh the loss of royalty income in certain technologies, simply through greater quantities of a certain product being sold.

122. In this context, the notion of “open source” is often mentioned, but it should not be confused with open standards. While open standards are technical specifications developed in transparent and open processes and are available for implementation on reasonable and non discriminatory terms, but not necessarily royalty free, “open source” rather refers to a software distribution model based on an IPR, mainly copyright. Generally speaking, open-source software refers to software for which the source code (underlying programming code) is made freely available for use, reading the code, changing it or developing further versions of the software, including adding amendments to it (see sub-Chapter (c)(i) below for further details regarding open source). While open source software has been used to implement some ICT standards, other standards are implemented through proprietary software or, as is increasingly the case, through the use of mixed platforms that combine both open source and proprietary software. When governments and other users are in the process of selecting a specific technology to meet their needs for interoperability and/or free use of that technology, in addition to the open or proprietary nature of any software involved, factors such as overall costs, the maturity of the technology, and the support offered, should be taken into account.

(c) Collaborative Research Projects

123. In a more and more complex world, research has not only become more international, but it has become dependent on a broad range of different - and often newly emerging - technologies, on increased cooperation between various research teams and on sufficient funding to face the exponential rise of costs over the past years. Business strategies today therefore need to be supporting global competitiveness, innovation and rapid market responsiveness. These factors have contributed, since the early 1980s, to the development of various initiatives in different areas of technology (e.g. computer sciences; mobile communication technologies; biotechnologies or, perhaps more importantly, public health) to address research in a more collective way at different levels, with the objective of establishing excellence in research projects and networks able to attract researchers and investments from many countries and industries, raise sufficient funding for such R&D and to turn the fruits of that research into concrete and useful products for society.

124. In this context, the argument is made by the advocates of the patent system that it offers an adequate incentive structure to foster innovation, as it uses the private sector with its financial and expert resources to achieve public policy objectives, has built an enormous source of technical knowledge that is freely available for further research and can be used for various other purposes. Its is further argued that the patent system, where it is considered not to be appropriate for certain countries or situations, contains a number of flexibilities that can be used, in particular, research exemptions and compulsory licenses. Others have voiced disagreement with this approach, as the patent system may stand in the way of the above-mentioned collaborative approaches to research and development by, in particular, blocking access to or use of necessary information. They argue, in particular, that the patent system prevents access to certain inventions needed for further research, increases cost and complexity by encouraging a system creating multiple licenses and does direct research towards products that are only expected to generate high benefits, thereby neglecting, for example, diseases that affect specifically poor countries. Therefore, according to these voices, collaborative models rather than exclusive rights have to be promoted. Two examples of such collaborative business models are briefly introduced here, namely the Open Source model and the so-called Research and Development (R&D) Treaty.

(i) Open Source

125. The open source model has been well-known for many years in the area of software, where it has been established as a distribution model that is based on intellectual property rights (in the case of software, often copyright). 'Open source' software is often used as a general expression for many forms of non-proprietary software, which differ principally in respect of the licensing terms under which changed versions of the source code may be further distributed. The basic idea of open source is to make available the source code of the computer program and to thus permit a more collaborative way of follow-on innovation, subject to certain conditions, which are often more open than those governing traditional licenses, as they would give access to the programming code of the software and prevent the possibility of obtaining an exclusive right on follow-on innovation (see for example GPL[41]). Indeed, under open source, adding, for example, a new functionality to a specific software may be done without the permission of the creator of the original software, but no patent could for example be claimed on the result, even if it did, in principle, meet patentability requirements. The open source approach is not necessarily against intellectual property, as it is based on intellectual property rights, and is sometimes also used by businesses as a complementary strategy complementing intellectual property policies making use of patents and copyright, for example by IBM or SUN who use and promote open source as part of their business strategy.

126. Although some of the open source features developed in the area of software cannot be simply transposed to other areas, the main principle that certain parts of the commons should not be the subject of a proprietary right has been found interesting enough to be tested and applied in other areas. Examples include the Hapmap Project that compares the genetic sequences of individuals to identify halotypes. The information is made available to researchers freely, but subject to a data access policy, which forbids the users from reducing the access to data and shares the data with only those who had made the same agreement. Another example is the SNP consortium, which aims to create a public resource the access to which would not block access to data by other researchers and companies. One further

[41] http://www.gnu.org/copyleft/gpl.html.

example is the BIOS (Biological Innovation for Open Society) project by CAMBIA,[42] under which biotechnological inventions should be available to researchers with least restrictions. Under the BIOS project, BiOS Licenses have been developed as a model largely inspired by the GPL philosophy. It permits the use of all intellectual property for development and commercialization, but the licensee has an obligation to also grant licenses on further improvements.

(ii) The Proposal for a Medical Research and Development (R&D) Treaty

127. In the context of public health and the influence on it of intellectual property rights, it has been suggested to develop a so called medical R&D Treaty. The argument is that current pharmaceutical research and development results in too many resources being invested in the diseases affecting rich countries, thus neglecting poor countries' diseases, and that only a fundamental restructuring of the current research and development model can guarantee that the latter diseases are adequately addressed. The proposed draft R&D treaty would provide new obligations and economic incentives to invest in priority research projects, and addresses several other important topics such as open access publishing. It includes agreements that member countries reduce intellectual property protection in certain areas, such as to permit research exceptions for patents, and exceptions to patentability relating to certain open source medical databases. The core country obligation is to support medical R&D, which could be achieved, in particular, through public sector funding, tax credits, or purchases of patented medicines (measured by the R&D stimulated by such purchases), as well as through newer methods, such as medical innovation prize funds, competitive intermediaries, or various open source collaborative research projects. Countries may be obliged to provide a percentage of their GDP, under a progressive rate, for medical R&D, with minimum investments for priority research projects, such as investment in neglected diseases or global infectious diseases. The proposal would also create a system of credits to reward and stimulate investments in research projects considered socially important. Member countries meeting the obligation under the R&D Treaty would be exempted from obligations under other trade agreements on patents or drug prices. Critical voices of the initiative claim that it might weaken the incentives of pharmaceutical companies to continue investing in R&D and that all attempts to base research on a public approach rather than on private initiative have failed in the past.

(iii) Public-Private Collaboration

128. Among the various partnerships and networks that we have witnessed in the past years, a considerable part consists of inter-firm relationships, but collaborative innovation networks embrace more and more interaction among players from the private sector and government-funded agencies (so-called public-private partnerships). To a certain extent, almost all these collaboration models rely on patent strategies and contain provisions on the management and use of patent rights. In the present context, we will focus on the role of patent rights in the framework of collaborative research projects, as these rights are sometimes considered to be helpful to research networks in some aspects, but sometimes to be in the way of that same research cooperation, triggering fears that public policy interests may not be adequately protected.

[42] http://www.bios.net/daisy/bios/home.html.

129. One of the main questions is to identify the types of patent rights' management that would best serve advancing the creation and development of useful products for society with the participation of private companies, which is the fundamental objective of the patent system. This process covers, expressed very simply, three distinct aspects, namely the research phase which will form the basis of the creation of the new products, the transformation of those results into concrete new products and, finally, the distribution aspect of those products, including infrastructure, distribution channels and access in general. The following remarks will be limited to the first two phases mentioned and, in particular, to the second one, namely the transformation of academic results into tangible products for the market.

130. For a long time, universities and public research institutions were not able to get the results of their research converted into viable projects, mainly because of the absence of sufficient cooperation with the private sector. Frequently, patent rights belonged to the state, so that the research institutions could not assign or license their inventions. However, in order for the private sector to invest heavily into public research activities that are often aimed at basic research and thus may involve relatively long time frames, private companies frequently request some guarantees, one of which is ownership of patents. In this logic, the patent system may be considered to be one element of the bridge between basic research of the public sector and the marketing of products by the private sector. The patent system, in the framework of public private partnership agreements, is also used to control and regulate certain activities, such as for example, how the invention should be marketed and under which conditions. At an early stage of the research, the patent system will be helpful in identifying whether any basic technologies required for the research are protected or not and whether any partners and/or licenses are available. Equally, the access to the technology by the partners and by third parties may be regulated through some licensing system. Let us finally recall in this context that, should the conditions for access to certain products be considered insufficient, governments may decide to consider instruments to protect the public interest, such as compulsory licensing.

131. One of the first countries to recognize the role of the patent system for this type of partnerships and to act accordingly was the United States of America: the so called Bayh-Dole Act of 1980 allowed and encouraged research institutions in the USA to patent technology developed with federal funding, and to license those technologies in return for royalties. The Bayh-Dole Act triggered a substantial increase in patenting activity from US universities, in particular, and has been at the heart of the establishment of technology transfer offices in many US research institutions. This has resulted in a substantial growth of licensing revenues in those universities and research institutions, which has reached several billion $ US in licensing fees per year. It is, however, also important to note that the vast majority of institutions earn relatively little income with licensing fees, while a relatively small number of those institutions share the bigger part of the total income. But even for the most successful institutions, the return on sponsored research rarely exceeds 10%. According to some research, the positive economic effects of investing in and funding research institutions are not so much realized by patenting and licensing technology from research institutions, but rather tend to be indirect through spin-off companies.

132. As mentioned earlier, a number of developing countries have moved toward establishing patent and technology transfer systems in the public sector. While it is not sure that these will fulfill the expectation of being able to fund subsequent research to a great extent, it is hoped that such policies would create incentives for building local technical know-how and scientific expertise that could encourage domestic production in various

industries. Experience shows, however, that the successful development of new products often requires a certain form of cooperation between the public and the private sectors. In order to achieve such results, it may be argued that funding for research projects run by public-private partnerships in developing countries should be increased, in particular to augment such cooperation with companies from industrialized countries. Where this is the case, careful attention should be given to patent clauses, which may constitute a helpful instrument in managing research aspects, ownership, access and marketing of inventions.

## V. CURRENT MULTILATERAL FRAMEWORK

### (a) Existing International Instruments

133. By the second half of the 19th century, many countries had recognized the value of the patent system as a tool for technological and economic development. Consequently, they established a system for the protection of inventions at the national level. Since no international convention in the field of industrial property existed at that time, it was rather difficult to obtain patents in foreign countries. For instance, a stringent working requirement and differential treatments between foreign applicants and national applicants were often applied. Moreover, patent applications had to be filed roughly at the same time in all countries in order to avoid publication in one country destroying the novelty of the invention in the other countries. Such inadequate protection for foreign inventors made them refuse to participate in an international exhibition on inventions hosted by the Government of Austria-Hungary in 1873 in Vienna. This led the government to host the Congress of Vienna for Patent Reform in 1873 and eventually, the Paris Convention for the Protection of Industrial Property was adopted in 1883.

134. Since then, a number of international treaties have been concluded in the field of patents. Five treaties, namely, the Paris Convention for the Protection of Industrial Property (Paris Convention), Patent Cooperation Treaty (PCT), the Strasbourg Agreement Concerning the International Patent Classification (Strasbourg Agreement), the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure (Budapest Treaty) and the Patent Law Treaty (PLT), are administered by WIPO, and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement), which was contained in an Annex to the Agreement Establishing the World Trade Organization (WTO), is administered by the WTO. A brief summary of each treaty is presented in Annex I.

135. It should be noted that, in addition to the above international treaties, a number of regional agreements have contributed to the development of the international patent system through the harmonization and simplification of regional patent laws. Examples of such regional agreements are: (i) the European Patent Convention (34 member States); (ii) the Eurasian Patent Convention (9 member States); (iii) the Harare Protocol (African Regional Intellectual Property Organization (ARIPO)) (16 member States); (iv) the Bangui Agreement (African Intellectual Property Organization (OAPI)) (16 member States); (v) the Patent Regulation of the Cooperation Council for the Arab States of the Gulf (Gulf Cooperation Council (GCC)) (6 member States); (vi) Decision 486, a common intellectual property regime of the Andean Community; and (vii) legislations by the European Community.

(b) Framework Principles

(i) Paris Convention

136. The Paris Convention lays down a number of principles for the protection of industrial property abroad. Firstly, each member State of the Paris Union shall apply the principle of national treatment which obliges each member State to extend to the nationals of any other member States (including those persons and enterprises domiciled or having a commercial or industrial establishment in any other member States) the same treatment in respect of industrial property as it applies to its own nationals. The national treatment rule guarantees that foreigners will not be discriminated against in any way.

137. Another basic right known as the right of priority was adopted in view of the costs and additional work involved in preparing and filing patent applications in foreign countries. Any person who filed, in a Contracting State, an application for an industrial property title (patent, utility model, trademark or industrial design) shall enjoy a right of priority for the subsequent filing in any other member State within a defined priority period (twelve months for patents and utility models and six months for trademarks and industrial designs), provided that he meets the formalities prescribed in the Convention. Consequently, any subsequent application in another country before the expiration of the priority period shall not be invalidated by reason of any acts accomplished in the interval. For example, a subsequent application would not be refused because of any relevant prior art made available between the priority date and the actual filing date of the subsequent application.

138. In addition, patents granted in different Contracting States for the same invention are independent of each other. This means that the grant of a patent in one country for a given invention does not oblige any other member country to grant a patent for the same invention. Furthermore, a patent cannot be refused, invalidated or otherwise terminated in any Contracting State on the ground that a patent for invention for the same invention has been refused, invalidated, or terminated in any other Contracting State.

139. The Paris Convention, in Article 19, acknowledges the right of Contracting Parties to conclude special agreements among themselves for the protection of industrial property in so far as they do not contravene with the provisions of the Convention. A number of treaties, including the PCT, are such special agreements under the Paris Convention.

(ii) TRIPS Agreement

140. The TRIPS Agreement contains the national treatment principle and the most-favored-nation principle. The latter principle provides that any advantage, favor, privilege or immunity granted by a Member to the nationals of any other country (whether a Member or not) shall be accorded immediately and unconditionally to the nationals of all other Members, with certain specified exemptions. As is the case for national treatment, procedures provided in multilateral agreements concluded under the auspices of WIPO relating to the acquisition or maintenance of intellectual property rights are exempted from this principle.

141. Article 7 of the TRIPS Agreement in conjunction with the preamble of the Agreement sets out the objectives of the Agreement: the protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of

technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations. Article 8 provides "principles" which recognize the rights of Members to adopt measures necessary to protect public health and nutrition, and to promote the public interest in sectors of vital importance to their socio-economic and technological development, provided that such measures are consistent with the provisions of this Agreement. It also recognizes that appropriate measures, provided that they are consistent with the Agreement, may be needed to prevent the abuse of intellectual property rights by right holders or the resort to practices which unreasonably restrain trade or adversely affect the international transfer of technology.

142. Compared with the treaties adopted under the auspices of WIPO, one of the main particularities of the TRIPS Agreement is the dispute settlement system established under the WTO Agreement. Articles XXII and XXIII of GATT 1994 (except subparagraph 1(b) and 1(c) of Article XXIII), as elaborated and applied by the WTO Understanding on Rules and Procedures Governing the Settlement of Disputes, apply to consultations and the settlement of disputes under the TRIPS Agreement. This means that benefits enjoyed in another trade area may be withdrawn in retaliation for the violation of the TRIPS Agreement (so-called cross-retaliation).

(c) Substantive Norms and Flexibilities

(i) Paris Convention

143. The Paris Convention provides certain common rules that are either required or permitted to be implemented under the national legislation. In the field of patents, they include the right of the inventor to be mentioned in the patents (Article 4*ter*), questions as to importation of articles covered by patents, failure to work the patented invention and compulsory licenses (Article 5A), grace period for the payment of maintenance fee (Article 5*bis*), limitation of patent rights where the patented invention is on a means of transportation entering temporarily in the territory (Article 5*ter*), process patent protection where a product manufactured by such process was imported (Article 5*quater*) and temporary protection in respect of goods exhibited at international exhibitions (Article 11). Many of those provisions leave a number of issues open to national legislators. For instance, Article 11 requires member States to provide temporary protection in respect of goods exhibited at international exhibitions, leaving member States to choose the means for implementing such protection by the domestic legislation.

144. The Convention also leaves the member States free to establish a number of fundamental issues concerning substantive patent law, such as the criteria for patentability, term of protection, rights conferred by a patent and enforcement of rights.

(ii) TRIPS Agreement

145. In addition to the general obligation to comply with the substantive provisions of the Paris Convention (1967), the TRIPS Agreement established standards concerning the availability, scope and use of patent rights. They include: (i) basic standards for patentability and a limited list of exceptions to patentable subject matter[43] (Article 27); (ii) in terms of the

[43] Inventions may be excluded from patentability if their commercial exploitation is prohibited for reasons of public order or morality; otherwise, the permitted exclusions are for diagnostic,

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availability of patents and the enjoyment of rights, no discrimination as to the field of technology, the place of invention and whether products are imported or locally produced (Article 27.1); (iii) rights conferred by a patent (Article 28) and exceptions to the rights (Article 30); (iv) conditions concerning the disclosure of the invention in a patent application (Article 29); (v) compulsory licenses (Article 31); (vi) availability of judicial review process for any decision to revoke or forfeit a patent (Article 32); (vii) the term of protection (Article 33) and (viii) the burden of proof in deciding whether a product was obtained by a patented process (Article 34).

146. The TRIPS Agreement is a minimum standards agreement, which allows Members to provide more extensive protection of intellectual property if they so wish. Members are left free to determine the appropriate method of implementing the provisions of the Agreement within their own legal system and practice. The Agreement leaves flexibilities for the Members to design their patent system since certain issues are not addressed under the Agreement (for example, ownership of patents), not defined in the Agreement (for example, the definition of "invention"), or prescribed as alternative choices for the Members (for example, whether the best mode requirement be required or not).

(d) Formalities

(i) Patent Cooperation Treaty (PCT)

147. Under the PCT system, an applicant may file a single "international patent application" that has the same effect as a national application in each Contracting Party to the PCT. It also provides a streamlined procedure in those countries by establishing a single international procedure for certain operations to process patent applications (international phase). Consequently, the applicant can file an application and process his application under a single procedure with a single set of formality requirements during the international phase in accordance with the PCT and its Regulations. In accordance with PCT Article 27(1), as far as form or contents of the international application is concerned, the PCT provides standardized formality requirements that the applicants should fulfill. Details concerning the PCT are contained in sub-Chapter (f)(i) below.

148. The standardized formality requirements under the PCT, however, are not applicable to national applications filed under the national patent system of the member States. Further, with respect to any formality requirements which are not regulated by the PCT, a Contracting Party to the PCT may prescribe any requirements under the national law for the purpose of processing international patent applications after the international phase (national phase). This is where the PLT comes into play.

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therapeutic and surgical methods, and for plants and (other than microorganisms) animals and essentially biological processes for the production of plants or animals (other than microbiological processes). Plant varieties, however, must be protectable either by patents or by a *sui generis* system (such as the breeder's rights provided in a UPOV Convention). Further, detailed conditions are laid down for compulsory licensing or governmental use of patents without the authorization of the patent owner. Paragraph 6 of the Doha Declaration on the TRIPS Agreement and Public Health in August 2003, allows WTO Members to issue a compulsory license in view of exporting patented pharmaceutical products to countries with no or insufficient manufacturing capacity under certain conditions. New Article 31bis TRIPS states that a member may grant a compulsory license for the purpose of production of a pharmaceutical product and its export to an eligible importing Member.

(ii) Patent Law Treaty (PLT)

149. The aim of the Patent Law Treaty (PLT) is to harmonize and streamline formal procedures in respect of national and regional patent applications and patents. With the significant exception of the filing date requirements, the PLT provides maximum sets of requirements, which the Office of a Contracting Party may apply. This means that a Contracting Party is free to provide for requirements that are more generous from the viewpoint of applicants and owners, but are mandatory as to the maximum that an Office can require from applicants or owners.

150. The Treaty contains, in particular, provisions on the following issues:

- Standardized filing date requirements;

- A maximum set of formal requirements for national and regional applications, which are, as much as practical, in line with the requirements relating to form or contents of PCT international applications;

- Standardized Model International forms which shall be accepted by the Contracting Parties;

- Simplified procedures before the office such as the restriction on requiring evidence on a systematic basis and the exceptions from mandatory representation;

- Procedures for the avoidance of unintentional loss of substantive rights as a result of the failure to comply with certain formality requirements within a time limit.

(e) Administrative Cooperation

(i) International Patent Classification (IPC)

151. The Strasbourg Agreement (of 1971) concerning the International Patent Classification provides for a common classification for patents for invention, including published patent applications, utility models and utility certificates. The International Patent Classification (IPC) is a hierarchical classification system in which the whole range of technology is divided into a number of sections, classes, subclasses and groups, in total approximately 70,000 subdivisions.

152. Classification is indispensable for the retrieval of patent documents in the search for "prior art." Such retrieval is needed by patent-issuing authorities, potential inventors, research and development units, and others concerned with the application or development of technology, for establishing the novelty of an invention or for determining the state of the art in a particular area of technology.

153. Although only some 60 States are party to the Agreement, the IPC is used by the patent offices of more than 100 States, four regional offices and the Secretariat of WIPO under the Patent Cooperation Treaty (PCT).

154. In order to keep the IPC up to date, it is continuously revised and a new edition is regularly published. The current (eighth) edition entered into force on January 1, 2006. The

revision is carried out by a Committee of Experts set up under the Agreement. All States party to the Agreement are members of the Committee of Experts.

(ii) The Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure

155. Disclosure of the invention is a requirement for the grant of patents. Normally, an invention is disclosed by means of a written description. Where an invention involves a microorganism or the use of a microorganism, disclosure is not always possible in writing but can sometimes only be effected by the deposit, with a specialized institution, of a sample of the microorganism.

156. In order to eliminate the need to deposit in each country in which patent protection is sought, the Budapest Treaty provides that the deposit of a microorganism with any "international depositary authority" suffices for the purposes of patent procedure before the national patent offices of all of the contracting States and before any regional patent office (if such a regional office declares that it recognizes the effects of the Treaty). The European Patent Office (EPO), the Eurasian Patent Organization (EAPO) and the African Regional Intellectual Property Organization (ARIPO) have made such declarations. The "international depositary authority" is a scientific institution - typically a "culture collection" - which is capable of storing microorganisms. Presently, there are 37 such authorities.

157. The Treaty is primarily advantageous to the depositor who is an applicant for patents in several countries. Instead of depositing the microorganism in each and every country in which he files a patent application referring to that microorganism, he can deposit it only once, with one depositary, with the consequence of saving costs incurred by multiple deposits. Further, the security of the depositor is increased by the fact that, for an institution to become an international depositary authority, solemn assurances as to the seriousness and continued existence of that institution must be given by a State or by an intergovernmental industrial property organization.

(f) International Filing and Processing System

(i) The Patent Cooperation Treaty (PCT)

158. Lastly, no description of the current multinational framework can be complete without the mentioning of the Patent Cooperation Treaty (PCT).

159. The PCT is a multilateral treaty among countries which are members of the Paris Convention, administered by the World Intellectual Property Organization (WIPO). The PCT makes it possible to seek patent protection for an invention simultaneously in each country party to the treaty (as of December 2007, 138 countries[44]) by filing a single "international" patent application instead of filing several separate national or regional patent applications. And the effect of an international patent application in each PCT Contracting State is the same as if a national patent application had been filed with the national patent office of that State.

[44] The list of those States can be found on the WIPO web site at www.wipo.int/treaties/en/documents/word/m-pct.doc.

160. The "international phase" consists of the international search (which outputs an international search report and a preliminary patentability opinion by the searching Office),[45] the international publication of the application,[46] and the optional international preliminary examination, during which the applicant can seek to obtain a positive patentability report through amendment of the application and by dialogue with the examiner. After the end of the international phase, the applicant must "enter the national phase," by furnishing to each Office in which he desires to actively seek patent protection a translation of the application into its official language and paying the requisite official fees. Ideally, the decisions of these national and regional patent offices should be facilitated by the contents of the search report, written opinion and, where available, by the international preliminary report on patentability.

161. The PCT procedure has significant advantages, including 18 months more time (than under the traditional patent system) for applicants to come up with the significant amounts of money required to internationalize a patent application, value-added information contained the various search reports and patentability opinions on which to base the decisions about proceeding with the pursuit of patents, harmonization as to formality requirements which must be accepted in the national phase, international publication thus putting the world on notice of the application, and publication as well of the international search report, thus putting third parties in a better position to formulate a well-founded opinion about the potential patentability of the invention. Ultimately, the PCT brings the world within reach, postpones the major costs associated with international patent protection, provides a strong basis for patenting decisions, and is used today by the world's major corporations, research institutions and universities when they seek international patent protection.

162. Most recently the PCT Regulations have been amended to provide for:

- new solutions where elements or parts of the international application are missing;

- restoration of the right of priority;

- lowering the standard for rectification of obvious mistakes;

- modification of the physical requirements to facilitate scanning and OCR;

- the addition of patent documents of the Republic of Korea to the PCT minimum documentation;

- the addition to the minimum requirements for the appointment of new International Searching Authorities of quality management systems;

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[45] To date, 15 patent offices have been appointed as PCT International Searching and Preliminary Examining Authorities: Austrian Patent Office, Australian Patent office, Brazilian National Institute of Industrial Property, Canadian Intellectual Property Office, State Intellectual Property Office of the People's Republic of China, European Patent Office, Spanish Patent Office, National Board of Patent and Registration of Finland, Indian Patent Office, Japan Patent Office, Korean Patent Office, Federal Service for Intellectual Property, Patents and Trademarks (Russian Federation), Swedish Patent and Registration Office, United States Patent and Trademark Office, Nordic Patent Institute.

[46] 10 publication languages as of 1 January 2009.

- two new publication languages;[47] and

- the option of obtaining supplementary international searches.[48]

163. Further, at the PCT Assembly in September 2008, modifications to the fee reduction already in place for applicants from certain developing and least developed countries will be proposed in order to widen its coverage.

164. By any measure, the PCT has been a real achievement—the number of Contracting States, the number of applications filed, the companies which consistently file PCT applications, the practical harmonization that has taken place around its requirements, innovations in the PCT including electronic filing, electronic publication and dissemination of documents, etc. It has effectively become the cornerstone of the international patent system as it exists today. However, the PCT faces a number of particular challenges at this point in its history, including:

- limitations inherent in the current legal structure, which make it difficult to innovate and respond to evolving best practices, and to simplify the texts;

- the growth in the number of Contracting States and in the system's use;

- the performance of Offices and International Authorities, especially the timeliness of their work[49] and its quality;

- balancing the needs, desires and expectations of the Contracting States and the PCT users;

- the appearance of a number of "alternatives" to the PCT;

- ensuring that PCT contributes positively to solving the problems faced by the international patent system today.

165. A number of the problems which the PCT was originated to address still exist in the international patent system: high patent application backlogs, long pendency times, duplication of work by multiple offices on the same application, etc.[50] It is safe to say that

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[47] Portuguese and Korean as of 2009.

[48] Applicants may request, during the international phase of the PCT application, additional international searches to be made by additional International Search Authority (Authorities) so that international search covers the fullest prior art as possible. It is an optional system, both for applicants and for international authorities.

[49] In relation to the time limits fixed in the Treaty and Regulations.

[50] The first official statement made by a BIRPI body was made on September 29,1966, by the Executive Committee of the Paris Union. It reads as follows: "The Executive Committee of the International (Paris) Union for the Protection of Industrial Property," "Having noted: that all countries issuing patents, and particularly the countries having a preliminary novelty examination system, have to deal with very substantial and constantly growing volumes of applications of increasing complexity, that in any one country a considerable number of applications duplicate or substantially duplicate applications concerning the same inventions in other countries thereby increasing further the same volume of applications to be processed, and that a resolution of the difficulties attendant upon duplications in filings and examination would result in more

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these existing problems would be significantly worse today had the PCT not been created. The creators of the PCT knew that they would not be able to completely solve those problems, and the PCT was, after all, a compromise. Former WIPO Director General Arpad Bogsch stated:

> "In the second half of the 1960s (when the plans for a PCT were under discussion) and in the 1970s (when the PCT was adopted and signed), this compromise was the maximum of simplification that could be agreed upon. It still seems to be the maximum 25 years later. But I do not believe that it will remain the maximum also in the 21st century. On the contrary, I believe that further streamlining the procedures and a higher degree of relying on the results of the international search and examination can and will be realized. They should remain on the agenda of WIPO and should be vigorously pursued by the governments and the patent offices as well as by the International Bureau of WIPO."[51]

166. It seems clear that further opportunities to improve the international patent system will be able to be built on the foundation of the Patent Cooperation Treaty.

(g) Recent Discussions on Substantive Patent Law Harmonization; Developing Countries

167. As a number of questions relating to the harmonization of national and regional patent laws had not been dealt with either in the TRIPS Agreement, in the PLT or in any other patent-related treaty of global reach, following the conclusion of the PLT, the SCP took the decision, in November 2000, to undertake discussions in relation to the harmonization of certain substantive patent law requirements, with a view to finding solutions, in particular, to the problem of the significant cost of obtaining international patent protection, to facilitating cooperation among Patent Offices in respect of search and examination results in order to reduce the workload they face and to address the issue of quality of patents. The set of general items to be covered by a draft Substantive Patent Law Treaty (SPLT) should include, according to the SCP at that time, issues of direct relevance for the grant of patents, including, in particular, provisions relating to the definitions of prior art, novelty, inventive step (non-obviousness) and industrial applicability (utility), the sufficiency of disclosure of the invention in the application, and the structure and interpretation of the claims.

168. Since May 2001, the SCP has discussed several versions of the draft SPLT. While these discussions have produced agreement in principle on a number of points (such as the right to a patent, prior art, sufficiency of disclosure or the requirements of novelty and inventive step), other subjects have given rise to more significant difficulties. These difficulties were partially

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economical, quicker, and more effective protection for inventions throughout the world thus benefiting inventors, the general public and Governments," "*Recommends*: that the Director of BIRPI undertake urgently a study on solutions tending to reduce the duplication of effort both for applicants and national patent offices in consultation with outside experts to be invited by him and giving due regard to the efforts of other international organizations and groups of States to solve similar problems, with a view to making specific recommendations for further action, including the conclusion of special agreements within the framework of the Paris Union." See The First Twenty-Five Years of the PCT (1970 – 1995), pg. 12.

[51] The First Twenty-Five Years of the PCT (1970 – 1995), pg. 11.

due to differences in opinion among industrialized countries (technical character of an invention, principle of first-to-file or grace period), but also to concerns expressed by developing countries. Indeed, the latter have expressed fears, for example, regarding the possibility of introducing into the SPLT provisions going beyond the TRIPS Agreement, in particular regarding patentable subject matter, and losing certain existing flexibilities.

169. With a view to overcoming those differences, different user groups and certain countries undertook, outside the context of WIPO, discussions on the possibility of limiting the draft SPLT to a reduced number of provisions, including those relating to prior art, but excluding provisions of a more controversial or political nature. Such discussions took place between October 2003 and February 2004 as part of the trilateral cooperation between Japan, the United States of America and the European Patent Office, at meetings of the International Association for the Protection of Intellectual Property (AIPPI) and of the International Federation of Intellectual Property Attorneys (FICPI), and during a meeting of 24 non-governmental organizations.

170. Further to those developments, the United States of America, Japan and the European Patent Office submitted a joint proposal designed to limit the draft SPLT to the provisions relating to the definition of prior art, the grace period, novelty and inventive step at the tenth session of the SCP, which took place from May 10 to 14, 2004. The choice of these provisions was based, *inter alia,* on the following reasoning: (i) the prior art-related provisions of the SPLT would provide the best opportunity for near-term agreement and results, since more controversial issues would be left to national regulation; (ii) agreement on these issues would result in consistent examination standards throughout the world, improve patent quality, and reduce the duplication of work performed by patent offices; and (iii) an internationally recognized definition of prior art would improve patent quality and address concerns regarding protection of traditional knowledge, as discussed by the WIPO Intergovernmental Committee on Intellectual Property, Genetic Resources, Traditional Knowledge and Folklore (IGC).

171. This proposal obtained the support of a number of delegations, in particular those from industrialized countries. Other delegations, however, opposed it and emphasized the need to examine all the provisions of the current draft as a whole, taking into account their interdependent nature, and recalled the importance they attached to other matters that would be left outside the scope of discussions. During the following sessions of both the SCP and the General Assembly, positions remained divided, and Member States were unable to reach a consensus on a work program for the SCP. Among the arguments raised, the following may be mentioned:

> Delegations from the industrialized nations stated that it was in the common interest of all WIPO Member States and their nationals to improve patent quality, to simplify the procedures, to reduce the costs for users, and to reduce duplication of work by patent offices. In order to reach those objectives, it was necessary to establish more consistent and common examination standards among WIPO Members, so that offices could increase, if they so wished, mutual cooperation in terms of the use of search results. The delegations were convinced that the results of that work would be of benefit to the patent protection systems in both developed and developing countries. Some of those delegations stated that limiting the scope of the SPLT to discussions regarding the definition of prior art, grace period, novelty and inventive step provide the best opportunity for achieving near-term agreement of core prior art related principles of patent law and thereby provide the best opportunity for meaningful results. Agreement

on those issues would promote higher patent quality, facilitate work sharing and, more importantly, would allow innovators, in particular, individuals and small- and medium-sized enterprises, to benefit from their own innovation in a way that was not possible due to existing differences in laws throughout the world. As examples that may be of particular relevance to developing countries, the following were mentioned: introducing a worldwide prior art notion would prevent inventions based on public, but non-written traditional knowledge to obtain a patent everywhere in the world; imposing a strict inventive step requirement may prevent the patenting of many trivial inventions and a grace period could be helpful for those who are not fully aware of the complexities of international patent protection. At the same time, cooperating more closely on this type of technical issues would improve the international patent system without removing the liberty of countries to make full use of the flexibilities contained in the system today, for example, in the TRIPS Agreement.

172. Other delegations, in particular, those of developing countries, stated that negotiations on the draft SPLT should be addressed adopting an inclusive approach to examine the concerns of all member States. They were of the view that concerns of developing countries, such as the cross-cutting nature and the significant implications of this process on public policy objectives for developing countries, together with the importance of subjects such as public interest, flexibility on existing intellectual property laws, transfer of technology, curbing of anti-competitive practices and disclosure of the origin of genetic resources in patent applications for developing countries, needed to be duly considered. The proposal to narrowly focus the discussions on the SPLT on only four provisions, while leaving aside or deferring to other fora the issues and proposals of interest to developing countries, was not consistent with the “development dimension”. Some delegations were of the view that a fragmented approach to negotiations would in fact not allow all Member States to make their proposals in the negotiations on issues that they considered relevant. In order to strike a balance between the rigidities that would be created in the international intellectual property system by demands on upward harmonization of national patent laws, on the one hand, and the safeguarding of existing flexibilities and national policy space, on the other, it was considered that negotiations on the SPLT should take on board issues of concern to all Members as a single undertaking.

## VI. PATENT SYSTEMS AND EXISTING FORMS OF COOPERATION

173. As indicated in Chapter V, the current international framework is characterized by a number of international norms which have brought national legal frameworks closer together. However, in order to accommodate different national interests and needs, there are differences in the architecture of the patent systems at the national level. While more commonalities among the national legal systems are found in respect of certain elements of the patent system, other aspects reflect substantially different approaches.

174. In addition to those international norms, other forms of bilateral and multilateral cooperation exist in respect of various aspects of the patent system. This Chapter focuses on some key elements of the patent system and describes how those elements are currently applied at the national level with a short explanation on existing cooperation mechanisms. With respect to sub-Chapter (e) to (k), information concerning current practices under various national/regional laws is provided in Annex II.

(a) The Application

175. Since the patent right is a territorial right, in principle, an application has to be filed in each country in which patent protection is sought. For applicants who wish to obtain patent protection in a number of countries, it is cumbersome and costly to prepare various applications each of which must meet different national requirements. This difficulty was partly relieved by the establishment of regional patent offices, which provide the possibility to file regional applications in order to obtain patent protection in all or part of the member States of such regional organizations. As indicated in Chapter V, the PCT further provides one set of requirements regarding the form and contents of international applications which have the effect of a regular national application in each designated State as of the international filing date.

176. In certain cases, for example, where an applicant seeks patent protection only in two or three countries, he may choose to file national applications in each country separately, claiming priority under the Paris Convention rather than using the PCT. The national/regional formality requirements relating to national and regional applications are partially harmonized by the PLT. The said requirements, however, are maximum requirements. Therefore, each PLT Contracting Party may provide different national/regional requirements under the applicable law within the maximum set of requirements permitted by the PLT. Although it is limited to the request part of the application, the PLT provides a Model International Request Form, which shall be accepted by all Contracting Parties. The Trilateral Offices adopted, in November 2007, a Common Application Format which will allow applicants to prepare a single application that should be accepted by each participating Office without the need for further amendments to be made to comply with formal requirements. The Common Application Format is based on the existing PCT format taking into consideration the promotion of electronic filing and processing.

177. In addition to the need to accommodate the application format to various national/regional requirements, in general, a patent application, or a translation of such application, has to be submitted in a language prescribed by the applicable law. For those applicants who wish to obtain patents in countries having different official languages, it is costly to prepare the necessary translations of the application in those different languages. As one example to reduce the cost for translation, the Member States of the European Patent Organisation concluded the London Agreement in 2000. The Parties to the Agreement undertake to waive, entirely or largely, the requirement for translations of European patents to be filed in their national language.[52]

178. In general, a patent application consists of the following parts: a request, a description, claims, drawings and an abstract. Although drafting requirements and practices differ from country to country, there are typically three basic requirements to be complied with. Firstly, the description shall disclose the invention in a clear and complete manner so that the invention could be carried out by a person skilled in the art. Sub-Chapter (i) below will specifically deal with this aspect. Secondly, the application shall relate to one invention only or to a group of inventions linked in a certain way, the so-called “unity of invention”. The unity of invention requirement not only increases legibility of the application, but also has a bearing on the financial income of the patent Office by preventing the applicant to include an

[52] Details concerning the London Agreement are found at: http://www.epo.org/patents/law/legislative-initiatives/london-agreement.html.

unlimited number of inventions in the same application. Although the PCT provides a harmonized rule on the determination of unity of invention, bearing in mind that not all national patent Offices conduct substantive search and examination, to what extent the grouping of inventions is permitted in one application differs from one country to another.[53]

179. Thirdly, for the application to proceed, it must contain claims which should be clear and concise. Since the claims define the scope of protection, the drafting and interpretation of the claims are crucial not only for the applicant but also for third parties who, as a general rule, would be obliged to obtain consent by the patentee to use the invention once it is patented. The national/regional practices regarding the drafting and interpretation of the claims, however, significantly differ from one jurisdiction to another. The format of claims (for example, multiple dependent claims) and any limitation to a number of claims accepted under the national/regional practices are different from one country to another.[54] Many national and regional laws provide different provisions that regulate the relationship of the claims to the disclosure.[55] Further, certain types of claims in particular, for example, product-by-process claims and means-plus-function claims are interpreted differently among the courts in different countries. One of the most difficult areas of patent claim interpretation is the determination of an infringement of a patent where one of the elements of the patented claim is substituted by an equivalent element. The doctrine of equivalents is applied significantly differently among the courts in various jurisdictions.

180. In sum, with respect to the formality requirements relating to patent applications, the PCT and the PLT have addressed a number of issues and have brought national/regional laws closer together. However, they fall short of establishing one application form or format accepted under the national systems of member States. The substantive requirements relating to patent applications are less harmonized. In particular, the national/regional practices regarding drafting and interpretation of the claims significantly differ from one jurisdiction to another. In certain cases, claims with exactly the same text could be interpreted differently, and thus the scope of protection would not be the same in different jurisdictions.

(b) Search and Examination

181. National/regional patent laws provide substantive patentability requirements that need to be fulfilled in order to enjoy patent rights. In some countries, the prior art search and substantive examination are conducted by the national/regional patent office in order to check the compliance with the conditions of patentability prescribed by the applicable law. Once all the requirements under the applicable law are met, the patent will be granted. The search and examination thus ensure that granted patents meet *a priori* the requirements prescribed under the applicable law. As a consequence, patent owners will enjoy more legal certainty when enforcing their patent rights. Such a higher quality of granted patents is also advantageous for third parties, since the cost of challenging issued patents in court is often expensive. On the other hand, a poor search and examination might be more misleading than no search and examination at all, since it may raise an incorrect expectation of validity. The quality of the

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[53] "Summary of Responses and Points for Discussion" (WIPO document SCP/WGM/2/1) http://www.wipo.int/scp/en/working_group/session_2/documents/doc/scp_wgm2_1.doc.

[54] "Summary of Responses and Points for Discussion" (WIPO document SCP/WGM/2/1) http://www.wipo.int/scp/en/working_group/session_2/documents/doc/scp_wgm2_1.doc.

[55] "Requirements Concerning the Relationship of the Claims to the Disclosure" (WIPO document SCP/7/6) http://www.wipo.int/edocs/mdocs/scp/en/scp_7/scp_7_6.doc.

search and examination, therefore, is important for the legal certainty of the patent system as well as for the confidence in the patent system by society at large. On the other hand, it is expensive to maintain full substantive examination. It requires a significant number of highly qualified examiners who are well acquainted with the patent law as well as the latest technological advances in their specialized field of competence. Further, in order to search prior art, the maintenance of an up-to-date prior art documentation is essential, which also requires important financial and human resources.

182. Conducting search and substantive examination for all applications may thus not be the best approach for all the patent offices in the world. The policy choice of the legal and administrative framework depends on various factors such as a rational use of resources and market demand. Complex tasks and costs associated with the administration of search and examination are well recognized, and finding the best way to allocate limited resources is a well-known challenge. The choice may also be dictated by both the administrative costs for the authorities concerned and the social costs for the inventors who wish to obtain and enforce their patents. Further, costs for third parties should also be considered so that society at large would benefit from the patent system. No single system can be applied to all countries. The different existing systems reflect these differences on the one hand, and the policy choice of governments wishing to maximize the benefits from the patent system, on the other hand. The organizational structure and administrative system relating to search and examination vary significantly from one country to another.

183. One option that some countries have chosen is to have the patent Offices check the formalities of the patent applications and, once the formality requirements are met, to grant the patent without substantive examination. When a patent is enforced at a later stage, the validity of the patent may be challenged by the alleged infringer in court. From the point of view of the patent Office, this leads to considerable cost saving in terms of staff expenditure, and the country may be able to allocate its resources to other areas of priority. However, since no search and substantive examination are carried out before the grant of the patent, there is no guarantee that the patents are valid. The costs for examining the validity of those patents which purport to protect an invention of significance to a competitor are transferred to the post-grant phase, in particular, to courts as well as to patent owners and third parties, who have to prove the validity (or invalidity) of the patent in court.

184. Another option for countries is to have the patent Office conduct a prior art search and to establish a search report by a search examiner of the national patent Office, once a patent application is filed and the formalities of the application are checked. The patent will be granted without examination as to the patentability of the invention, and the search report will be published together with the granted patent. Since there is no substantive examination, the procedure is less complex than if a full examination was conducted. The published search reports will, nevertheless, allow third parties to better assess the validity of the granted patents. The patent Office has to allocate resources for employing search examiners, who need technical expertise, and for maintaining prior art documentation (databases). Such a system may also permit an easy and effective outsourcing of the work to another office if it is desired not to maintain a local body of search examiners; arrangements of this nature are made by a number of countries, often by the establishment of “international-type” search reports by an International Authority under the PCT. For most international applications under the PCT, an international search report will be available already.

185. Yet another possibility for countries with limited resources is to re-register patents granted in another country, instead of providing formality checks and substantive

examinations. In general, an application for re-registration has to be filed with the Office within a certain time limit after the grant of the foreign patent. Thus, the validity of patents is guaranteed to a certain extent, since the patents have been subjected to substantive examination in another country. This system may only work satisfactorily if the legal and linguistic backgrounds of the country that grants the patent and of the country that re-registers the patent are very similar, if not identical. The country that re-registers foreign patents would have to accept the decisions made by the other Office as regards the grant of the patent, although it may be possible to revoke the re-registered patents on the basis of requirements under the national law. It may also be useful to establish a mechanism facilitating the obtention of patents abroad for national applicants, for example, by forwarding their patent applications to the foreign patent Offices concerned.

186. Yet another possibility is to entrust all the work relating to patent administration to another country. In particular, if the other country offers effective administration and high quality services, the country can benefit from such services. For example, by means of a bilateral agreement, Liechtenstein and Switzerland form a common territory for the purposes of patent protection, with the exception of certain enforcement aspects. Swiss patent law applies in the territory of Liechtenstein, and Swiss patents automatically extend to Liechtenstein. Further, Switzerland has concluded treaties with third States also on behalf of Liechtenstein. This type of arrangement may require not only similar legal and linguistic backgrounds between the two countries concerned, but also close political, economic and diplomatic ties. Since patent rights are granted and the patent registry is maintained by another country, the country applying the foreign law and administration would have very little control over the administration and patent policy in that country.

187. In view of the limited resources of patent offices, which are, in general, public administration bodies, in some countries, additional resources are sought for in the private sector or through consultation of the general public to assist search and examination procedures before the offices. For example, private entities are commissioned to conduct at least part of the search and/or examination work under the supervision of a patent office. In this case, the patent office should have the competence to evaluate the commissioned work. Another example is the involvement of third parties in the search and examination procedure. Already in a number of countries, based on the published applications, third parties may submit any prior art information to the office, which will be taken into account during the examination procedure. One office has launched a pilot program to determine the extent to which the organized on-line submission of prior art by the public will provide useful information for examiners.[56] It consists of a collaborative, online process in which members of the public pool together their knowledge and locate potential prior art.

188. The major concern of countries regarding the search and examination procedure is how to maximize the quality of granted patents with the limited resources of their patent office. The question has been primarily posed by countries whose patent offices have limited resources to conduct a full scale of search and substantive examination. However, in recent

[56] Under the Peer Reviewed Prior Art Pilot being conducted by the United States Patent and Trademark Office, patent applications are (with the consent of their owners) put forward to a website run by the independent Community Patent Review Project and assessed by a public group which identifies what it considers to be the most relevant prior art, to be sent back to the Office for consideration at the end of the review period.

years, the countries with full search and examination systems have been increasingly posing the same question because of their increasing backlogs (see sub-Chapter (d) below).

189. One answer to such concern is international cooperation. In certain regions, in order to make the procedures more efficient and economical, countries have established regional patent organizations that grant regional patents. The objectives of intergovernmental regional cooperation are generally to reduce the administrative burden of the States involved, to promote cost-effective IP systems for users and to foster trade and investment within the region concerned.

190. Another way to cooperate internationally is to utilize, in various ways, search and examination reports prepared by other offices.

191. Some offices, for example those of Australia, Malaysia and Singapore, require a search and examination to be carried out before grant, but allow the systematic replacement of a part or all of the national search and examination process by evidence that equivalent work has already been done before another (recognized) office. This might be in the form of an applicant supplying a search report, a search and examination report, or the specification of a patent actually granted on an equivalent application. This system permits the office to focus most of its resources on search and examination of local applications which have no equivalent in other States, while ensuring that all applications are searched and examined. Regulations generally determine the extent to which a local examination needs to take place should different types of documents be supplied, which ensures that important local requirements are checked if necessary.

192. Other offices always conduct their own complete search and examination, but require the applicant to submit information concerning searches, grants or refusals of equivalent applications in other States in order to provide additional information, which can then be used by the examiner to assist or improve the search and examination process.

193. The effective use of search and examination reports established by other offices depends on the knowledge of their existence, effective mechanisms for their access and an appropriate timing of work by different offices. Traditionally, this has required direct intervention by the applicant: informing offices of co-pending applications, sending copies of search results and, where necessary, requesting either accelerated or delayed processing in different offices to allow work to be completed in one place in time for use in another office. Furthermore, except in cases where an office is specially contracted to conduct out-sourced search and examination on specific applications for another office, the arrangements are generally unilateral ones: the office conducting the earlier search simply carries out its work in accordance with its regular national procedures, and that work is then passed on to other offices by the applicant. Recognizing that there may be efficiencies in making such arrangements more widely used and effective, a number of offices have initiated pilot projects, often in the form of bilateral arrangements, which aim to provide mutual benefits for the offices concerned. The Patent Prosecution Highway, Triway and SHARE projects, involving the Trilateral Offices and a range of other partner offices, are noteworthy examples. While the specific details of these arrangements vary, in general they include at least some of the following features:

- the office where the application is first filed accelerates the processing in order to ensure that the results of search or examination are available rapidly for use by other participating offices;

- offices where the subsequent applications are filed delay processing pending the search or examination report becoming available from the office where the application was filed first;

- offices may make arrangements for direct access to search and examination reports by the other office(s), to provide a more efficient process for the second office and reduce burden of applicants; the first office may also be able to access the results of the later search and examination reports by other offices;

- an accelerated examination procedure may be available if the application is reported as being in order for grant by the other participating office(s).

194. There are also cases where no corresponding applications can be found in other countries. Some patent offices with limited resources, therefore, entrust the prior art search and examination to other patent offices, in general against payment.

195. For international applications, an international search report and an international preliminary report on patentability are, in principle, established before the application enters the national phase. This provides a high quality search and an opinion on novelty, inventive step and industrial applicability which, while not stating whether the invention is patentable according to any individual national law, will usually give a good impression of whether the most important aspects of most laws are likely to have been complied with. The international route also assists in identifying equivalent applications in the national phase so that further search and examination reports can be viewed when they are published by individual offices. In addition to the fact that family matching of applications is more reliable for PCT applications than for families constructed using Paris Convention priority details, 30 States (with more to come soon) provide details of their national phase entries through the PATENTSCOPE® Search Service, in some cases providing links directly to national websites with details of the national phase application.

196. Patent offices of developing countries may also use the service of WIPO under the ICSEI (International Cooperation for the Search and Examination of Inventions) program.[57] The program is intended to assist the offices of developing countries in examining pending applications which have been filed by non-residents of their respective countries.

197. In sum, based on a cost and benefit analysis, member States are creative in designing the search and examination mechanism that fits their national/regional patent system best. The shared challenge of patent offices, be it from a developing country or from a developed country, or an office with 20 staff or 2000 staff, is how to maximize the quality of granted patents with often limited resources. Although various forms of international cooperation have been developed already, more effective mechanisms to tackle this challenge are being sought by a number of Offices.

(c) Opposition

198. Although not ideal, in reality, it may happen that a substantive examiner overlooks a piece of prior art and advertently reaches a positive decision regarding the patentability of the

[57] http://www.wipo.int/patentscope/en/data/developing_countries.html#P109_10719.

claimed invention. In order to prevent the grant of a deficient patent during the procedure before the office, some patent Offices provide an opposition procedure for a limited period during which third parties may oppose the grant of the patent, for example, on the basis that the claimed invention is not new or does not involve an inventive-step. Through the participation of third parties who may be well informed about the technology concerned, the opposition procedure complements the examination procedure and increases the credibility of granted patents. In general, an opportunity to review a decision by the patent Office to grant a patent is provided either by a competent court or by an administrative/quasi-judicial body the decision of which can be reviewed by a judicial body. The opposition system provides an additional, administrative layer of review, which is simpler than a court procedure or a quasi-judicial procedure. Compared with the revocation procedure by a court, the grounds for requesting the opposition procedure may be limited to certain patentability requirements. In general, an opposition may be filed by any person, while a patent revocation procedure may be initiated by a party who fulfills certain conditions, for example, being an interested party or being adversely affected by the decision appealed.

199. With respect to the timing, some countries provide pre-grant opposition proceedings, some provide post-grant opposition proceedings and some provide both pre- and post-grant opposition proceedings. In the case of pre-grant opposition proceedings, generally, after a positive decision of the examiner to grant the patent, the application at the pre-grant stage is made available to the public and any opposition to the grant of the patent may be filed during the prescribed period. If no opposition was filed during that period, a patent will be granted. On the other hand, in case of post-grant proceedings, after the publication of a granted patent, third parties are given the possibility to oppose the grant before the patent Office within a certain time period. Therefore, a post-grant opposition system does not extend the period between the filing of the application and the grant of a patent, keeping in mind, however, that the number of applications subject to opposition is rather limited. In Europe, for example, the opposition proceedings usually take two to three years and the ratio of opposition to granted patents is about 5%.[58] In India, the opposition rate is around 4%.[59]

200. In addition to the differences between post-grant and pre-grant oppositions, the national/regional laws vary significantly in terms of both procedural and substantive requirements. Those differences include: the time limit to submit a request for opposition, the extent of participation by the opponent during the proceedings, whether it is an *inter partes* or *ex parte* procedure and whether a self-opposition by the applicant/patentee is permitted or not.

(d) Demand Management

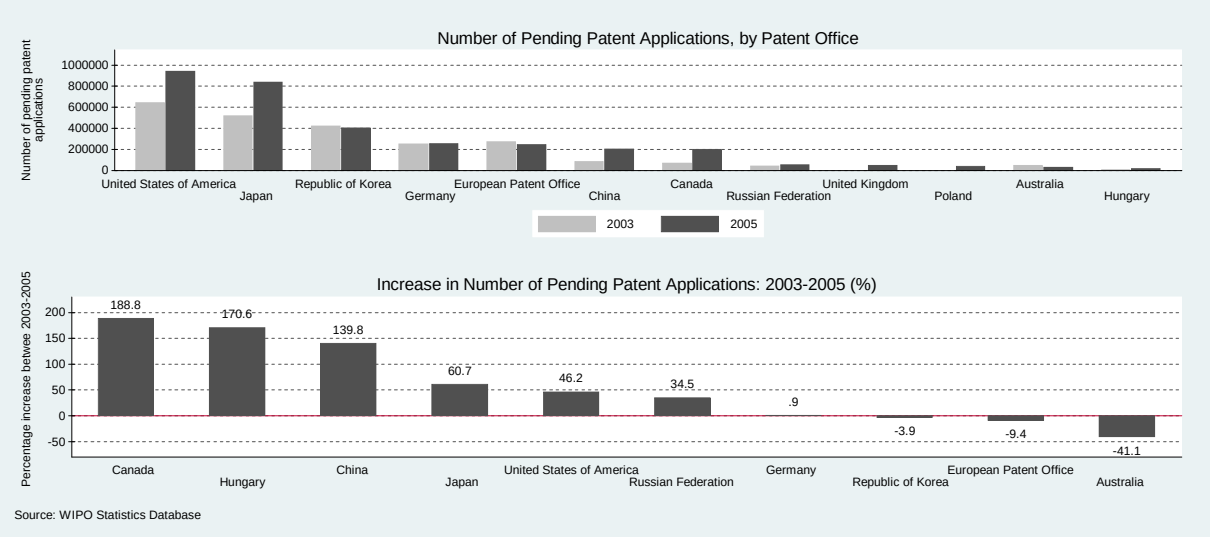
201. The increase in demand for patent rights places additional pressures on patent offices to examine and grant, or refuse, patent applications. Eventually, this results in increased backlogs in patent offices, and increasing pendency periods. Figure 11 shows, for those patent offices for which statistics are available, the number of patent applications pending examination in 2005 and the increase, or decrease, since 2003. Note that the definition of "pending application" may vary from one office to another due to different procedures,

[58] Adam Jolly and Jeremy Philpott "The Handbook of European Intellectual Property Management"; European Patent Office, Annual Report 2006.

[59] Intellectual Property India, Annual Report 2005-2006.

therefore the absolute numbers of pending applications in different offices may not be directly comparable.

Figure 11: Pending Patent Applications by Patent Office




202. The United States of America and Japan have the largest numbers of pending patent applications and the numbers have increased by 46.2% and 60.7%, respectively, between 2003 and 2005. It should be noted that, in the case of Japan, recent changes to the time limit for a request for examination have led to an exceptional increase in the examination workload which should decrease significantly in the next few years. Large increases are also seen in Canada, Hungary and China.

203. In some offices, such as Germany, the Republic of Korea and the European Patent Office, the numbers of pending applications have been relatively stable in recent years whereas a small number of offices have reduced the numbers of pending applications.

204. Consequently, countries have been taking various national measures to cope with the increasing demand with limited resources. Those measures include, for example:

- simplification and streamlining of the procedures before the office;

- hiring, training and retention of human resources;

- effective utilization of information technology for the purposes of office procedures as well as communication with applicants and representatives; and

- out-sourcing certain administrative tasks to a private sector.

205. Further, some offices have established practices to discourage applicants to file a large number of claims or mega applications through legal requirements as well as through the fee structure.

206. National measures, however, have a limited effect on resolving the issue of growing demand. The increase in the number of filings by non-residents in patent offices worldwide is one of the forces behind the increases in workload and numbers of pending applications.

There is evidence to suggest that, in many cases, applications for the same invention are being examined multiple times by different patent offices. Consequently, countries are increasingly seeking for international cooperation. One of the ways to effectively cooperate is to identify duplication undertaken by more than one office with regard to applications containing the same invention, and to streamline such duplication at the international level.

207. As regards the national and regional patent procedures, the major part of duplication in terms of workload of the offices is attributed to the search and examination processes, since they require considerable resources: competent substantive examiners who cover all fields of technology and are familiar with both technology and the patent law, shall read patent applications, conduct a search on patent and non-patent literature, and analyze the patentability of claimed inventions. According to Trilateral statistics, among the first applications filed in the Trilateral offices, around 240,000 applications are filed in more than one Trilateral offices, and thus search and examination work has been duplicated.[60]

208. Therefore, using search and examination results of other offices with respect to family applications is considered one of the promising means to cope with the increasing number of patent applications. As described under sub-Chapter (b), the form of such utilization varies from a unilateral decision to use search and examination results of other offices to more sophisticated and systematic way of usage. If the common usage of search and examination reports is one way to address demand management, questions arise as to what can be done, at the international level, to effectively support the international utilization of those reports and how to increase confidence towards the work done by other offices, in view of the fact that differences are observed under the national laws and practices regarding some key issues on patentability, such as novelty and inventive step.

209. With respect to the PCT procedure, as described under sub-Chapter (b), avoiding duplication of the procedures under the international phase and the procedures under the national phase would facilitate streamlining the whole PCT procedure. Further, duplication of work by the different offices involved, such as the receiving office, the International Searching Authority, the International Preliminary Examination Authority, the International Bureau and the designated/elected office, should be avoided for efficient operation of the system.

(e) Prior Art

210. “Prior art” determines the scope of novelty and inventive step, two major patentability requirements that prevent patents from being granted in respect of inventions which already exist or which are obvious compared to existing inventions. “Prior art” is, in general, all knowledge that has been made available to the public prior to the filing or priority date of a patent application under examination, whether it existed by way of written or oral disclosure or by way of public use.[61] Today, information published on the Internet is increasingly taken

[60] Trilateral Statistical Report 2006, Fig. 3.13 [http://www.trilateral.net/tsr/tsr_2006/3_worldwide_pat_act_2006.pdf].

[61] In some countries, even if it has not been made available to the public, an invention which was on sale in the country before the relevant date forms part of the prior art.

into consideration.[62] The questions as to what should constitute "prior art" at a given time, and the scope and timing of the "availability to the public",[63] have been the subject of debate for a long time in the context of the draft Treaty Supplementing the Paris Convention as Far as Patents Are Concerned (draft 1991 Patent Harmonization Treaty) and the draft SPLT. Although national/regional laws provide different definitions, as described in Annex II, many similarities exist among them.

211. One such difference is based on the distinction between printed publications and other disclosures such as oral disclosures and prior use. In some countries, information which was publicly disclosed orally or through use in a foreign country does not constitute part of the prior art. Accordingly, under the patent law of those countries, a patent may be granted on an invention which is identical to, or obvious from, undocumented knowledge already available in the public domain, for example, in the form of traditional knowledge, in another country. Without a universal recognition of the prior art effect, there is the risk that patent rights are granted on subject matter that is already in the public domain in another country. Further, in view of the increasing operational cooperation among patent offices, a universal understanding of the definition of prior art is the basis for a common understanding with respect to novelty and inventive step.

212. Another major difference among national/regional laws is the prior art effect of an application filed earlier, but published after the filing (priority) date of the application under examination. However, harmonization of the legal requirements on this particular point may have less impact on the operational cooperation among patent offices, since the earlier applications filed in a national office are different from one country to the other.

213. Since most countries apply a broad definition of prior art, i.e., any information made available to the public in any form without any geographical limitation form part of the prior art, it is essential to ensure an efficient and effective access to prior art information, in order to ensure a credible determination of novelty and inventive step.

(f) Novelty

214. It is generally understood that the patent system is a social contract between the inventor and the public: on the one hand, it grants exclusive rights to a patentee to prevent others from commercially using the patented invention without his consent, and on the other hand, it obliges him to disclose his invention in a manner that the invention can be carried out by a person skilled in the art. Since one of the features of the patent system is to make new information available to the public in exchange of the exclusive rights, an invention which has already been put in the public domain (and thus the public does not gain any new information through its disclosure) should be, by definition, excluded from patent protection.

215. Consequently, novelty of the invention is a fundamental and undisputed condition of patentability in any patent system. In Article 27.1, the TRIPS Agreement provides that, in order to be patentable, an invention shall be new. Since only the absence of novelty, but not

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[62] "Results of the Questionnaires Concerning Disclosure of Information on the Internet and Other Issues Relating to the Internet" (WIPO document SCP/5/4); "Disclosure of Technical Information on the Internet and its Impact on Patentability" (WIPO document SCP/4/5).

[63] "Information Provided by Members of the Standing Committee on the Law of Patents (SCP) Concerning the Definition of Prior Art - Brief Summary" (WIPO document SCP/6/INF/2).

its existence can be proved, in general, an invention is new if it does not form part of the prior art, or was not known, used or described before the filing or priority date.

216. Further, in order to examine whether a claimed invention is novel or not, it is necessary to determine the scope of the claimed invention. How claims are interpreted and how the scope of the claims is defined are thus decisive factors for examining the novelty.

(g) Inventive Step

217. As stated above, an exclusive patent right is justified only where it meets the objective of the patent system, i.e., to provide incentives to create new and useful inventions, which would benefit society at large. Obviously, an invention that already exists does not contribute to technological development and to social benefit. In addition, granting an exclusive right to an invention which can be obviously or easily conceived by others does not promote innovation and technological and economic development. Rather, it prevents others from using and making inventions that are nothing more than obvious modifications to the existing state of the art. Therefore, in order to justify the grant of an exclusive patent right, the invention shall, among other criteria, exhibit a sufficient "inventive step" (be non-obvious). In Article 27.1, the TRIPS Agreement provides that, in order to be patentable, an invention shall involve an inventive step.

218. In many laws, the inventive step requirement means that a claimed invention shall not be obvious to a person skilled in the art at the time of the filing date (or, where applicable, priority date), or at the time the invention was made, in view of the prior art. In some countries, instead of the expression "obvious" (or "non-obvious"), expressions such as "inventions which could have been easily made" or "[an invention] having prominent substantive features and representing a notable progress" appear in national laws (see Annex II). Whatever term is used, the definition of "prior art" or "state of the art", directly affects the determination of the inventive step. Where the scope of the prior art is limited, it is more likely that a certain claimed invention would be considered as involving an inventive step. Further, as for the novelty requirement, the interpretation and determination of the scope of the claimed invention is essential for the determination of the inventive step.

219. National and regional authorities have developed various methodologies that can be applied when assessing inventive step, such as the "problem and solution"-approach used in the EPO, the "Graham test" in the United States of America and the "reasoning test" in Japan. Further, the interpretation of the term "inventive step"("non-obviousness") by national courts has developed into a body of case law in many countries. Since a vast majority of inventions are based on existing inventions, how to assess inventive step in an invention based on a combination of existing features has been extensively developed in a number of jurisdictions. Based on such case law, a number of patent offices publish examination guidelines, which are addressed primarily to the office's examiners for consistent application of the law, but also to applicants and patent practitioners for a better understanding of office practices.[64] Such examination guidelines typically contain the methodology, various factors to be taken into consideration (for example, problems to be solved by the invention, advantageous effects of the invention and secondary considerations such as commercial success and long-felt needs) and practical examples in various technical fields.

[64] http://www.wipo.int/patent-law/en/guidelines.html.

220. The concrete application of the inventive step requirement is quite complex and it cannot be simply limited to a debate on a “high” level of inventive step versus a “low” level of inventive step.

(h) Grace Period

221. As indicated in sub-Chapter (e) above, in principle, any information made available to the public becomes part of the prior art. In other words, once an invention is made available to the public, it is not (or at least should not be) possible to obtain a patent on the same invention or on an invention which is obvious from the invention made available to the public. However, the strict observation of such rule may not always be appropriate in view of striking a balance between the interest of the inventor and those of third parties. For example, it may not be justified that each and every public disclosure, even if it was beyond the control of the inventor, should lead to the loss of the opportunity to obtain a patent. In other cases, the inventor may not be able to wait for disclosing his invention to a potential future partner or investor until the filing of the patent application. Under other circumstances, public research organizations, universities and certain firms may wish to disclose the results of the research to the public as early as possible, which may in fact facilitate access to research results by third parties. Therefore, preventing all public disclosures of an invention before the filing date may delay the dissemination of the knowledge to the public and be unreasonably restrictive to the inventor. On the other hand, any exception to the definition of prior art should take into account the legitimate interests of the inventor as well as of third parties.

222. Under the patent law of the United States of America, which applies the first-to-invent principle, the public disclosure of an invention before the filing date as such does not affect the patentabilty of the invention. If there was no time limit to file a patent application, an inventor would have no incentive to file a patent application in the first place, but rather, he might file a patent application and seek patent protection only where a competitor brings the same invention to the market. Such a strategy would increase legal uncertainty for third parties. Therefore, according to Section 102(b) of U.S.C. 35, an invention which was patented, described in a printed publication in any country or in public use or on sale in the United States of America more than one year prior to the filing date forms part of the prior art. In other words, where an invention was disclosed in a certain manner, the inventor has one year to file a patent application. Such a mechanism provides the possibility for an inventor to publicly disclose his invention under certain conditions prior to the filing of a patent application.

223. Lack or inadequacy of protection of industrial property at international exhibitions was one of the reasons which promoted the conclusion of the Paris Convention in 1883. The Paris Convention provides, in Article 11, an obligation for member States to establish and maintain legislation in order to protect patentable inventions in respect of goods exhibited at official or officially recognized international exhibitions held in the territory of any member States. The Convention, however, leaves it to the domestic legislation of a member State to choose the means for offering such protection, including the duration of the temporary protection. Consequently, as it can be observed in Annex II, the types of disclosures that are covered by the grace period, its length and conditions are not harmonized, although we can observe certain patterns in many countries.

224. One of the peculiarities of the grace period in the international patent system is that, unless a uniform grace period at the international level is established, an applicant cannot fully enjoy the benefits of the grace period at the national level, since the disclosure made

under certain conditions in one place might affect patentability in other countries. For example, if the duration of the grace period differs among national/regional laws, the applicant has no other choice than preparing and filing patent applications on the basis of the shortest grace period, and would need to be familiar with different rules under different national/regional laws. Even worse, if one of the countries in which the applicant seeks patent protection has no grace period, the applicant can practically not enjoy the benefits of the grace period in all those countries. The grace period also serves as a safety net for an applicant who is not aware of the definition of prior art under the patent law and inadvertently disclosed his invention to the public before filing a patent application.

(i) Sufficiency of Disclosure

225. As described in Chapter II, one of the pillars that justifies the patent system is the public disclosure function of the system. Consequently, one of the important requirements under the patent law is that the invention shall be sufficiently disclosed in the patent application so that, once it is published, the innovative knowledge contained in the patent application can be disseminated to the public.

226. According to Article 29.1 of the TRIPS Agreement, Members shall require that an applicant for a patent shall disclose the invention in a manner sufficiently clear and complete for the invention to be carried out by a person skilled in the art. Consequently, this is the minimum standard for WTO members, and as it can be found in Annex II, the provisions of national/regional laws are largely harmonized in this area. The interpretation of the provisions and of national/regional practices, however, may be more nuanced. The questions arising in respect of the interpretation of the disclosure requirement include, for example, the following: what is the definition of a “person skilled in the art”? What is the extent of disclosure that can be considered “sufficient and complete”? At which point in time shall the disclosure of the invention be considered sufficient?

227. Article 29.1 of the TRIPS Agreement further states that members may require the applicant to indicate the best mode for carrying out the invention known to the inventor at the filing date, or where priority is claimed, at the priority date of the application. Consequently, some countries require the best mode to be indicated in the application, while other countries allow any mode for carrying out the invention (see Annex II).

228. Further, in many countries, where the application refers to biologically reproducible material which cannot be sufficiently disclosed in the written application, the sufficient disclosure requirement is considered to be complied with by the deposit of such material, to the extent that the disclosure requirement cannot otherwise be complied with. The Budapest Treaty provides a mechanism that the deposit of a microorganism with any “international depositary authority” suffices for the purposes of patent procedure before the national patent offices of the Contracting States (and regional patent offices which recognize such effect) in order to eliminate the need to deposit the microorganism in each country in which patent protection is sought. The Budapest Treaty, however, does not regulate the formal and substantive requirements concerning national/regional deposits with respect to national/regional applications under the laws of its Contracting States. For example, the timing for the deposit to be made is not internationally harmonized. In certain countries, the deposit has to be made at the latest on the filing date of the application, while at least in one country, it may be made during the pendency of the application under certain conditions.

(j) Subject Matter Coverage and Exclusions

229. What is considered subject matter entitled to patent protection? This is one of the fundamental questions that characterize the patent system. There is a general understanding that the patent system protects "inventions", but not literary or artistic works, signs or aesthetic appearances. Article 27.1 of the TRIPS Agreement states that, in principle, "any inventions, whether products or processes, in all field of technology" shall enjoy patent protection. The scope of the term "invention", as well as how it is defined in the national legislation, are not uniform, although certain common underlying features can be found (see Annex II). The differences in the national laws reflect the political choice of the country concerned in view of the aim of the patent system to promote innovation and technological and economic development.

230. One of the differences is that in the majority of the countries, the concept of invention includes some form of technical character or technical idea. Therefore, business methods as such and financial methods as such are not patentable subject matter in most countries. In other countries, technicality is not a requirement for patentable subject matter. Further, in some countries, the term "invention" is defined in the law, while in others, the scope of the term "invention" needs to be extracted from a non-exhaustive list of subject matter.

231. As an exception to the above general scope of the invention, Article 27.2 and 3 of the TRIPS Agreement provide that certain inventions may be excluded from patentability by WTO Members. Those inventions are:

- inventions the prevention within their territory of the commercial exploitation of which is necessary to protect order public or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment, provided that such exclusion is not made merely because the exploitation is prohibited by their law (TRIPS Agreement, Article 27.2);

- diagnostic, therapeutic and surgical methods for the treatment of human or animals (TRIPS Agreement, Article 27.3(a));

- plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for protection of plant varieties either by patents or by an effective sui generis system or by any combination thereof (TRIPS Agreement, Article 27.3(b)).

232. Consequently, a number of countries provide some or all of those exceptions in the national legislation (see Annex II).

233. In connection with subject matter coverage and exceptions, Article 4*quater* of the Paris Convention provides that the Contracting States shall not refuse the grant of a patent or invalidate a patent on the ground that the sale of the patented product or of a product obtained by means of a patented process is subject to restrictions or limitations resulting from the domestic law, for example, relating to the security or quality of the product.

234. As provided in Article 27.3(b) of the TRIPS Agreement, this provision has been under review at the Council for TRIPS since December 1998. The Doha Ministerial Declaration[65] touched upon the review of Article 27.3(b) together with the review of the implementation of the TRIPS Agreement under Article 71.1 and negotiations on outstanding implementing issues. The Doha Ministerial Declaration mandated the Council for TRIPS to examine, *inter alia*, the relationship between the TRIPS Agreement and the Convention on Biological Diversity, the protection of traditional knowledge and folklore, and other relevant new developments raised by members pursuant to Article 71.1. In undertaking this work, the TRIPS Council shall be guided by the objectives and principles set out in Articles 7 and 8 of the TRIPS Agreement and shall take fully into account the development dimension.

(k) Exceptions and Limitations to the Rights

235. In view of the policy objective of the patent system, the scope of the exclusive patent right is carefully designed under national patent laws, which aims to strike a balance between the legitimate interests of the right holders and the legitimate interests of third parties. Article 30 of the TRIPS Agreement allows members to provide exceptions to the exclusive rights conferred, provided that such exceptions do not conflict with the normal exploitation of the patent and do not prejudice the legitimate interests of the patent owner, taking into account the legitimate interests of third parties.

236. The Paris Convention, in Article 5, also contains provisions concerning compulsory licenses. Further, Article 5*ter* provides certain limitations on the exclusive rights in cases where strict enforcement of such rights may be prejudicial to public interest in maintaining freedom of transport. In principle, if ships, aircraft or land vehicles temporarily enter the territory of foreign countries, it is not necessary to obtain licenses on patents in force in these countries in order to avoid infringing such patents.

237. Taking into consideration the above international rules, a number of countries provide in their national legislations certain exceptions and limitations to the exclusive rights (see Annex II). For example, the rights conferred by a patent do not extend to the following acts under some national laws:

- acts done for private and non-commercial use;

- uses for articles on aircraft, land vehicles or vessels of other countries which temporarily or accidentally enter the airspace, territory or waters of the respective country;

- acts done only for experimental purposes or research purposes;

- acts performed by any person who, in good faith, before the filing date (priority date) of the application on which the patent is granted, was using the invention or was making effective and serious preparation for such use in the respective country (prior user's exception);

- acts solely for uses reasonably related to the development and submission of information required for obtaining a regulatory approval;

[65] http://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_e.htm.

- preparation of drugs in accordance with a medical prescription.

238. Further, in Article 31, the TRIPS Agreement provides that a Member may allow, under the stipulated conditions, other use than that allowed under Article 30 without authorization of the right holder. In connection with Article 31, the Doha Ministerial Declaration on the TRIPS Agreement and Public Health[66] specifically states that each member has the right to grant compulsory licenses and the freedom to determine the grounds upon which such licenses are granted, and to determine what constitutes a national emergency or other circumstances of extreme urgency, it being understood that public health crises, including those relating to HIV/AIDS, tuberculosis, malaria and other epidemics, can represent a national emergency or other circumstances of extreme urgency. Furthermore, in order to solve the problem of Members with insufficient or no manufacturing capacities in the pharmaceutical sector facing difficulties in making effective use of compulsory licensing under the TRIPS Agreement, following the instruction under paragraph 6 of the Doha Ministerial Declaration on the TRIPS Agreement and Public Health, WTO Members decided on a "waiver" that removed limitations on exports under compulsory license to countries that cannot manufacture the pharmaceuticals themselves in 2003[67] and made that decision permanent by amending the TRIPS Agreement.[68]

239. As regards the exhaustion of the patent right, Article 6 of the TRIPS Agreement states that, for purposes of dispute settlement under this Agreement, subject to the provisions of Articles 3 and 4 of the TRIPS Agreement, nothing in the TRIPS Agreement shall be used to address the issue of exhaustion of intellectual property rights. The Doha Ministerial Declaration on the TRIPS Agreement and Public Health clarified that the effect of the provisions in the TRIPS Agreement that are relevant to the exhaustion of intellectual property rights is to leave each member free to establish its own regime for such exhaustion without challenge, subject to the MFN and national treatment provisions under the Agreement.

240. The above exceptions limit the enforcement of rights conferred by a patent. In the laws of some countries, there exist exceptions that extend the enforcement of rights, i.e., acts which may be deemed as patent infringement under certain circumstances. An example of such exceptions is an indirect infringement or a contributory infringement. In principle, making, using and selling only one or some elements of the claimed invention does not constitute infringement. However, a strict application of such principle may not always protect the right holder from a third party who unfairly took advantage of the patented invention. For example, a third party may supply parts which relate to material elements of the patented invention for a final assembly by individuals, or a third party supplies a machine which is exclusively used to make a patented invention. Taking into account the legitimate interests of the right holder and the legitimate interests of third parties, certain actions are considered as indirect infringement, under some national laws. The conditions of indirect infringement, however, are significantly different from one country to another.

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66 http://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_trips_e.htm.
67 http://www.wto.org/english/tratop_e/trips_e/implem_para6_e.htm.
68 http://www.wto.org/english/tratop_e/trips_e/wtl641_e.htm.

(l) Quality

(i) Objectives of Quality Management

241. Errors in patent grant and administration procedures can cause difficulties for rights-holders, competitors, users of patent information and the patent Offices themselves. Correcting an error can be difficult and expensive. Failure to recognize that an error exists can also have costly effects. For example, the grant of a patent which does not meet the necessary requirements may cause competitors to believe that they cannot enter the relevant market unless they negotiate a license with the patentee, or they might have to undergo expensive litigation in order to have the patent revoked to avoid an infringement action. Failure to update the register to show that a patent has been renewed may mean that the patent has expired and competitors may begin to make investments, only to discover later that the patent was still in force.

242. Consequently, many offices have introduced quality management systems to ensure that their procedures are appropriate for delivering high quality results. Some have had their quality management systems certified in accordance with a recognized standard, most commonly ISO 9001:2000. Such standards cover the processes and systems of an organization rather than the quality of the service actually delivered, but are indicative that systems are in place which encourage high quality results and measure outputs to check the quality of the work and to address any problems, thus encouraging continued improvements in systems.

243. Actual implementations of quality management systems vary enormously from office to office, depending on office size and the types of work involved (examination systems differ greatly in needs from registration systems). The details need to be tailored to meet the particular needs of the Office and its partners (such as Offices in other States) and users (including patent applicants and those affected by national rights or using the published information). However, certain general principles run through any system operating at various levels. At a fundamental level, the Office should be clear on its functions and provide the necessary resources (staff, premises, equipment and training) to deliver these functions effectively. Procedures should be properly documented and feedback mechanisms provided (both internal and through customer communication) to identify problems and opportunities so that procedures could be improved to avoid recurrence of problems. Staff responsibilities should be clear and, to the extent possible, objectives should be measurable.

(ii) Importance of Quality Management at the International Level

244. Quality management is important to individual Offices for ensuring that their own domestic responsibilities are discharged properly. However, it also has an international aspect in that a large proportion of patent applications are pursued in more than one jurisdiction, whether through the Paris Convention or PCT route. In such cases, the same application (subject to translation and changes designed to meet particular local requirements) is processed separately and often simultaneously by several different Offices, each conducting effectively the same checks in parallel. In the case of large Offices, the result is an enormous amount of duplicated work. Clearly, each Office has a responsibility to ensure that the local standards are met, but the effort involved in doing this can be significantly reduced if an Office clearly understands what work is being done by other Offices, taking into account any significant differences between their patent systems, so that further work only needs to be done to the extent that it is objectively necessary.

245. Even in the case where two Offices have very different procedures, knowledge of the other Office's quality management systems may be important. For example, in the case of an office where applications are registered without first conducting search and examination, it may be of relevance for applicants and third parties to know the outcome of search and examination in other offices. In this case, knowledge of the existence of effective quality management systems in such other offices may significantly increase the confidence in the reader's view of the reports and granted patents, allowing a better assessment of the extent to which the local patent meets domestic patentability requirements.

(iii) Existing Mechanisms to Ensure Quality

246. Existing quality management systems take a wide variety of forms. Most major offices have had some form of quality review for many years. In the last decade, many have seen the need to review and extend these systems to ensure that they are truly comprehensive, rather than providing isolated quality review systems for individual functions (especially search and examination) which have often developed independently and in an *ad-hoc* manner. The main influences on these systems have been the popular quality management approaches, such as ISO 9001:2001 and the EFQM Excellence Model, as well as the PCT Common Quality Framework for International Search and Preliminary Examination, set out in Chapter 21 of the PCT International Search and Preliminary Guidelines. These Guidelines require International Authorities under the PCT to establish quality management systems with certain features important to ensuring effective search and examination according to the requirements of the PCT. The systems established in accordance with the Guidelines are reported by International Authorities and discussed by the Meeting of International Authorities. Other mechanisms for common discussion and development of quality systems also exist where Offices work together on a formal basis, most notably the European Quality System which forms an integral part of the European Patent Network established within the European Patent Organisation.

247. It should also be recalled that many patent laws have quality-related aspects built into them. As described in sub-Chapters (b) and (c), these include requirements for search and examination, the opportunity for third parties to make comments or even become directly involved in the review of rights through opposition or validity proceedings, and requirements for patent applicants to submit information relating to searches and examinations carried out on corresponding applications in other States. Offices are exploring means to extend such reviews to be faster, cheaper and more effective.

(m) Challenges in the Fields of Emerging Technologies

248. Technologies develop and new technologies emerge constantly. The term "Internet year" typically describes the incredible speed of new technological development and possibilities that could be offered to the public. Since their creation, the patent system has faced, and developed together with, new developments in technologies such as mechanics, chemistry and electronics. More recently, it has been facing challenges from biotechnology, digital technology and nanotechnology. The aim of the patent system, i.e., to foster innovation, put the patent law in a position that it is constantly reviewed in the face of new technological developments.

249. There are a number of systemic challenges when the patent law faces new emerging technology. The first area of concern relates to the question as to whether a new innovation is

covered by patentable subject matter under the patent law (also see sub-Chapter (j) above). Biological materials, transgenic living entities and software implemented business methods are some examples that have spurred debates. Secondly, when a new technology emerges, there are few relevant items of prior art which provide the basis for determining novelty and inventive step. Also, when the technology is very new, for example, the current stage of nanotechnology, it is said that there is no set of established nomenclature within the field. With few references to conduct patentability examination on the one hand and various undefined terms used by experts on the other hand, it is often criticized that patents are issued on overly broad claims at the time the new technology emerges. In the same manner, determining the compliance with the disclosure requirement and industrial applicability (utility) requirement can also be difficult. Past experiences suggest that, with the development of technology from a cutting-edge stage to a more mature stage, questions relating to the applications of patent law on that technology would gradually be clarified and legal certainty and predictability would increase due to convergence of practices and case law.

250. Since the exclusive right conferred by a patent is justified by public disclosure of the full scope of the patented invention, defining the breadth of the claims which are supported by the disclosure of the invention is a cornerstone of the patent system. However, with very little information available in the field, the right amount of disclosure is not always obvious. The above difficulties are aggravated when technology develops in a cross-cutting area, such as bioinformatics and nanotechnology. The comprehensive analysis of the technology and the determination of patentability are more complicated in such cross-disciplinary field of technology.

251. Beyond those concerns addressing the compatibility of new inventions with the current patent law, a more fundamental question has also been posed. That is, whether the current patent law is an appropriate mechanism to foster innovation in a specific new technological area. For example, licensing and other issues related to the exploitation of patents are areas of discussion particularly in the areas of biotechnology and information and communication technology. In the biotechnological field, down-stream innovations may be covered by a broad patent granted at an early stage of innovation. It was pointed out that an extensive patenting of upstream research may hinder the development of downstream research. The number and breadth of patents granted to early fundamental research have raised concerns about patent thickets and royalty stacking. Particularly in the area of biotechnology, reach-through claims in patents, especially for research tools, were flagged as potential impediments to further research and development.[69] Ethical issues (see Chapter IX) surrounding the enforcement of biotechnological inventions are controversial as well. Further, recent developments in the field of information and communication technology have brought the possibility of consolidating various features and functions into one product. This possibility could be further extended by nanotechnology. As described in Chapter VIII(c), situations which are so-called “patent thickets” have been addressed by recent studies.

252. In the area of software-implemented inventions, due to the special characteristics of software innovation, some people consider that patent protection of software would inhibit competition in this field. It is said that software innovation typically involves cumulative,

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[69] Various arguments concerning gene patents are summarized in “Gene Patents: A brief Overview of Intellectual Property Issues” CRS Reports for Congress, October 3, 2006; W Cohen and J. Walsh “Real Impediment to Academic Biomedical Research”, May 15, 2007, [http://www.nber.org/books_in_progress/innovation8/cohen-walsh6-19-07.pdf].

sequential development and re-use of others' work. In the field of information and communication technology, it inherently requires that the users are "connected". In other words, the value of a good or service depends on the number of users of that good or service (network effect). In order to communicate and share information and files, interoperability needs to be preserved among programs, systems and network components. Under those circumstances, a lock-in effect may occur. Consequently, some argue that the mechanism of the patent system that grants an exclusive right does not promote the development of the software industry, but promotes other models such as an open source.

253. The open source provides successful alternative models to manage the ownership of the copyright on software. One of the concerns relating to open source software is that software developed under an open source license may infringe a patent covering the open source software. In order to cope with the reality that a number of computer-implemented inventions have been granted in many jurisdictions, the GNU General Public License version 3 (GPL v3) explicitly provides that users are protected from patent infringement suit by the program's contributors and redistributors.

## VII. SUPPORT STRUCTURES FOR THE PATENT SYSTEM

254. The patent system does not exist in a vacuum. In order to truly empower the patent system as a tool for technological development and economic growth, it has to be viewed in a broader context, together with national economic and development policies and strategies. A number of countries have thus formulated national intellectual property policies which are integrated in their scientific, cultural, trade, economic and educational policies.[70] The intellectual property policies support coherent and effective implementation of intellectual property strategies nation-wide with a view to optimizing the benefits derived from intellectual property rights.

254. While the patent law provides the legal framework for the patent system, a number of other features support the patent system so that it works in the way it is intended to work. To name but a few, human resource development, education, effective and efficient IP office administration, awareness of the potential impact of the patent system by researchers in the private and public sectors, universities, civil societies and the public, and effective and efficient enforcement of rights by judiciaries and customs. Where a dispute relating to the enforcement of rights or the validity of patents cannot be resolved between the parties, the possibility of settling the dispute through arbitration or mediation exists if both parties agree. However, in some cases, a court ruling is sought to resolve the dispute. Therefore, accessibility of court procedures, legal certainty and timely judgments are relevant to the effectiveness of the patent system (see Chapter VIII(a)). Further, in order to leverage the value of the IP assets, the market structure should be supportive to knowledge dissemination and technology transfer.

### (a) Patent Attorneys

255. Among the various direct and indirect support mechanisms in respect of the patent system, patent attorneys and patent agents play a significant role in developing a functioning patent system. They are generally recorded in a registry of industrial property offices after

[70] http://www.wipo.int/ip-development/en/strategies/national_ip_strategies.html.

passing qualifying examinations. However, it is not possible to generally define the title "patent attorney" or "patent agent", since the qualification and the bestowed power under the applicable law are different from one country to the other. In some countries, patent attorneys may be legally qualified in general law and additionally pass an examination. Consequently, they are entitled to represent a party before the courts. In other countries, patent attorneys may not be required to have legal qualification (although they may need to have at least intellectual property law expertise and legal training).[71]

256. The role of patent attorneys is, in general, giving advice and assisting inventors and applicants in order to obtain and maintain patents: for example, drafting and preparation of patent applications, representing the applicant before the patent office, responding to office actions and assisting the patentee to maintain and enforce his right. The patent attorneys may also represent a third party during the opposition and invalidation proceedings. Therefore, not only the knowledge of technology, but also the knowledge of at least substantive and procedural patent law as well as some familiarity with case law are required to become a patent attorney. The patent attorney should be able to provide a full range of possible protection or enforcement option available to the client and assist the client if a patent was erroneously granted or an abuse of right was found.

257. The patent attorneys, therefore, play an important role in the "checks and balances" mechanism of the patent system. Whether a local inventor can obtain patent protection with a maximum scope of claims, whether he can defend his rights or whether he can successfully challenge another's patent may, to a significant extent, depend on the skills of his local patent attorney. A recent report shows that low public awareness of IP creates less IP business opportunities, which leads to a vicious circle of lower availability of professional IP services and lesser familiarity with IP.[72]

(b) Professional Privilege

258. In general, when a client seeks an opinion from a qualified lawyer, communications between the lawyer and his client are accorded the "privilege" of not being required to be disclosed in a court of law. The purpose of establishing such a privilege is to encourage those who seek advice and those who provide advice to be fully transparent and honest in the process. Those who seek advice should provide the advisor with all the information that could be relevant to obtain the best advice, including aspects which may run counter to his position. On the other hand, the advisor should be able to be completely frank. Therefore, in order to ensure a high quality of legal advice, the exchange of instructions and advice should not be restricted due to the fear of disclosure of their communications.

259. In the course of a legal action for patent infringement, it is usual for one side or the other to oblige another party to disclose any documents relating to the communication between the patent attorney and the party in the hope that damaging statements may be found on the record which would destroy an alleged infringer's defense or show that there had been

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[71] In view of the diversity of the definition, the term "patent attorney" is used in this paper to describe a person who is a professional representative, in a general sense, for the purposes of patent prosecution.

[72] Prof. T. Ogada "Challenges Faced by Developing Countries in Teaching and Conducting Research on Intellectual Property" [http://www.wipo.int/academy/en/meetings/iped_sym_05/papers/pdf/ogada_paper.pdf].

abuse of rights by the patentee. Communications between patent attorneys and clients often contain technical matters which are closely inter-related with legal questions under consideration by a court. However, when a client seeks the opinion of a patent attorney, not all countries provide privilege to the advice the patent attorney gave to his client or keep the communication between the patent attorney and the client confidential from the court. The national rules in this respect vary significantly from one country to another. Some countries recognize that legal professional privilege extends to patent attorneys. On the contrary, some countries do not recognize a privilege between patent attorneys and their clients. In some countries, the protection of patent attorneys' communications takes another form or receives additional protection, for example, it may be a crime or violation of professional rules for a patent attorney to disclose clients' confidences.[73] Even if the patent attorney's privilege is recognized, the scope of communications covered by the privilege and the extent of privilege that overseas patent attorneys enjoy are different from one country to another. In some countries, the patent attorney's privilege is recognized for the qualified patent attorneys in that country, but not for patent attorneys qualified overseas.

260. Since more and more applicants seek patent protection abroad, the lack of uniform standards on privilege and on the recognition of a privilege in different countries causes serious concerns among practitioners. For example, if the privilege is not recognized in one of the several countries in which a patent owner wishes to enforce his patent, there is a risk that he receives an order by a court which does not recognize the legal privilege to disclose the contents of the confidential communications of the advice obtained in the country in which the privilege is available. Consequently, the effect of the privilege in the advice will be lost. In another case, if only patent attorneys who are qualified in the country can enjoy a professional privilege before the court of that country, a client is not protected from a court's order that requires the disclosure of communication between the client and an overseas patent attorney with respect to the patent under question and corresponding family applications and patents.

261. In view of the lack of standardized rules available at the international level, the International Association for the Protection of Intellectual Property (AIPPI) adopted a resolution on the Attorney-Client Privilege and the Patent and/or Trademark Attorneys Profession in 2003, in which it supports the provision of attorney-client privilege for patent and trademark attorneys throughout all of the national jurisdictions.[74]

(c) Creating a Marketplace

262. Against the backdrop of intensifying global competition, the R&D cycle of products is becoming shorter and shorter. Further, technology has become more complex and sophisticated. To meet such challenges, in addition to the traditional vertical integration of the value chain, open innovation models have been widely introduced in the business sector.[75] Instead of conducting and performing all the activities from R&D to the market entry within the same company, procurement of knowledge is sought from external sources through, for example, contractual research, R&D cooperation, licensing and outsourcing. Collaboration

[73] Report of AIPPI Special Committee Q163, March 2002.

[74] Resolution, Question 163 — Attorney-Client Privilege and the Patent and/or Trademark Attorneys Profession, AIPPI; in cooperation with the AIPPI, WIPO will organize a Conference on Client Privilege in Intellectual Property Professional Advice on May 22 and 23, 2008 in Geneva.

[75] The Economist, October 11, 2007.

with public research institutes and universities, licensing out, creation of joint ventures and spin offs are well-known models. A number of companies invite, on their web sites, new ideas from consumers and others, and offer potential partnerships in order to expand the source of innovation (user-driven innovation model).

263. What is common in all business models regarding open innovation is that there is a transfer of knowledge from one party to another, and the patent system plays a fundamental role to support the mechanism of transferring knowledge between a party who wants to leverage the technology and a party who wants to procure external technology.

264. In order to realize such transactions of technology, in the first place, potential buyers and potential sellers of technology, should be identified. The United States Patent and Trademark Office, for example, publishes information concerning patents available for license and sale in its Official Gazette.[76] A number of national and regional authorities are active in promoting licensing through assisting market assessment and finding business partners. They also provide a user friendly platform on the Internet where potential buyers and sellers can meet.[77] Generally speaking, such platforms provide a description of technology offered/searched or a list of licensable patents and contact information. A number of commercial patent transaction businesses also exist, for example, IP auction businesses.[78]

265. Another common mechanism to encourage technology transfer is to provide financial incentives. A number of countries provide a discount on patent maintenance fees if a patent owner offers a non-exclusive license to any third party. In addition, tax reductions on royalty income generated by patent licenses are accepted in some countries.

266. With the broader recognition that patents are useful instruments to trade technologies, as the term “IP asset” suggests, patents are increasingly recognized to be intangible assets in the financial market. Patents can be exploited as a means to attract external sources of financing. For a small start-up company, patents play an important role to raise funds from venture capital. Some companies offer securitization of patents which uses royalty fees generated from securitized patents as capital for investors. In addition, some banks accept patents as collateral for bank loans. One of the keys to the broader application of transaction of patents is patent valuation. Credible and reliable patent valuation mechanisms, in particular, monetary valuation, are needed in order to further facilitate the transaction of patents.

267. The supportive mechanisms for funding and transferring technology exist not only in developed countries but also in developing countries. For example, the Gujarat Grassroots Innovation Augmentation Network (GIAN) and the National Innovation Foundation (NIF) supported by the Department of Science and Technology in India provide venture capital funding and assist commercialization of high potential grassroots innovation.[79] It is said that,

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[76] http://www.uspto.gov/web/patents/patog/week50/OG/TOC.htm#ref11.

[77] For example, a patent licensing database by Japan’s National Center for Industrial Property Information and Training (NCIPI) [http://www.inpit.go.jp/english/index.html], Innovation Relay Centres (IRCs) by the European Commission [http://irc.cordis.lu], the National Technology Transfer Center (NTTC) in the United States of America [http://www.nttc.edu/default.asp] and IP Market Place for Patents by the Danish Patent and Trademark Office [http://www.dkpto.org/].

[78] It was reported that a patent for a continuous play broadcast system was sold for US$1.75 million at one of those auctions. [Managing Intellectual Property Weekly News, October 26, 2007].

[79] http://www.gian.org.

for those grassroot innovators whose only resource is knowledge, protection of intellectual property rights is necessary to leverage the knowledge.[80] In Malaysia, the Malaysian Technology Development Cooperation was initially set up by the Government of Malaysia in 1992 to promote and commercialize local research and to invest in new ventures that can bring in new technologies from abroad. Since then, it has evolved to an integrated venture capital solutions provider.

## VIII. PERCEIVED THREATS TO THE EFFECTIVENESS OF PATENTS AS INCENTIVES TO INNOVATION

268. In general, the patent system is considered to establish a trade-off between the exclusive rights granted to patentees and the public disclosure of patented inventions, aiming at promoting innovative activities by society at large. To this end, policy makers search for an effective and efficient system for obtaining, maintaining, and enforcing rights with an adequate mechanism to disseminate innovative knowledge and technology. In previous chapters, the importance of quality, timing and costs for the effective and efficient patent system that develops hand in hand with the globalization and technological development has been highlighted. In particular, overall costs of obtaining, maintaining and enforcing patents at the international level are primary obstacles for enhancing the access to the international patent system. Since R&D and marketing activities are increasingly carried out across the border, under the principle of territoriality, lack of harmonized rules regarding substantive patent law, court procedures and cross-border jurisdiction, among others, increase costs and the risk of legal uncertainty.

269. The patent system presumes the existence of competitors who are capable of learning and analyzing the published patents and developing further inventions which could be alternatives to the patented invention or a new invention with a new or superior function. Through the promotion of such further innovation by competitors, the public would benefit from increased choice or quality of products available in the market. In the recent past, concerns have been raised as to whether patents are impinging on the possibility of further innovation by third parties by granting exclusive rights on subject matter the availability of which is, by definition, limited. In the case of DNA patents, it is limited by nature, and in the case of patents on standard technologies, alternatives are not possible due to *de jure* or *de facto* rules. The potential conflict between the need to ensure interoperability and the exclusive patent rights in the area of network and communication technology was already mentioned. Is the trade-off between exclusivity and disclosure an effective incentive to boost future innovation while maximizing social welfare?

270. Since a patent right is a negative exclusive right, i.e., it is not a right to use the patented invention, but is a right to prevent others from using such invention without the patentee's consent, it allows the patent to be exploited in various ways. Patented technology can be exclusively used by the patentee. Patents can be used to block competitors from entering the market, or it may be obtained with a view to securing future freedom to operate. The motive to patent may be for a cross-licensing deal, or a patent may be licensed-out for royalty income. Patents may be used for financing purposes or for generating income, such as through a patent auction. In some cases, patents may be obtained in order to provide incentives to employee researchers. Depending on the business environment, those various

[80] http://www.nif.org.in/intellectual_management.

ways of exploitation may be strategically combined for the purpose of maximizing a return on investment.

271. Most recently, patents are used as financial devices for capitalization, and the production of goods can be separated from the exploitation of the rights. One of the most criticized examples are patent trolls. On a positive note, patents can be used to attract venture capital, bank loans or securities markets for, in particular, but not limited to, start-ups. The development of computer and information technology allows us to collect and analyze patent information and other technical data, create and evaluate patent portfolios, and set up patent strategies in more thorough and systematic ways.

272. In this Chapter, three issues, namely, litigation, costs and patent thickets are considered as to their effects on the functioning of the patent system.

(a) Litigation

273. Where a dispute arises in respect of the enforceability of rights, litigation is the last resort to resolve the case. Since a patent is worth nothing if it is not enforceable, accessibility to court procedures, legal certainty and timely judgments play an important role for the correct well-functioning of the patent system. There are a number of questions, however, concerning the functioning of the current litigation system.

274. In general, legal actions in the patent field involve high costs. It is said that the average cost of patent litigation is US$2 million in the United States of America,[81] €150,000 to €1,500,000 in the United Kingdom and €50,000 in Germany.[82] As shown in Chapter II(b), patenting activities are increasingly going beyond national borders. Because the rights attached to patents can be enforced only in the territory of grant, parties face litigation not only in their home country but also abroad with respect to the same invention. The cost of litigation could then become prohibitively expensive for a party without financial resources, such as a private party or a small and medium-sized enterprise. Cross-border litigation raises costs partly because of the fact that patent laws as well as court procedures are different from one country to the other. In the case of patent infringement, courts in different countries estimate damages in different ways. The absence of harmonized rules creates legal uncertainty at the international level, and encourages so-called “forum-shopping” by those who know how to benefit from the differences among national systems or among different courts.

275. The costs and legal uncertainty may further increase due to the time it takes a court to deliver the judgment. The longer it takes, the more not only the parties involved in the case, but also third parties as well as consumers are affected by the legal uncertainty.

276. Since disputes relating to patents may often involve highly technical elements, judges need both legal and technical understanding and competencies. In certain countries, technical experts are assigned to assist judges, or a special patent court, or an intellectual property court, has been established in order to meet the needs of quality and timeliness of the judgments.

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[81] AIPLA 2003 Report of Economic Survey.

[82] Assessment of the Impact of the European Patent Litigation Agreement (EPLA) on Litigation of European Patents, European Patent Office, February 2006.

277. With respect to the remedies available in the case of patent infringement, in general, a patent owner may seek an injunctive order against the infringement, demand damages or seek measures for recovery of damages to the reputation due to such infringement. With the development of patent-based business models and the ever-increasing complexity of technology, some raise concerns over the current practices regarding injunctive relief and the calculation of damages. For example, a number of business models today rely on the patented technology itself and the exploitation of patent rights without any production of patented products. Some of them may be research-based start-ups whose income is based on research results protected by patents. In other cases, they may be patent trolls whose only purpose is claiming damages or high settlement fees through aggressive lawsuits. Should injunctive relief be accorded to all patent infringement cases, and if not, what are the criteria for its application? Similarly, where a product involves thousands of patents, what would be a fair practice to calculate the damages caused by the infringement of one particular patent?

278. Since more parties face litigation not only in their home country but also abroad, questions regarding jurisdiction for infringement actions, such as cross-border injunction, and applicable law have been addressed at the international level in recent years, but the issues have been largely unresolved.[83] Further, since R&D cooperation and business alliances may be formed across borders, disputes regarding the rights of co-owners with respect to the exploitation of patents may be subject to questions of international private law as to which national law would be applicable in a specific case. National laws significantly differ in this regard, although in general, the freedom of the co-owners to regulate their relationship is acknowledged.[84]

279. As alternative mechanisms to settle disputes, mediation, arbitration or other alternative dispute resolutions (ADR) are available. ADR is appropriate for most intellectual property dispute, especially between parties from different jurisdictions. If well managed, it can save money and time, and parties may retain better control over the dispute resolution process.[85]

(b) Patent Thickets

280. In general the term “patent thicket” describes a situation where a product involves a web of patents that are owned by a number of different patentees so that a company which wants to commercialize the product is required to “clear” all the patents involved. This phenomenon is well-known in complex technologies, such as information and communication technologies, and in technical fields where a number of companies compete at the same level so that a fragmentation of patent ownership occurs. A changing research environment, increasing complexity and sophistication of technology and certain patenting strategies may have an influence on patent thickets.

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[83] WIPO Forum on Private International Law and Intellectual Property, Geneva, January 30 and 31, 2001 (see, in particular, WIPO documentWIPO/PIL/01/3); Convention on Choice of Court Agreement, June 30, 2005.

[84] AIPPI Question 194: The Impact of Co-ownership of Intellectual Property Rights on Their Exploitation; Resolution adopted on October 9, 2007.

[85] Further information about WIPO Arbitration and Mediation Center is available at: http://www.wipo.int/amc/en/.

281. Although there is no generally agreed objective definition of the term “patent thicket”, it suggests negative effects due to a “thicket” of patents, in particular, in the sense that third parties may be blocked from using a patented technology. The potential problems addressed are centered on the excessive transaction cost. Some suggest that cross-licensing may solve the vertical R&D and hold-up problems. By entering a cross licensing agreement, companies may secure freedom to operate. On the other hand, there is a risk that the problem is exacerbated because each competing company tries to build a bigger patent portfolio than competitors in order to create a better bargaining power to negotiate cross licenses. Another solution consists of patent pools to reduce a transaction cost, although some raise concerns about their compatibility with competition law (see Chapter IV(a)).

282. It can be expected that combination and assimilation of technologies will further develop in the future. The boundaries of so-called “fields of technology” are more and more blurred. The same is true for various industries. It is said that, in the future, communication, computing and consumer electronics (3C) will be integrated in a single home network. According to an OECD report, as innovation becomes more science-based, and multi-disciplinary research draws together researchers and innovators from different fields with different practices for protecting IP, limitations on research access could become more widespread.[86]

283. The results of the empirical studies in this area vary. One study found that, among academic researchers in the biomedical field, only 3% abandoned a project during the last three years because of too many patents covering their research field. It found that access to tangible research input was more problematic, as 20% of academic-to-academic requests were refused.[87] However, another survey found that 40% – including 76% of those in the biosciences industry – responded that their research was affected by difficulties in accessing patented technologies: 58% reported delays, 50% reported changes in their research plans, and 28% abandoned their research. The most common reason for changing or abandoning the research was overly-complex licensing negotiations (58%), followed by high individual royalties (49%).[88]

284. In sum, threats to an effective and efficient patent system are perceived in respect of the following key concepts:

- Accessibility: The access to the international patent system covers not only patent granting procedures but also patent enforcement and invalidation procedures. Overall costs of obtaining and enforcing patents are primary obstacles for enhancing the access to the international patent system and to the benefits derived therefrom. Further, lack of support structures in the social, legal and economic market frameworks is another obstacle. The concept of accessibility also includes accessibility to technologies within the framework of the international patent system at fair cost. Further, certain emerging technologies and some particular of business models have raised concerns as to the costs for third parties.

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[86] Valuation and Exploitation of Intellectual Property (OECD document DSTI/DOC(2006)5).

[87] *Reaping the Benefits of Genomic and Proteomic Research*, National Academy of Sciences [http://www.nationalacademies.org/gateway/pga/3330.html].

[88] Intellectual Property in the AAAS Scientific Community: A Descriptive Analysis of the Results of a Pilot Survey on the Effects of Patenting on Science, American Association for the Advancement of Science [http://sippi.aaas.org/survey/].

- Timeliness: The unprecedented increase in demand for patent rights and the subsequent increase of the workload for patent offices has resulted in longer prosecution periods. Although a number of international efforts have been undertaken to address this problem, the need to develop improved platforms to facilitate further cooperation has been advocated.

- Quality: A high legitimacy of the output of patent offices (for example, decisions to grant a patent or refuse a patent application) is desirable, since the costs arising from the mistakes made by patent offices will generally be borne by the users of the patent system, including the general public. An international mechanism to ensure the quality of patents would facilitate further cooperation among the offices. National patentability requirements are also under scrutiny, since national search and examination results increasingly have an international dimension.

- Flexibility: The flexibility of the international patent system has undergone a twofold test. The first test related to the harmonization of patent laws, with a view to enhance accessibility, legal certainty and quality of the system and promote international cooperation. The second one tested the diversity of participants in the international patent system as well as the geographic distribution of patents. Further, depending on the fields of technology and business models, innovation and exploitation mechanisms vary significantly. An international framework that is flexible enough to support and meet various needs is requested.

## IX. THE INNOVATION INCENTIVE IN THE CONTEXT OF PUBLIC POLICY OBJECTIVES

285. The patent system, as a conscious regulatory intervention to advance certain public policy goals, has long attracted skepticism as to its validity and public benefit. This is in part because of a fundamental paradox, an aspect of the patent system which is to some counter-intuitive – the patent system seeks to promote the production of public goods, yet it does this by creating exclusions from the public domain – even if these are carefully confined exclusive rights over certain well-defined forms of new technology. Ideally, as a policy tool, the patent system is intended to create those exclusive rights that are necessary to harness private interest sufficiently to create public goods – in this case, public goods being new technologies, effectively and practically made available to the public, without undue impositions on the public.[89] The first codification of the core doctrines of patent law in the common law legal tradition, the English Statute of Monopolies of 1624, was passed to promote competition and to abolish monopolies that hindered legitimate trade. It took aim at monopolies that had been granted "upon misinformations and untrue pretences of public good." The patent of invention was recognized as an exception under this law, confirming that some exclusive rights are necessary to promote innovation within a legal mechanism aimed at promoting competition.

[89] Judge Rader from the United States Court of Appeals for the Federal Circuit stated that the patent system can be viewed as a "generation gift" that offers free use of technology once a patent has been expired. [http://ipcenter.bna.com/pic2/ip.nsf/id/BNAP-6WAK96?OpenDocument].

286. This contrast between the public interest and the public domain leads to a second paradox or policy tension. Those very fields where the public interest and access to new technologies is most important – in general, the life sciences, and especially those technologies that provide for basic human needs (health, food, a safe environment) – can be the very same areas of technology where harnessing sufficient resources and focusing them on areas of greatest need can be most problematic, where market-oriented incentives are felt to be inadequate, and where public funded technological inputs can be most significant. It is therefore no coincidence that much of the current debate over the legitimacy and effectiveness of the patent system as a public policy tool focus on these specific areas of technology. This is most strikingly the case for biomedical technologies, and pharmaceuticals and vaccines in particular: thus there are proposals for alternative incentive structures focused on public health, such as prize funds[90] and an R&D treaty;[91] proposals for alternative innovation mechanisms for public health innovation, such as adaptations of 'open source' structures;[92] the debate over how public-funded IP should be effectively and appropriately managed typically concentrates on medical technologies,[93] because of the strong public interest. These proposals and models variously involve new ways of exercising patent rights, or avoiding use of patents altogether.

287. The analysis of the innovation effect of the patent system in the context of public policy objectives should be undertaken at macro and micro levels:

- At the *macro* level, how does the patent system function on the whole, in garnering new resources and focusing them on innovation that is in the public interest, in promoting effective disclosure and dissemination of technological knowledge together with metadata about technology actors and trends;

- At the *micro* level, how do individual actors – patent holders and patent licensees – actually behave, and how can and should they behave, in making choices over how to deploy patent rights, given the diverse array of options, ranging over exclusive exploitation, exclusive and non-exclusive licensing, open source or cross licensing structures that may create a defined technology commons,[94] waiving rights for

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[90] E.g. Love and Hubbard. The Big Idea: Prizes to Stimulate R&D for New Medicines. KEI Research Paper 2007:1.

[91] E.g. Public Health, Innovation and Intellectual Property Rights, Report of the Commission on Intellectual Property Rights, Innovation and Public Health, World Health Organization, 2006 (at 90-91): Recognizing the need for an international mechanism to increase global coordination and funding of medical R&D, the sponsors of the medical R&D treaty proposal should undertake further work to develop these ideas so that governments and policy-makers may make an informed decision.

[92] An early proposal included : Maurer et al. Finding cures for tropical diseases: is open source an answer? PLoS Medicine, 2004, 1:183–186.

[93] Rai, Arti K. and Eisenberg, Rebecca S., "Bayh-Dole Reform and the Progress of Biomedicine" . Law and Contemporary Problems, Vol. 66, No. 1 Available at SSRN: http://ssrn.com/abstract=348343 or DOI: 10.2139/ssrn.348343.

[94] E.g. BiOS (Biological Open Source) Licenses ('a legally enforceable framework to enable the sharing of the capability to use patented and non-patented technology, which may include materials and methods, within a dynamically expanding group of those who all agree to the same principles of responsible sharing, a "protected commons"'), at http://www.bios.net/daisy/bios/licenses/398.html.

certain users or humanitarian licensing,[95] humanitarian and tiered pricing, and other public-welfare-oriented licensing strategies.

288. The net impact of the system depends on the broader policy and legal settings that shape the system at the macro level, but also, critically, on the cumulative impact of millions of decisions and actions taken at the micro level.

289. The macro analysis – analysis of the system as a system – can focus on how it functions in its own terms, such as the likelihood that the system, in practice, corresponds to the objectives established for it in principle – in other words, the degree to which patents, as actually granted, conform with the public interest as defined in the patentability criteria, and in turn whether the system is accordingly functioning to promote the development of beneficial new technologies or is rewarding opportunistic use of gaps in the documented prior art or trivial adaptations of established technologies. The incentive to innovate, however, is also measured in terms beyond the patent system, in the broader realm of public policy and public international law. Hence there is debate about the macro analysis of how the incentive effect of the patent system interacts with other regulatory mechanisms and how it affects other policy interests – for example, whether granting of some biotechnology related patents contradicts the principles of the Convention on Biological Diversity, and whether permitting patents on pharmaceuticals unacceptably impedes access to affordable healthcare, thus frustrating public health programs.

(a) Health

290. It is, understandably enough, the field of public health in which the incentive effect and the public welfare impact of the patent system are most critically under scrutiny – this being where public welfare is most at stake. This debate has not been confined to conventional IP policy forums. A major task of the World Trade Organization in the first half of this decade has been the establishment, under the TRIPS Agreement, of a mechanism calculated to recalibrate the balance between incentive and access within the patent system, with a focus on the public health needs of developing countries with limited industrial capacity. It is a measure of the significance of this issue that the sole amendment agreed to in the entire complex package of WTO agreements - since the WTO was established in 1995 - concerns patents and public health. The World Health Organization has undertaken important initiatives to promote policy analysis and debate in this area as well, through the Commission on Intellectual Property, Innovation and Public Health (CIPIH) and the work of the Intergovernmental Working Group (IGWG).

291. Debate and analysis of the health policy implications of the patent system has addressed both the macro and micro levels as identified above. The initial focus has been on the macro level – concerning such questions as the overall legal framework for the international patent system, the extent of the policy space defined by the legal framework, and the flexibilities available within that space. But there has been an increasing focus also on the micro level, or the manner in which individual choices are made (i) concerning the granting of patents (strengthening the capacity of patent examiners to make optimal assessments on patentability), (ii) concerning the licensing and other exercise of patent rights (such as humanitarian use and open source licensing options), (iii) concerning the exercise of

[95] Brewster et al, "Facilitating Humanitarian Access to Pharmaceutical and Agricultural Innovation" in *MIHR-PIPRA IP Handbook of Best Practices*, 2007.

exceptions to patent rights (such as government use and compulsory licensing authorizations) and (iv) concerning the enforcement of patent rights (such as the grant of injunctions and the quantum of damages to be awarded). Taken together, these macro and micro factors have potentially enormous influence on the overall impact of the patent system in promoting public health. A key challenge for the international public health and IP policy communities is how systematically to work through this complex range of issues, to assess the impact and implications of the many choices available within the overall framework of the system.

292. In the meantime, there is a widespread view that the empirical basis for debate and analysis on the relationship between patents and public health needs strengthening through the greater availability of clear, accessible and geographically representative information about patenting activity in the domain of human health. WIPO is currently developing, in dialogue and partnership with the WHO, a range of pilot landscapes on patents in key public health areas, with a view to developing more comprehensive information resources for public health policymakers in line with the priorities and needs that they set.

(b) Biological Diversity and Traditional Knowledge

293. The international patent system had until recently operated with the conventional assumption that traditional knowledge (TK) and biological diversity were a background input to inventive activity and not of direct operational concern to the practical functioning of the patent system. This past assumption has been vigorously challenged, at both the micro and macro levels of analysis, on the basis of concerns that:

- legal definitions and their practical implementation have systematically excluded certain TK and genetic resources from the purview of patent search and examination for patentability;

- where patent applications and granted patents make direct use of TK and genetic resources to attain the claimed invention, in some cases patent claims are made out directly to cover pre-existing TK and genetic resources in circumstances that raise questions about; and

- where genetic resources and TK are used in claimed inventions, there may not be adequate arrangements to ensure that the resources and knowledge were used with the prior informed consent of the custodians concerned, and that benefits of such use are not shared equitably in line with the principles and objectives of the Convention on Biological Diversity (CBD).

294. The CBD's objectives concern the conservation of biological diversity, sustainable use of its components, and equitable sharing of benefits arising from its use. It recognizes the role of TK relating to biodiversity. The challenge for the IP system, and for the patent system in particular, is to recognize genuine innovation, while operating consistently with the principles of prior informed consent and equitable benefit sharing. Two essential scenarios are put forward in the discussion:

- the direct patenting of source material: a patent (or application) directly claims as an invention genetic resources (or associated traditional knowledge) obtained from a separate source;

- patenting inventions derived from source material: a patent (or application) claims an invention that is somehow derived from or somehow makes use of genetic resources or TK.

295. Background questions that are under active debate concern how to guarantee that genetic resources or TK have been legitimately accessed, how to ensure patents as granted are consistent with equitable benefit-sharing, and how the patent system can overall promote and advance equitable benefit-sharing.

296. The responses to these questions again operate at the macro and micro levels. At the macro level, international proposals have been developed in several fora – the CBD, the WTO and in several WIPO fora – that would link the grant or exercise of patent rights more directly and explicitly to the circumstances of access and the nature of use of genetic resources (and associated TK). Such "disclosure requirements" would create or confirm a legal linkage between genetic resources or TK used and the claimed invention. Their effective legal scope may in some cases go beyond disclosure *per se* (that is, beyond a simple requirement to provide information about genetic resources or TK), and may have an effect on substantive legal questions such as the patentability of invention as such; the applicant's entitlement to apply for or to be granted a patent; and the enforcement of patents that are considered to be obtained inequitably. Other systematic responses to these concerns have included practical steps within the PCT system and the International Patent Classification for the more systematic and appropriate consideration of relevant TK and genetic resources in the course of patent search and examination, the development of guidelines and other resources for patent authorities to deal with TK and genetic resources in a more informed and effective manner, and the strengthening of the legal and practical framework for the recognition of relevant TK (including recognition of orally disclosed TK).

297. Supplementing these core macro level questions, there is considerable activity to ensure more positive linkages between the patent system and TK and genetic resources at the practical, micro level – focusing on patent search and examination, so that in practice there is reduced likelihood of illegitimate patents being granted that claim genetic resources/TK directly or non-inventive derivatives of genetic resources/TK, but also to facilitate the equitable sharing of benefits from legitimate patenting of derivative inventions, through the development of practical capacity and awareness on the part of custodians of TK and genetic resources, and work on guidelines to support choices in the way mutually agreed terms for access to genetic resources are structured so as to safeguard equitable sharing of resulting benefits.

(c) Ethics

298. In addition to the general legal and policy framework, life sciences research and development are subject to particular scrutiny from an ethical perspective. Life sciences research touches on fundamental human needs such as human health, food and a safe environment, and on fundamental values such as human dignity and integrity: it is therefore subject to strong public interest and ethical considerations. It is a sector which has a strong component of public and publicly-funded or philanthropically funded research, and many important inputs to applied research and development can be traced to public sources. The products of life sciences research are typically subject to intensive and lengthy regulatory processes, which (i) create the need to establish appropriate mechanisms and incentives to generate necessary data on the impact of new technologies (such as clinical trials for the safety and efficacy of new pharmaceuticals), and in turn lead to (ii) concerns about access to

and use of such data. There can be significant ethical questions regarding genetic inputs to research, whether these are human genetic resources or genetic resources obtained through bioprospecting or research collaboration.

299. These ethical concerns flow also into the use of patents for life sciences research. These concerns arise at four distinct levels:

- The ethical aspects of a technology as such: certain practices may be considered unethical and contrary to morality and consequently simply prohibited. However, such prohibition alone does not automatically prevent the grant of patents related to this knowledge. In addition, not all countries may have the same restrictions. As a result, many patent laws exclude explicitly the grant of patents where the exploitation of inventions is considered to be contrary to *ordre public* or morality.

- The ethical aspects of national authorities granting exclusive IP rights over a technology: for instance, patenting genes has been controversial, from the point of view of whether it is, for instance, ethically sound for society to grant exclusive property rights over nucleotide sequences that are derived from the human genome, and what constraints should apply.

- The ethical aspects of an individual seeking exclusive IP rights over a technology: for instance, the argument has been made that there should be legal or ethical constraints on seeking patents for an invention based on genetic resources or traditional knowledge obtained without prior informed consent and without equitable benefit sharing, and legal measures have been introduced in national laws and proposed for international law to enforce this. Similarly, there is a debate over the patenting of inventions derived from research on human subjects, without their explicit consent not to medical treatment as such but to the commercial use and patenting of such derivatives.

- The ethical aspects of the forms of exercising exclusive rights over a technology by an IP right holder: for instance, there has been a debate over the ethical basis of exclusive or restrictive licensing of diagnostic tools that are in themselves the legitimate subject matter of valid patents.

300. Such ethical questions, by their very nature, are dependent on the cultural and social values of different communities and societies, leaving questions over the appropriate role of an international patent system which spans numerous different communities and considerable diversity in ethical views and moral systems. A clear distinction may be made, on the one hand, between the recognition, within the international system, of the role and significance of ethical and moral considerations – a macro level question, that may be dealt with on an international plane; and on the other hand specific findings and assessments about the ethical implications of a particular patent or patented technology – a micro level question, which is likely to be dealt with in diverse ways in different societies.

301. At the international level, four general trends can be discerned, however:

- Transparency: The Universal Declaration on Bioethics and Human Rights calls for the greatest possible flow and the rapid sharing of knowledge concerning medical, scientific and technological developments. The patent system has a fundamental role to play in promoting this flow of timely information, disclosing new

technologies at an early stage in their development as well as the identity of inventors, commercial enterprises, as well as governmental and educational institutes that are involved in the creation and development of those technologies. The transparency of the patent system may therefore help to support ethical scrutiny of biotechnology and can help to inform the bioethics debate, provided more accessible information resources are available for policymakers.

- Consent: Bioethics cases have concerned the use of human tissue as inputs for research, leading to patented inventions, raising questions about prior informed consent of the human subjects concerned, and whether consent extends to the patenting of outputs from research. A similar debate applies to other genetic resources, such as genetic resources obtained through bioprospecting, which are subsequently used in research to create new technologies for which patent protection may be sought. For instance, the CBD, at the level of international law, provides that the use of genetic resources is subject to the principle of prior informed consent. Consent is a key issue in bioethics, and it can be helpful to explore the relationship and the boundaries between legal and ethical aspects of consent to use genetic inputs to research.

- Equitable sharing of benefits: A further crosscutting theme is how the benefits of research should be shared, and what it means for the sharing to be equitable. This potentially has both legal and ethical aspects. For example, the CBD establishes as an international legal principle that the benefits of research on genetic resources should be equitably shared. Similarly, articulating a principle at the level of bioethics, the UDBHR calls for 'equitable access to medical, scientific and technological developments as well as the greatest possible flow and the rapid sharing of knowledge concerning those developments and the sharing of benefits, with particular attention to the needs of developing countries.' As one means of generating benefits from biotechnological research, the IP system and in particular the patent system could have a potential ancillary role in helping to identify and equitably apportion such benefits.

- Accommodating different value systems: ethics may be guided by the community's sense of morality and the values of the community, raising questions about how these different value systems should be recognized in the interpretation and application of exceptions in patent law for technology that is contrary to morality. Generally, the scope for ethical assessments is marked out at the international level, but the application and assessment of ethical questions remains within the province of national law. Thus at the level of international law, States may choose to exclude from patent protection inventions where the prevention of the commercial exploitation of those inventions within their territory is necessary to protect *ordre public* or morality.[96] But it is at the national level that a country may choose to pass a law giving effect to such a 'morality' exclusion, and when such a law is implemented, a decision maker would be required to assess whether the commercial exploitation of a certain technology would be contrary to *ordre public* or morality from the standpoint of the prevailing ethical values of that country.

[96] Article 27.2, WTO TRIPS Agreement.

## X. DEVELOPMENT RELATED CONCERNS

302. While attempts have been made to address the development dimension in relation to each of the issues discussed in the previous parts of the present document, this chapter sets out a summary of some of the most frequently raised aspects relating to development.

303. Undoubtedly, development is one of the most urgent challenges that the international community is facing today. Its importance is acknowledged not only for the benefit of developing countries but also for the benefit of developed nations. In the context of the United Nations, the United Nations Millennium Declaration was adopted in 2000 in order to respond to the world's major development challenges. The Declaration recognizes that the central challenge is to ensure that globalization becomes a positive force for all. In addition to an intensified globalization, the world is in a transition to a knowledge-based economy where knowledge will become a strong competitive advantage in the globalized market.

304. Against this backdrop, the implementation costs and benefits of the international patent system for developing countries have been vastly debated in the past years. In WIPO, a proposal for a development agenda for WIPO was first launched by Argentina and Brazil and supported by an additional 12 developing countries at the 2004 WIPO General Assembly. The proposal resulted in the adoption of a Development Agenda consisting of 46 recommendations to enhance the development dimension of the Organization's activities, including the establishment of a Committee on Development and Intellectual Property (CDIP), which will monitor, assess, discuss and report on the implementation of all recommendations adopted, in coordination with relevant WIPO bodies, and will discuss IP and development-related issues as agreed by the Committee and decided by the General Assembly. In the context of the deliberations on the international patent system, among the six clusters of activities adopted, the proposals in Cluster B (norm-setting, flexibility, public policy and public domain), Cluster C (technology transfer, information and communication technologies (ICT) and access to knowledge) and Cluster D (assessment, evaluation and impact studies), may be considered to be of particular relevance.[97]

305. The patent system was created as a mechanism to promote technological development, diffusion and transfer of technology and private investment flows. The international patent system is aiming at achieving, or at least facilitating, those goals at the international level. However, a fundamental concern has been raised in respect of the international patent system, namely that the current system runs counter to, rather than to be complementary to, the individual national efforts of development. As the UNCTAD's Innovation Capability Index suggests, there are large gaps among countries in terms of technological activity and human capital. This gap does not just exist between developed and developing countries, but also among the developing countries and countries in transition economies.[98] At one end of the spectrum, there are countries with high technological activities and highly skilled human capital. Other countries are characterized by moderate technological activities, but by a high

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[97] General Report Adopted by the Assemblies (WIPO document A/43/16) [http://www.wipo.int/edocs/mdocs/govbody/en/a_43/a_43_16-main1.doc].

[98] UNCTAD, World Investment Report 2005 – Transnational Corporations and the Internationalization of R&D. The Report also found that major businesses are shifting more of their R&D to selected developing countries as a reaction to increased competition. The types of such R&D have been shifting towards technology developments for regional or global markets and applied research.

level of skilled human capital capable of absorbing imported technology, thus involving a risk of imitation and free-riding. At the other end of the spectrum, there are countries which have little technological activity and are poorly connected with the global network of learning and knowledge creation.

306. In view of this innovation capacity gap, the question has been raised as to whether, and to what extent, the international patent system is supportive of the national efforts of development irrespective of the level of the country's economic development. First, there are concerns about the costs incurred vis-à-vis the benefits flowing from the international patent system. Some say that access to the international patent system by innovators in developing countries is prevented due to its high costs.[99] As described in Chapter VIII, the cost of obtaining, maintaining and enforcing patents at the international level is one of the issues at the heart of the challenges to the efficiency of the international patent system. Despite the globalized economy, the territoriality of the patent system requires competitors and third parties to challenge the validity of patents and to pursue litigations in foreign countries.

307. Further, one of the functions of the patent system is the diffusion of technology through the publication of patent applications and patents. As indicated in Chapter III, patent information is not only a source of technological knowledge, but also a source of information useful for business and national policy decision-making. However, the cost to make such information easily available to the public as well as the lack of infrastructure and support mechanisms at the national level make it difficult for some countries to fully benefit from patent information. From the viewpoint of national governments, establishing and maintaining a national patent administration is costly. In particular, substantive search and examination of patent applications require both financial and human resources, which may not always be easily available in all countries. As indicated in Chapter VI, designing a national patent system that maximizes the quality and validity of granted patents in an environment of limited resources is a real challenge.

308. Secondly, there are concerns that the international patent system does not sufficiently allow countries to tailor their national patent system in a way such as to respond to national development and other policy objectives.

309. Not only in developing countries, but also in developed countries, the international procurement of technology has been recognized as an essential means to stimulate innovative activities and to be competitive in globalized markets. Given the large innovation capability gap, countries with a lower level of technological development rely extensively on technology transfer from countries with more technological capacities. In the context of the WIPO Development Agenda, some countries have raised concerns that technology transfer does not yield the expected results and that unwillingness to transfer technology might cause a competitive threat. It is said that sustainable economic development requires active, continuous technological efforts by enterprises, along with government policies that help firms attract, absorb and adapt technologies.[100] In addition to technological skills, expertise to negotiate fair technology transfer agreements would be one of the elements for successful

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[99] Precisely speaking, such concerns are also valid for innovators from developed countries who do not have enough financial means. However, in those countries, supportive market mechanisms, such as joint ventures, may be available.

[100] UNCTAD, World Investment Report 2005 – Transnational Corporations and the Internationalization of R&D.

technology transfer. As indicated in Chapter IV, the contributions of the international patent system to transfer of technology are multifaceted, and the concerns surrounding the international patent system and technology transfer are equally multifaceted.

310. Another concern often raised by developing countries is the perceived negative impact of the international patent system on fundamental public policy objectives such as public health, nutrition, education and the conservation of biological diversity. If any international instrument was to be established, it is argued that it should acknowledge and seek to preserve public interest flexibilities and the policy space of member States. In particular, the importance of safeguarding the exceptions and limitations existing in the domestic laws of member States is highlighted. As indicated in Chapter IX, in the context of public policy objectives and the innovation incentive which the patent system is intended to achieve, the issues surrounding public health and access to drugs have been intensively debated in the last years, as some argue that patents restrict access to such goods (as well as to knowledge) and their exploitation by those who might need it most. Another area of concern is how the international patent system could constitute a supportive mechanism to pursue the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of benefits arising out of the utilization of genetic resources, as stated in the Convention on Biodiversity.

311. Thirdly, concerns have been raised as to how to implement, in the national laws, the public policy flexibilities that best fit the needs of each country. The current international frameworks allow member States to exercise their power to provide a number of mechanisms to prevent abusive uses of patent rights (for example, measures against anticompetitive patent licensing practices and issuance of compulsory licenses) and that take into account the public interest.

312. Many of the above concerns have been widely expressed in the SCP when a proposal designed to limit the draft SPLT to the definition of prior art, the grace period, novelty and inventive step was made. For a detailed report of those discussions, see Chapter V(g). Those who supported the proposal stated that it was in the common interest of all member States to improve patent quality, simplify the procedures and to reduce the costs and duplication of work by patent offices. In order to reach those objectives, it was argued that an agreement on more consistent and common standards on core prior art-related principles of patent law would facilitate mutual cooperation among WIPO member States and provide the best opportunity for meaningful results for both developed and developing countries in the near future.

313. Those who opposed the proposal, however, were of the view that the concerns of developing countries, such as the cross-cutting nature and the significant implication of this process on public policy objectives for developing countries, together with the importance of subjects such as public interest, flexibility on existing intellectual property laws, transfer of technology, curbing of anti-competitive practices and disclosure of the origin of genetic resources in patent applications, needed to be duly considered. In order to strike a balance between the creation of the international intellectual property system with demands on upward harmonization of national patent laws, on the one hand, and the safeguarding of existing flexibilities and national policy space, on the other, it was considered that negotiations on the SPLT should take on board issues of concern to all Members as a single undertaking.

314. In sum, the concerns of developing countries appear to be twofold. The first question is whether the current, or any future, international patent system could be compatible with national policy objectives. As demonstrated by the process that led to the adoption of a protocol amending the TRIPS Agreement, multilateral fora to improve the international patent system exist, and can function effectively, where a specific element of the international patent system is recognized to impinge on sectors of vital importance to the public interest. The second question is how to implement, and take advantage of, the international patent system at the national level taking into consideration the existing public interest flexibilities embedded in the international instruments. Given the different levels of development, there might be no answer that fits all. Development is a long-term goal, and the determination of how the international patent system could contribute to development may require long-term strategies.

*315. The SCP is invited to consider the information contained in the present document in defining the future work of the SCP.*

[Annexes follow]

ANNEX I

SUMMARY OF TREATIES IN THE FIELD OF PATENTS[101]

| Treaty | | Adopted in | No. of Parties[102] | Description |
|---|---|---|---|---|
| WIPO | Paris Convention | 1883 | 172 | - Applies to industrial property<br>- Provides framework principles such as the national treatment, the right of priority and the independence of patents granted in different Contracting States for the same invention<br>- Lays down common rules such as inventors' right to be named in the patent, compulsory licenses, period of grace for the payment of fees and temporary protection of inventions at certain international exhibitions |
| | PCT | 1970 | 138 | - Agreement for international cooperation with regard to the filing, searching, publication and preliminary examination of patent applications and dissemination of technical information<br>- Establishes international filing and processing system for patent applications<br>- Regulates formal requirements of international applications |
| | Strasbourg Agreement | 1971 | 58 | - Establishes the International Patent Classification (IPC) |
| | Budapest Treaty | 1977 | 68 | - Agreement that recognizes the effect of a deposit of a microorganism or patent purposes with any "international depositary authorities" |
| | PLT | 2000 | 17 | - Provides, in general, maximum sets of formality requirements in respect of national/regional patent applications and patents |
| WTO | TRIPS Agreement | 1994 | 151 | - Internationally-agreed trade rules for intellectual property rights<br>- Incorporates most of the substantive provisions of the Paris Convention<br>- Provides framework principles such as national treatment and most-favoured-nation principle<br>- Establishes minimum standards concerning the availability, scope and use of patent rights, such as patentable subject matter, rights conferred by a patent and exceptions to such rights and enforcement of intellectual property rights, including patents |

[101] Full texts of WIPO-administered treaties and lists of Contracting Parties to those treaties are available at: http://www.wipo.int/treaties/en/

[102] As of March 12, 2008

[Annex II follows]

ANNEX II

# CERTAIN ASPECTS OF NATIONAL/REGIONAL PATENT LAWS*

(1) Prior Art

| Country | Prior Art |
|---|---|
| Albania | 1. Everything made available to the public before filing date (priority date).<br>2. Contents of subsequently published Albanian patent applications with an earlier filing date (priority date). |
| Algeria | Everything made available to the public by a written or oral disclosure, use or other means before the filing date (priority date). |
| Andorra | 1. Everything made available to the public by a written or oral description, use or in any other way before the filing date (priority date).<br>2. Contents of subsequently published Andorra patent applications with an earlier filing date (priority date). |
| Argentina | All technical knowledge made public by oral or written description, exploitation or other means of dissemination or communication before the filing date (priority date). |
| Armenia | 1. All information available before the filing date (priority date).<br>2. Contents of subsequently published or granted Armenian applications for inventions and utility models with an earlier filing date (priority date). |
| Australia | 1. Information from documents and acts publicly available in Australia before the filing date (priority date).<br>2. Patent-information in documents publicly available before the filing date (priority date) outside Australia.<br>3. Contents of subsequently published Australian patent applications with an earlier filing date (priority date). |

* Information is gathered from the primary legislation (for example, a patent law of an intellectual property code). The secondary legislation, such as Regulations under the primary legislation, has not been consulted.

| Country | Prior Art |
|---|---|
| Austria | 1. Everything made available to the public by a written or oral description, use or other means before the filing date (priority date).<br>2. Contents of certain Austrian, European and international patent applications and Austrian utility model applications with an earlier filing date (priority date). |
| Bahrain | Everything disclosed to the public by means of written or oral disclosure, use, or any other way before the filing date (priority date). |
| Barbados | Everything disclosed to the public in a tangible form by oral description or other means before the filing date (priority date). |
| Belarus | 1. Information made available to the public before the filing date (priority date).<br>2. Contents of Belarus patents and applications for inventions and utility models with an earlier filing date (priority date). |
| Belgium | 1. Everything made available to the public by a written or oral description, use or in any other way before the filing date (priority date).<br>2. Contents of certain subsequently published Belgian, European and international patent applications and Belgian utility model applications with an earlier filing date (priority date). |
| Belize | Anything disclosed to the public by a written or oral description, use or other means before the filing date (priority date). |
| Bolivia | 1. Everything made available to the public by written or oral description, use, marketing or other means before the filing date (priority date).<br>2. Contents of Bolivian patent applications with an earlier filing date (priority date) which are subsequently published or made available for public inspection. |
| Bosnia and Herzegovina | 1. Everything made available to the public by a written or oral description, use or other means before the filing date (priority date).<br>2. Contents of certain Bosnia and Herzegovina, European and international patent applications with an earlier filing date (priority date) made available to the public on or after that date. |
| Brazil | 1. Everything made accessible to the public by a written or oral description, use or by any other means before the filing date (priority date).<br>2. Contents of subsequently published Brazilian and certain international patent applications with an earlier filing date (priority date). |

| Country | Prior Art |
|---|---|
| Bulgaria | 1. Everything made available to the public by a written or oral description, use or in any other way before the filing date (priority date).<br>2. Contents of subsequently published Bulgarian, European and international patent applications designating Bulgaria with an earlier filing date (priority date). |
| Canada | 1. Subject-matter available to the public before the filing date (priority date).<br>2. Contents of Canadian patent applications with an earlier filing date (priority date). |
| Chile | 1. Everything disclosed or made available to the public by publication in tangible form, sale or marketing or use, or in any other manner, before the filing date (priority date).<br>2. Contents of Chilean patent and utility model applications with an earlier filing date (priority date) made available to the public on or after that date. |
| China | 1. Public disclosure in any publication, or anything which been publicly used or made known to the public in China by any other means, before the filing date (priority date).<br>2. Contents of subsequently published Chinese patent and utility model applications with an earlier filing date (priority date). |
| Colombia | 1. Everything made available to the public by a written or oral description, use, marketing or other means before the filing date (priority date).<br>2. Contents of Colombian patent applications with an earlier filing date (priority date) which are subsequently published or made available for public inspection. |
| Costa Rica | 1. Everything disclosed or made available to the public anywhere in the world and by any means before the filing date (priority date).<br>2. Contents of non-published patent applications with an earlier filing date (priority date) but only if said contents remain included in the previous patent application upon publishing. |
| Croatia | 1. Everything made available to the public by a written or oral description, use or in any other way before the filing date (priority date).<br>2. Contents of Croatian patent applications with an earlier filing date (priority date) made available to the public on or after that date. |
| Cyprus | 1. Everything made available to the public in a written or other graphic form, or by oral description, use or in any other way before the filing date (priority date).<br>2. Contents of subsequently published Cyprus applications with an earlier filing date (priority date). |

| Country | Prior Art |
|---|---|
| Czech Republic | 1. Everything made available to the public by a written or oral description, use or in any other way before the filing date (priority date).<br>2. Contents of certain Czech, European and international patent applications and Czech utility model applications with an earlier filing date (priority date) made available to the public on or after that date. |
| Denmark | 1. Everything made available to the public by a written description, use or in any other way before the filing date (priority date).<br>2. Contents of certain Danish, European and international patent applications and Danish utility model applications with an earlier filing date (priority date) published on or after that date. |
| Dominica | Everything disclosed to the public by oral or written description, use or in any other way before the filing date (priority date). |
| Ecuador | 1. Everything made available to the public by a written or oral description, use, marketing or other means before the filing date (priority date).<br>2. Contents of Ecuador patent applications with an earlier filing date (priority date) which are subsequently published or made available for public inspection. |
| Egypt | 1. Anything publicly described or used before the filing date (priority date).<br>2. Contents of Egyptian and foreign patents granted, and applications filed, before the filing date (priority date). |
| El Salvador | 1. Everything disclosed or made available to the public by publication in tangible form, oral disclosure, sale or marketing, use or any other means before the filing date (priority date).<br>2. Contents of subsequently published El Salvador patent applications with an earlier filing date (priority date). |
| Estonia | 1. Everything made available to the public by a written or oral description, use, or in any other way before the filing date (priority date).<br>2. Contents of Estonian patent and utility model applications with an earlier filing date (priority date). |
| Finland | 1. Everything made available to the public in writing, in lectures, by public use or otherwise before the filing date (priority date).<br>2. Contents of certain Finnish, European and international patent applications, and Finnish utility model applications, with an earlier filing date (priority date) which are made available to the public. |

| Country | Prior Art |
|---|---|
| France | 1. Everything made available to the public by a written or oral description, use, or in any other way before the filing date (priority date).<br>2. Contents of certain French, European and international patent applications with an earlier filing date (priority date) published on or after that date. |
| Georgia | 1. Data made available to the public from a written or verbal description, public use or other source before the filing date (priority date).<br>2. Contents of Georgian patent and utility model applications with an earlier filing date (priority date). |
| Germany | 1. Anything made available to the public by a written or oral description, use, or in any other way before the filing date (priority date).<br>2. Contents of certain German, European and international patent with an earlier filing date (priority date) published on or after that date. |
| Ghana | 1. Everything made available to the public by a written or oral disclosure, use, exhibition or other non-written means before the filing date (priority date).<br>2. Contents of Ghana patent and utility model applications with an earlier filing date (priority date) which are made available to the public. |
| Greece | Anything made available to the public by a written or oral disclosure or any other way before the filing date (priority date). |
| Guatemala | 1. Everything disclosed or made available to the public anywhere in the world and by any means before the filing date (priority date).<br>2. Contents of patent applications with an earlier filing date (priority date) and published after the filing date (priority date) of the patent application under question. |
| Hungary | 1. Everything made available to the public by a written description, oral communication, use or in any other way before the filing date (priority date).<br>2. Contents of Hungarian patent and utility model applications, and certain European and international applications, with an earlier filing date (priority date) published on or after that date. |
| Iceland | 1. Everything made available to the public in writing, in lectures, by public use or otherwise before the filing date (priority date).<br>2. Contents of certain Icelandic, European and international patent applications with an earlier filing date (priority date) which are made available to the public. |

| Country | Prior Art |
|---|---|
| India | Publication in any document or used in India or elsewhere in the world before the filing date (priority date). |
| Indonesia | 1. Everything made available to the public by a written or oral description, use, or in any other way before the filing date (priority date).<br>2. Contents of earlier Indonesian patent applications published on or after filing date (priority date). |
| Ireland | 1. Everything made available to the public by a written or oral description, use, or in any other way before the filing date (priority date).<br>2. Contents of earlier Irish patent applications published on or after filing date (priority date). |
| Israel | Anything made available to the public before the filing date (priority date) by a written, visual, audible or any other description, use, exploitation or exhibition. |
| Italy | 1. Everything made available to the public by a written or oral description, use, or in any other way before the filing date (priority date).<br>2. Contents of certain Italian, European and international patent applications with an earlier filing date (priority date) made available to the public on or after that date. |
| Japan | 1. Anything which, before the filing date (priority date), was publicly known or worked, published, or made available to the public through electric telecommunication lines.<br>2. Contents of certain Japanese patent and utility model applications with an earlier filing date (priority date). |
| Jordan | Everything disclosed to the public by a written or oral description, use, or in any other way before the filing date (priority date). |
| Kenya | 1. Everything made available to the public by a written or oral disclosure, use, exhibition or other non-written means before the filing date (priority date).<br>2. Contents of Kenyan and international patent applications with an earlier filing date (priority date) made available to the public. |
| Kyrgyz Republic | 1. Any information generally available to the public before the filing date (priority date).<br>2. Contents of Kyrgyz patent applications with an earlier filing date (priority date). |
| Latvia | 1. Everything made available to the public by a written or oral disclosure or use before the filing date (priority date).<br>2. Contents of published Latvian patent applications with an earlier filing date (priority date). |

| Country | Prior Art |
|---|---|
| Liechtenstein | 1. Everything made available to the public by a written or oral disclosure, use or any other means before the filing date (priority date).<br>2. Contents of Swiss patent applications with an earlier filing date (priority date).<br>(in accordance with the agreements with Switzerland and the European Economic Area (EEA)) |
| Lithuania | 1. Everything published or publicly used before the filing date (priority date).<br>2. Contents of Lithuanian patent applications with an earlier filing date (priority date) published on or after that date. |
| Luxembourg | 1. Everything made available to the public by a written or oral disclosure, use or in any other way before the filing date (priority date).<br>2. Contents of certain Luxembourg, European and international patent applications with an earlier filing date (priority date) published on or after that date. |
| Malaysia | 1. Everything made available to the public by a written publication, oral disclosure, use or in any other way before the filing date (priority date).<br>2. Contents of subsequently granted Malaysian patent applications with an earlier filing date (priority date). |
| Malta | 1. Everything made available to the public in a written or other graphic form, oral description, use or in any other way before the filing date (priority date).<br>2. Contents of certain subsequently published Malta, European and international patent applications with an earlier filing date (priority date). |
| Mauritius | Everything disclosed to the public by publication in tangible form, oral disclosure, use or in any other way before the filing date (priority date). |
| Mexico | 1. The body of technical knowledge that has been made public by oral or written description, by use or by any other means or dissemination of information both within the country and abroad;<br>2. All patent applications filed in Mexico prior to the filing date (priority date) and still pending, even though the publication referred to in article 52 occurs at a later date. |
| Moldova (Republic of) | Everything made available to the public before the filing date (priority date). |
| Mongolia | Any prior product or process. |
| Morocco | Everything accessible to the public by written or oral disclosure, use or any other means before the filing date (priority date). |

| Country | Prior Art |
|---|---|
| Mozambique | Everything made available to the public by verbal description, use or any other way before the filing date (priority date). |
| Netherlands | 1. Everything made available to the public by written or oral description, use or in any other way before the filing date (priority date).<br>2. Contents of previously filed Netherlands patent applications entered on the patent register on or after the filing date (priority date), and of certain European and international patent applications with an earlier filing date (priority date) published on or after that date. |
| New Zealand | 1. Contents of granted patents published before the filing date (priority date) and dated within 50 years before the filing date.<br>2. Other documents published before the filing date (priority date), other than foreign patent applications filed more than 50 years before the filing date and abridgments and extracts of such applications.<br>3. Any use in New Zealand before the filing date (priority date). |
| Nicaragua | 1. Everything disclosed or made accessible to the public in any form before the filing date (priority date).<br>2. Contents of subsequently published Nicaraguan patent applications with an earlier filing date (priority date). |
| Nigeria | Everything made available to the public by a written or oral description, use or in any other way before the filing date (priority date). |
| Norway | 1. Everything made available to the public in writing, in lectures, by use or otherwise before the filing date (priority date).<br>2. Contents of certain Norwegian and international patent applications with an earlier filing date (priority date) made available to the public. |
| Oman | The prior art is not prescribed. |
| Pakistan | 1. Everything made available to the public by publication in tangible form or oral disclosure, use or in any other way before the filing date (priority date).<br>2. Contents of complete specifications and priority documents published in respect of Pakistan applications with an earlier filing date (priority date). |
| Panama | 1. Everything disclosed or made accessible to the public by tangible publication, oral disclosure, sale or marketing, use or any other means before the filing date (priority date).<br>2. Contents of subsequently published Panama patent applications with an earlier filing date (priority date). |

| Country | Prior Art |
|---|---|
| Papua New Guinea | Everything disclosed to the public by tangible publication, oral disclosure, use or any other way before the filing date (priority date). |
| Peru | 1. Everything made available to the public by a written or oral description, use, marketing or other means before the filing date (priority date).<br>2. Contents of Peru patent applications with an earlier filing date (priority date) which are subsequently published or made available for public inspection. |
| Philippines | 1. Everything made available to the public before the filing date (priority date).<br>2. Contents of Philippines patent, utility model and industrial design applications with an earlier filing date (priority date). |
| Poland | 1. Everything made available to the public by a written or oral description, use, displaying or disclosure in any other way before the filing date (priority date).<br>2. Contents of subsequently published Polish patent and utility model applications with an earlier filing date (priority date). |
| Portugal | 1. Everything made available, inside or outside the country, to the public by description, use or other means before the filing date (priority date).<br>2. Contents of non published patent and utility model requests of a previous date than that of the patent application with effect in Portugal. |
| Republic of Korea | 1. Inventions publicly known, worked, described in a publication or made available to the public through electric telecommunication lines before the filing date (priority date).<br>2. Contents of subsequently laid open or published Republic of Korea patent or utility model applications with an earlier filing date (priority date). |
| Romania | Everything made available to the public before the filing date (priority date). |
| Russian Federation | 1. Any information made available to the public before the filing date (priority date).<br>2. Contents of published Russian Federation patent and utility model applications and grants, international and of Eurasian applications with an earlier filing date (priority date), and published information thereon. |
| Saint Lucia | 1. Everything made accessible to the public by a written or oral description, use or in any other way before the filing date (priority date).<br>2. Contents of patent applications with an earlier filing date (priority date) published on or after that date. |

| Country | Prior Art |
|---|---|
| Serbia and Montenegro | 1. Everything made accessible to the public by a written or oral description, use or in any other way before the filing date (priority date).<br>2. Contents of Serbia and Montenegro patent applications with an earlier filing date (priority date) published on or after that date. |
| Singapore | 1. Everything made accessible to the public by a written or oral description, use or in any other way before the filing date (priority date).<br>2. Contents of patent applications with an earlier filing date (priority date) published on or after that date. |
| Slovak Republic | 1. Everything made available to the public before the filing date (priority date).<br>2. Contents of certain Slovak, European and international patent applications with an earlier filing date (priority date) published on or after that date. |
| Slovenia | 1. Everything made available to the public by publication, exhibition, demonstration or use before the filing date (priority date).<br>2. Contents of certain Slovenian, foreign patent and international applications with an earlier filing date (priority date) made available to the public after that date. |
| South Africa | 1. Everything made accessible to the public by a written or oral description, use or in any other way before the filing date (priority date).<br>2. Contents of South African and international patent applications with an earlier filing date (priority date) which are or become open to public inspection.<br>3. Inventions used secretly on a commercial scale in South Africa before the filing date (priority date). |
| Spain | 1. Everything made available to the public in Spain or abroad by means of a written or oral description, by use, or by any other way, before the filing date (priority date).<br>2. Contents of Spanish patent or utility model applications with an earlier filing date (priority date) which are subsequently published. |
| Sri Lanka | 1. Everything made accessible to the public by a written publication to the public anywhere in the world, or in Sri Lanka by oral disclosure, use or in any other way, before the filing date (priority date).<br>2. Contents of subsequently granted Sri Lankan patent applications with an earlier filing date (priority date). |

| Country | Prior Art |
|---|---|
| Sweden | 1. Everything made accessible to the public before the filing date (priority date) in writing, in lectures, use or otherwise.<br>2. Contents of certain Swedish, European and international patent applications an earlier filing date (priority date) subsequently made available to the public. |
| Switzerland | 1. Everything made accessible to the public by a written or oral description, use or any other means before the filing date (priority date).<br>2. Contents of subsequently granted Swiss patent applications with an earlier filing date (priority date). |
| Thailand | 1. Inventions widely known or used in Thailand before the filing date (priority date).<br>2. Printed publications and other documents publicly disclosed before the filing date (priority date).<br>3. Thai and foreign patents and petty patents granted before the filing date (priority date).<br>4. Contents of Thai and foreign patent and petty patent applications published before the filing date (priority date).<br>5. Contents of foreign patent applications and petty patent applications filed more than 18 months before the filing date but not granted. |
| The Former Yugoslav Republic of Macedonia | 1. Everything made accessible to the public by a written or oral description, use or in any other way before the filing date (priority date).<br>2. Contents of certain Macedonian, European and international patent applications with an earlier filing date (priority date). |
| Trinidad and Tobago | Everything made accessible to the public by a written or oral description, use or in any other way before the filing date (priority date). |
| Tunisia | 1. Everything made accessible to the public by a written or oral description, use or in any other way before the filing date (priority date).<br>2. Contents of Tunisian patent applications with an earlier filing date (priority date) published on or after that date. |
| Turkey | 1. Everything made accessible to the public by written or oral disclosure, use or in any other way before the filing date (priority date).<br>2. Contents of subsequently disclosed Turkish patent applications with an earlier filing date (priority date). |
| Ukraine | 1. Everything made accessible to the public before the filing date (priority date).<br>2. Contents of certain Ukraine and international patent applications with an earlier filing date (priority date) published on or after that date. |

| Country | Prior Art |
|---|---|
| United Kingdom | 1. Everything made accessible to the public by a written or oral description, use or in any other way before the filing date (priority date).<br>2. Contents of UK patent applications with an earlier filing date (priority date) published on or after that date. |
| United States of America | 1. An invention which was known or used by others in US, or patented or described in a printed publication in US or a foreign country, before the invention by the applicant;<br>2. An invention which was patented or described in a printed publication in US or a foreign country or in public use or on sale in US, more than one year before the filing date;<br>3. An invention abandoned by the applicant;<br>4. An invention which was patented, or was the subject of an inventor's certificate filed by applicant or his legal representatives or assignees in a foreign country more than 12 months prior to the filing date;<br>5. An invention which was described in a published US patent application by another or in a patent filed by another before the invention by the applicant (for the PCT international applications, only if they designate US and are published in English language);<br>6. During the course of interference, another inventor establishes that, before the invention date, he/she invented the invention and not abandoned, surpressed or concealed the invention; or another inventor made the invention in US before the invention date and he/she had not abandoned, surpressed or concealed the invention. |
| Uruguay | 1. Anything made available to the public by a written or oral description, use or any other method of dissemination or information before the filing date (priority date).<br>2. Contents of subsequently published Uruguay patent applications with an earlier filing date (priority date). |
| Uzbekistan | 1. Any information generally accessible before the filing date (priority date).<br>2. Contents of withdrawn Uzbekistan patent applications with an earlier filing date (priority date). |

| Regional Offices | Prior Art |
|---|---|
| African Intellectual Property Organization (OAPI) | Anything made available to the public before the filing date (priority date). |
| African Regional Intellectual Property Organization (ARIPO) | Everything made available to the public by means of written disclosure, use or exhibition before the filing date (priority date). |
| Eurasian Patent Organization (EAPO) | 1. Anything made available before the filing date (priority date).<br>2. Contents of subsequently published or granted Eurasian and international patent applications with an earlier filing date (priority date). |
| European Patent Organisation (EPO) | 1. Anything made available to the public by a written or oral description, use or in any other way before the filing date (priority date).<br>2. Contents of European patent applications with an earlier filing date (priority date) published on or after that date. |

(2) Novelty

| Country | Novelty |
|---|---|
| Albania | The invention does not form part of the prior art. The prior art consists of everything made available to the public before filing date (priority date), and contents of subsequently published Albanian patent applications with an earlier filing date (priority date). |
| Algeria | The invention does not form part of the state of the art. The state of the art consists of everything made available to the public by a written or oral disclosure, use or other means before the filing date (priority date). |
| Andorra | The invention does not form part of the prior art. The prior art consists of everything made available to the public by a written or oral description, use or in any other way before the filing date (priority date), and the contents of subsequently published Andorran patent applications with an earlier filing date (priority date). |
| Argentina | The invention is not included in the state of the art. The state of the art consists of all technical knowledge made public by oral or written description, exploitation or other means of dissemination or communication before the filing date (priority date). |
| Armenia | The invention does not form part of the prior art. The prior art consists of all information available before the filing date (priority date), and contents of subsequently published or granted Armenian applications for inventions and utility models with an earlier filing date (priority date). |
| Australia | The invention is novel when compared with the prior art. The prior art consists of information from documents and acts publicly available in Australia before the filing date (priority date), patent information in documents publicly available before the filing date (priority date) outside Australia, and contents of subsequently published Australian patent applications with an earlier filing date (priority date). |
| Austria | The invention does not form part of the prior art. The prior art consists of everything made available to the public by a written or oral description, use or other means before the filing date (priority date), and contents of certain Austrian, European and international patent applications and Austrian utility model applications with an earlier filing date (priority date). |
| Bahrain | The invention does not form part of the state of the prior art. The prior art consists of everything disclosed to the public by means of written or oral disclosure, use, or any other way before the filing date (priority date). |
| Barbados | The invention is not anticipated by prior art. The prior art consists of everything disclosed to the public in a tangible form, by oral description or other means before the filing date (priority date). |
| Belarus | The invention does not form part of the prior art. The prior art consists of information made available to the public before the filing date (priority date), and contents of Belarus patents and applications for inventions and utility models with an earlier filing date (priority date). |

| Country | Novelty |
|---|---|
| Belgium | The invention does not form part of the prior art. The prior art consists of everything made available to the public by a written or oral description, use or in any other way before the filing date (priority date), and contents of certain subsequently published Belgian, European and international patent applications and Belgian utility model applications with an earlier filing date (priority date). |
| Belize | The invention does not form part of the prior art. The prior art consists of anything disclosed to the public by a written or oral description, use or other means before the filing date (priority date). |
| Bolivia | The invention is not included in the state of the art. The state of the art consists of everything made available to the public by a written or oral description, use, marketing or other means before the filing date (priority date) and the contents of Bolivian patent applications with an earlier filing date (priority date) which are subsequently published or made available for public inspection. |
| Bosnia and Herzegovina | The invention is not anticipated by prior art. The prior art consists of everything made available to the public by a written or oral description, use or other means before the filing date (priority date), and the contents of certain Bosnia and Herzegovina, European and international patent applications with an earlier filing date (priority date) made available to the public on or after that date. |
| Brazil | The invention is not part of the state of the art. The state of the art consists of everything made accessible to the public by a written or oral description, use or by any other means before the filing date (priority date), and the contents of certain subsequently published Brazilian and international patent applications with an earlier filing date (priority date). |
| Bulgaria | The invention does not form part of the state of the art. The state of the art consists of everything made available to the public by a written or oral description, use or in any other way before the filing date (priority date), and the contents of subsequently published Bulgarian, European and international patent applications designating Bulgaria with an earlier filing date (priority date). |
| Canada | The subject matter of the invention had not become available to the public:<br>(a) more than one year before the filing date by the applicant or by a person who obtained knowledge from the applicant;<br>(b) before the filing date (priority date) by a person not mentioned in (i);<br>(c) in a Canadian patent application with an earlier filing date (priority date) filed by a person other than the applicant. |
| Chile | The invention does not form part of the state of the art. The state of the art consists of everything disclosed or made available to the public by publication in tangible form, sale or marketing or use, or in any other manner, before the filing date (priority date), and the contents of Chilean patent and utility model applications with an earlier filing date (priority date) made available to the public on or after that date. |

| Country | Novelty |
|---|---|
| China | The invention had not been previously disclosed, used, made known or described, i.e., public disclosure in any publication, or anything which been publicly used or made known to the public in China by any other means, before the filing date (priority date). The contents of subsequently published Chinese patent and utility model applications with an earlier filing date (priority date) shall be also taken into consideration for the determination of novelty. |
| Colombia | The invention is not included in the state of the art. The state of the art consists of everything made available to the public by a written or oral description, use, marketing or other means before the filing date (priority date) and the contents of Colombian patent applications with an earlier filing date (priority date) which are subsequently published or made available for public inspection. |
| Costa Rica | The invention does not form part of the state of the art. The state of the art consists of everything disclosed or made available to the public anywhere in the world and by any means before the filing date (priority date) and contents of previous non-published patent applications with an earlier filing date (priority date) in so far as said contents remain included in the previous patent application upon publishing. |
| Croatia | The invention does not form part of the state of the art. The state of the art consists of everything made available to the public by a written or oral description, use or in any other way before the filing date (priority date), and the contents of Croatian patent applications with an earlier filing date (priority date) made available to the public on or after that date. |
| Cyprus | The invention does not form part of the prior art. The prior art consists of everything made available to the public in a written or other graphic form, or by oral description, use or in any other way before the filing date (priority date), and the contents of subsequently published Cyprus patent applications with an earlier filing date (priority date). |
| Czech Republic | The invention does not form part of the state of the art. The state of the art consists of everything made available to the public by a written or oral description, use or in any other way before the filing date (priority date), and the contents of certain Czech, European and international patent applications and Czech utility model applications with an earlier filing date (priority date) made available to the public on or after that date. |
| Denmark | The invention is new in relation to the state of the art. The state of the art consists of everything made available to the public by a written description, use or in any other way before the filing date (priority date), and the contents of certain Danish, European and international patent applications and Danish utility model applications with an earlier filing date (priority date) published on or after that date. |
| Dominica | The invention does not form part of the state of the art. The prior art consists of everything disclosed to the public by oral or written description, use or in any other way before the filing date (priority date). |

| Country | Novelty |
|---|---|
| Ecuador | The invention is not included in the state of the art. The state of the art consists of everything made available to the public by a written or oral description, use, marketing or other means before the filing date (priority date) and the contents of Ecuador patent applications with an earlier filing date (priority date) which are subsequently published or made available for public inspection. |
| Egypt | The invention has not previously been disclosed, used or claimed in prior art. The prior art consists of anything publicly described or used before the filing date (priority date)., and the contents of Egyptian and foreign patents granted, and applications filed, before the filing date (priority date). |
| El Salvador | The invention is not anticipated by prior art. The prior art consists of everything disclosed or made available to the public by publication in tangible form, oral disclosure, sale or marketing, use or any other means before the filing date (priority date), and the contents of subsequently published El Salvador patent applications with an earlier filing date (priority date). |
| Estonia | The invention is not anticipated by the prior art. The prior art consists of everything made available to the public by a written or oral description, use, or in any other way before the filing date (priority date), and the contents of Estonian patent and utility model applications with an earlier filing date (priority date). |
| Finland | The invention is new in relation to what was known before the filing date (priority date), i.e.,everything made available to the public in writing, in lectures, by public use or otherwise before the filing date (priority date). The contents of certain Finnish, European and international patent applications, and Finnish utility model applications, with an earlier filing date (priority date) which are made available to the public shall be also taken into consideration for the determination of novelty. |
| France | The invention does not form part of the state of the art. The state of the art consists of everything made available to the public by a written or oral description, use, or in any other way before the filing date (priority date), and the contents of certain French, European and international patent applications with an earlier published on or after that date. |
| Georgia | The invention does not relate to the existing state of the art. The state of the art consists of data made available to the public from a written or verbal description, public use or other source before the filing date (priority date), and the contents of Georgian patent and utility model applications with an earlier filing date (priority date). |
| Germany | The invention does not form part of the state of the art. The state of the art consists of anything made available to the public by a written or oral description, use, or in any other way before the filing date (priority date), and the contents of certain German, European and international patent with an earlier filing date published on or after that date. |

| Country | Novelty |
|---|---|
| Ghana | The invention is not anticipated by prior art. The prior art consists of everything made available to the public by a written or oral disclosure, use, exhibition or other non-written means before the filing date (priority date), and the contents of Ghana patent and utility model applications with an earlier filing date (priority date) which are made available to the public. |
| Greece | The invention does not form part of the state of the art. The state of the art consists of anything made available to the public by a written or oral disclosure or any other way before the filing date (priority date). |
| Guatemala | The invention does not form part of the state of the art. The state of the art consists of everything disclosed or made available to the public anywhere in the world and by any means before the filing date (priority date) and contents of previous non-published patent applications with an earlier filing date (priority date) in so far as said contents remain included in the previous patent application upon publishing. |
| Hungary | The invention does not form part of the state of the art. The state of the art consists of everything made available to the public by a written description, oral communication, use or in any other way before the filing date (priority date), and the contents of Hungarian patent and utility model applications, and certain European and international applications, with an earlier filing date (priority date) published on or after that date. |
| Iceland | The invention is new in relation to what was known before the filing date (priority date), i.e., everything made available to the public in writing, in lectures, by public use or otherwise before the filing date (priority date). The contents of certain Icelandic, European and international patent applications with an earlier filing date (priority date) which are made available to the public shall be also taken into consideration for the determination of novelty. |
| India | The invention is not anticipated by the publication in any document or used in India or elsewhere in the world before the filing date (priority date), i.e., the subject matter has not fallen in public domain or that it does not form part of the state of the art. |
| Indonesia | The invention is not the same as any previous technological disclosure. The previous technological disclosure consists of everything made available to the public by a written or oral description, use, or in any other way before the filing date (priority date), and the contents of earlier Indonesian patent applications published on or after that date. |
| Ireland | The invention does not form part of the state of the art. The state of the art consists of everything made available to the public by a written or oral description, use, or in any other way before the filing date (priority date), and the contents of earlier Irish patent applications published on or after that date. |

| Country | Novelty |
|---|---|
| Israel | The invention was not published in the prior art. The prior art consists of anything made available to the public before the filing date (priority date) by a written, visual, audible or any other description, use, exploitation or exhibition. |
| Italy | The invention does not form part of the state of the art. The state of the art consists of everything made filing date (priority date), and the contents of certain Italian, European and international patent applications with an earlier filing date (priority date) made available to the public on or after that date. |
| Japan | The invention was not publicly known or has not been publicly worked, published, or made available to the public through electric telecommunication lines before the filing date (priority date). The contents of certain Japanese patent and utility model applications with an earlier filing date (priority date) shall be also taken into consideration for the determination of novelty. |
| Jordan | The invention is novel with regard to the prior art. The prior art consists of everything disclosed to the public by a written or oral description, use, or in any other way before the filing date (priority date). |
| Kenya | The invention is not anticipated by prior art. The prior art consists of everything made available to the public by a written or oral disclosure, use, exhibition or other non-written means before the filing date (priority date), and the contents of Kenyan and international patent applications with an earlier filing date (priority date) made available to the public. |
| Kyrgyz Republic | The invention does not form part of the state of the art. The state of the art consists of any information generally available to the public before the filing date (priority date), and the contents of Kyrgyz patent applications with an earlier filing date (priority date). |
| Latvia | The invention is not comprised in the state of the art. The state of the art consists of everything made available to the public by a written or oral disclosure or use before the filing date (priority date), and the contents of published Latvian patent applications with an earlier filing date (priority date). |
| Liechtenstein | The invention does not form part of the state of the art. The state of the art consists of everything made available to the public by a written or oral disclosure, use or any other means before the filing date (priority date), and the contents of Swiss patent applications with an earlier filing date (priority date).<br>(in accordance with the agreements with Switzerland and the European Economic Area (EEA)) |
| Lithuania | The invention does not form part of the state of the art. The state of the art consists of everything published or publicly used before the filing date (priority date), and the contents of Lithuanian patent applications with an earlier filing date (priority date) published on or after that date. |

| Country | Novelty |
|---|---|
| Luxembourg | The invention does not form part of the state of the art. The state of the art consists of everything made available to the public by a written or oral disclosure, use or in any other way before the filing date (priority date), and the contents of certain Luxembourg, European and international patent applications with an earlier filing date (priority date) published on or after that date. |
| Malaysia | The invention is not anticipated by prior art. The prior art consists of everything made available to the public by a written publication, oral disclosure, use or in any other way before the filing date (priority date), and the contents of subsequently granted Malaysian patent applications with an earlier filing date (priority date). |
| Malta | The invention does not form part of the state of the art. The state of the art consists of everything made available to the public in a written or other graphic form, oral description, use or in any other way before the filing date (priority date), and the contents of certain subsequently published Malta, European and international patent applications with an earlier filing date (priority date). |
| Mauritius | The invention is not anticipated by prior art. The prior art consists of everything disclosed to the public by publication in tangible form, oral disclosure, use or in any other way before the filing date (priority date). |
| Mexico | The invention is new of it is not in the state of the art. |
| Moldova (Republic of) | The invention does not form part of the state of the art. The state of the art consists of everything made available to the public before the filing date (priority date). |
| Mongolia | The invention is not anticipated by a product or process of the same design. The prior art consists of any prior product or process. |
| Morocco | The invention does not form part of the state of the industrial art. The state of the industrial art consists of everything accessible to the public by written or oral disclosure, use or any other means before the filing date (priority date). |
| Mozambique | The invention has no precedent in the state of the art. The state of the art consists of everything made available to the public by verbal description, use or any other way before the filing date (priority date). |
| Netherlands | The invention does not form part of the state of the art. The state of the art consists of everything made available to the public by a written or oral description, use or in any other way before the filing date (priority date), and the contents of previously filed Netherlands patent applications entered on the patent register on or after the filing date (priority date), and of certain European and international patent applications with an earlier filing date (priority date) published on or after that date. |

| Country | Novelty |
|---|---|
| New Zealand | The invention has not been previously been published or used in the prior art. The prior art consists of the contents of granted patents published before the filing date (priority date) and dated within 50 years before the filing date, other documents published before the filing date (priority date) (other than foreign patent applications filed more than 50 years before the filing date and abridgments and extracts of such applications), and any use in New Zealand before the filing date (priority date). |
| Nicaragua | The invention is not anticipated by the current state of the art. The state of the art consists of everything disclosed or made accessible to the public in any form before the filing date (priority date), and the contents of subsequently published Nicaraguan patent applications with an earlier filing date (priority date). |
| Nigeria | The invention does not form part of the state of the art. The state of the art comprises everything made available to the public by a written or oral description, use or in any other way before the filing date (priority date). |
| Norway | The invention is new in relation to what was known before the filing date (priority date), i.e., everything made available to the public in writing, in lectures, by use or otherwise before the filing date (priority date). The contents of certain Norwegian and international patent applications with an earlier filing date (priority date) made available to the public shall be also taken into consideration for the determination of novelty. |
| Oman | The invention shall be new. |
| Pakistan | The invention does not form part of the state of the art. The state of the art comprises everything made available to the public by publication in tangible form or oral disclosure, use or in any other way before the priority date, and the contents of complete specifications and priority documents published in respect of Pakistani applications with an earlier filing date (priority date). |
| Panama | The invention is not anticipated by the prior art. The prior art consists of everything disclosed or made accessible to the public by tangible publication, oral disclosure, sale or marketing, use or any other means before the filing date (priority date), and the contents of subsequently published Panama patent applications with an earlier filing date (priority date). |
| Papua New Guinea | The invention is not anticipated by prior art. The prior art consists of everything disclosed to the public by tangible publication, oral disclosure, use or any other way before the filing date (priority date). |
| Peru | The invention is not included in the state of the art. The state of the art consists of everything made available to the public by a written or oral description, use, marketing or other means before the filing date (priority date) and the contents of Peru patent applications with an earlier filing date (priority date) which are subsequently published or made available for public inspection. |

| Country | Novelty |
|---|---|
| Philippines | The invention does not form part of a prior art. The prior art consists of everything made available to the public before the filing date (priority date), and the contents of Philippines patent, utility model and industrial design applications with an earlier filing date (priority date). |
| Poland | The invention does not form part of the state of the art. The state of the art consists of everything made available to the public by a written or oral description, use, displaying or disclosure in any other way before the filing date (priority date), and the contents of subsequently published Polish patent and utility model applications with an earlier filing date (priority date). |
| Portugal | The invention does not form part of the state of the art. The state of the art consists of everything made available, inside or outside the country, to the public by description, use or other means before the filing date (priority date) and the contents of non published patent and utility model requests of a previous date than that of the patent application with effect in Portugal. |
| Republic of Korea | The invention was not publicly known or has not been publicly worked, described in a publication or made available to the public through electric telecommunication lines before the filing date (priority date). The contents of subsequently laid open or published Republic of Korea patent or utility model applications with an earlier filing date (priority date) shall be also taken into consideration for the determination of novelty. |
| Romania | The invention does not form part of the state of the art. The state of the art consists of everything made available to the public before the filing date (priority date). |
| Russian Federation | The invention is not anticipated by prior art. The prior art consists of any information made available to the public before the filing date (priority date), and the contents of published Russian Federation national patent and utility model applications and grants, international and of Eurasian applications with an earlier filing date (priority date), and published information thereon. |
| Saint Lucia | The invention does not form part of the state of the art. The state of the art consists of everything made accessible to the public by a written or oral description, use or in any other way before the filing date (priority date), and the contents of patent applications with an earlier filing date (priority date) published on or after that date. |
| Serbia and Montenegro | The invention does not form part of the state of the art. The state of the art consists of everything made accessible to the public by a written or oral description, use or in any other way before the filing date (priority date), and the contents of Serbia and Montenegro patent applications with an earlier filing date (priority date) published on or after that date. |

| Country | Novelty |
|---|---|
| Singapore | The invention does not form part of the state of the art. The state of the art consists of everything made accessible to the public by a written or oral description, use or in any other way before the filing date (priority date), and the contents of patent applications with an earlier filing date (priority date) published on or after that date. |
| Slovak Republic | The invention does not form part of the state of the art. The state of the art consists of everything made available to the public before the filing date (priority date), and the contents of certain Slovak, European and international patent applications with an earlier filing date (priority date) published on or after that date. |
| Slovenia | The invention does not form part of the state of the art. The state of the art consists of everything made available to the public by publication, exhibition, demonstration or use before the filing date (priority date), and the contents of certain Slovenian, foreign patent and international applications with an earlier filing date (priority date) made available to the public after that date. |
| South Africa | The invention does not form part of the state of the art. The state of the art consists of everything made accessible to the public by a written or oral description, use or in any other way before the filing date (priority date), and the contents of South African and international patent applications with an earlier filing date (priority date) which are or become open to public inspection, and inventions used secretly on a commercial scale in South Africa before the filing date (priority date). |
| Spain | The invention does not form part of the state of the art. The state of the art consists of everything made available to the public in Spain or abroad by means of a written or oral description, by use, or by any other way, before the filing date (priority date), and the contents of Spanish patent or utility model applications with an earlier filing date (priority date) which are subsequently published. |
| Sri Lanka | The invention is not anticipated by prior art. The prior art consists of everything made accessible to the public by a written publication to the public anywhere in the world, or in Sri Lanka by oral disclosure, use or in any other way, before the filing date (priority date), and the contents of subsequently granted Sri Lankan patent applications with an earlier filing date (priority date). |
| Sweden | The invention is new in relation to what was known before the filing date (priority date). The prior art consists of everything made accessible to the public before the filing date (priority date) in writing, in lectures, use or otherwise, and the contents of certain Swedish, international and European patent applications an earlier filing date (priority date) subsequently made available to the public. |

| Country | Novelty |
|---|---|
| Switzerland | The invention is not included in the state of the art. The state of the art consists of everything made accessible to the public by a written or oral description, use or any other means before the filing date (priority date), and the contents of subsequently granted Swiss patent applications with an earlier filing date (priority date). |
| Thailand | The invention does not form part of the state of the art. The state of the art consists of inventions widely known or used in Thailand before the filing date (priority date); printed publications and other documents publicly disclosed before the filing date (priority date); Thai and foreign patents and petty patents granted before the filing date (priority date); the contents of Thai and foreign patent and petty patent applications published before the filing date (priority date); and the contents of foreign patent and petty patent applications filed than 18 months before the filing date (priority date) but not granted. |
| The Former Yugoslav Republic of Macedonia | The invention does not form part of the state of the art. The state of the art consists of everything made accessible to the public by a written or oral description, use or in any other way before the filing date (priority date), and the contents of certain Macedonian, European and international patent applications with an earlier filing date (priority date). |
| Trinidad and Tobago | The invention does not form part of the state of the art. The state of the art consists of everything made accessible to the public by a written or oral description, use or in any other way before the filing date (priority date). |
| Tunisia | The invention not included in the state of the art. The state of the art consists of everything made accessible to the public by a written or oral description, use or in any other way before the filing date (priority date), and the contents of Tunisian patent applications with an earlier filing date (priority date) published on or after that date. |
| Turkey | The invention is not part of the state of the art. The state of the art consists of everything made accessible to the public by written or oral disclosure, use or in any other way before the filing date, and the contents of subsequently disclosed Turkish patent applications with an earlier filing date (priority date). |
| Ukraine | Invention does not form part of the state of the art. The state of the art consists of everything made accessible to the public before the filing date (priority date), and the contents of certain Ukraine and international patent applications with an earlier filing date (priority date) published on or after that date. |
| United Kingdom | The invention does not form part of the state of the art. The state of the art consists of everything made accessible to the public by a written or oral description, use or in any other way before the filing date (priority date), and the contents of UK patent applications with an earlier filing date (priority date) published on or after that date. |

| Country | Novelty |
|---|---|
| United States of America | A person shall be entitled to a patent unless:<br>(a) the invention was known or used by others in US, or patented or described in a printed publication in US or a foreign country, before the invention by the applicant;<br>(b) the invention was patented or described in a printed publication in US or a foreign country or in public use or on sale in US, more than one year before the filing date;<br>(c) he has abandoned the invention;<br>(d) the invention was patented, or was the subject of an inventor's certificate filed by applicant or his legal representatives or assignees in a foreign country more than 12 months prior to the filing date;<br>(e) the invention was described in a published US patent application by another or in a patent filed by another before the invention by the applicant (for the PCT international applications, only if they designate US and are published in English language);<br>(f) during the course of interference, another inventor establishes that, before the invention date, he/she invented the invention and not abandoned, surpressed or concealed the invention; or another inventor made the invention in US before the invention date and he/she had not abandoned, surpressed or concealed the invention. |
| Uruguay | The invention does not form part of the state of the art. The state of the art consists of anything made available to the public by a written or oral description, use or any other method of dissemination or information before the filing date (priority date), and the contents of subsequently published Uruguay patent applications with an earlier filing date (priority date). |
| Uzbekistan | The invention is not known from the prior art. The prior art consists of any information generally accessible before the filing date (priority date), and the contents of withdrawn Uzbekistan patent applications with an earlier filing date (priority date). |

| Regional Offices | Novelty |
|---|---|
| African Intellectual Property Organization (OAPI) | The invention has not been anticipated by prior art. The prior art consists of anything made available to the public before the filing date (priority date). |
| African Regional Intellectual Property Organization (ARIPO) | The invention is not anticipated by prior art. The prior art consists of everything made available to the public by means of written disclosure, use or exhibition before the filing date (priority date). |
| Eurasian Patent Organization (EAPO) | The invention is not anticipated by prior art. The prior art consists of anything made available before the filing date (priority date), and the contents of certain subsequently published or granted Eurasian and international patent applications with an earlier filing date (priority date). |
| European Patent Organisation (EPO) | The invention does not form part of the state of the art. The state of the art consists of anything made available to the public by a written or oral description, use or in any other way before the filing date (priority date), and the contents of European patent applications with an earlier filing date (priority date) published on or after that date. |

(3) Inventive Step (Obviousness)

| Country | Inventive Step (Obviousness) |
|---|---|
| Albania | The invention is not obvious to a person skilled in the art at the priority date having regard to the prior art. The prior art consists of everything made available to the public before filing date (priority date) and contents of subsequently published Albanian patent applications with an earlier filing date (priority date). |
| Algeria | The invention is the result of inventive activity which does not derive in an obvious manner from the state of the art. The state of the art consists of everything made available to the public by a written or oral disclosure, use or other means before the filing date (priority date). |
| Andorra | The invention is not obvious to a person skilled in the art having regard to the prior art. The prior art consists of everything made available to the public by a written or oral description, use or in any other way before the filing date (priority date). |
| Argentina | The invention cannot readily be deduced by a person of average skill in the technical field concerned. The state of the art consists of all technical knowledge made public by oral or written description, exploitation or other means of dissemination or communication before the filing date (priority date). |
| Armenia | The invention is not obvious to a person skilled in the art from the prior art. The prior art consists of all information available before the filing date (priority date) and the contents of subsequently published or granted Armenian applications for inventions and utility models with an earlier filing date (priority date). |
| Australia | The invention is not obvious to a person skilled in the relevant art in the light of the common general knowledge when compared with the prior art. The prior art consists of information from documents and acts publicly available in Australia before the filing date (priority date), and patent information in documents publicly available before the filing date (priority date) outside Australia. |
| Austria | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of everything made available to the public by a written or oral description, use or other means before the filing date (priority date). |
| Bahrain | The invention is not obvious to a person of ordinary skill in the art having regard to the state of art. The state of the art consists of everything disclosed to the public by means of written or oral disclosure, use, or any other way before the filing date (priority date). |
| Barbados | The invention is not obvious to a person having ordinary skill in the art having regard to the prior art. The prior art consist of everything disclosed to the public in a tangible form, by oral description or other means before the filing date (priority date). |
| Belarus | The invention is not obvious to a person skilled in the art having regard to the prior art. The prior art consists of information made available to the public before the filing date (priority date). |

| Country | Inventive Step (Obviousness) |
|---|---|
| Belgium | The invention is not obvious to a person skilled in the art having regard to the prior art. The prior art consists of everything made available to the public by a written or oral description, use or in any other way before the filing date (priority date). |
| Belize | The invention is not obvious to a person skilled in the art having regard to the prior art. The prior art consists of anything disclosed to the public by a written or oral description, use or other means before the filing date (priority date). |
| Bolivia | The invention is not obvious from the state of the art to a person with average skills in the technical field concerned. The state of the art consists of everything made available to the public by a written or oral description, use, marketing or other means before the filing date (priority date). |
| Bosnia and Herzegovina | The invention is not obvious to a person skilled in the art having regard to the prior art. The prior art consists of everything made available to the public by a written or oral description, use or other means before the filing date (priority date). |
| Brazil | The invention is not derived from the state of the art in an evident or obvious way to a person skilled in the art from the state of the art. The state of the art consists of everything made accessible to the public by a written or oral description, use or by any other means before the filing date (priority date). |
| Bulgaria | The invention is not obvious to a person skilled in the art having regard to the state of the art. The state of the art consists of everything made available to the public by a written or oral description, use or in any other way before the filing date (priority date). |
| Canada | The invention is not obvious to a person skilled in the art having regard to:<br>1. information disclosed more than one year before the filing date by the applicant or by a person who obtained knowledge from the applicant in such a manner that the information became available to the public; and<br>2. information disclosed before the filing date (priority date) by a person not mentioned in (i) in such a manner that the information became available to the public. |
| Chile | The invention is neither obvious to a person of average skill in the art nor obviously derived from the state of the art. The state of the art consists of everything disclosed or made available to the public by publication in tangible form, sale or marketing or use, or in any other manner, before the filing date (priority date), and the contents of Chilean patent and utility model applications with an earlier filing date (priority date) made available to the public on or after that date. |

| Country | Inventive Step (Obviousness) |
|---|---|
| China | The invention has prominent substantive features and represents a notable progress compared with existing technology, consisting of public disclosure in any publication, or anything which been publicly used or made known to the public in China by any other means, before the filing date (priority date), and the contents of subsequently published Chinese patent and utility model applications with an earlier filing date (priority date). |
| Colombia | The invention is not obvious from the state of the art to a person with average skills in the technical field concerned. The state of the art consists of everything made available to the public by a written or oral description, use, marketing or other means before the filing date (priority date). |
| Costa Rica | The invention is not obvious from the state of the art to an average expert in the respective field. The state of the art consists of everything disclosed or made available to the public anywhere in the world and by any means before the filing date (priority date) and contents of previous non-published patent applications with an earlier filing date (priority date) in so far as said contents remain included in the previous patent application upon publishing. |
| Croatia | The invention is not obvious to a person skilled in the art having regard to the state of the art. The state of the art consists of everything made available to the public by a written or oral description, use or in any other way before the filing date (priority date). |
| Cyprus | The invention is not obvious to a person skilled in the art having regard to the prior art. The prior art consists of everything made available to the public in a written or other graphic form, or by oral description, use or in any other way before the filing date (priority date). |
| Czech Republic | The invention is not obvious to a person skilled in the art having regard to the state of the art. The state of the art consists of everything made available to the public by a written or oral description, use or in any other way before the filing date (priority date). |
| Denmark | The invention differs essentially from the state of the art. The state of the art consists of everything made available to the public by a written description, use or in any other way before the filing date (priority date). |
| Dominica | The invention is not obvious to a person skilled in the art having regard to the prior art. The prior art consists of everything disclosed to the public by oral or written description, use or in any other way before the filing date (priority date). |
| Ecuador | The invention is not obvious from the state of the art to a person with average skills in the technical field concerned. The state of the art consists of everything made available to the public by a written or oral description, use, marketing or other means before the filing date (priority date). |
| Egypt | Inventive step is not defined. |

| Country | Inventive Step (Obviousness) |
|---|---|
| El Salvador | For a person having ordinary skill in the technical field concerned, the invention would not have been obvious or could not obviously have been derived from the prior art. The prior art consists of everything disclosed or made available to the public by publication in tangible form, oral disclosure, sale or marketing, use or any other means before the filing date (priority date), and the contents of subsequently published El Salvador patent applications with an earlier filing date (priority date). |
| Estonia | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of everything made available to the public by a written or oral description, use, or in any other way before the filing date (priority date). |
| Finland | The invention differs essentially from the state of the art. The state of the art consists of everything made available to the public in writing, in lectures, by public use or otherwise before the filing date (priority date). |
| France | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of everything made available to the public by a written or oral description, use, or in any other way before the filing date (priority date). |
| Georgia | The invention is not obvious to a person skilled in the art from the state of the art. The state of the art consists of data made available to the public from a written or verbal description, public use or other source before the filing date (priority date). |
| Germany | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of anything made available to the public by a written or oral description, use, or in any other way before the filing date (priority date). |
| Ghana | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of everything made available to the public by a written or oral disclosure, use, exhibition or other non-written means before the filing date (priority date). |
| Greece | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of anything made available to the public by a written or oral disclosure or any other way before the filing date (priority date). |
| Guatemala | The invention is not derived from the state of the art in an obvious way to a person skilled in the art from the pertinent state of the art. The state of the art consists of everything disclosed or made available to the public anywhere in the world and by any means before the filing date (priority date) and contents of patent applications with an earlier filing date (priority date) and published after the filing date (priority date) of the patent application under question. |

| Country | Inventive Step (Obviousness) |
|---|---|
| Hungary | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of everything made available to the public by a written description, oral communication, use or in any other way before the filing date (priority date), |
| Iceland | The invention differs essentially from the state of the art. The state of the art consists of everything made available to the public in writing, in lectures, by public use or otherwise before the filing date (priority date). |
| India | 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 are. |
| Indonesia | The invention is not obvious to a person skilled in the art taking into account the state of the art at the time of the filing date (priority date). |
| Ireland | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of everything made available to the public by a written or oral description, use, or in any other way before the filing date (priority date). |
| Israel | The invention does not appear obvious to an average skilled person in the light of information published before the filing date (priority date). |
| Italy | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of everything made available to the public by a written or oral description, use, or in any other way before the filing date (priority date). |
| Japan | The invention could easily have been made by a person with ordinary skill in the art on the basis of the prior art. The prior art consists of anything which, before the filing date (priority date), was publicly known or worked, published, or made available to the public through electric telecommunication lines. |
| Jordan | The invention is not obvious to a person having ordinary skill in the art having regard to the prior art. The prior art consists of everything disclosed to the public by a written or oral description, use, or in any other way before the filing date (priority date). |
| Kenya | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of everything made available to the public by a written or oral disclosure, use, exhibition or other non-written means before the filing date (priority date). |
| Kyrgyz Republic | The invention does not derive obviously from the state of the art. The state of the art consists of any information generally available to the public before the filing date (priority date). |
| Latvia | A specialist in the corresponding field could establish that the invention has not obviously arisen from a prior technical level, consisting of everything made available to the public by a written or oral disclosure or use before the filing date (priority date). |

| Country | Inventive Step (Obviousness) |
|---|---|
| Liechtenstein | The invention does not derive in an obvious manner from the state of the art. The state of the art consists of everything made available to the public by a written or oral disclosure, use or any other means before the filing date (priority date).<br>(in accordance with the agreements with Switzerland and the European Economic Area (EEA)) |
| Lithuania | The invention is not obvious to a person skilled in the art. |
| Luxembourg | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of everything made available to the public by a written or oral disclosure, use or in any other way before the filing date. |
| Malaysia | The invention would not have been obvious to a person having ordinary skill in the art having regard to the prior art. The prior art consists of everything made available to the public by a written publication, oral disclosure, use or in any other way before the filing date (priority date). |
| Malta | The invention is not obvious to a person skilled in the art having regard to the prior art. The prior art consists of everything made available to the public in a written or other graphic form, oral description, use or in any other way before the filing date (priority date). |
| Mauritius | The invention is not obvious to a person having ordinary skill in the art having regard to the prior art. The prior art consists of everything disclosed to the public by publication in tangible form, oral disclosure, use or in any other way before the filing date (priority date). |
| Mexico | The invention shall result from an inventive activity. The inventive activity means the creative process the results of which are not obviously deducible from the state of the art by a person skilled in the relevant art. |
| Moldova (Republic of) | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of everything made available to the public before the filing date (priority date). |
| Mongolia | The invention is not obvious to a person skilled in the relevant field. |
| Morocco | For a person skilled in the art, the invention does not derive in an obvious manner from the state of the art. The state of the art consists of everything accessible to the public by written or oral disclosure, use or any other means before the filing date (priority date). |
| Mozambique | The invention is not obvious to a person skilled in the art from the state of the art. The state of the art consists of everything made available to the public by verbal description, use or any other way before the filing date (priority date). |
| Netherlands | The invention is the result of inventive activity which does not derive in an obvious manner from the state of the art. The state of the art consists of everything made available to the public by a written or oral description, use or in any other way before the filing date (priority date). |

| Country | Inventive Step (Obviousness) |
|---|---|
| New Zealand | The invention is obvious and clearly does not involve any inventive step having regard to the prior art. The prior art consists of the contents of granted patents published before the filing date (priority date) and dated within 50 years before the filing date, other documents published before the filing date (priority date) (other than foreign patent applications filed more than 50 years before the filing date and abridgments and extracts of such applications), and any use in New Zealand before the filing date (priority date). |
| Nicaragua | The invention is not obvious to a person skilled in the corresponding technical field and cannot obviously be deduced from the current state of the art. The state of the art consists of everything disclosed or made accessible to the public in any form before the filing date (priority date). |
| Nigeria | The invention does not obviously follow from the state of the art. The state of the art comprises everything made available to the public by a written or oral description, use or in any other way before the filing date (priority date). |
| Norway | The invention differs essentially from the prior art. The prior art consists of everything made available to the public in writing, in lectures, by use or otherwise before the filing date (priority date). |
| Oman | The invention shall include an innovative concept. |
| Pakistan | The invention is not obvious to a person having ordinary skill in the art having regard to the state of art. The state of the art consists of everything made available to the public by publication in tangible form or oral disclosure, use or in any other way before the priority date. |
| Panama | To a person of average skill in the technical field concerned, the invention is neither obvious nor obviously derived from the prior art. The prior art consists of everything disclosed or made accessible to the public by tangible publication, oral disclosure, sale or marketing, use or any other means before the filing date (priority date), and the contents of subsequently published Panama patent applications with an earlier filing date (priority date). |
| Papua New Guinea | The invention is the result of inventive activity which, in the light of common general knowledge, does not derive in an obvious manner from the state of the art. The state of the art consists of everything disclosed to the public by tangible publication, oral disclosure, use or any other way before the filing date (priority date). |
| Peru | The invention is not obvious from the state of the art to a person with average skills in the technical field concerned. The state of the art consists of everything made available to the public by a written or oral description, use, marketing or other means before the filing date (priority date). |
| Philippines | The invention is not obvious to a person skilled in the art having regard to the prior art. The prior art consists of everything made available to the public before the filing date (priority date), and the contents of Philippines patent, utility model and industrial design applications with an earlier filing date (priority date). |

| Country | Inventive Step (Obviousness) |
|---|---|
| Poland | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of everything made available to the public by a written or oral description, use, displaying or disclosure in any other way before the filing date (priority date). |
| Portugal | The invention is not obvious from prior art to a person skilled in the art. The prior art consists of everything made available, inside or outside the country, to the public by description, use or other means before the filing date (priority date). |
| Republic of Korea | The invention could easily have been made by a person having ordinary skill in the art on the basis of the prior art. The prior art consists of inventions publicly known, worked, described in a publication or made available to the public through electric telecommunication lines before the filing date (priority date). |
| Romania | To a person skilled in the relevant field, the invention does not obviously derive from prior art. The prior art consists of everything made available to the public before the filing date (priority date). |
| Russian Federation | Invention is not obvious to a person skilled in the art having regard to the state of the art. The state of the art consists of any information made available to the public before the filing date (priority date). |
| Saint Lucia | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of everything made accessible to the public by a written or oral description, use or in any other way before the filing date (priority date). |
| Serbia and Montenegro | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of everything made accessible to the public by a written or oral description, use or in any other way before the filing date (priority date). |
| Singapore | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of everything made accessible to the public by a written or oral description, use or in any other way before the filing date (priority date). |
| Slovak Republic | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of everything made available to the public before the filing date (priority date). |
| Slovenia | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of everything made available to the public by publication, exhibition, demonstration or use before the filing date (priority date), and the contents of Slovenian or foreign patent applications with an earlier filing date (priority date) made available to the public after that date. |
| South Africa | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of everything made accessible to the public by a written or oral description, use or in any other way before the filing date (priority date). |

| Country | Inventive Step (Obviousness) |
|---|---|
| Spain | The invention does not result from the state of the art in a manner obvious to a person skilled in the art. The state of the art consists of everything made available to the public in Spain or abroad by means of a written or oral description, by use, or by any other way, before the filing date (priority date). |
| Sri Lanka | The invention would not have been obvious to a person having ordinary skill in the art having regard to the prior art. The prior art consists of everything made accessible to the public by a written publication to the public anywhere in the world, or in Sri Lanka by oral disclosure, use or in any other way, before the filing date (priority date), and the contents of subsequently granted Sri Lankan patent applications with an earlier filing date (priority date). |
| Sweden | The invention differs essentially from the state of the art. The state of the art consists of everything made accessible to the public before the filing date (priority date) in writing, in lectures, use or otherwise. |
| Switzerland | The invention does not follow in an evident manner from the state of the art. The state of the art consists of everything made accessible to the public by a written or oral description, use or any other means before the filing date (priority date). |
| Thailand | The invention is not obvious to a person ordinary skilled in the art. |
| The Former Yugoslav Republic of Macedonia | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of everything made accessible to the public by a written or oral description, use or in any other way before the filing date (priority date), and the contents of Macedonian, European and international patent applications with an earlier filing date (priority date). |
| Trinidad and Tobago | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of everything made accessible to the public by a written or oral description, use or in any other way before the filing date (priority date). |
| Tunisia | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of everything made accessible to the public by a written or oral description, use or in any other way before the filing date (priority date). |
| Turkey | The invention is not obviously deducible by a person skilled in the technical field concerned from the state of art. The state of the art consists of everything made accessible to the public by written or oral disclosure, use or in any other way before the filing date, and the contents of subsequently disclosed Turkish patent applications with an earlier filing date (priority date). |
| Ukraine | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of everything made accessible to the public before the filing date (priority date). |

| Country | Inventive Step (Obviousness) |
|---|---|
| United Kingdom | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of everything made accessible to the public by a written or oral description, use or in any other way before the filing date (priority date). |
| United States of America | 1. The differences between the invention and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art The prior art consists of:<br>(a) an invention which was known or used by others in US, or patented or described in a printed publication in US or a foreign country, before the invention by the applicant;<br>(b) an invention which was patented or described in a printed publication in US or a foreign country or in public use or on sale in US, more than one year before the filing date;<br>(c) an invention abandoned by the applicant;<br>(d) an invention which was patented, or was the subject of an inventor's certificate filed by applicant or his legal representatives or assignees in a foreign country more than 12 months prior to the filing date;<br>(e) an invention which was described in a published US patent application by another or in a patent filed by another before the invention by the applicant (for the PCT international applications, only if they designate US and are published in English language);<br>(f) during the course of interference, another inventor establishes that, before the invention date, he/she invented the invention and not abandoned, surpressed or concealed the invention; or another inventor made the invention in US before the invention date and he/she had not abandoned, surpressed or concealed the invention.<br>2. Subject matter developed by another person as referred to in 1.(e) and (f).does not preclude patentability where the relevant prior art is owned by, or subject to an obligation of assignment to, the same person. |
| Uruguay | The invention does not result from the state of the art in a manner obvious to a person skilled in the art. The state of the art consists of anything made available to the public by a written or oral description, use or any other method of dissemination or information before the filing date (priority date), and the contents of subsequently published Uruguay patent applications with an earlier filing date (priority date). |
| Uzbekistan | The invention is not obvious from the prior art. The prior art consists of any information generally accessible before the filing date (priority date). |

| Regional Offices | Inventive Step (Obviousness) |
|---|---|
| African Intellectual Property Organization (OAPI) | The invention is not obvious to a person having ordinary knowledge and skill in the art having regard to the prior art. The prior art consists of anything made available to the public before the filing date (priority date). |
| African Regional Intellectual Property Organization (ARIPO) | The inventive step is not defined. |
| Eurasian Patent Organization (EAPO) | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of anything made available before the filing date (priority date). |
| European Patent Organisation (EPO) | The invention is not obvious to a person skilled in the art having regard to the state of art. The state of the art consists of anything made available to the public by a written or oral description, use or in any other way before the filing date (priority date). |

(4) Grace Period

| Country | Grace Period |
|---|---|
| Albania | 1. Disclosure not to be taken into account in determining patentability if it occurred within 12 months before the filing date (priority date):<br>(a) by the inventor or any other person who had right to the patent;<br>(b) by a third party who had obtained information from applicant;<br>(c) in a patent application with the same inventor which should not have been disclosed by Office;<br>(d) in a patent application filed without the knowledge or consent of the inventor by a person who obtained the information from the inventor.<br>2. The effect of the grace period may be invoked at any time. In the event of a dispute, burden of proof is on applicant or patent owner. |
| Algeria | Disclosure within 12 months before the filing date (priority date) not considered accessible to the public, if due to:<br>1. an act by the applicant or his predecessor in title, or<br>2. an abuse by a third party in relation to the applicant or his predecessor in title. |
| Andorra | 1. Disclosure not to be taken into account in determining patentability if it occurred within 6 months before the filing date (priority date):<br>(a) by the inventor or his successor in title;<br>(b) of information in an application filed by the inventor which should not have been disclosed by the Office;<br>(c) of information in an application filed, without the knowledge or consent of the inventor, by a person who obtained the information from the inventor;<br>(d) a person who obtained the information from the inventor.<br>2. The effect of the grace period may be invoked at any time. |
| Argentina | 1. Disclosure not to be taken into account in determining novelty if it occurred within one year before the filing date (priority date) by the inventor or his successor in title by:<br>(a) any medium of communication;<br>(b) display at a national or international exhibition.<br>2. The application shall be accompanied by documentary supporting evidence. |

| Country | Grace Period |
|---|---|
| Armenia | 1. Disclosure not to be taken into account in determining patentability if it occurred within 12 months before the filing date (priority date) by:<br>(a) the applicant or inventor;<br>(b) any other person who obtained the information from the applicant or inventor.<br>2. The burden of proof is on the applicant. |
| Australia | 1. Disclosure not to be taken into consideration in determining novelty and inventive step if it occurred:<br>(a) within six months before the filing date<br>(i) by showing, use or publication of the invention at a recognized exhibition;<br>(ii) in a paper written by the inventor and read before, or published with the inventor's consent by or on behalf of, a learned society;<br>(b) within 12 months before the filing date (priority date) by working the invention in public for the purposes of reasonable trial due to the nature of the invention;<br>(c) within 12 months before the filing date without the consent of the inventor or applicant, through any publication or use of the invention by another person who derived the information from the inventor, applicant or predecessor in title;<br>(d) at any time before the filing date of information given by or with the consent of the inventor, applicant or predecessor in title, to the Commonwealth or a State or Territory, an authority of thereof or person authorized thereby, to investigate the invention; and anything done for the purpose of such investigation.<br>2. In the cases of 1.a.(i), the applicant shall:<br>(a) when filing the application, state that the invention has been disclosed at the exhibition;<br>(b) before the publication of the application, file a statement issued by the exhibition authority. |
| Austria | 1. Disclosure not to be taken into account in determining novelty if it occurred within six months before the filing date:<br>(a) due to an evident abuse in relation to the applicant or his legal predecessor;<br>(b) by display of the invention by the applicant or his legal predecessor at an official or officially recognized exhibition.<br>2. The applicant shall:<br>(a) when filing the application, state that the invention has been displayed at the exhibition;<br>(b) within four months after the filing date, file a certificate and a description of the invention attested by the exhibition management, and indicate the exhibition opening date and the date of the first disclosure. |

| Country | Grace Period |
|---|---|
| Bahrain | Disclosure not to be taken into account in determining novelty if it occurred within 12 months before the filing date:<br>1. by display of the invention at a national or international exhibition;<br>2. by an action by the applicant or his predecessor in title;<br>3. due to an evident abuse or unfair act by another person. |
| Barbados | Disclosure not to be taken into account in determining novelty and inventive step if it occurred within 12 months before the filing date (priority date)::<br>1. by the applicant or his predecessor in title;<br>2. due to an abuse by a third party. |
| Belarus | 1. Disclosure not to be taken into account in determining patentability if it occurred within 12 months before the filing date by:<br>(a) the applicant or inventor;<br>(b) a person who obtained the information from the inventor or applicant.<br>2. The burden of proof is on the applicant. |
| Belgium | 1. Disclosure not to be taken into account in determining novelty if it occurred within six months before the filing date due to:<br>(a) an evident abuse in relation to the applicant or his legal predecessor;<br>(b) display of the invention by the applicant or his legal predecessor at an official or officially recognized international exhibition.<br>2. The applicant shall state in the application, at time of filing, that the invention has been so displayed, and file a certificate to that effect within a prescribed time limit. |
| Belize | Disclosure not to be taken into account in determining novelty and inventive step if it occurred within 12 months before the filing date (priority date):<br>1. by the applicant or his predecessor in title;<br>2. due to an abuse by a third party. |
| Bolivia | Disclosure not to be taken into account in determining patentability if it occurred within one year before the filing date (priority date) by:<br>1. the inventor or his successor in title;<br>2. an Office which incorrectly published the contents of the patent application filed by the inventor or his successor in title;<br>3. a person who obtained the information from the inventor or his successor in title. |

| Country | Grace Period |
|---|---|
| Bosnia and Herzegovina | 1. Disclosure not to be taken into account in determining novelty if it occurred within six months before the filing date due to:<br>(a) an evident abuse in relation to the patent applicant or his legal predecessor, or<br>(b) display of the invention at an official or officially recognized international exhibition.<br>2. The applicant shall indicate in the application at time of filing that the invention has been so displayed, and submit a certificate within a prescribed time limit.<br>[Anyone who exhibits an invention at an officially recognized exhibition or fair of international nature may, within three months following the closing date of the exhibition or fair, claim in his application the priority right as of the first day of showing of the invention (exhibition priority rights).] |
| Brazil | 1. Disclosure not to be considered as part of the state of the art if it occurred within 12 months before the filing date (priority date):<br>(a) by the inventor;<br>(b) publication by the Office of a patent application based on information obtained from the inventor and filed without his consent;<br>(c) by another person based on information obtained from the inventor.<br>2. The Office may require a statement relating to the disclosure, possibly accompanied by proof. |
| Bulgaria | 1. Disclosure not to be taken into account in determining novelty if it occurred within six months before the filing date (priority date) in consequence of:<br>(a) an evident abuse in relation to the applicant or his legal predecessor;<br>(b) display of the invention by the applicant or his legal predecessor at a official or officially recognized international exhibition.<br>2. The applicant shall indicate in the application at the time of filing that the invention has been so displayed, and submit evidence within three months from the filing date. |
| Canada | Disclosure not to be taken into consideration in determining novelty and inventive step if it occurred within one year before the filing date by the applicant, or by a person who obtained knowledge from the applicant. |
| Chile | Disclosure not to be taken into account in determining novelty if it occurred within six months before the filing date in consequence of :<br>1. practices, experiments or construction of machinery or apparatus by the applicant;<br>2. display of the invention at an official or officially recognized exhibition by the applicant or his predecessor in title;<br>3. abuse and unfair practices in relation to the applicant or his predecessor in title |

| Country | Grace Period |
|---|---|
| China | Disclosure not to be taken into account in determining novelty if it occurred within six months before the filing date by:<br>1. display of the invention at an international exhibition sponsored or recognized by the Chinese Government;<br>2. making the invention public at a prescribed academic or technological meeting;<br>3. any person without the consent of the applicant. |
| Colombia | Disclosure not to be taken into account in determining patentability if it occurred within one year before the filing date (priority date) by:<br>1. the inventor or his successor in title;<br>2. an Office which incorrectly published the contents of the patent application filed by the inventor or his successor in title;<br>3. a third party who obtained the information from the inventor or his successor in title. |
| Costa Rica | The state of the art does not include disclosure of an invention within one year before the filing date (priority date) resulting from:<br>1. acts done directly or indirectly by the inventor or his successor in title; or<br>2. non-performance of a contract or illicit acts against any of them.<br>3. publication of applications by an industrial property Office where the applications were made by a party which does not have a right to a patent or the applications were published despite the Office should not have done so. |
| Croatia | 1.Disclosure not to be taken into account in determining novelty if it occurred within one year before the filing date due to:<br>(a) an evident abuse in relation to the patent applicant or his predecessor in title;<br>(b) display of the invention at an official or officially recognized international exhibition.<br>2. The applicant shall indicate in the application at time of filing that the invention has been so displayed, and submit a certificate within four months from the filing date. |
| Cyprus | No provision. |

| Country | Grace Period |
|---|---|
| Czech Republic | 1. Disclosure not to be taken into account in determining novelty if it occurred within six months before the filing date due to:<br>(a) an evident abuse in relation to the applicant or his legal predecessor,<br>(b) display of the invention by the applicant or his legal predecessor at an official or officially-recognized international exhibition.<br>2. The applicant shall indicate in the application at time of filing that the invention has been so displayed, and submit a certificate within four months from the filing date. |
| Denmark | Disclosure not to be taken into account in determining patentability if it occurred within six months before the filing date in consequence of<br>1. evident abuse in relation to the applicant or his predecessor in title,<br>2. display of the invention by the applicant or his predecessor in title at an official or officially recognized international exhibition. |
| Dominica | Disclosure not to be taken into account in determining novelty and inventive step if it occurred within 12 months before the filing date (priority date) due to:<br>1. an abuse committed by a third party in relation to the applicant or his predecessor in title; or<br>2. acts committed by the applicant or his predecessor in title. |
| Ecuador | Disclosure not to be taken into account in determining patentability if it occurred within one year before the filing date (priority date) by:<br>1. the inventor or his successor in title;<br>2. an Office which incorrectly published the contents of the patent application filed by the inventor or his successor in title;<br>3. a person who obtained the information from the inventor or his successor in title;<br>4. an official order;<br>*5.* a manifest abuse to the detriment of the inventor or his successor in title;<br>6. an officially recognized exhibition or publication of academic or research purposes. In that case the person concerned shall, on filing his application, submit a declaration stating that the invention actually was shown, together with the appropriate certificate. |
| Egypt | Disclosure not to be taken into account in determining novelty if it occurred within six months before the filing date by the display of the invention in a national or international exhibition. |

| Country | Grace Period |
|---|---|
| El Salvador | Disclosure not to be taken into account in determining novelty if it occurred within one year before the filing date (priority date):<br>1. by the inventor or his successor in title;<br>2. due to an abuse of confidence, breach of contract or other unlawful act against the inventor or his successor in title,;<br>3. by publication of a patent specification filed by a person not entitled to grant;<br>4. by publication of a patent specification as a result of an error by an Office. |
| Estonia | Disclosure not to be taken into account in determining novelty and inventive step if it occurred within one year before the filing date (priority date) by**:**<br>1. the applicant or his predecessor in title;<br>2. a person who obtained information from the applicant or his predecessor in title. |
| Finland | Disclosure not to be taken into account in determining patentability if it occurred within six months before the filing date due to:<br>1. an evident abuse in relation to the applicant or his predecessor in title;<br>2. display of the invention at an official or officially recognized international exhibition. |
| France | 1. Disclosure not to be taken into account in determining novelty if it occurred within six months before the filing date due to:<br>(a) an evident abuse in relation to the applicant or his predecessor in title;<br>(b) display of the invention by the applicant or his predecessor in title at an official or officially recognized international exhibition.<br>2. The applicant shall declare at the time of filing that the invention has been so displayed, and furnish proof to that effect within a prescribed time limit. |
| Georgia | Disclosure not to be taken into account in determining patentability if it occurred within 12 months before the filing date (priority date) by the inventor or his successor in title, or by a person who obtained the information from the inventor. |
| Germany | 1. Disclosure not to be taken into account in determining novelty if it occurred within six months before the filing date due to:<br>(a) an evident abuse in relation to the applicant or his predecessor in title;<br>(b) display of the invention by the applicant or his predecessor in title at an official or officially recognized international exhibition notified in the Federal Law Gazette.<br>2. The applicant shall state when filing the application that the invention has been so displayed, and file a certificate within four months. |

| Country | Grace Period |
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| Ghana | Disclosure not to be taken into account in determining novelty if it occurred within six months before the filing date:<br>1. by the applicant or his predecessor in title;<br>2. due to an evident abuse committed in relation to the applicant or his predecessor in title. |
| Greece | 1. Disclosure not to be taken into account in determining patentability if it occurred within six months before the filing date due to:<br>(a) an evident abuse of the rights of the applicant or predecessor in title;<br>(b) display of the invention at an officially recognized international exhibition.<br>2. The applicant shall state when filing the application that the invention has been so displayed, and shall file a certificate. |
| Guatemala | The state of the art does not include disclosure of an invention within one year before the filing date (priority date) resulting from:<br>1. acts done directly or indirectly by the inventor or his successor in title;<br>2. non-performance of a contract or illicit acts against any of them; or<br>3. publication of applications by an industrial property Office where the applications were made by a party which does not have a right to a patent or the applications were published despite the Office should not have done so. |
| Hungary | Disclosure not to be taken into account in determining novelty if it occurred within six months before the filing date (priority date) due to:<br>1. an abuse of the rights of the applicant or his predecessor in title;<br>2. display of the invention by the applicant or his predecessor in title at a exhibition published in the Official Gazette. |
| Iceland | Disclosure not to be taken into account in determining patentability if it occurred within six months before the filing date due to:<br>1. an evident abuse in relation to the applicant or his predecessor in title;<br>2. display of the invention by the applicant or his predecessor in title at an official or officially organized exhibition. |

| Country | Grace Period |
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| India | An invention shall not be deemed to have been anticipated by:<br>1. Disclosures at any time before the filing date (priority date) of matter obtained from, and published without the consent of, the inventor or his successor in title (provided that the invention was not commercially worked in India, otherwise than for the purpose of reasonable trial, and that a patent application for the invention was filed in India or a convention country as soon as reasonably practicable thereafter).<br>2. Other applications made in contravention of the rights of the inventors or his successor in title or public use or publication of the invention without the consent of the inventor or his successor in title by the applicants of such other applications or by any other person in consequence of the disclosure.<br>3. Disclosures due to the communication of the invention to the Government or to any person authorized by the Government to investigate the invention or its merits, or for the purpose of that investigation.<br>4. Disclosures within 12 months before the application is made (calculated from the opening of the exhibition or the reading or publication of the paper) by:<br>(a) display or use of the invention with the consent of the inventor or his predecessor in title at an industrial or other exhibition notified in the Official Gazette;<br>(b) publication of the invention in consequence of such display or use;<br>(c) use of the invention during the period of the exhibition without the consent of the inventor or his predecessor in title;<br>(d) description of the invention in a paper read by the inventor before a learned society, or published with his consent in the transactions of such a society.<br>5. Disclosures within one year before the filing date (priority date) by public working the invention for reasonable trial, by or with the consent of the applicant or his predecessor in title. |
| Indonesia | 1. Disclosure shall not be deemed to be announced if it occurred within six months before the filing date by:<br>(a) display of the invention at an official or officially recognized international exhibition, or in an official or officially recognized national exhibition in Indonesia;<br>(b) use in Indonesia by the inventor for research or development.<br>2. Disclosure shall not be deemed to be announced if it is occurred within 12 months before the filing date by any other person in breach of a confidentiality obligation. |

| Country | Grace Period |
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| Ireland | 1. Disclosure not to be taken into account in determining novelty if it occurred within six months before the filing date due to:<br>(a) a breach of confidence or agreement in relation to the invention;<br>(b) the unlawful obtaining of information concerning the invention;<br>(c) display of the invention by the applicant or his legal predecessor at an official or officially recognized international exhibition.<br>2. The applicant shall state, when filing the application, that the invention has been so displayed, and file a certificate within a prescribed period.<br>3. The Ministry may prescribe a period other than the six months and circumstances other than (a), (b), and (c) to give effect to any treaty or international conventions. |
| Israel | 1. Disclosure not to be taken into account in determining patentability if it occurred at any time before the filing date of matter obtained from the applicant or his predecessor in title and published without his consent (provided that the patent application was filed within a reasonable time after the publication became known to the applicant).<br>2. Disclosure not to be taken into account in determining patentability if it occurred within six months before the filing date (calculated from the exhibition opening date) by:<br>(a) display of the invention by the applicant or his predecessor in title at an officially notified industrial or agricultural exhibition in Israel, or at a recognized exhibition in a Convention State;<br>(b) publication by the applicant or his predecessor in title of a description of the invention at the time of a said exhibition;<br>(c) use of the invention by the applicant or his predecessor in title at, and for the purposes, of the exhibition;<br>(d) use of the invention at the time of the exhibition (either at the exhibition or outside it and with or without the applicant's consent).<br>3. Disclosure not to be taken into account in determining patentability if it occurred within six months before the filing date (calculated from the date of the lecture or publication) by a lecture by the inventor before a scientific society, or by publication of the lecture in official transactions of the society, subject to prior notice to the Registrar. |
| Italy | Disclosure not to be taken into account in determining novelty if it occurred within six months before the filing date (priority date) due to:<br>1. an evident abuse to the prejudice of the applicant or his predecessor in title;<br>2. display of the invention at an official or officially recognized exhibition. |

| Country | Grace Period |
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| Japan | 1. Disclosure not to be taken into consideration in determining novelty and inventive step if it occurred within six months before the filing date:<br>(a) by the applicant conducting an experiment, making a presentation in a printed publication or through electric telecommunication lines, or making a presentation in writing at a scientific body study meeting held by a scientific body designated by the Commissioner;<br>(b) against the will of the applicant;<br>(c) display of the invention by the applicant at a prescribed national or international exhibition.<br>2. The applicant shall submit:<br>(a) a written statement to that effect with the application;<br>(b) proof, within 30 days of the filing date, that the disclosure was in respect of the invention (in the case of 1(a) and (c) above). |
| Jordan | Disclosure not to be taken into account in determining novelty if it occurred within 12 months before the filing date (priority date):<br>1. by the applicant or his predecessor;<br>2. due to an abuse made by third parties against the applicant or his predecessor in title. |
| Kenya | Disclosure not to be taken into account in determining novelty and inventive step if it occurred within 12 months before the filing date (priority date):<br>1. by the applicant or his predecessor in title;<br>2. due to an evident abuse committed by a third party in relation to the applicant or his predecessor in title. |
| Kyrgyz Republic | 1. Disclosure not to be taken into account in determining patentability if it occurred within 12 months before the filing date (priority date) by:<br>(a) the applicant or inventor;<br>(b) a person who obtained the information from the applicant or inventor.<br>2. The burden of proof is on the applicant. |

| Country | Grace Period |
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| Latvia | 1. Disclosure not to be taken into account in determining patentability if it occurred within 12 months before the filing date (priority date):<br>(a) the inventor or his successor in title;<br>(b) due to incorrect disclosure by the Office of information in another application filed by the same inventor, and the Office was not permitted to disclose this information;<br>(c) in an application filed, without the inventor's knowledge or permission, by a person who obtained the information from the inventor;<br>(d) by a person who obtained the information from the inventor.<br>2. The effect of the grace period may be invoked at any time. In the event of a dispute, burden of proof is on applicant or patent owner. |
| Liechtenstein | Disclosure within six months before the filing date (priority date) due to:<br>1. an obvious abuse in relation to the applicant or his predecessor in title;<br>2. display of the invention by the applicant or his predecessor in title at an official or officially recognized international exhibition.<br>(in accordance with the agreements with Switzerland and the European Economic Area (EEA)) |
| Lithuania | 1. Disclosure not to be taken into account in determining patentability if it occurred within six months before the filing date:<br>(a) by the inventor or his successor in title;<br>(b) due to an abuse with respect to the inventor or his successor in title;<br>(c) by display of the invention by the inventor or his successor in title at an official or officially recognized exhibition.<br>2. The burden of proof is on the applicant. |
| Luxembourg | 1. Disclosure not to be taken into account in determining novelty if it occurred within six months before the filing date due to:<br>(a) an evident abuse in relation to the applicant or his legal predecessor;<br>(b) display of the invention by the applicant or his legal predecessor at an official or officially recognized international exhibition.<br>2. The applicant shall state when filing the application that the invention has been so displayed, and file a certificate within a prescribed period. |

| Country | Grace Period |
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| Malaysia | Disclosure disregarded from the prior art if it occurred within one year before the filing date due to:<br>1. acts committed by the applicant or his predecessor in title;<br>2. an abuse of the rights of the applicant or his predecessor in title;<br>3. a pending application in UK as at the date of coming into force of the Act (Patents Act 291 of 1983). |
| Malta | Disclosure not to be taken into account in determining patentability if it occurred within 12 months before the filing date (priority date) by:<br>1. the inventor;<br>2. incorrect disclosure by an Office of information contained in another application filed by the applicant;<br>3. publication of an application filed, without the knowledge or consent of the inventor, by a person who obtained the information from the inventor;<br>4. a person who obtained the information from the inventor. |
| Mauritius | Disclosure not to be taken into account in determining novelty if it occurred within 12 months before the filing date (priority date):<br>1. by the applicant or his predecessor in title;<br>2. due to an abuse committed by a third party with regard to the applicant or his predecessor in title. |
| Mexico | 1. Disclosure of an invention shall not establish lack of novelty when, within the 12 months prior to the filing date (priority date), the inventor or his successor in interest has made the invention known by any means of communication, by putting the invention into practice or by having displayed it at a national or international exhibition.<br>2. When the corresponding application is filed, the evidentiary documents shall be included. The publication of an invention contained in a patent application or patent granted by a foreign office shall not be considered as included in the circumstances referred to in this article**.** |
| Moldova (Republic of) | 1. Disclosure not to be taken into account in determining patentability if it occurred in respect of creation of invention within 12 months before the filing date (priority date) by:<br>(a) the inventor or applicant;<br>(b) a person who obtained the information from the inventor or applicant.<br>2. The effect of the grace period may be invoked at any time. In the event of a dispute, the burden of proof is on applicant or patent owner. |
| Mongolia | No provision. |

| Country | Grace Period |
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| Morocco | 1. Any disclosure within six months before the filing date.<br>2. Disclosure resulting from publication, after the filing date, of an application with an earlier filing date (priority date) due to:<br>(a) an evident abuse with regard to the applicant or his predecessor in title;<br>(b) display of the invention by the applicant or his predecessor in title at an official or officially recognized international exhibition.<br>3. The applicant shall state when filing the application that the invention has been so displayed. |
| Mozambique | 1. Disclosure not to be taken into account in determining novelty if it occurred within 12 months before the filing date (priority date):<br>(a) by the inventor or his successor in title, to a scientific or professional institution or publication, or in official or officially recognized competition, exhibition or trade fair;<br>(b) due to an obvious abuse against the inventor or his successor in title.<br>2. In the case of 1(a) above, the inventor shall, when filing the application, submit a written declaration that the invention was exhibited or disclosed, and provide evidence to that effect within three months after the filing date. |
| Netherlands | 1. Disclosure not to be taken into account in determining novelty if it occurred within six months before the filing date due to:<br>(a) an evident abuse in relation to the applicant or his legal predecessor, or<br>(b) display of the invention by the applicant or his legal predecessor at an official or officially recognized international exhibition.<br>2. The applicant shall state, when filing the application, that the invention has been so displayed, and submit proof within a prescribed period. |
| New Zealand | An invention shall not be deemed to have been anticipated by:<br>1. Disclosure at any time before the filing date (priority date) of matter obtained the applicant or his predecessor in title and published without his consent, provided that;<br>(a) where the applicant or his predecessor in title learned of the publication beforehand, the application or application in a convention country was filed as soon as reasonably practicable thereafter; and<br>(b) the invention was not commercially worked in New Zealand before the filing date (priority date) by, or with the consent of, the applicant or his predecessor in title (other than for the purpose of reasonable trial). |

| Country | Grace Period |
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| New Zealand (cont'd.) | 2. Disclosure at any time before the filing date (priority date);<br>(a) in any other application for a patent in respect of the same invention, contravening the rights of the applicant or his predecessor in title;<br>(b) by use or publication of the invention without the consent of the applicant or his predecessor in title in consequence of any disclosure of the invention by the applicant for the other application.<br>(c) by the communication of the invention to a Government Department or person authorized thereby to investigate the invention, or of anything done for that investigation.<br>3. Disclosure within six months before the filing date (priority date) (calculated from the opening of the exhibition or the reading or publication of the paper) by:<br>(a) display or use of the invention with the consent of the inventor at a declared international or industrial exhibition;<br>(b) publication of the invention in consequence of the display or use of the invention at such exhibition;<br>(c) use of the invention during the period of the exhibition without the consent of the true and first inventor;<br>(d) in a paper read by the inventor before a learned society or published with his consent in the transactions of such a society;<br>4. Disclosure within one year before the filing date (priority date) by public working of the invention by, or with the consent of, the applicant or his predecessor in title for the purpose of reasonable trial. |
| Nicaragua | Disclosure not to be considered as the state of the art if it occurred within one year before the filing date (priority date) due to:<br>1. publication of a patent application due to an error on the part of the Office;<br>2. publication of a patent application filed by a person not entitled to the grant of a patent;<br>3. acts, other than filing a patent application, by the inventor or his successor in title;<br>4. acts committed in breach of contract or unlawfully against the inventor or his successor in title. |
| Nigeria | Disclosure not to be deemed to have been made available to the public if it occurred within six months before the filing date by display of the invention by the inventor or his successor in title at an official or officially recognized international exhibition. |
| Norway | Disclosure not to be taken into account in determining novelty and inventive step if it occurred within six months before the filing date due to:<br>1. an evident abuse in relation to the applicant or his predecessor in title;<br>2. display of the invention by the applicant or his predecessor in title at an official or officially recognized international exhibition. |

| Country | Grace Period |
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| Oman | No provision. |
| Pakistan | Disclosure not to be taken into account in determining novelty if it occurred within one year before the filing date due to:<br>1. matter obtained unlawfully or in breach of confidence;<br>2. display of the invention by the inventor at an international or official exhibition. |
| Panama | Disclosure not to be taken into account in determining patentability if it occurred within 12 months before the filing date (priority date) due to:<br>1. publication of an application filed by a person not entitled to the grant of a patent;<br>2. publication of an application due to an error on the part of the Office.<br>3. an act engaged in by, or in committed in breach of trust or contract or unlawfully against, the inventor or his successor in title. |
| Papua New Guinea | Disclosure not to be taken into account in determining prior art if it occurred within 12 months before the filing date (priority date):<br>1. by the applicant or his predecessor in title;<br>2.. due to an abuse committed with regard to the applicant or his predecessor in title. |
| Peru | 1. Disclosure not to be taken into account in determining patentability if it occurred within one year before the filing date in the member country [of the Cartagena Agreement]:<br>1. by the inventor or his successor in title;<br>2. due to incorrect publication by an Office of a patent application filed by the inventor or his successor in title;<br>3. by a person who obtained the information from the inventor or his successor in title. |
| Philippines | Disclosure not to be taken into account in determining novelty if it occurred within one year before the filing date (priority date):<br>1. by the inventor or his successor in title;<br>2. due to incorrect publication by an Office of a patent application filed by the inventor;<br>3. in an application filed, without the knowledge or consent of the inventor, by a person who obtained the information from the inventor;<br>4. by a person who obtained the information directly or indirectly from the inventor or his successor in title. |
| Poland | No provision. |

| Country | Grace Period |
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| Portugal | 1. Disclosure not to be taken into account in determining novelty if it occurred within 12 months before the filing date at scientific societies, professional technical societies, competitions, official or officially recognized exhibitions and trade shows.<br>2. Obvious abuse with respect to the inventor or his successor in title, or improper publication by INPI.<br>3. In the case of 1 above, the applicant shall prove within 3 months from the filing date. |
| Republic of Korea | 1. Disclosure not to be taken into account in determining novelty and inventive step if it occurred within six months before the filing date<br>(a) by the applicant or his successor in title (excluding the disclosure made by a national or foreign Office according to legislations or international treaties);<br>(b) contrary to the intention of the applicant or his successor in title.<br>2. In the case of 1(a) above, the applicant shall submit a written statement to that effect with the application and, within 30 days of the filing date, a document proving the relevant facts. |
| Romania | Disclosure not to be taken into account in determining novelty if it occurred within 12 months before the filing date (priority date) by the inventor or his successor in title. |
| Russian Federation | 1. Disclosure not to be taken into account in determining patentability if it occurred within six months before the filing date by:<br>(a) the inventor or applicant;<br>(b) a person who obtained information from the inventor or applicant.<br>2. The burden of proof is on the applicant. |
| Saint Lucia | No provision. |
| Serbia and Montenegro | 1. Disclosure not to be taken into account in determining novelty if it occurred within six months before the filing date due to:<br>(a) an evident abuse in relation to the applicant or his legal predecessor,<br>(b) display of the invention by the applicant or his legal predecessor at an officially recognized exhibition.<br>2. The applicant shall state, when filing the application, that the invention has been so exhibited, and shall file a certificate within four months of the filing date. |

| Country | Grace Period |
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| Singapore | Disclosure not to be taken into account in determining novelty if it occurred within 12 months before the filing date due to:<br>1. matter directly or indirectly obtained unlawfully or in breach of confidence from, the inventor;<br>2. display of the invention by the inventor displaying at an international exhibition;<br>3. a description of the invention in a paper read by, or with the consent of, the inventor before a learned society, or published with his consent in the transactions of a learned society. |
| Slovak Republic | 1. Disclosure not to be taken into account in determining novelty if it occurred within six months before the filing date due to:<br>(a) an evident abuse in relation to the applicant or his legal predecessor;<br>(b) display of the invention by the applicant or his legal predecessor at an official or officially-recognized international exhibition.<br>2. The applicant shall declare, when filing the application, that the invention has been so exhibited, and shall file a certificate to that effect within four months of the filing date. |
| Slovenia | 1. Disclosure not to be taken into account in determining novelty if it occurred within 12 months before the filing date (priority date) by publication or other form of public presentation directly by the inventor.<br>2. Disclosure at any time before the filing date:<br>(a) in a patent application filed by the inventor which should not have become publicly available;<br>(b) in an application filed by a person who obtained the information from the inventor without his knowledge or consent;<br>(c) by a person who acquired the information from the inventor. |
| South Africa | Disclosure not to be taken into account in determining patentability if it occurred any time before the filing date (priority date) due to:<br>1. knowledge or matter obtained from the applicant or his predecessor in title and disclosed or used without his knowledge or consent (provided that, where the applicant learnt of that disclosure, use or knowledge before the filing date (priority date), he then applied for protection with reasonable diligence);<br>2. working the invention in South Africa, by the applicant or his predecessor in title, for reasonable technical trial or experiment. |

| Country | Grace Period |
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| Spain | Disclosure not to be taken into consideration in determining the state of the art if it occurred during the six months preceding the filing date and if it was due to, or in consequence of:<br>1. an evident abuse in relation to the applicant or his legal predecessor;<br>2. the fact that the applicant or his legal predecessor has displayed the invention at an official or officially recognized exhibition. The applicant shall declare, when filing the application, that the invention has in fact been exhibited and, in support of his statement, he shall submit the corresponding certificate within the period and under the conditions laid down in the regulations;<br>3. tests carried out by the applicant or by his legal predecessor, provided that they do not imply working the invention or offering it for sale. |
| Sri Lanka | 1. Disclosure not to be taken into account in determining novelty if it occurred within one year before the filing date by the applicant or his predecessor in title.<br>2. Disclosure not to be taken into account in determining novelty if it occurred within six months before the filing date due to an abuse of the rights of the applicant or his predecessor in title. |
| Sweden | Disclosure not to be taken into account in determining patentability if it occurred within six months before the filing date due to:<br>1. evident abuse in relation to the applicant or his predecessor in title;<br>2. display of the invention by the applicant or his predecessor in title at an official or officially recognized international exhibition. |
| Switzerland | 1. Disclosure not to be taken into account in determining novelty if it occurred within six months before the filing date (priority date) due to:<br>(a) a manifest abuse in relation to the applicant or his legal predecessor;<br>(b) display of the invention by the applicant or his predecessor in title at an official or officially recognized international exhibition.<br>2. The applicant shall declare, when filing the application, that the invention has been so exhibited, and produce sufficient supporting evidence in good time. |
| Thailand | Disclosure not to be taken into account in determining novelty if it occurred within 12 months before the filing date due to:<br>1. matter obtained unlawfully;<br>2. disclosure made by the inventor;<br>3. display of the invention by the inventor at an international or official exhibition. |

| Country | Grace Period |
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| The Former Yugoslav Republic of Macedonia | Disclosure not to be taken into account in determining novelty if it occurred within six months before the filing date due to:<br>1. an evident abuse in relation to the applicant or his legal predecessor;<br>2. display of the invention by the applicant or his legal predecessor at an official or officially recognized exhibition. |
| Trinidad and Tobago | Disclosure not to be taken into account in determining novelty if it occurred within one year before the filing date:<br>1. by the applicant or his predecessor in title;<br>2. due to an abuse committed by a third party with regard to the applicant or his predecessor in title. |
| Tunisia | Disclosure not to be taken into account in determining novelty if it occurred within 12 months before the filing date (priority date) due to a manifest abuse practiced on the applicant or his predecessor in title. |
| Turkey | 1. Disclosure not to be taken into account in determining patentability if it occurred at any time before the filing date (priority date):<br>(a) by the inventor;<br>(b) in an application filed by the inventor which should not have been disclosed by the Office;<br>(c) in an application filed, without the knowledge or consent of the inventor by a third party who obtained the information from the inventor;<br>(d) by a third person who acquired information from the inventor.<br>2. The burden of proof is on the applicant. |
| Ukraine | 1. Disclosure not to be taken into account in determining patentability if it occurred within 12 months before the filing date (priority date) by:<br>(a) the inventor;<br>(b) a person who obtained information from the inventor.<br>2. The burden of proof is on the applicant or patent owner. |
| United Kingdom | 1. Disclosure not to be taken into account in determining novelty if it occurred within six months before the filing date due to:<br>(a) matter directly or indirectly obtained unlawfully or in breach of confidence from the inventor;<br>(b) display of the invention by the inventor at an international exhibition.<br>2. The applicant shall state, when filing the application, that the invention was displayed, and furnish written evidence within a prescribed time limit. |

| Country | Grace Period |
|---|---|
| United States of America | Disclosure not to be taken into consideration in determining novelty and inventive step if it occurred within one year before the filing date in the form of:<br>1. inventions patented or described in a printed publication in the US or abroad;<br>2. public use or on sale in the US. |
| Uruguay | Disclosure not to be taken into account in determining novelty if it occurred within one year before the filing date (priority date) by:<br>1. the inventor or his successor in title;<br>2. a person who obtained information from the inventor. |
| Uzbekistan | 1. Disclosure not to be taken into account in determining patentability if it occurred within six months before the filing date by:<br>(a) the inventor or applicant;<br>(b) a person who received information from the inventor or applicant.<br>2. The inventor or applicant shall prove the circumstances of the disclosure. |
| **Regional Offices** | **Grace Period** |
| African Intellectual Property Organization (OAPI) | Disclosure not to be taken into account in determining novelty if it occurred within 12 months before the filing date (priority date) due to:<br>1. an obvious abuse in relation to the applicant or his predecessor in title;<br>2. display of the invention by the applicant or his predecessor in title at an official or officially recognized international exhibition. |
| African Regional Intellectual Property Organization (ARIPO) | Disclosure not to be taken into account in determining novelty if it occurred within six months before the filing date (priority date), by display of the invention at an official or officially recognized international exhibition. |
| Eurasian Patent Organization (EAPO) | 1. Disclosure not to be taken into account in determining patentability if it occurred within six months before the filing date (priority date) by:<br>(a) the inventor or applicant;<br>(b) a person who obtained the information from the inventor or applicant.<br>2. The burden of proof is on the applicant. |
| European Patent Organisation (EPO) | Disclosure not to be taken into consideration in determining the novelty if it occurred within six months before the filing date due to:<br>1. an evident abuse in relation to the applicant or his legal predecessor, or<br>2. display of the invention by the applicant or his legal predecessor at an official or officially recognized international exhibition. |

(5) Sufficiency of Disclosure

| Country | Sufficiency of Disclosure |
|---|---|
| Albania | An application shall disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. |
| Algeria | The description shall disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. |
| Andorra | The application shall disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. |
| Argentina | The application shall:<br>1. describe the invention with sufficient clarity and completeness for it to be carried out by an expert with average knowledge in the field concerned;<br>2. include a clear and accurate account of the best known method of carrying out and implementing the invention;<br>3. indicate the materials and components used. |
| Armenia | The description shall set out the invention in sufficient detail for it to be carried out. |
| Australia | An application shall:<br>1. describe the invention fully;<br>2. include the best method known to the applicant of performing the invention. |
| Austria | An application shall disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. |
| Bahrain | The description shall include:<br>1. a full statement of the subject matter;<br>2. the best way to enable a person skilled in the art to implement the invention. |
| Barbados | The description shall:<br>1. be sufficiently clear and complete to enable the invention to be evaluated and tested by a person having ordinary skill in the art;<br>2. indicate at least one mode known to the applicant for using the invention. |
| Belarus | The description shall disclose the claimed invention in sufficient detail for it to be carried out. |
| Belgium | The description shall be sufficiently clear and complete for it to be carried out by a person skilled in the art. |
| Belize | The description shall:<br>1. disclose the invention in a manner which is sufficiently clear and complete to permit a person having ordinary skill in the art to carry out the invention;<br>2. indicate at least one mode known to the applicant in which the invention can be carried out. |

| Country | Sufficiency of Disclosure |
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| Bolivia | The description shall:<br>1. disclose the invention in a manner sufficiently clear and complete to be understood and for a person skilled in the technical field to be able to carry it out;<br>2. disclose the best method known to the applicant of carrying out the invention;<br>3. include the following information:<br>(a) the area of technology to which the invention relates and the previous technology known to the applicant;<br>(b) the technical problem and solution the invention provides, its differences and advantages in relation to the earlier technology and its industrial applicability. |
| Bosnia and Herzegovina | An application shall disclose the invention in a manner sufficiently clear and precise for it to be carried out by a person skilled in the art. |
| Brazil | An application shall:<br>1. clearly and sufficiently describe the invention, so as to permit its reproduction by a person skilled in the art;<br>2. indicate, where applicable, the best way of carrying it out. |
| Bulgaria | The description shall contain:<br>1. a clear and adequate disclosure of the essential technical features of the invention and its advantages, in such manner that the invention may be carried out by a person skilled in the art;<br>2. at least one example of an embodiment of the invention in support of its industrial applicability. |
| Canada | A specification shall:<br>1. correctly and fully describe the invention and its operation or use;<br>2. clearly describe the invention in sufficiently full, clear, concise and exact terms to enable any person skilled in the art to carry it out;<br>3. explain the principle of a machine and the best mode of applying it;<br>4. explain any sequence of steps which distinguish a process. |
| Chile | The description shall be sufficiently clear and complete for an expert or a person skilled in the art to carry out the invention without need for any other information. |
| China | The description shall be sufficiently clear and complete to enable a person skilled in the re1evant field of techno1ogy to carry it out. |

| Country | Sufficiency of Disclosure |
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| Colombia | The description shall:<br>1. disclose the invention in a manner sufficiently clear and complete to be understood and for a person skilled in the technical field to be able to carry it out;<br>2. disclose the best method known to the applicant of carrying out the invention;<br>3. include the following information:<br>(a) the area of technology to which the invention relates and the previous technology known to the applicant;<br>(b) the technical problem and solution the invention provides, its differences and advantages in relation to the earlier technology and its industrial applicability. |
| Costa Rica | The description shall specify the invention in a sufficiently clear and complete manner that a person skilled in the art can carry it out and shall in particular indicate the best way the applicant knows how to carry it out, giving, if possible, one or more concrete examples and identifying, if applicable, that one which would give the most satisfactory results in terms of industrial exploitation. |
| Croatia | The application shall disclose the invention in a manner sufficiently clear and precise for it to be carried out by a person skilled in the art. |
| Cyprus | The description shall disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. |
| Czech Republic | An application shall disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. |
| Denmark | The description shall be sufficiently clear to enable a person skilled in the art to carry out the invention. |
| Dominica | The description shall:<br>(a) be sufficiently clear to enable a person having ordinary skill in the art to carry out the invention;<br>(b) indicate at least one mode for carrying out the invention. |
| Ecuador | The description shall:<br>1. disclose the invention in a manner sufficiently clear and complete to be understood and for a person skilled in the technical field to be able to carry it out;<br>2. disclose the best method known to the applicant of carrying out the invention;<br>3. include the following information:<br>(a) the area of technology to which the invention relates and the previous technology known to the applicant;<br>(b) the technical problem and solution the invention provides, its differences and advantages in relation to the earlier technology and its industrial applicability. |

| Country | Sufficiency of Disclosure |
|---|---|
| Egypt | The description shall include:<br>1. a full statement of the subject matter of the invention;<br>2. the best way to enable an expert person to carry it out. |
| El Salvador | The description shall:<br>1. disclose the invention in a manner sufficiently clear and complete for it to be evaluated and for a person skilled in the art to carry it out;<br>2. state:<br>(a) the area of technology to which the invention relates and the prior art known to the applicant;<br>(b) the technical problem and solution the invention provides, its differences and advantages in relation to the earlier technology and the manner in which it may be produced or used in any activity;<br>(c) the best method known to the applicant of carrying out the invention. |
| Estonia | The description shall disclose the subject matter of the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. |
| Finland | The description shall be sufficiently clear to enable a person skilled in the art to carry out the invention. |
| France | The application shall disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. |
| Georgia | The description shall be sufficiently complete to enable the skilled person in the art to carry out the invention. |
| Germany | An application shall disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. |
| Ghana | The description shall:<br>1. disclose the invention in a manner sufficiently clear and complete for the invention to be evaluated, carried out or worked by a person possessing average skill in and average knowledge of the art;<br>2. indicate the best mode known to the applicant for carrying out the invention. |
| Greece | The description shall be sufficient to enable the invention to be carried out by a person skilled in the art. |
| Guatemala | The description shall specify the invention in a sufficiently clear and complete manner that a person skilled in the art can carry it out and shall in particular indicate the best way the applicant knows how to carry it out. |
| Hungary | An application shall disclose the invention in a manner sufficiently clear and detailed for it to be carried out by a person skilled in the art. |

| Country | Sufficiency of Disclosure |
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| Iceland | The description shall be sufficiently clear to enable a person skilled in the art to carry out the invention. |
| India | An application shall:<br>1. fully and particularly describe the invention and its operation or use and the method by which it is to be performed;<br>2. disclose the best method of performing the invention which is known to the applicant. |
| Ireland | An application shall disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. |
| Israel | An application shall describe the invention in a manner which enables it to be performed by a skilled person to perform it. |
| Italy | The application shall disclose the invention in a manner sufficiently clear and complete for it to be carried out by any person skilled in the art. |
| Japan | The application shall describe the invention in a manner sufficiently clear and complete for the invention to be carried out by a person having ordinary skill in the art. |
| Jordan | The description shall:<br>1. disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person having ordinary skill in the art;<br>2. state the best mode known to the applicant for carrying out the invention. |
| Kenya | The description shall:<br>1. disclose the invention in such full, clear, concise and exact terms as to enable any person having ordinary skills in the art to make use and to evaluate the invention;<br>2. include at least one mode for carrying out the invention. |
| Kyrgyz Republic | The description shall disclose the invention in a manner sufficiently complete for it to be carried out by a person skilled in the art. |
| Latvia | The description of the invention shall:<br>1. be clear and complete enough for a specialist to implement the invention without supplementary inventive work;<br>2. describe the technical level, as known to the applicant. |
| Liechtenstein | An application shall describe the invention in a manner which enables it to be carried out by a man skilled in the art. |
| Lithuania | An application shall disclose the invention in such full and clear terms as to enable any person skilled in the art to use the invention. |

| Country | Sufficiency of Disclosure |
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| Luxembourg | The patent application shall disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. |
| Malaysia | The description shall:<br>1. disclose the invention in such terms that it can be understood and in a manner sufficiently clear and complete for the invention to be evaluated and to be carried out by a person having ordinary skill in the art, and state any advantageous effects of the invention with reference to the background art;<br>2. briefly describe the best mode contemplated by the applicant for carrying out the invention;<br>3. specify:<br>(a) the technical field to which the invention relates;<br>(b) the background art;<br>(c) the way in which the invention is industrially applicable and can be made and used. |
| Malta | The application shall disclose the invention in a manner sufficiently clear and complete for the invention to be carried out by a person skilled in the art. |
| Mauritius | The description shall:<br>1. disclose the invention in a manner which is sufficiently clear and complete for the invention to be carried out by a person having ordinary skill in the art;<br>2. indicate at least one mode known to the applicant for carrying out the invention. |
| Mexico | The description of the invention shall be sufficiently clear and complete to be fully understood and where appropriate to serve as a guide for a person with average skill in the art to make it; it shall also mention the best method known to the applicant of carrying out the invention when this is not clear from the description thereof. |
| Moldova (Republic of) | The description shall:<br>1. disclose the invention in a manner sufficiently clear and complete for the invention to be carried out by a person skilled in the art;<br>2. indicate the best mode for carrying out the invention known to the inventor. |
| Mongolia | Content of description not prescribed. |
| Morocco | The description shall:<br>1. disclose the invention in a manner sufficiently clear and complete for the invention to be carried out by a person skilled in the art; |

| Country | Sufficiency of Disclosure |
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| Morocco (cont'd.) | 2. include the following information:<br>(a) the area of technology to which the invention relates and the prior art known to the applicant;<br>(b) the technical problem and solution the invention provides; its differences and advantages in relation to the earlier technology and its industrial applicability;<br>(c) at least one method of carrying out the invention. |
| Mozambique | The description shall:<br>1. disclose the invention in a manner sufficiently clear and complete for the invention to be carried out by a person skilled in the art;<br>2. indicate at least one way of carrying it out. |
| Netherlands | The description of the invention shall be clear and complete and be of such a nature as to enable a person skilled in the art to understand it and carry it out the invention. |
| New Zealand | An application shall:<br>1. particularly describe the invention and the method by which it is to be performed;<br>2. disclose the best method of performing the invention known to the applicant. |
| Nicaragua | The description shall:<br>1. disclose the invention in a manner sufficiently clear and complete for the invention to be understood and carried out by a person skilled in the art;<br>2. include the following information:<br>(a) the area of technology to which the invention relates and the prior art known to the applicant;<br>(b) the technical problem and solution the invention provides, its differences and advantages in relation to the earlier technology and its industrial applicability;<br>(c) the best method of carrying out the invention known to the applicant. |
| Nigeria | The description shall disclose the relevant invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. |
| Norway | The description shall be sufficiently clear to enable a person skilled in the art to carry out the invention. |
| Oman | No specific requirement. |
| Pakistan | The application shall:<br>1. fully and particularly describe the invention and the methods by which it is to be performed;<br>2. disclose the invention which is known to the applicant. |

| Country | Sufficiency of Disclosure |
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| Panama | The description shall:<br>1. disclose the invention in a manner sufficiently clear and complete for the invention to be evaluated and carried out by a person skilled in the art;<br>2. disclose the best method of carrying out the invention known to the applicant;<br>3. include the following information:<br>(a) the area of technology to which the invention relates and the prior art known to the applicant;<br>(b) the technical problem and solution the invention provides, its differences and advantages in relation to the earlier technology and its industrial applicability. |
| Papua New Guinea | The description shall:<br>1. disclose the invention in a manner sufficiently clear and complete for the invention to be carried out by a person having ordinary skill in the art;<br>2. indicate the best method known to the applicant for carrying out the invention. |
| Peru | The description shall:<br>1. disclose the invention in a manner sufficiently clear and complete to be understood and for a person skilled in the technical field to be able to carry it out;<br>2. disclose the best method known to the applicant of carrying out the invention;<br>3. include the following information:<br>(a) the area of technology to which the invention relates and the previous technology known to the applicant;<br>(b) the technical problem and solution the invention provides, its differences and advantages in relation to the earlier technology and its industrial applicability. |
| Philippines | The application shall disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. |
| Poland | The description shall:<br>1. disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art;<br>2. specify the technical field to which the invention relates and the background art known to the applicant;<br>3. present the invention in a detailed manner, and indicate the way(s) of carrying it out. |
| Portugal | The description shall indicate in a clear and concise manner everything of which consists the invention, including at least one detailed explanation of how a person skilled in the art can carry it out. |

| Country | Sufficiency of Disclosure |
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| Republic of Korea | The description shall state the purpose, construction, and effect of the invention in such a manner that it may easily be carried out by a person having ordinary skill in the art. |
| Romania | An application shall disclose the invention in a manner sufficiently clear, complete and correct from a scientific and technical point of view for a person skilled in the art to be able to make it without engaging in inventive activity. |
| Russian Federation | The description shall disclose the claimed invention in sufficient detail for it to be carried out. |
| Saint Lucia | An application shall disclose the invention in a manner which is sufficiently clear and complete for the invention to be carried out by a person skilled in the art. |
| Serbia and Montenegro | An application shall disclose the invention in a manner that is sufficiently clear and complete for the invention to be carried out by a person skilled in the art. |
| Singapore | An application shall disclose the invention in a manner which is clear and complete for the invention to be performed by a person skilled in the art. |
| Slovak Republic | 1. An application shall disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.<br>2. The description shall contain the following:<br>(a) the technical field which the invention relates and the existing state of the art;<br>(b) the nature of the invention, its advantages or, possibly, disadvantages as against the existing state of the art and its methods of industrial application;<br>(c) examples of performing the invention. |
| Slovenia | 1. An application shall describe the invention with sufficient clarity and detail to enable a person skilled in the art to apply it in a given field.<br>2. The description shall present the problem to be solved, the prior art and its deficiencies, and the solution to the problem. |
| South Africa | An application shall:<br>1. fully describe and ascertain the invention and the manner in which it is to be performed;<br>2 disclose the best method of performing the invention known to the applicant. |
| Spain | The invention shall be described in the patent application in a sufficiently clear and comprehensive manner to enable a person skilled in the art to carry it out. |
| Sri Lanka | The description shall:<br>1. disclose the invention in a manner sufficiently clear and complete for the invention to be evaluated, and to be carried out by a person having ordinary skill in the art;<br>2. indicate the best mode known to the applicant for carrying out the invention. |

| Country | Sufficiency of Disclosure |
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| Sweden | The description shall:<br>1. be sufficiently clear for a person skilled in the art to carry out the invention;<br>2. indicate how the invention can be industrially exploited. |
| Switzerland | The application shall disclose the invention in such a way that a person skilled in the art may carry it out. |
| Thailand | The description shall:<br>1. be sufficiently complete, concise, clear and exact to enable any person ordinarily skilled in the art to make and use the invention;<br>2. disclose the best mode of carrying it out contemplated by the inventor. |
| The Former Yugoslav Republic of Macedonia | The description shall disclose the invention in a manner sufficiently clear and precise for it to be carried out by a person skilled in the art. |
| Trinidad and Tobago | An application shall:<br>1. disclose the invention in a manner which is clear and complete enough for it to be performed by a person skilled in the art;<br>2. indicate at least one mode known to the applicant for carrying out the invention. |
| Tunisia | The description shall be sufficiently clear and complete for a person skilled in the art to carry out the invention. |
| Turkey | The description shall be sufficiently explicit and comprehensive for a person skilled in the art to carry out the invention. |
| Ukraine | The description shall disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. |
| United Kingdom | An application shall disclose the invention in a manner which is clear and complete enough for it to be performed by a person skilled in the art. |
| United States of America | The description shall disclose:<br>1. the manner and process of making and using the invention in such full, clear, concise, and exact terms as to enable any person skilled in the art to make and use it;<br>2. the best mode contemplated by the inventor of carrying it out. |
| Uruguay | The application shall contain a clear and full description of the invention. |
| Uzbekistan | The description shall disclose sufficient information for the invention to be carried out. |

| Regional Offices | Sufficiency of Disclosure |
|---|---|
| African Intellectual Property Organization (OAPI) | The description shall disclose the invention so clearly and completely that a person having ordinary knowledge and skill in the art could carry it out. |
| African Regional Intellectual Property Organization (ARIPO) | The description shall:<br>1. disclose the invention in such terms that it can be understood;<br>2. set forth at least the best mode contemplated by the applicant for carrying out the invention<br>3. state:<br>(a) its advantageous effects, if any, with reference to the background art.<br>(b) the technical field to which the invention relates;<br>(c) the background art known to the applicant;<br>(d) the way in which the invention is industrially applicable and can be made and used. |
| Eurasian Patent Organization (EAPO) | An application shall:<br>1. disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art;<br>2. specify the technical field, the background art, the technical problem to be solved, the technical result of the invention and how it can be achieved, and the advantage over the background art. |
| European Patent Organisation (EPO) | An application shall disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. |

(6) Exclusions from Patentable Subject Matter

| Country | Exclusions from Patentable Subject Matter |
|---|---|
| Albania | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations.<br>3. Schemes, rules and methods for performing mental acts, playing games or doing business.<br>4. Computer programs.<br>5. Presentation of information<br>6. Inventions contrary to public policy or morality.<br>7. Nuclear substances for military purposes.<br>8. Surgical, diagnostic and therapeutic methods for treating humans and animals.<br>9. Plant and animal varieties and essentially biological processes for their production, other than microbiological processes and products. |
| Algeria | 1. Principles, theories, scientific discoveries and mathematical methods.<br>2. Plans, principles and methods for intellectual activities and playing games.<br>3. Methods and systems of teaching, organization, administration and management.<br>4. Surgical, therapeutic and diagnostic methods for treating humans and animals.<br>5. Presentation of information.<br>6. Computer programs.<br>7. Aesthetic creations.<br>8. Plant and animal varieties and essentially biological processes for their production.<br>9. Inventions contrary to public policy or morality.<br>10. Inventions harmful to the health or life of humans or animals, preservation of plants, or protection of the environment. |
| Andorra | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations.<br>3. Schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers.<br>4. Presentation of information.<br>5. Inventions contrary to public order or morality.<br>6. Surgical, therapeutic and diagnostic methods for treating humans and animals. |

| Country | Exclusions from Patentable Subject Matter |
|---|---|
| Argentina | 1. Discoveries, scientific theories and mathematical methods.<br>2. Literary, artistic or scientific works.<br>3. Aesthetic creation.<br>4. Schemes, rules or methods for performing intellectual activities, playing games or engaging in economic and business activities.<br>5. Computer programs.<br>6. Presentation of information.<br>7. Surgical, therapeutic and diagnostic methods for treating humans and animals.<br>8. Combinations which do not produce anon—obvious result.<br>9. Living material and substances already occurring in nature.<br>10. Inventions contrary to the public good or morality,<br>11. Inventions detrimental to human or animal the health or life, plant conservation or the environment.<br>12. Biological and genetic material occurring in nature or derived therefrom by reproduction, and genetic reproduction processes replicating nature. |
| Armenia | 1. Scientific theories and mathematical methods.<br>2. Methods of economic organization and management.<br>3. Symbols, schedules and rules.<br>4. Methods and rules for performing mental acts.<br>5. Algorithms for computers.<br>6. Projects and plans for structures, buildings and land development.<br>7. Aesthetic creations.<br>8. Plant and animal varieties. |
| Australia | 1. Inventions secretly used by, or with the consent of, the patentee or his predecessor in title before the filing date (priority date) in Australia, except such use:<br>(a) is for the purpose of reasonable trial or experimental use;<br>(b) being use occurring solely in the course of a confidential disclosure;<br>(c) is for any purpose other than trade or commerce;<br>(d) is by the Commonwealth, a State or a Territory where the patentee disclosed the invention to them.<br>2. Humans and the biological processes for their generation. |

| Country | Exclusions from Patentable Subject Matter |
|---|---|
| Austria | 1. Discoveries, scientific theories, and mathematical methods.<br>2. Aesthetic creations.<br>3. Schemes, rules and methods for performing mental acts, playing games or doing business.<br>4. Computer programs.<br>5. Presentation of information.<br>6. Inventions contrary to public order or morality.<br>7. Surgical, therapeutic and diagnostic methods for treating humans and animals.<br>8. Plant and animal varieties and essentially biological processes for their production, other than microorganisms and microbiological processes and products. |
| Bahrain | 1. Inventions contrary to public order or morality.<br>2. Inventions harmful to human, animal or plant life or health or the environment.<br>3. Discoveries, scientific theories and mathematical methods.<br>4. Plants and animals and essentially biological processes for their production, other than microorganisms.<br>5. Surgical, therapeutic and diagnostic methods for treating humans and animals. |
| Barbados | 1. Discoveries, scientific theories and mathematical methods.<br>2. Schemes, rules or methods for carrying on of business, performing mental acts or playing games.<br>3. Surgical, therapeutic and diagnostic methods for treating humans or animals.<br>4. Plant and animal varieties and essentially biological processes for production of plants, other than microbiological processes and products.<br>5. Inventions contrary to public order or morality.<br>6. Inventions the commercial exploitation of which would be detrimental to human or animal health, plant life or the environment. |
| Belarus | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations.<br>3. Schemes, rules and methods for performing mental acts, playing games or doing business.<br>4. Algorithms and computer programs.<br>5. Presentation of information.<br>6. Plant and animal varieties.<br>7. Topographies of integrated circuits.<br>8. Inventions contrary to public interest, humanitarian principles or morality. |

| Country | Exclusions from Patentable Subject Matter |
|---|---|
| Belgium | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations.<br>3. Schemes, rules and methods for performing mental acts, playing games or doing business.<br>4. Computer programs.<br>5. Presentation of information.<br>6. Plant species and plant and animal varieties.<br>7. Essentially biological processes for the production of plants or animals, other than microbiological processes or products.<br>8. Inventions contrary to public policy or morality.<br>9. Surgical, therapeutic and diagnostic methods for treating humans or animals. |
| Belize | 1. Discoveries, scientific theories and mathematical methods.<br>2. Schemes, rules or methods for doing business, performing mental acts or playing games.<br>3. Surgical, therapeutic and diagnostic methods for treating humans or animals.<br>4. Inventions contrary public order or morality.<br>5. Inventions the commercial exploitation of which would be detrimental to human, animal or plant life or health or the environment. |
| Bolivia | 1. Discoveries, scientific theories and mathematical methods.<br>2. Natural biological materials.<br>3. Literary, artistic works and other works protected by copyright.<br>4. Plans, rules and methods for pursuit of intellectual activities, playing games, or conduct of economic and business activities.<br>5. Computer programs and software.<br>6. Presentation of information.<br>7. Inventions contrary to public order or morality.<br>8. Inventions the commercial exploitation of which would be detrimental to human, animal life or health, plant preservation or the environment<br>9. Plants, animals and essentially biological processes for the production of plants or animals, other than non-biological and microbiological processes.<br>10. Surgical, therapeutic and diagnostic methods for treating humans or animals.<br>11. New uses of patented products and processes. |

| Country | Exclusions from Patentable Subject Matter |
|---|---|
| Bosnia and Herzegovina | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations.<br>3. Rules, instructions and methods for performing mental acts, playing games or doing business.<br>4. Computer programs.<br>5. Presentation of information.<br>6. Inventions contrary to law or morality.<br>7. Surgical, therapeutic and diagnostic methods for treating humans or animals. |
| Brazil | 1. Discoveries, scientific theories, and mathematical methods.<br>2. Abstract conceptions.<br>3. Schemes, plans, principles or methods of a commercial, accounting, financial, educational, publishing, lottery or fiscal nature.<br>4. Literary, architectural, artistic and scientific works;<br>5. Aesthetic creation.<br>6. Computer programs.<br>7. Presentation of information.<br>8. Rules of games.<br>9. Surgical, therapeutic and diagnostic methods for treating humans or animals.<br>10. Natural living beings, in whole or in part, and biological material**,** including the genome or germ plasm of any natural living being, when found in nature or isolated therefrom, and natural biological processes.<br>11. Inventions contrary to morals, standards of respectability and public security, order and health.<br>12. Nuclear processes and products.<br>13. Living beings, in whole or in part, other than transgenic microorganisms.<br>14. Patents for pharmaceutical products and processes require prior consent of the national agency. |
| Bulgaria | 1. Discoveries, scientific theories and concepts.<br>2. Mathematical methods and formulae.<br>3. Results of artistic work.<br>4. Schemes, rules and methods for performing mental acts, playing games or doing business.<br>5. Computer programs.<br>6. Presentation of information.<br>7. Inventions contrary to social order or morality.<br>8. Plant or animal varieties or essentially biological processes for producing them, other than microbiological methods and products. |

| Country | Exclusions from Patentable Subject Matter |
|---|---|
| Canada | Scientific principles and abstract theorems. |
| Chile | 1. Discoveries, scientific theories and mathematical methods.<br>2. Plant and animal except microorganisms. Plant varieties. Essentially biological process for the production of plants and animals except microbiological process.<br>3. Economic, financial, easily verified trade and taxation systems, methods, principles or plans.<br>4. Rules for performing mental or intellectual activities or playing games.<br>5. Surgical, therapeutic and diagnostic methods for treating humans or animals.<br>6. Part of living being as exists in the nature, biological process, biological material existing in the nature including genome and germplasma (nevertheless, where biological material or a product directly obtained therefrom meets the patentability requirements, is described adequately and the industrial applicability is described in the application, they are susceptible of patent protection).<br>7. Inventions contrary to the law, public policy, state security, morality or proper practice.<br>8. New uses of articles, objects or elements and changes of shape, dimensions, proportions or materials in which do not involve an essential alteration or solve a technical problem. |
| China | 1. Scientific discoveries.<br>2. Rules and methods for mental activities.<br>3. Methods for diagnosis and treatment of diseases.<br>4. Animal and plant varieties.<br>5. Nuclear products. |
| Colombia | 1. Discoveries, scientific theories and mathematical methods.<br>2. Natural biological materials.<br>3. Literary, artistic works and other works protected by copyright.<br>4. Plans, rules and methods for pursuit of intellectual activities, playing games, or conduct of economic and business activities.<br>5. Computer programs and software.<br>6. Presentation of information.<br>7. Inventions contrary to public order or morality.<br>8. Inventions whose commercial exploitation would be detrimental to human, animal life or health, plant preservation or the environment |

| Country | Exclusions from Patentable Subject Matter |
|---|---|
| Colombia (cont'd.) | 9. Plants, animals and essentially biological processes for the production of plants or animals, other than non-biological and microbiological processes.<br>10. Surgical, therapeutic and diagnostic methods for treating humans or animals.<br>11. New uses of patented products and processes. |
| Costa Rica | 1. Discoveries, scientific theories and mathematical methods, computer programs as such<br>2. Aesthetic creations, literary and artistic works<br>3. Schemes, rules or economic methods of advertisements or business and those referring to purely mental or intellectual activities or to games<br>4. Juxtaposition of known inventions or mixtures of known products, or alteration of the form, use, dimensions or material thereof, except where in reality they are so combined or managed that they cannot function separately, or where their qualities or characteristic functions have been so modified as to produce an industrial result not obvious to a person skilled in the art<br>5. Inventions the commercial exploitation of which shall be forbidden for objective and necessary reasons to protect the ordre public, morality, health or life of persons or animals, or to preserve plants and to avoid severe damage to the environment<br>6. Methods for surgical or therapeutic treatment or for diagnosis, for the treatment of human beings or animals<br>7. Plants and animals<br>8. Essentially biological processes for the production of plants or animals<br>9. The new varieties of plants will be protected by a special law |
| Croatia | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations.<br>3. Rules, instructions or methods for performing mental activity, playing games or doing business.<br>4. Presentation of information.<br>5. Computer programs.<br>6. Plant and animal varieties and essentially biological processes for their production, other than microbiological processes and products.<br>7. Inventions contrary to the public order or morality.<br>8. Surgical, therapeutic and diagnostic methods for treating humans or animals. |

| Country | Exclusions from Patentable Subject Matter |
|---|---|
| Cyprus | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations.<br>3. Schemes, rules and methods for performing mental acts, playing games or doing business.<br>4. Computer programs.<br>5. Presentation of information.<br>6. Inventions contrary to public order or morality. |
| Czech Republic | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations.<br>3. Schemes, rules and methods for performing mental acts, playing games or doing business.<br>4. Computer programs.<br>5. Presentation of information.<br>6. Surgical, therapeutic and diagnostic methods for treating humans or animals.<br>7. Inventions contrary to public order or morality.<br>8. Plant and animal varieties and essentially biological processes for their production, other than microbiological processes and products. |
| Denmark | 1. Discoveries, scientific theories and mathematical methods.<br>2. Artistic creations.<br>3. Plans, rules or methods for intellectual activity, for games or for business activity.<br>4. Computer programs.<br>5. Presentation of information.<br>6. Surgical, therapeutic and diagnostic methods for treating humans or animals.<br>7. Inventions contrary to public order or morality.<br>8. Plant and animal varieties, other than inventions whose technical feasibility of the invention is not confined to a particular plant or animal variety.<br>9. Essentially biological processes for the production of plants or animals, other than:<br>(a) microbiological processes and products;<br>(b) products consisting of or containing biological material;<br>(c) processes producing, processing or using biological material;<br>(d) d. biological material isolated from its natural environment or produced by a technical process, even if previously occurring in nature. |

| Country | Exclusions from Patentable Subject Matter |
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| Denmark (cont'd.) | 10. The human body, at any stage of its formation and development or the simple discovery of its elements, including gene sequences, other than elements isolated from the human body or produced by a technical process.<br>11. Processes for cloning humans; modifying the germ line genetic identity of humans; uses of human embryos for industrial or commercial purposes; and processes for modifying the genetic identity of animals which are likely to cause them suffering without any substantial medical benefit, and animals resulting from such processes. |
| Dominica | 1. Discoveries, scientific theories and mathematical methods.<br>2. Schemes, rules or methods for doing business, performing mental acts or playing games.<br>3. Surgical, therapeutic and diagnostic methods for treating humans or animals.<br>4. Inventions contrary to public order or morality, or prejudicial to the environment or human, animal or plant life and health. |
| Ecuador | 1. Discoveries, scientific theories and mathematical methods.<br>2. Natural biological materials.<br>3. Literary, artistic works and other works protected by copyright.<br>4. Plans, rules and methods for pursuit of intellectual activities, playing games, or conduct of economic and business activities.<br>5. Computer programs and software.<br>6. Presentation of information.<br>7. Inventions contrary to public order or morality.<br>8. Inventions whose commercial exploitation would be detrimental to human, animal life or health, plant preservation or the environment<br>9. Plants, animals and essentially biological processes for the production of plants or animals, other than non-biological and microbiological processes.<br>10. Surgical, therapeutic and diagnostic methods for treating humans or animals.<br>11. New uses of patented products and processes. |
| Egypt | 1. Inventions contrary to public order or morality, or prejudicial to the environment or human, animal or plant life and health.<br>2. Discoveries, scientific theories, mathematical methods, programs and schemes.<br>3. Diagnostic, therapeutic and surgical methods for humans and animals. |

| Country | Exclusions from Patentable Subject Matter |
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| Egypt (cont'd.) | 4. Plants and animals and essentially biological processes for their production, other than microorganisms and non- biological and microbiological processes.<br>5. Organs, tissues, live cells, natural biological substances, nucleic acids and genomes. |
| El Salvador | 1. Discoveries, scientific theories and mathematical methods.<br>2. Schemes, rules or methods for doing business, performing mental or intellectual acts or playing games.<br>3. Methods for treatment of the human or animal body by surgery, therapy or diagnosis.<br>4. Inventions contrary to public policy or morality. |
| Estonia | 1. Discoveries (including the description of the formation or development of the human body or a human gene sequence or part thereof), scientific theories and mathematical methods.<br>2. Schemes, rules, instructions and methods for performing economic and mental acts.<br>3. Projects and schemes of structures, buildings and land development.<br>4. Conventional signs.<br>5. Algorithms and computer programs.<br>6. Design solutions.<br>7. Presentation of information.<br>8. Plant and animal varieties.<br>9. Inventions contrary to public order or morality.<br>10. Methods for treatment of the human or animal body and diagnostic methods practiced on the human or animal body.<br>11. Integrated circuit layout designs.<br>12. Biological processes for cloning humans; modifying the genetic identity of humans; using human embryos for commercial purposes; modifying the genetic identity of animals which are likely to cause them suffering without any substantial medical benefit, and animals resulting from such processes.<br>13. Processes for producing biological materials or plant or animal varieties, other than microbiological processes for deriving microorganisms.<br>14. Biotechnological inventions which can be used solely for one particular plant or animal variety. |
| Finland | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations:<br>3. Schemes, rules and methods for performing mental acts, playing games or doing business.<br>4. Computer programs. |

| Country | Exclusions from Patentable Subject Matter |
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| Finland (cont'd.) | 5. Presentation of information.<br>6. Surgical, therapeutic and diagnostic methods for treating humans or animals.<br>7. Inventions contrary to public order or morality.<br>8. Plant and animal varieties, other than inventions whose technical feasibility of the invention is not confined to a particular plant or animal variety.<br>9. Essentially biological processes for the production of plants or animals, other than.<br>(a) microbiological processes and products;<br>(b) products consisting of or containing biological material;<br>(c) processes producing, processing or using biological material;<br>(d) biological material isolated from its natural environment or produced by a technical process even if previously occurring in nature.<br>10. The human body, at any stage of its formation and development or the simple discovery of its elements, including gene sequences, other than elements isolated from the human body or produced by a technical process.<br>11. Processes for cloning humans; modifying the germ line genetic identity of humans; uses of human embryos for industrial or commercial purposes; and processes for modifying the genetic identity of animals which are likely to cause them suffering without any substantial medical benefit, and animals resulting from such processes. |
| France | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations.<br>3. Schemes, rules and methods for performing mental acts, playing games or doing business,<br>4. Computer programs.<br>5. Presentation of information.<br>6. Surgical, therapeutic and diagnostic methods for treating humans or animals.<br>7. Inventions contrary to public policy or morality;<br>8. The human body, its elements and products, and knowledge of human genes.<br>9. Plant varieties.<br>10. Animal varieties and essentially biological processes for their production, other than microbiological processes and products. |

| Country | Exclusions from Patentable Subject Matter |
|---|---|
| Georgia | 1. Discoveries, scientific theories and mathematical methods.<br>2. Results of artistic design.<br>3. Computer programs and algorithms.<br>4. Educational methods and systems, grammatical language systems, methods for performing mental acts, rules for games or doing business.<br>5. Economic organizations and managing methods.<br>6. Plans and schemes of structures, buildings, territories.<br>7. Presentation of the information.<br>8. Inventions which may cause inhuman, immoral and/or anti-social action.<br>9. Surgical, therapeutic and diagnostic methods for treating humans or animals.<br>10. Plant and animal varieties and methods for their production, other than microbiological processes and products. |
| Germany | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations.<br>3. Schemes, rules and methods for performing mental acts, playing games or doing business.<br>4. Programs for computer programs.<br>5. Presentation of information.<br>6. Surgical, therapeutic and diagnostic methods for treating humans or animals.<br>7. Inventions contrary to public policy or morality.<br>8. Plant and animal varieties and methods for their production of plants or animals, other than microbiological processes and products. |
| Ghana | 1. Discoveries, scientific and mathematical theories.<br>2. Plant and animal varieties and essentially biological processes for their production, other than microbiological processes and products.<br>3. Schemes, rules or methods for doing business, performing mental acts or playing games.<br>4. Surgical, therapeutic and diagnostic methods for treating humans or animals.<br>5. Presentation of information.<br>6. Computer programs.<br>7. Inventions contrary to public order or morality.<br>8. Products and processes excluded by law for national security, economy, health or any other national concern. |

| Country | Exclusions from Patentable Subject Matter |
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| Greece | 1. Discoveries, scientific theories, and mathematical methods.<br>2. Aesthetic creations.<br>3. Schemes, rules, and methods for performing mental acts, playing games or doing business.<br>4. Computer programs.<br>5. Presentation of information.<br>6. Surgical, therapeutic and diagnostic methods for treating humans or animals.<br>7. Inventions contrary to public order or morality.<br>8. Plant and animal varieties and biological processes for their production, other than microbiological processes and products. |
| Guatemala | 1. Simple discoveries;<br>2. Materials and energies in the form which exist in the nature<br>3. Biological process occurred in the nature without human intervention, except microbiological process<br>4. Scientific theories and mathematical methods;<br>5. Pure aesthetic creations, literary and artistic works;<br>6. Schemes, principles, rules or economic methods of advertisements or business and those referring to purely mental or intellectual activities or to games<br>7. Computer programs<br>8. Methods for surgical or therapeutic treatment or for diagnosis, for the treatment of human beings or animals<br>9. Inventions the exploitation of which is contrary to ordre public and morality, provided that the contradiction to ordre public and morality shall not be considered merely by the reasons of prohibition, limitation and conditions by legal or administrative provisions;<br>10. Inventions the commercial exploitation of which shall be prevented in order to preserve health or life of persons, animals, plants or the environment |
| Hungary | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations.<br>3. Schemes, rules and methods for performing mental acts, playing games or doing business.<br>4. Computers programs.<br>5. Presentation of information.<br>6. Surgical, therapeutic and diagnostic methods for treating humans or animals.<br>7. Inventions contrary to public policy or morality. |

| Country | Exclusions from Patentable Subject Matter |
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| Iceland | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations.<br>3. Schemes, rules and methods for performing mental acts, playing games or doing business.<br>4. Computer programs.<br>5. The presentation of information<br>6. Surgical, therapeutic and diagnostic methods for treating humans or animals.<br>7. Inventions contrary to morality or public order.<br>8. Plant and animal varieties and essentially biological processes for their production, other than microbiological processes and products. |
| India | 1. Inventions which are frivolous or obviously contrary to well established natural law.<br>2. Inventions use or commercial exploitation of which is contrary to law or morality or causes serious prejudice to human, animal, or plant life or health or to the environment.<br>3. Discoveries of a scientific principle or formulation of an abstract theory or discovery of any living thing or non-living substance occurring in nature.<br>4. Mere discovery of a new form of a known substance which does not enhance known efficacy, or the mere discovery of any new property or new use for a known substance or of the mere use of a known process, machine or apparatus unless such known process results in a new product or employs at least one new reactant.<br>5. Substance obtained by a mere admixture resulting only in the aggregation of the properties of the components thereof or a process for producing such substance.<br>6. Mere arrangement or re-arrangement or duplication of known devices each functioning independently in a known way.<br>7. Agricultural and horticultural methods.<br>8. Any processes for medicinal, surgical, curative, prophylactic , diagnostic, therapeutic or other treatments of humans or any process for a similar treatments of animals or plants to render them free of disease or increase economic value.<br>9. Plants and animals in whole or any part thereof other than microorganisms, but including seeds, varieties and species and essentially biological processes for production or propagation of plants and animals. |

| Country | Exclusions from Patentable Subject Matter |
|---|---|
| India (cont'd.) | 10. Mathematical or business method or a computer program per se or algorithms.<br>11. Literary, dramatic, musical or artistic work or any other aesthetic creation whatever.<br>12. Mere scheme or rule or method of performing mental act or method of playing game.<br>13. Presentation of information.<br>14. Topography of integrated circuits.<br>15. Invention which, in effect, is traditional knowledge or which is an aggregation or duplication of known properties of traditionally known component(s).<br>16. Inventions relating to atomic energy. |
| Indonesia | 1. Inventions contrary to rules, regulations, religious morality, public order or ethics.<br>2. Methods of examination, treatment, medication, and/or surgery applied to humans and animals.<br>3. Scientific and mathematical theories and methods.<br>4. Living creatures, other than microorganisms.<br>5. Biological processes or producing plant or animal, other than microbiological process. |
| Ireland | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations.<br>3. Schemes, rules and methods for performing mental acts, playing a game or doing business.<br>4. Computer programs.<br>5. Presentation of information.<br>6. Surgical, therapeutic and diagnostic methods for treating humans or animals.<br>7. Inventions contrary to public order or morality.<br>8. Plant and animal varieties and essentially biological processes for their production, other than microbiological processes and products. |
| Israel | 1. Therapeutic treatment on the human body.<br>2. Plants and animal varieties, other than microbiological organisms not derived from nature. |
| Italy | 1. Discoveries, scientific theories and mathematical methods.<br>2. Schemes, rules and methods for performing mental acts, playing games or doing business and programs for computers.<br>3. Presentation of information.<br>4. Surgical, therapeutic and diagnostic methods for treating humans or animals.<br>5. Inventions contrary to public order or morality.<br>6. Plant or animal varieties and essentially biological processes for their production, other than microbiological processes and products. |

| Country | Exclusions from Patentable Subject Matter |
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| Japan | Inventions contrary to order, morality or public health.<br>[Methods for the treatment of humans and animals are not considered to be industrially applicable.] |
| Jordan | 1. Inventions detrimental to public order or morality.<br>2. Inventions necessary to protect the life and health of humans, animals and plants or to avoid severe damage to the environment.<br>3. Discoveries, scientific theories and mathematical methods.<br>4. Diagnostic, therapeutic and surgical methods for treatment of humans or animals.<br>5. Plants and animals, other than microorganisms.<br>6. Biological methods for reproducing plants and animals, other than microbiological methods. |
| Kenya | 1. Discoveries, scientific theories and mathematical methods.<br>2. Schemes, rules or methods for doing business, performing mental acts or playing games.<br>3. Diagnostic, therapeutic and surgical methods for treatment of humans or animals.<br>4. Presentation of information.<br>5. Designated methods for the prevention or treatment of serious health hazards and life threatening diseases.<br>6. Plant varieties, other than parts thereof and products of biotechnological processes.<br>7. Inventions contrary to public order, morality, public health and safety, principles of humanity and environmental conservation. |
| Kyrgyz Republic | 1. Scientific theories and mathematical methods.<br>2. Methods of economic organization and management.<br>3. Symbols, schedules and rules.<br>4. Methods for performing mental acts.<br>5. Computer programs and algorithms.<br>6. Projects and plans for structures, buildings and land development.<br>7. Aesthetic creations.<br>8. Topographies of integrated circuits.<br>9. Plant varieties and animal breeds.<br>10. Inventions contrary to the public interest, humanitarian principles or morality, or detrimental to the environment. |

| Country | Exclusions from Patentable Subject Matter |
|---|---|
| Latvia | 1. Therapeutic and surgical methods for treatment of humans or animals.<br>2. Discoveries, scientific theories, and mathematical methods.<br>3. Designs.<br>4. Schemes, methods for performing mental acts, rules and methods for playing games and conducting business,<br>5. Computer programs.<br>6. Presentation of information.<br>7. Inventions contrary to public order or the morality.<br>8. Plant and animal varieties and essentially biological processes for their production, other than microbiological processes and products. |
| Liechtenstein | 1. Plant and animal varieties and essentially biological processes for their production, other than microbiological processes and products.<br>2. Inventions contrary to public order or morality.<br>3. Diagnostic, therapeutic and surgical methods for treatment of humans or animals.<br>(in accordance with the agreements with Switzerland and the European Economic Area (EEA)) |
| Lithuania | 1. Discoveries, scientific theories and mathematical methods.<br>2. Designs of products.<br>3. Schemes, rules and methods of games, intellectual and economic activities.<br>4. Computer programs.<br>5. Presentation of information.<br>6. Methods of treatment of people and animals, diagnostics and prevention of diseases.<br>7. Plant and animal varieties and biological processes for their production, other than microbiological processes.<br>8. Inventions contrary to public interest, humanitarian principles or morality. |
| Luxembourg | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations.<br>3. Schemes, rules and methods for performing mental acts, playing games or doing business.<br>4. Computer programs.<br>5. Presentation of information. |

| Country | Exclusions from Patentable Subject Matter |
|---|---|
| Luxembourg (cont'd.) | 6. Diagnostic, therapeutic and surgical methods for treatment of humans or animals.<br>7. Inventions contrary to public order or morality.<br>8. Plant and animal varieties and essentially biological processes for their production, other than microbiological processes and products. |
| Malaysia | 1. Discoveries, scientific theories and mathematical methods.<br>2. Plant or animal varieties and essentially biological processes for their production, other than man-made living microorganisms and microbiological processes and products.<br>3. Schemes, rules and methods for doing business, performing mental acts or playing games.<br>4. Diagnostic, therapeutic and surgical methods for treatment of humans or animals.<br>5. Inventions contrary to public order or morality. |
| Malta | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations.<br>3. Schemes, rules and methods for performing mental acts, playing games or doing business.<br>4. Computer programs.<br>5. Presentation of information.<br>6. Diagnostic, therapeutic and surgical methods for treatment of humans or animals.<br>7. Inventions contrary to public order or morality.<br>8. Animal varieties and essentially biological processes for production of plants and animals, other than microbiological processes and products. |
| Mauritius | 1. Discoveries, scientific theories and mathematical methods.<br>2. Schemes, rules or methods for doing business, performing mental acts or playing games.<br>3. Diagnostic, therapeutic and surgical methods for treatment of humans or animals.<br>4. Plants and animals and essentially biological processes for their production.<br>5. Literary, dramatic, musical or artistic works.<br>6. Aesthetic creations.<br>7. Inventions contrary to public order or morality. |
| Mexico | 1. Essentially biological processes for the production, reproduction and propagation of plants and animals, biological and genetic material as found in nature, animal breeds, the human body and the living parts composing it, and plant varieties;<br>2. Theoretical or scientific principles; |

| Country | Exclusions from Patentable Subject Matter |
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| Mexico (cont'd.) | 3. Discoveries that consist in making known or revealing something that already existed in nature, even though it was previously unknown to man;<br>4. Schemes, plans, rules and methods for carrying out mental processes, playing games or doing business, and mathematical methods;<br>5. Computer programs;<br>6. Forms of presenting information;<br>7. Esthetics creations and artistic or literary works;<br>8. Methods of surgical, therapeutic or diagnostic treatment applicable to the human body and to animals;<br>9. Juxtaposition of known inventions or mixtures of known products, or alteration of the use, form, dimensions or material thereof, except where in reality they are so combined or managed that they cannot function separately, or where their characteristic qualities or functions have been so modified as to produce an industrial result or use not obvious to a person skilled in the art. |
| Moldova (Republic of) | 1. Scientific theories and mathematical methods.<br>2. Conventional signs, timetables and rules.<br>3. Schemes for performing mental acts.<br>4. Schemes, rules and methods for doing business.<br>5. Computer programs and algorithms.<br>6. Projects and plans for buildings and constructions and for territorial planning.<br>7. Aesthetic creations<br>8. Integrated circuit topographies.<br>9. Inventions necessary to protect human, animal or plant life or health or to avoid serious damage to the environment.<br>10. Inventions contrary to public order or morality. |
| Mongolia | 1. Discoveries, scientific theories and mathematical methods.<br>2. Computer programs and algorithms.<br>3. Schemes, rules and methods for doing business, performing mental acts or playing games.<br>4. Inventions contrary to public health or environmental protection.<br>5. Methods of treatment, diagnosis and prophylaxis of human and animal diseases.<br>6. Plant and animal varieties produced biologically, other than microbiological methods and products. |

| Country | Exclusions from Patentable Subject Matter |
|---|---|
| Morocco | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations.<br>3. Schemes, rules and methods for performing mental acts, playing games or doing business<br>4. Computer programs.<br>5. Presentation of information.<br>6. Diagnostic, therapeutic and surgical methods for treatment of humans or animals.<br>7. Inventions contrary to public order or morality.<br>8. Plant products. |
| Mozambique | 1. Discoveries, scientific theories and mathematical methods.<br>2. Systems, plans, rules and methods for the performance of intellectual activities, playing games or economic activities.<br>3. Computer programs.<br>4. Aesthetic creations<br>5. Artistic and literary works.<br>6. Presentation of information.<br>7. Diagnostic, therapeutic and surgical methods for treatment of humans or animals.<br>8. Atomic substances and processes.<br>9. Inventions contrary to morality, good behavior, public safety, public order or public health.<br>10. Living beings and parts thereof, other than microbiological processes and products. |
| Netherlands | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations.<br>3. Schemes, rules and methods for performing mental acts, playing games or doing business.<br>4. Computer programs.<br>5. Presentation of information.<br>6. Inventions contrary to public order or morality.<br>7. Plant and animal varieties produced by biological processes for their production, other than permitted microbiological methods and products.<br>8. Diagnostic, therapeutic and surgical methods for treatment of humans or animals. |
| New Zealand | Inventions which are not a “manner of new manufacture”. |

| Country | Exclusions from Patentable Subject Matter |
|---|---|
| Nicaragua | 1. Discoveries, scientific theories and mathematical methods.<br>2. Substances and matter found in nature.<br>3. Biological processes for the production of plants and animals not involving human intervention, other than microbiological processes.<br>4. Aesthetic creations<br>5. Literary and artistic works.<br>6. Economic, advertising and business plans,<br>7. Principles, rules and methods for mental and intellectual acts and playing games.<br>8. Computer programs.<br>9. Animals.<br>10. Therapeutic, surgical and diagnostic methods for treating humans or animals.<br>11. Inventions contrary to public policy or morality.<br>12. Inventions for the protection of human, animal or plant health or life or the preservation of the environment. |
| Nigeria | 1. Plant and animal varieties and essentially biological processes for their production, other than microbiological methods and products.<br>2. Inventions contrary to public order or morality.<br>3. Scientific principles and discoveries. |
| Norway | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations.<br>3. Schemes, rules and methods for performing mental acts, playing games or doing business.<br>4. Computer programs.<br>5. Presentation of information.<br>6. Therapeutic, surgical and diagnostic methods for treating humans or animals.<br>7. Inventions contrary to morality or public order.<br>8. Plant and animal varieties and essentially biological processes for their production, other than:<br>(a) microbiological methods and products;<br>(b) inventions whose technical feasibility of the invention is not confined to a particular plant or animal variety; |

| Country | Exclusions from Patentable Subject Matter |
|---|---|
| Norway (cont'd.) | (c) products consisting of or containing biological material;<br>(d) processes producing, processing or using biological material;<br>(e) biological material isolated from its natural environment or produced by a technical process, even if previously occurring in nature.<br>9. The human body, at any stage of its formation and development or the simple discovery of its elements, including gene sequences, other than elements isolated from the human body or produced by a technical process.<br>10. Processes for cloning humans; modifying the germ line genetic identity of humans; uses of human embryos for industrial or commercial purposes; and processes for modifying the genetic identity of animals which are likely to cause them suffering without any substantial medical benefit, and animals resulting from such processes. |
| Oman | 1. Scientific theories, mathematical methods, mental activities and playing games.<br>2. Computer programs.<br>3. Plant and animal varieties and essentially biological processes for their production, other than microbiological methods and products.<br>4. Therapeutic, surgical and diagnostic methods for treating humans or animals.<br>5. Inventions contrary to public order, morals or Islamic principles.<br>6. Inventions affecting national security. |
| Pakistan | 1. Discoveries, scientific theories and mathematical methods.<br>2. Literary, dramatic, musical and artistic and works.<br>3. Aesthetic creations.<br>4. Schemes, rules and methods for doing business, performing mental acts and playing games.<br>5. Inventions contrary to public order or morality.<br>6. Plants and animals and essentially biological processes for their production, other than microbiological methods and products.<br>7. Therapeutic, surgical and diagnostic methods for treating humans or animals. |
| Panama | 1. Discoveries, theories and scientific principles.<br>2. Plans, schemes, principles and methods for economics, business, mental acts and games.<br>3. Computer programs.<br>4. Presentation of information. |

| Country | Exclusions from Patentable Subject Matter |
|---|---|
| Panama (cont'd.) | 5. Aesthetic creations.<br>6. Artistic and literary works.<br>7. Therapeutic, surgical and diagnostic methods for treating humans or animals.<br>8. Combinations or alterations of known inventions and products which do not function separately or produce a non-obvious industrial result.<br>9. Inventions contrary to national laws, health, public policy, morality, proper practice or State security.<br>10. Essentially biological means of producing plants and animals contrary to morality or human integrity or dignity.<br>11. Plant and animal varieties.<br>12. Naturally occurring biological material.<br>13. Live material forming part of the human body. |
| Papua New Guinea | 1. Discoveries, scientific theories and mathematical methods.<br>2. Schemes, rules and methods for doing business performing mental acts and playing games.<br>3. Therapeutic, surgical and diagnostic methods for treating humans or animals.<br>4. Inventions contrary to public order or morality or which seriously damage the environment<br>5. Presentation of information. |
| Peru | 1. Discoveries, scientific theories and mathematical methods.<br>2. Natural biological materials.<br>3. Literary, artistic works and other works protected by copyright.<br>4. Plans, rules and methods for intellectual acts, playing games, or economic and business activities.<br>5. Computer programs and software.<br>6. Presentation of information.<br>7. Inventions contrary to public order or morality.<br>8. Inventions whose commercial exploitation would be detrimental to human, animal life or health, plant preservation or the environment<br>9. Plants, animals and essentially biological processes for the production of plants or animals, other than non-biological and microbiological processes.<br>10. Surgical, therapeutic and diagnostic methods for treating humans or animals.<br>11. New uses of patented products and processes. |

| Country | Exclusions from Patentable Subject Matter |
|---|---|
| Philippines | 1. Discoveries, scientific theories and mathematical methods.<br>2. Schemes, rules and methods of performing mental acts, playing games or doing business, and programs for computers.<br>3. Therapeutic, surgical and diagnostic methods for treating humans or animals.<br>4. Plant and animal varieties and essentially biological processes for their production, other than microbiological methods and products.<br>5. Aesthetic creations.<br>6. Inventions contrary to public order or morality. |
| Poland | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations.<br>3. Schemes, rules and methods for performing mental acts, doing business and playing games.<br>4. Creations contrary to generally accepted scientific principles.<br>5. Comport programs.<br>6. Presentation of information.<br>7. Inventions contrary to public order or morality.<br>8. Plant and animal varieties and essentially biological processes for their production, other than microbiological methods and products.<br>9. Therapeutic, surgical and diagnostic methods for treating humans or animals. |
| Portugal | 1. Discoveries, scientific theories and mathematical methods.<br>2. Materials or substances which already exist in nature and nuclear substances.<br>3. Aesthetic creations.<br>4. Schemes, rules and methods of intellectual activities for games or commercial activities and computer programs as such.<br>5. Presentations of information.<br>6. Methods for surgical or therapeutic treatment or for diagnosis, practiced on human beings or animals, shall not be regarded as inventions, either. This provision shall not prevent the grant of patents for products, including substances and compounds, for use in any of such methods.<br>7. Patents shall not be granted in respect of inventions the commercial exploitation of which would be contrary to the Law, ordre public, public health or morality, an exploitation not being deemed to be prohibited merely because it is prohibited by law or administrative regulation. |

| Country | Exclusions from Patentable Subject Matter |
|---|---|
| Portugal (cont'd.) | 8. Processes for cloning human beings.<br>9. Processes for modifying the germ line genetic identity of human beings.<br>10. Uses of human embryos for industrial or commercial purposes.<br>11. Processes for modifying the genetic identity of animals which are likely to cause them suffering without any substantial medical benefit to man or animal, and also animals resulting from such processes.<br>12. The human body, at the various stages of its formation and development, and the simple discovery of one of its elements, including a sequence or partial sequence of a gene, cannot constitute patentable inventions.<br>13. Plant varieties or species of animals and essentially biological processes for the production of plants or animals. |
| Republic of Korea | 1. Inventions contrary to public order or morality or damaging to public health.<br>2. Inventions detrimental to public health. |
| Romania | 1. Ideas, discoveries, scientific theories and mathematical methods.<br>2. Computer programs.<br>3. Inventions of an economic or organizational character.<br>4. Diagrams, educational and teaching methods, and rules of games.<br>5. City planning systems, and systematization plans and methods,.<br>6. Physical phenomena.<br>7. Culinary recipes.<br>8. Aesthetic creations.<br>9. Inventions contrary to morality or public policy. |
| Russian Federation | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations.<br>3. Rules and methods of games, intellectual or business activities.<br>4. Computer software.<br>5. Presentation of information.<br>6. Plant and animal varieties.<br>7. Integrated circuit topographies.<br>8. Inventions contrary to public interest, humanitarian principles or morality. |

| Country | Exclusions from Patentable Subject Matter |
|---|---|
| Saint Lucia | 1. Discoveries, scientific theories and mathematical methods.<br>2. Literary, dramatic, musical and artistic works.<br>3. Aesthetic creations.<br>4. Schemes, rules and methods for performing mental acts, playing a game or doing business.<br>5. Computer programs.<br>6. Presentation of information.<br>7. Therapeutic, surgical and diagnostic methods for treating humans or animals. |
| Serbia and Montenegro | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations.<br>3. Schemes, rules and methods for performing mental acts, playing games or doing business.<br>4. Computer programs.<br>5. Presentation of information.<br>6. The human body, at any stage of its formation and development, and the simple discovery of one of its elements, including gene sequences of genes.<br>7. Therapeutic, surgical and diagnostic methods for treating humans or animals<br>8. Inventions contrary to public order or morality, in particular: processes for cloning humans; modifying the germ line genetic identity of humans; uses of human embryos for industrial or commercial purposes; and processes for modifying the genetic identity of animals which are likely to cause them suffering without any substantial medical benefit, and animals resulting from such processes.<br>9. Plant and animal varieties and essentially biological process for their production, other than.<br>(a) biotechnological processes whose technical feasibility is not confined to a particular plant or animal variety;<br>(b) microbiological and other technical process and products. |
| Singapore | 1. Inventions encouraging offensive, immoral or anti-social behavior.<br>2. Therapeutic, surgical and diagnostic methods for treating humans or animals. |
| Slovak Republic | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations.<br>3. Schemes, rules and methods for performing mental acts.<br>4. Computer programs.<br>5. Presentation of information. |

| Country | Exclusions from Patentable Subject Matter |
|---|---|
| Slovak Republic (cont'd.) | 6. Inventions contrary to public interest, including principles of humanity and morality.<br>7. Methods for prevention, diagnosis and treatment of human and animal disease.<br>8. Plant and animal varieties and biological processes for the production and improvement, other than biotechnological processes and products and industrial microorganisms. |
| Slovenia | 1. Discoveries, scientific theories and mathematical methods.<br>2. Computer programs.<br>3. Rules, schemes, methods and processes for performing mental acts.<br>4. Inventions contrary to law or morality.<br>5. Therapeutic, surgical and diagnostic methods for treating humans or animals. |
| South Africa | 1. Discoveries, scientific theories and mathematical methods.<br>2. Literary, dramatic, musical and artistic works.<br>3. Aesthetic creations.<br>4. Schemes, rules and methods for performing mental acts, playing games or doing business.<br>5. Computer programs.<br>6. Presentation of information.<br>7. Inventions which encourage offensive or immoral behavior.<br>8. Plant and animal varieties and essentially biological processes for their production, other than microbiological process and products.<br>9. Therapeutic, surgical and diagnostic methods for treating humans or animals. |
| Spain | 1. Discoveries, scientific theories and mathematical methods.<br>2. Literary or artistic works or any other aesthetic creation and scientific works.<br>3. Schemes, rules or methods for intellectual activity, for games or for economic commercial activity.<br>4. Computer programs.<br>5. Presentation of information.<br>6. Surgical, therapeutic and diagnostic methods for treating humans or animals.<br>7. Inventions contrary to public order or morality<br>8. Processes for cloning humans; modifying the germ line genetic identity of humans; uses of human embryos for industrial or commercial purposes; and processes for modifying the genetic identity of animals which are likely to cause them suffering without any substantial medical benefit, and animals resulting from such processes. |

| Country | Exclusions from Patentable Subject Matter |
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| Spain (cont'd.) | 9. Plant and animal varieties and essentially biological processes for production of plants and animals, other than microbiological and products thereof.<br>10. The human body, at any stage of its formation and development or the simple discovery of its elements, including gene sequences, other than elements isolated from the human body or produced by a technical process. |
| Sri Lanka | 1. Discoveries, scientific theories and mathematical methods.<br>2. Plant and animal varieties and essentially biological processes for their production, other than microbiological methods and products.<br>3. Schemes, rules, and methods for doing business, performing mental acts and playing games.<br>4. Therapeutic, surgical and diagnostic methods for treating humans or animals. |
| Sweden | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations.<br>3. Schemes, rules and methods for performing mental acts, playing games or doing business.<br>4. Computer programs.<br>5. Presentation of information.<br>6. Therapeutic, surgical and diagnostic methods for treating humans or animals.<br>7. Inventions contrary to morality or public order.<br>8. Plant and animal varieties and essentially biological processes for their production, other than:<br>(a) microbiological methods and products;<br>(b) inventions whose technical feasibility of the invention is not confined to a particular plant or animal variety;<br>(c) products consisting of or containing biological material;<br>(d) processes producing, processing or using biological material.<br>(e) biological material isolated from its natural environment or produced by a technical process, even if previously occurring in nature.<br>9. The human body, at any stage of its formation and development or the simple discovery of its elements, including gene sequences, other than elements isolated from the human body or produced by a technical process.<br>10. Processes for cloning humans; modifying the germ line genetic identity of humans; uses of human embryos for industrial or commercial purposes; and processes for modifying the genetic identity of animals which are likely to cause them suffering without any substantial medical benefit, and animals resulting from such processes. |

| Country | Exclusions from Patentable Subject Matter |
|---|---|
| Switzerland | 1. Plant and animal varieties and essentially biological processes for their production, other than microbiological methods and products.<br>2. Inventions contrary to public order or morality.<br>3. Therapeutic, surgical and diagnostic methods for treating humans or animals.<br>4. Processes for forming chimeras and hybrids using human gametes or human totipotent cells; parthenogenic processes using germ line human material; processes for modifying the germ line genetic identity of humans clones, hybrids, chimeras; parthenogenic offspring and germ line cells thus obtained; unmodified human stem cells and unmodified lines of stem cells. |
| Thailand | 1. Naturally occurring microorganisms and their components.<br>2. Animals, plants and extracts therefrom.<br>3. Scientific or mathematical rules or theories.<br>4. Computer programs.<br>5. Methods of diagnosis, treatment or cure of human and animal diseases.<br>6. Inventions contrary to public order, morality, health or welfare. |
| The Former Yugoslav Republic of Macedonia | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations.<br>3. Plans, rules and procedures for performing intellectual activities, playing games and doing business.<br>4. Computer programs.<br>5. Presentation of information.<br>6. Plant and animal varieties and essentially biological processes for their production, other than microbiological methods and products.<br>7. Therapeutic, surgical and diagnostic methods for treating humans or animals.<br>8. Inventions contrary to public order or morality. |
| Trinidad and Tobago | 1. Discoveries, scientific theories and mathematical methods.<br>2. Literary, dramatic, musical and artistic works.<br>3. Aesthetic creations.<br>4. Schemes, rules and methods for performing mental acts, playing games or doing business.<br>5. Therapeutic, surgical and diagnostic methods for treating humans or animals.<br>6. Presentation of information.<br>7. Inventions contrary to public order or morality.<br>8. Inventions detrimental to human, animal or plant life or health or the environment. |

| Country | Exclusions from Patentable Subject Matter |
|---|---|
| Tunisia | 1. Aesthetic creations.<br>2. Discoveries, scientific theories and mathematical methods.<br>3. Schemes, rules and methods for mental acts, games or economic activity.<br>4. Software.<br>5. Therapeutic, surgical and diagnostic methods for treating humans or animals.<br>6. Presentation of information.<br>7. Live substances occurring in nature.<br>8. Plant and animal varieties and essentially biological processes for their production, other than biological methods used in medicine and their products.<br>9. Inventions contrary to morality, public policy or whose exploitation is prejudicial to public health or the protection of the environment. |
| Turkey | 1. Discoveries, scientific theories, mathematical methods.<br>2. Plans, methods and rules for performing mental acts, conducting business activities and playing games.<br>3. Computer programs.<br>4. Literary and artistic works, scientific works,<br>5. Aesthetic creations.<br>6. Methods of collecting, arranging, presenting and transmitting information with no technical features.<br>7. Therapeutic, surgical and diagnostic methods for treating humans or animals.<br>8. Inventions contrary to public policy or morality.<br>9. Plant and animal varieties and essentially biological processes for their production. |
| Ukraine | 1. Integrated circuits topographies.<br>2. Aesthetic creations.<br>3. Plant and animal varieties.<br>4. Essentially biological processes for reproduction of plants and animals, other microbiological processes. |
| United Kingdom | 1. Discoveries, scientific theories and mathematical methods.<br>2. Literary, dramatic, musical and artistic works.<br>3. Aesthetic creations.<br>4. Schemes, rules and methods for performing mental acts, playing games or doing business.<br>5. Computer programs.<br>6. Presentation of information. |

| Country | Exclusions from Patentable Subject Matter |
|---|---|
| United Kingdom (cont'd.) | 7. Therapeutic, surgical and diagnostic methods for treating humans or animals.<br>8. Inventions contrary to public policy or morality.<br>9. Plant and animal varieties and essentially biological processes for their production, other than:<br>(a) microbiological methods and products;<br>(b) inventions whose technical feasibility of the invention is not confined to a particular plant or animal variety;<br>(c) products consisting of or containing biological material;<br>(d) processes producing, processing or using biological material;<br>(e) biological material isolated from its natural environment or produced by a technical process, even if previously occurring innature.<br>10. The human body, at any stage of its formation and development or the simple discovery of its elements, including gene sequences, other than elements isolated from the human body or produced by a technical process.<br>11. Processes for cloning humans; modifying the germ line genetic identity of humans; uses of human embryos for industrial or commercial purposes; and processes for modifying the genetic identity of animals which are likely to cause them suffering without any substantial medical benefit, and animals resulting from such processes. |
| United States of America | No expressly prescribed exclusions, but abstract ideas, natural phenomena and laws of nature excluded by case law. |
| Uruguay | 1. Discoveries, scientific theories and mathematical methods.<br>2. Schemes, plans, rules for playing games, business, accounting, financial, educational, publicity, lottery or taxation principles or methods.<br>3. Literary, artistic and scientific works.<br>4. Aesthetic creations.<br>5. Computer programs.<br>6. Methods of reproducing information.<br>7. Plants and animals and essentially biological processes for their production, other than microbiological processes.<br>8. Biological or genetic material occurring in nature.<br>9. Diagnostic, therapeutic or surgical methods for treating persons or animals.<br>10. Inventions contrary to public order or morality<br>11. Inventions detrimental to public health, food supply, safety or the environment. |

| Country | Exclusions from Patentable Subject Matter |
|---|---|
| Uzbekistan | 1. Scientific theories and mathematical methods.<br>2. Organizational and management methods.<br>3. Designations, schedules and rules.<br>4. Rules and methods for carrying out intellectual operations.<br>5. Algorithms and computer programs.<br>6. Plans and diagrams for buildings, constructions and land.<br>7. Aesthetic creations.<br>8. Topographies of integrated circuits.<br>9. Plant and animal varieties.<br>10. Inventions contrary to public interests, principles of humanity and morality. |
| **Regional Offices** | **Exclusions from Patentable Subject Matter** |
| African Intellectual Property Organization (OAPI) | 1. Inventions contrary to public policy or morality.<br>2. Discoveries, scientific theories and mathematical methods.<br>3. Plant varieties, animal species and essentially biological processes for breeding plants or animals, other than microbiological processes and products.<br>4. Schemes, rules and methods for doing business, performing mental acts or playing games.<br>5. Therapeutic, surgical and diagnostic methods for treating humans or animals.<br>6. Presentation of information.<br>7. Computer programs.<br>8. Ornamental works.<br>9. Literary, architectural and artistic works.<br>10. Aesthetic creations. |
| African Regional Intellectual Property Organization (ARIPO) | No prescribed exclusions but a designated State may, within six months from notification of grant, declare that the ARIPO patent has no effect in its territory because a patent for such inventions cannot be granted under its national law. |

| Regional Offices | Exclusions from Patentable Subject Matter |
|---|---|
| Eurasian Patent Organization (EAPO) | 1. Discoveries, scientific theories and mathematical methods.<br>2. Presentation of information.<br>3. Methods of economic organization and management.<br>4. Symbols, schedules and rules.<br>5. Methods for performing mental acts.<br>6. Algorithms and computer programs.<br>7. Topographies of integrated circuits.<br>8. Projects and plans for structures, buildings and land development.<br>9. Aesthetic creations.<br>10. Plant and animal varieties.<br>11. Inventions contrary to public order or morality.<br>12. Inventions for protection of human and animal life and health of people and plants, and prevention of serious damage to the environment. |
| European Patent Organisation (EPO) | 1. Discoveries, scientific theories and mathematical methods.<br>2. Aesthetic creations.<br>3. Schemes, rules and methods for performing mental acts, playing games or doing business.<br>4. Programs for computers.<br>5. Presentation of information.<br>6. Inventions contrary to public order or morality.<br>7. Plant or animal varieties and essentially biological processes for the production of plants or animals, other than microbiological processes and products.<br>8. Therapeutic, surgical and diagnostic methods for treating humans or animals. |

(7) Exceptions and Limitations of the Rights

| Country | Exceptions and Limitations of the Rights |
|---|---|
| Albania | 1. Acts concerning products put on the market by, or with consent of, patent owner.<br>2. Private acts for non-commercial purposes.<br>3. Acts for experimental purposes or scientific research.<br>4. Preparation of prescribed medicines in pharmacies or by doctors, and acts concerning those medicines.<br>5. Continued prior use by person who, in good faith before the filing date (priority date) was using the invention for commercial purposes in Albania, or was making effective and serious preparations for such purposes.<br>6. Certain uses on foreign vessels, aircraft and land vehicles which temporarily or accidentally enter national territory.<br>7. Non-voluntary licenses.<br>8. Exploitation authorized by the Minister for the purposes of national security or public safety, subject to remuneration. |
| Algeria | 1. Acts for non-commercial purposes.<br>2. Acts for scientific research.<br>3. Acts concerning products licitly put into commerce.<br>4. Use on foreign ships, spacecraft, aircraft and land vehicles which temporarily or accidentally enter national territory.<br>5. Continued prior use by person who, in good faith before the filing date (priority date) made or used the invention, or had made serious preparations for that purpose.<br>6. Compulsory licenses. |
| Andorra | 1. Acts concerning products put on the market in Andorra or other prescribed country by, or with the consent of, the patent owner.<br>2. Private acts for non-commercial purposes.<br>3. Acts for experimental purposes.<br>4. Preparation of prescribed medicines in pharmacies or by doctors, and acts concerning those medicines.<br>5. Use on foreign spacecraft, aircraft and land vehicles which temporarily or accidentally enter national territory.<br>6. Continued prior use by person who, in good faith before the filing date (priority date) was using the invention for business purposes, or had made serious preparations for such purposes.<br>7. Compulsory licenses. |

| Country | Exceptions and Limitations of the Rights |
|---|---|
| Argentina | 1. Private or academic scientific or technological research for non-profit making experimental, testing or teaching purposes.<br>2. Preparation of prescribed drugs by an authorized professional person, and acts concerning those drugs.<br>3. Acts concerning products lawfully put on the market in any country by, or with the consent of, the patent owner.<br>4. Use on foreign vessels, aircraft and land vehicles temporarily or accidentally traveling on national territory.<br>5. Exploitation by an authorized third party to counter anti-competitive practices.<br>6. Exploitation ordered by the National Executive for purposes of health emergency or national security.<br>7. Other limited exceptions introduced by the Office at the reasoned request of a competent authority.<br>8. Exploitation by a third party allowed by the Office without the authority of patent owner, subject to remuneration. |
| Armenia | 1. Acts for scientific experiment or research.<br>2. Preparation of prescribed medicines in pharmacies.<br>3. Certain uses concerning foreign vehicles temporarily or inadvertently located on national territory.<br>4. Personal use for non-profit making purposes.<br>5. Acts concerning products and processes introduced into Armenia or made available in another country by, or with the consent of, the patent owner.<br>6. Continued prior use by person who, before the filing date (priority date), was using the invention in Armenia independently of the inventor, or had made necessary preparations for that purpose.<br>7. Compulsory licenses. |
| Australia | 1. Certain uses concerning foreign vessels, aircraft and land vehicles which temporarily or accidentally enter national territory.<br>2. Continued prior use by person who, at the filing date (priority date), was using the invention in Australia independently of the patent owner or his predecessor in title, or was taking definite steps for that purpose.<br>3. Acts for obtaining regulatory approval for pharmaceuticals.<br>4. Compulsory licenses. |

| Country | Exceptions and Limitations of the Rights |
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| Austria | 1. Continued prior use by a person who, in good faith before the filing date (priority date), used the invention in Austria, or had made necessary arrangements for that purpose.<br>2. Use on vehicles which temporarily enter national territory.<br>3. Expropriation by federal administrative authorities for the purposes of the armed forces, public welfare or other compelling federal interest, subject to payment of remuneration.<br>4. Compulsory licenses. |
| Bahrain | 1. Private use for non-industrial and non-commercial purposes.<br>2. Use for scientific research.<br>3. Continued prior use by a person who, in good faith before the filing date (priority date), industrially exploited the invention in Bahrain, or had made serious preparations for that purpose.<br>4. Certain uses on foreign vessels, aircraft and land vehicles which temporarily or accidentally enter national territory.<br>5. Acts for obtaining a license to market pharmaceutical products after patent expiration.<br>6. Compulsory licenses. |
| Barbados | 1. Acts for scientific research.<br>2. Acts concerning products put on the market in Barbados by, or with consent, of, the patent owner.<br>3. Continued prior use by a person who in good faith, before the filing date (priority date), used the invention, or had made effective and serious preparations for that purpose.<br>4. Certain uses concerning foreign vessels, aircraft or vehicles which accidentally or temporarily enter national territory.<br>5. Exploitation authorized by the Minister in the interests of national security, national health, national nutrition, development of an essential sector of the national economy, or other public interest, subject to remuneration.<br>6. Exploitation authorized by the Minister to counter anti-competitive exploitation, subject to remuneration.<br>7. Non-voluntary licenses. |

| Country | Exceptions and Limitations of the Rights |
|---|---|
| Belarus | 1. Certain uses concerning foreign vessels, aircraft, spacecraft or land vehicles which temporarily or accidentally enter national territory.<br>2. Acts for scientific research or experimentation.<br>3. Use in exceptional circumstances or force-majeure (subject to payment of remuneration).<br>4. Private use for non-commercial purposes.<br>5. Preparation of prescribed medicines in pharmacies.<br>6. Acts concerning products lawfully put on the market in Belarus.<br>7. Continued prior use by a person who, in good faith before the filing date (priority date) devised or used the invention in Belarus, or had made necessary preparations to do so.<br>8. Compulsory licenses. |
| Belgium | 1. Use of an essential element of the invention by a person unaware that it was for that purpose.<br>2. Private acts for non-commercial purposes.<br>3. Acts for experimental purposes.<br>4. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>5. Certain uses concerning foreign vessels, aircraft and land vehicles which temporarily or accidentally enter national territory.<br>6. Acts concerning products put on the market in Belgium by, or with consent, of patent owner.<br>7. Continued prior use by person who, in good faith before the filing date (priority date) used or possessed the invention in Belgium.<br>8. Compulsory licenses. |
| Belize | 1. Acts concerning products put on the market in Belize by, or with consent, of the patent owner.<br>2. Use on foreign aircraft, land vehicles or vessels which temporarily or accidentally enter national territory.<br>3. Acts for experimental purposes.<br>4. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>5. Continued prior use by a person who, in good faith before the filing date (priority date), used the invention in Belize, or had made effective and serious preparations for that purpose.<br>6. Exploitation authorized by the Minister in the public interest, in particular national security, nutrition, health, national nutrition and development of vital sectors of the national economy, subject to payment of remuneration. |

| Country | Exceptions and Limitations of the Rights |
|---|---|
| Belize (cont'd.) | 7. Exploitation authorized by the Minister to counter anti-competitive exploitation, subject to payment of remuneration.<br>8. Non-voluntary licenses. |
| Bolivia | 1. Private acts for non-profit making purposes.<br>2. Acts for experimentation, teaching or scientific or academic research.<br>3. Certain uses concerning foreign aircraft, land vehicles or vessels which temporarily or accidentally enter national territory.<br>4. Acts concerning products put on the market in Bolivia or other country by, or with consent of, the patent owner.<br>5. Continued prior use by a person who, in good faith before the filing date (priority date), used the invention, or had made effective and serious preparations for that purpose.<br>6. Non-repeated use of biological material, other than plants, to obtain viable new material.<br>7. Biological material obtained by reproduction, multiplication or propagation of the material put on the market by the patent owner for that purpose, other than for multiplication or propagation purposes.<br>8. Compulsory licenses. |
| Bosnia and Herzegovina | 1. Private acts for non-commercial purposes.<br>2. Acts for research and experimental purposes.<br>3. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>4. Certain uses concerning foreign aircraft, land vehicles or vessels which temporarily or accidentally enter national territory.<br>5. Continued prior use by a person who, in good faith before the filing date (priority date), had exploited or manufactured the invention in Bosnia and Herzegovina, or made real and serious preparations for that purpose.<br>6. Acts concerning products put on the market in Bosnia and Herzegovina by, or with consent, of patent owner.<br>7. Compulsory licenses. |

| Country | Exceptions and Limitations of the Rights |
|---|---|
| Brazil | 1. Private acts for non-commercial purposes not prejudicial to patent owner.<br>2. Experimental acts for scientific or technological study or research.<br>3. Preparation of prescribed medicines by a qualified person, and medicines so prepared.<br>4. Acts concerning products put on the market in Brazil by, or with consent of, the patent owner.<br>5. Non-commercial use of living material as an initial source of variation or propagation.<br>6. Acts in respect of living material put on the market by the patent holder or licensee, other than for commercial multiplication or propagation of that living material.<br>7. Continued prior use by a person who, in good faith, used the invention in Brazil before the filing date (priority date).<br>8. Compulsory licenses. |
| Bulgaria | 1. Private acts for non-commercial purposes not prejudicial to patent owner.<br>2. Experimental acts for research or development.<br>3. Preparation of prescribed medicines in pharmacies.<br>4. Certain uses concerning foreign aircraft, land vehicles or vessels which temporarily or accidentally enter national territory.<br>5. Acts concerning products put on the market in Bulgaria by the patent owner or with his consent.<br>6. Continued prior use by a person who, in good faith, used the invention before the filing date (priority date), or had made necessary preparations for that purpose.<br>7. A person who, after the lapse of a patent, has used the invention, or has made the necessary preparation for such use, mat continue to use the invention in the same volume after the renewal of the patent under Article 26(2) (reinstatement of right after the lapse of a patent).<br>8. Compulsory licenses. |
| Canada | 1. Certain uses concerning foreign aircraft, land vehicles or vessels which temporarily or accidentally enter national territory.<br>2. Acts of obtaining required regulatory approval for manufacture, construction, use or sale of a product under Canadian or foreign law.<br>3. Private non- commercial acts.<br>4. Acts for experimental purposes.<br>5. Continued prior use or sale by a person who, before the filing date (priority date), purchased, constructed or acquired the invention.<br>6. Compulsory licenses. |

| Country | Exceptions and Limitations of the Rights |
|---|---|
| Chile | 1. Commercial acts by third parties who adequately obtained a product which was legitimately introduced in the market in any country by, or with consent of, the patent owner.<br>2. Non-voluntary licenses. |
| China | 1. Acts concerning products put on the market in China by, or with knowledge of, the patent owner.<br>2. Continued prior use by a person who, before the filing date (priority date), used the invention in China, or had made effective and serious preparations for that purpose.<br>3. Certain uses in respect of foreign means of transport which temporarily enter national territory.<br>4. Use for scientific research and experimentation purposes.<br>5. Use or sale of products obtained from a legitimate source but made and sold without authorization of patent owner.<br>6. Compulsory licenses. |
| Colombia | 1. Private acts for non-profit making purposes.<br>2. Acts for purposes of experimentation, teaching or scientific or academic research.<br>3. Certain uses concerning foreign aircraft, land vehicles or vessels which temporarily or accidentally enter national territory.<br>4. Acts concerning products put on the market in Colombia or other country by, or with consent of, the patent owner.<br>5. Continued prior use by a person who, in good faith before the filing date (priority date), used the invention, or had made effective and serious preparations for that purpose.<br>6. Non-repeated use of biological material, other than plants, to obtain viable new material.<br>7. Biological material obtained by reproduction, multiplication or propagation of the material put on the market by the patent owner for that purpose, other than for multiplication or propagation purposes.<br>8. Compulsory licenses. |
| Costa Rica | In the case the following exceptions do not compromise in a unjustifiable manner the normal exploitation of the patent nor do they cause unjustifiable damage to the legitimate interests of the patent holder or his licensee, the rights granted by the patent do not extend to:<br>1. Legal acts of any nature done in a private environment and for non-commercial purposes<br>2. Acts done for experimental purposes relating to the subject-matter of the patented invention<br>3. Acts done exclusively for the purpose of teaching or scientific or academic investigation with respect to the subject-matter of the patented invention |

| Country | Exceptions and Limitations of the Rights |
|---|---|
| Costa Rica (cont'd.) | 4. Acts of sale, offering for sale, use, usufruct, import or any way of commercialization of a patent-protected product or obtained by a patented process once it has been put on the market of any country with the patent holder's or the license holder' s consent<br>5. The necessary use for investigation, processing or any other requirements for obtaining sanitary approval with a view to commercialize the product following patent expiration<br>6. Continued use prior to the filing date of the application, or prior to the date of granted priority exploited or manufactured in the country<br>7. Compulsory licenses |
| Croatia | 1. Private acts for non-commercial purposes.<br>2. Acts for research and development.<br>3. Acts for obtaining registration of the medical, veterinary and plant protection products.<br>4. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>5. Continued prior use by a person who, in good faith before the filing date (priority date), exploited or manufactured the invention in Croatia for business purposes, or had made real and serious preparations for such purposes.<br>6. Certain uses concerning foreign aircraft, land vehicles or vessels which temporarily or accidentally enter national territory.<br>7. Acts concerning products put on the market in Croatia by, or with consent of, the patent owner.<br>8. Compulsory licenses. |
| Cyprus | 1. Acts concerning products put on the market in Cyprus by, or with consent of, the patent owner.<br>2. Private acts for non-commercial purposes not prejudicial to patent owner.<br>3. Acts for experimental purposes or scientific research.<br>4. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>5. Non-voluntary licenses. |
| Czech Republic | 1. Acts concerning products put on the market in Czech Republic by, or with consent of, the patent owner, unless patent right is extended to those acts.<br>2. Continued prior use by a person who, before the filing date (priority date), had worked the invention independently of the inventor, or made preparation for that purpose.<br>3. Certain uses concerning foreign aircraft, land vehicles or vessels which temporarily or accidentally enter national territory. |

| Country | Exceptions and Limitations of the Rights |
|---|---|
| Czech Republic (cont'd.) | 4. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>5. Acts for non-commercial purposes.<br>6. Acts for experimental purposes.<br>7. Compulsory licenses. |
| Denmark | 1. Acts for non-commercial purposes.<br>2. Acts concerning products put on the market in the European Economic Area by, or with consent of, the patent owner.<br>3. Acts for experimental purposes.<br>4. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>5. Biological material obtained by multiplication or propagation of material put on the market by the patent owner for that purpose, other than for further multiplication or propagation.<br>6. Use by farmers of harvested plant propagating material for multiplication or propagation on own farm.<br>7. Use by farmers of breeding stock or other animal reproductive material for own agricultural activity, but not sale for commercial reproduction.<br>8. Continued prior use by a person who, at the filing date (priority date), was exploiting the invention commercially in Denmark, or had made substantial preparation for that purpose.<br>9. Certain uses concerning foreign aircraft, vehicles or vessels which temporarily or accidentally enter national territory.<br>10. Compulsory licenses. |
| Dominica | 1. Acts in respect of products put on the market in Dominica by, or with consent of, the patent owner.<br>2. Use of articles on foreign aircraft, vehicles or vessels which temporarily or accidentally enter national territory.<br>3. Acts for experimental purposes.<br>4. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>5. Continued prior use by a person who, in good faith before the filing date (priority date), was using the invention commercially in Dominica, or had made effective and substantial preparations for that purpose.<br>6. Exploitation authorized by the Minister in the public interest, in particular for national security, nutrition, health or development of vital sectors of the national economy.<br>7. Exploitation authorized by the Minister to counter anti-competitive exploitation.<br>8. Use of an essential element of the invention by person who was unaware it was for that purpose.<br>9. Non-voluntary licenses. |

| Country | Exceptions and Limitations of the Rights |
|---|---|
| Ecuador | 1. Private acts for non-profit making purposes.<br>2. Acts for purposes of experimentation, teaching or scientific or academic research.<br>3. Certain uses concerning foreign aircraft, land vehicles or vessels which temporarily or accidentally enter national territory.<br>4. Acts concerning products put on the market in Ecuador or other country by, or with consent of, the patent owner.<br>5. Continued prior use by a person who, in good faith before the filing date (priority date), used the invention, or had made effective and serious preparations for that purpose.<br>6. Non-repeated use of biological material, other than plants, to obtain viable new material.<br>7. Biological material obtained by reproduction, multiplication or propagation of material put on the market by the patent owner for that purpose, other than for multiplication or propagation purposes.<br>8. Compulsory licenses. |
| Egypt | 1. Acts in respect of products put on the market in any country by, or with the authorization of, the patent owner.<br>2. Acts for scientific research purposes.<br>3. Continued prior use by a person who, in good faith before the filing date, used the invention in Egypt, or had made effective and serious preparations for that purpose.<br>4. Indirect uses of production processes to obtain other products.<br>5. Certain uses concerning foreign aircraft, land vehicles or vessels which temporarily or accidentally enter national territory.<br>6. Acts for obtaining a license to market a product after patent expiration.<br>7. Acts not prejudicial to normal exploitation of the patent, or the interests of patent owner and third parties.<br>8. Non-voluntary licenses.<br>9. Expropriation approved by ministerial committee for the purposes of national defense or in cases of emergency. |
| Ecuador | 1. Objects and goods in transit through national territory, but not put on the market there.<br>2. Private acts for non-commercial purposes.<br>3. Acts for experimental purposes or scientific, academic or educational research. |

| Country | Exceptions and Limitations of the Rights |
|---|---|
| El Salvador (cont'd.) | 4. Marketing or use of products legally placed on the market in El Salvador.<br>5. Continued prior use by a person who, in good faith before the filing date (priority date), used the invention in El Salvador, or had made effective and serious preparations for that purpose.<br>6. Compulsory licenses. |
| Estonia | 1. Certain uses concerning foreign aircraft, vehicles or vessels which temporarily or accidentally enter national territory.<br>2. Experimental use.<br>3. Preparation of prescribed medicines in pharmacies, and use of those medicines.<br>4. Private non-commercial use not prejudicial to patent owner.<br>5. Use, distribution, sale or offering for sale in Estonia by, or with consent of patent owner.<br>6. Propagation or multiplication of biological material put on the market by, or with consent of, the patent owner for that purpose, other than for other multiplication or propagation purposes, and biological material derived therefrom.<br>7. Continued prior use by a person who, in good faith before the filing date (priority date), industrially used the invention in Estonia, or had made effective and serious preparations for that purpose.<br>8. Use of products put on the market in the European Economic Area by, or with consent, of patent owner.<br>9. Compulsory licenses. |
| Finland | 1. Use of an essential element of the invention by person who was unaware it was for carrying out the invention.<br>2. Non-commercial use.<br>3. Use of products put on the market in the European Economic Area by, or with consent, of patent owner.<br>4. Experimental use.<br>5. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>6. Propagation or multiplication of biological material put on the market in the European Economic Area by, or with consent of, the patent owner for that purpose, other than for other multiplication or propagation purposes.<br>7. Use by farmers of harvested plant propagating material for multiplication or propagation on own farm.<br>8. Use by farmers of breeding stock or other animal reproductive material for pursuing own agricultural activity, but not sale for commercial reproduction. |

| Country | Exceptions and Limitations of the Rights |
|---|---|
| Finland (cont'd.) | 9. Continued prior use by a person who, at the filing date (priority date), was exploiting the invention commercially in Finland, or had made substantial preparation for that purpose.<br>10. Certain uses concerning foreign vessels, aircraft or other means of transport which temporarily enter national territory.<br>11. Compulsory licenses. |
| France | 1. Private acts for non-commercial purposes.<br>2. Acts for experimental purposes.<br>3. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>4. Acts concerning products put on the market in the European Economic Area by, or with consent, of patent owner.<br>5. Continued prior use by a person who was, in good faith, in possession of the invention, at the filing date (priority date).<br>6. Compulsory licenses. |
| Georgia | 1. Products put into economic circulation by, or with consent, of the patent owner.<br>2. Private use for non-commercial purposes.<br>3. Certain uses concerning marine, air and land transport facilities which temporarily or casually enter national territory.<br>4. Use in natural calamity, catastrophe, epidemic or other emergency situation.<br>5. Continued prior use by a person who, before the filing date (priority date), used the invention, or had made preparation for that purpose.<br>6. Compulsory licenses. |
| Germany | 1. Private acts for experimental or other non-commercial purposes.<br>2. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>3. Certain uses concerning foreign aircraft, land vehicles or vessels which temporarily or accidentally enter national territory.<br>4. Continued prior use by a person who, at the filing date (priority date), had used the invention in Germany, or made arrangements for that purpose.<br>5. Exploitation in the interest of public welfare or security ordered by the Federal Government or by, or on the instruction of, a supreme federal authority, subject to remuneration.<br>6. Compulsory licenses. |

| Country | Exceptions and Limitations of the Rights |
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| Ghana | 1. Acts for non-industrial and non-commercial purposes.<br>2. Scientific research;.<br>3. Acts in respect of articles put on the market in Ghana by, or with the consent of, the patent owner.<br>4. Use on foreign aircraft, land vehicles or vessels which temporarily or accidentally enter national territory.<br>5. Exploitation by, or on behalf of a government agency, in the public interest, in particular, national security, health or development of vital sectors of the national economy.<br>6. Compulsory licenses. |
| Greece | 1. Use for non-professional or research purposes.<br>2. Certain uses concerning automobiles, trains, vessels or airplanes which temporarily enter national territory.<br>3. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>4. Continued prior use by a person who, at the filing date (priority date), had used the invention inGreece , or made arrangements for that purpose.<br>5. Non-contractual licenses. |
| Guatemala | 1. Acts done in a private environment and for non-commercial purposes<br>2. Acts done exclusively for the purpose of experiments relating to the subject-matter of the patented invention<br>3. Acts done exclusively for the purpose of teaching or scientific or academic investigation, without commercial purposes, with respect to the subject-matter of the patented invention<br>4. Acts referred to in article 5*ter* of the Paris Convention<br>5. Acts concerning products once it has been put on the market of any country with the patent holder's or the license holder's consent<br>6. Biological material obtained by multiplication or propagation of the patented biological material put on the market of any country with the patent holder's or the license holder's consent with a condition that the multiplication or propagation necessarily results from the application for which the material was introduced to the commerce and that the material derived from such application is not used for the purpose of multiplication and propagation<br>7. Compulsory licenses |

| Country | Exceptions and Limitations of the Rights |
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| Hungary | 1. Private acts for non-economic activities.<br>2. Acts for experimental purposes, including experiments and tests necessary for the registration of medicines.<br>3. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>4. Continued prior use by a person who, in good faith at the filing date (priority date), had made or used the invention for commercial purposes in Hungary, or made serious preparations for such purposes.<br>5. Certain uses concerning means of communication and transport in transit in national territory, and foreign goods not intended to be put on the market there.<br>6. Acts in respect of products put on the market in Hungary by, or with the consent of, the patent owner.<br>7. Compulsory licenses. |
| Iceland | 1. Non- commercial use.<br>2. Use of products put on the market within the European Economic Area by, or with consent, of the patent owner.<br>3. Experimental use.<br>4. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>5. Continued prior use by a person who, at the filing date (priority date), was exploiting the invention commercially in Iceland, or had made substantial preparation for that purpose.<br>6. Certain uses concerning foreign aircraft, vehicles or vessels which enter national territory temporarily or by chance.<br>7. Exploitation by the State or other party directed by the Minister, in event of an emergency due to natural disaster, war or imminent risk of war, subject to remuneration.<br>8. Compulsory licenses. |
| India | 1. The grant of a patent is subject to the following conditions:<br>(a) importation or manufacture of articles and uses of processes by, or on behalf of the Government for its own use;<br>(b) importation of medicines and drugs by the Government for its own use or for distribution in dispensaries, hospitals or other medical institutions maintained by, on behalf of or specified by the Government;<br>(c) use for purposes merely of experiment or research, including the imparting of instructions to pupils. |

| Country | Exceptions and Limitations of the Rights |
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| India (cont'd.) | 2. Act of making, constructing, using, selling or importing a patented inventionsolely for uses reasonably related to the development or submission of information required under any law that regulates the manufacture, construction, use, sale or importation of any product.<br>3. Importation of patented products from a person who is duly authorized under the law to produce and sell or distribute the product.<br>4. Compulsory licenses. |
| Indonesia | 1. Continued prior use by a person who was exploiting the invention at the filing date (priority date).<br>2. Use for purposes of education, research, experiment or analysis not prejudicial to the patent owner.<br>3. Exploitation by the Government by Presidential Decree for the purposes of the defense and security of the State or urgent public interest.<br>4. Compulsory licenses. |
| Ireland | 1. Private acts for non-commercial purposes.<br>2. Acts for experimental purposes.<br>3. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>4. Certain uses concerning foreign aircraft, land vehicles or vessels which temporarily or accidentally enter national territory.<br>5. Acts which cannot be prevented by the patent owner under European Communities law.<br>6. Continued prior use by a person who, in good faith at the filing date (priority date), had used the invention for commercial purposes in Ireland, or made serious preparations for such purposes.<br>7. Assignment by a Minister on behalf of the State, subject to remuneration.<br>8. Compulsory licenses. |
| Israel | 1. Non- commercial acts.<br>2. Experimental acts for obtaining a marketing license after patent expiration.<br>3. Continued prior use by a person who, in good faith at the filing date (priority date), exploited the invention in Israel, or had made actual preparations for that purpose.<br>4. Exploitation, authorized by the minister, by a Government departments or State contractor in the interests of national security or maintenance of essential supplies and services, subject to remuneration.<br>5. Compulsory licenses. |

| Country | Exceptions and Limitations of the Rights |
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| Italy | 1. Private acts for non-commercial purposes or experimental purposes.<br>2. Preparation of prescribed medicines in pharmacies, and medicines so prepared.<br>3. Continued prior use by a person who used the invention in his business in the 12 months preceding the filing date (priority date).<br>4. Exploitation, by Presidential decree, by the State, for national military defense or other public interest reasons, subject to remuneration.<br>5. Compulsory licenses. |
| Japan | 1. Non-commercial use.<br>2. Use for experiment or research purposes.<br>3. Vessels and aircraft passing through Japan.<br>4. Products existing in Japan before the filing date (priority date).<br>5. Preparation of patented medicines by missing two or more medicines in accordance with the prescription of physicians or dentists, and medicines so prepared.<br>6. Non-exclusive license available as of right in the case of prior use or working of the invention prior tothe filing date (priority date).<br>7. Non-voluntary licenses. |
| Jordan | 1. Use for scientific research, development and obtaining marketing permits.<br>2. Compulsory licenses. |
| Kenya | 1. Acts necessary to obtain approval or registration for commercializing products after expiry of patent.<br>2. Continued prior use by a person who, in good faith at the filing date (priority date), was using the invention for business purposes in Kenya, or making effective and serious preparations for that purpose.<br>3. Acts for non-industrial and non-commercial purposes.<br>4. Acts for scientific research.<br>5. Acts in respect of articles put on the market in Kenya or any other country or imported into Kenya.<br>6. Use on foreign aircraft, land vehicles or vessels which temporarily or accidentally enter the territory of Kenya.<br>7. Variants or mutants of living forms or replicable living matter which are distinctively different from the patented original and deserve a separate patent.<br>8. Exploitation, ordered or authorized by the Minister, by a Government Ministry, Department, agency or other person, in the public interest (in particular, national security, nutrition, health, environmental conservation, or development of other vital sector of the national economy), not subject to remuneration.<br>9. Compulsory licenses. |

| Country | Exceptions and Limitations of the Rights |
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| Kyrgyz Republic | 1. Use for research or scientific experimentation purposes and manufacture, experimentation and testing of prototypes.<br>2. Certain uses concerning foreign means of transport (by sea, river, air, land or in space) which temporarily or accidentally enter national territory.<br>3. Use in exceptional circumstances (natural disasters, catastrophes, serious accidents), subject to payment of remuneration.<br>4. Use and disposal of devices lawfully put on the market with authorization of patent owner.<br>5. Continued prior use by a person who, before the filing date (priority date), had independently conceived and used the invention in Kyrgyz Republic, or made preparations for that purpose.<br>6. Compulsory licenses. |
| Latvia | 1. Use not for commercial purposes or profit.<br>2. Use for scientific experiments or research purposes, and testing the invention.<br>3. Preparation of prescribed medicines in a pharmacy.<br>4. Exploitation of products put into economic circulation in Latvia by patent owner or licensee.<br>5. Certain uses relating to foreign means of transport which temporarily or accidentally enter national territory.<br>6. Continued prior use by a person who, in good faith before the filing date (priority date), was using the invention for business purposes in Latvia, or making and serious preparations for such purposes.<br>7. Compulsory licenses. |
| Liechtenstein | 1. Continued prior use by a person who, in good faith before the filing date (priority date), had used the invention in Liechtenstein, or made special preparations for that purpose.<br>2. Certain uses relating to foreign vehicles temporarily located in Liechtenstein.<br>3. Exploitation by order of the Federal Council in the public interest.<br>4. Compulsory licenses.<br>(in accordance with the agreements with Switzerland and the European Economic Area (EEA)) |
| Lithuania | 1. Private non-commercial acts not prejudicial to patent owner.<br>2. Acts for experimental purposes or scientific research.<br>3. Preparation of prescribed medicines in pharmacies, and use of those medicines.<br>4. Continued prior use by a person who, in good faith before the filing date (priority date), was using the invention, or making effective and serious preparations for that purpose. |

| Country | Exceptions and Limitations of the Rights |
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| Lithuania (cont'd.) | 5. Certain uses concerning foreign vessels or air or land carriers which temporarily or accidentally enter national territory.<br>6. Exploitation, authorized by Government resolution, by a central or local government institution, natural or legal person or enterprise without legal personality for the purposes of public need, national security, public health protection or development of an economically important sector, subject to remuneration.<br>7. Compulsory licenses. |
| Luxembourg | 1. Private acts for non-commercial purposes.<br>2. Acts for experimental purposes.<br>3. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>4. Certain uses concerning foreign vessels, aircraft and land vehicles which temporarily or accidentally enter national territory.<br>5. Continued prior use by a person who, in good faith before the filing date (priority date), possessed in Luxembourg a justified right in the prior use of the invention, and acts concerning the products thereof.<br>6. Acts concerning products put on the market in the European Economic Community by, or with the consent of, the patent owner.<br>7. Exploitation, licensed by Grand Ducal Order, in the public interest, subject to remuneration.<br>8. Compulsory licenses. |
| Malaysia | 1. Acts for non-industrial and non-commercial purposes.<br>2. Acts for scientific research.<br>3. Acts in respect of products put on the market by the patent owner or other authorized person.<br>4. Use on foreign vessels, aircraft, spacecraft or land vehicles temporarily in Malaysia.<br>5. Continued prior use by a person who, in good faith at the filing date (priority date), was using the invention in Malaysia, or had made serious preparations for that purpose.<br>6. Acts related to development and submission of information to drug regulatory authority.<br>7. Exploitation by Federal or State Government, Ministry or Government department or any person authorized thereby, subject to remuneration.<br>8. Compulsory licenses. |
| Malta | 1. Acts concerning products put on the market in Malta or other specified territory by, or with consent of, the patent owner, or with his express consent.<br>2. Private non-commercial acts not prejudicial to patent owner.<br>3. Acts for experimental purposes or scientific research. |

| Country | Exceptions and Limitations of the Rights |
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| Malta (cont'd.) | 4. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>5. Continued prior use by a person who, in good faith at the filing date (priority date), was using the invention in Malta for business purposes, or had made effective and serious preparations for such purposes.<br>6. Exploitation, authorized by the Minister, by a Government agency or designated person for national security or public safety, subject to remuneration.<br>7. Non-voluntary licenses. |
| Mauritius | 1. Acts in respect of articles put on the market in Mauritius or in any other country by, or with consent, of patent owner or other authorized party.<br>2. Acts in respect of articles put on the market in Mauritius or in any other country or imported into Mauritius.<br>3. Use on foreign ships, aircraft and land vehicles which temporarily or accidentally enter national territory.<br>4. Acts for research and experimental purposes.<br>5. Continued prior use by a person who, in good faith at the filing date (priority date) was using the invention in Mauritius, or made effective and serious preparations for that purpose.<br>6. Exploitation, authorized by the competent authority, by a Government agency or third person in the public interest (including, national security, nutrition, health or the development of other vital sectors of the national economy), subject to remuneration.<br>7. Non-voluntary licenses. |
| Mexico | The right conferred by a patent shall not have any effect against:<br>1. A third party who, in the private or academic sphere and for non-commercial purposes, engages in scientific or technological research activities for purely experimental, testing or teaching purposes, and to that end manufactures or uses a product or a process identical to the one patented<br>2. Any person who markets, acquires or uses the patented product or the product obtained by the patented process after the said product has been lawfully placed on the market;<br>3. Any person who, prior to the filing date (priority date), uses the patented process, manufactures the patented product or has made the necessary preparations for such use or manufacture;<br>4. The use of the patented invention in transportation vehicles of other countries when it forms part of such vehicles and when the vehicles are in transit on the national territory; |

| Country | Exceptions and Limitations of the Rights |
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| Mexico (cont'd.) | 5. A third party who, in the case of patents relating to live material, makes use of the patented product as an initial source of variation or propagation to obtain other products, except where such use is made in repeated form;<br>6. A third party who, in the case of patents relating to products consisting of live material, uses, brings into circulation or markets the patented products for purposes other than multiplication or propagation, after the said products have been properly placed on the market by the owner of the patent or by a licensee<br>7. Compulsory licenses. |
| Moldova (Republic of) | 1. Certain uses concerning foreign means of transport which temporarily or accidentally enter national territory.<br>2. Use for research or scientific experimentation.<br>3. Use for non-commercial purposes.<br>4. Use in extraordinary cases, such as natural disasters, catastrophes and epidemics or other circumstances of extreme urgency.<br>5. Preparation of prescribed medicines.<br>6. Use for private non-profit making purposes.<br>7. Acts in good faith by public authorities related to enforcement of industrial property laws.<br>8. Continued prior use by a person who, at the filing date (priority date), had exploited the invention independently of the inventor, or made necessary preparations for that purpose.<br>9. Compulsory licenses. |
| Mongolia | 1. Use of articles put on the market in Mongolia by, or with consent of, the patent owner.<br>2. Use for scientific research or experimental purposes.<br>3. Use on a foreign means of transport which temporarily or accidentally enters national territory.<br>4. Continued prior use by a person who, before the filing date (priority date), was using the invention, or making effective and serious preparations for that purpose.<br>5. Compulsory licenses. |
| Morocco | 1. Private non-commercial acts.<br>2. Experimental acts.<br>3. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>4. Acts in respect of articles put on the market in Morocco by, or with consent of, the patent owner.<br>5. Certain uses concerning foreign vessels, aircraft and land vehicles which temporarily or accidentally enter national territory. |

| Country | Exceptions and Limitations of the Rights |
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| Morocco (cont'd.) | 6. Continued prior use by a person who, in good faith at the filing date (priority date), was using the invention in Morocco, or had made effective and serious preparations for that purpose.<br>7. Exploitation, authorized by the competent authority, for the purposes of public health or the national economy.<br>8. Compulsory licenses.<br>9. Expropriation by order of the President of the Statutory Tribunal. |
| Mozambique | 1. Acts for purposes of scientific research.<br>2. Acts related to products placed on the market in Mozambique by, or with consent of, patent owner.<br>3. Use on foreign aircraft, vehicles or vessels temporarily or accidentally entering national territory.<br>4. Continued prior use by a person who, in good faith, at the filing date (priority date) was using the invention, or making effective and serious preparations for that purpose.<br>5. Compulsory licenses. |
| Netherlands | 1. Acts for purposes of scientific research.<br>2. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>3. Certain acts concerning products put on the market in the European Union, the European Economic Area or the Netherlands Antilles by, or with consent, of patent owner.<br>4. Certain uses concerning foreign vessels, aircraft and land vehicles which temporarily or accidentally enter national territory.<br>5. Continued use of products manufactured before grant of the patent.<br>6. Continued prior use by a person who, at the filing date (priority date), was using the invention for business purposes independently of the applicant, or had made preparations for that purpose.<br>7. Exploitation, authorized by Royal Decree, for national defense. |
| New Zealand | 1. Development and submission of information for regulatory approval.<br>2. Use for services of the Crown by, or authorized by, a Government Department, in particular for the purposes of national defense, security or emergency, subject to remuneration.<br>3. Compulsory licenses. |
| Nicaragua | 1. Private acts for non-commercial purposes.<br>2. Acts for experimentation.<br>3. Acts for teaching or scientific or academic research purposes in relation to the subject matter of the patented invention. |

| Country | Exceptions and Limitations of the Rights |
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| Nicaragua (cont'd.) | 4. Certain uses concerning foreign vessels, aircraft and land vehicles which temporarily or accidentally enter national territory.<br>5. Acts in relation to products put on the market by, or with consent of, the patent owner or person economically connected with him.<br>6. Continued prior use by a person who, in good faith before the filing date (priority date), was using the invention for business purposes, or had made genuine and effective preparations for that purpose, unless the knowledge was obtained unlawfully.<br>7. Non-repeated use of biological material for producing viable new biological material.<br>8. Reproduction or propagation by farmers on their farms of products obtained from reproductive or vegetative propagating material, and marketing of those products for agricultural use or human consumption.<br>9. Biological material obtained by multiplication or propagation of the material put on the market by the patent owner for that purpose, but not used for multiplication or propagation purposes.<br>10. Compulsory licenses. |
| Nigeria | 1. Acts for non-industrial and non-commercial purposes.<br>2. Acts in relation to products lawfully sold in Nigeria, other than acts specially provided for in the patent.<br>3. Continued prior use by a person who, in good faith before the filing date (priority date), was using the invention for business purposes, or had made serious preparations for such purposes.<br>4. Exploitation, authorized by the Minister, for the service of a government agency, in particular in a period of emergency.<br>5. Compulsory licenses. |
| Norway | 1. Exploitation outside the course of professional activity.<br>2. Exploitation of products put on the market in the European Economic Area by, or with the consent of, the patent owner.<br>3. Experimental use.<br>4. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>5. Biological material obtained by multiplication or propagation of the material put on the market in the European Economic Area by the patent owner for that purpose, other than for multiplication or propagation purposes.<br>6. Use by farmers of harvested plant propagating material for multiplication or propagation on own farm. |

| Country | Exceptions and Limitations of the Rights |
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| Norway (cont'd.) | 7. Use by farmers of breeding stock or other animal reproductive material for agriculture purposes on own farm, but not sale for commercial reproduction.<br>8. Use biological material already existing in nature which is not necessary for the industrial application specified in the patent.<br>9. Continued prior use by a person who, at the filing date (priority date), was exploiting the invention commercially in Norway, or had made substantial preparation for that purpose.<br>10. Certain uses concerning foreign aircraft, vehicles or vessels which temporarily or accidentally enter national territory.<br>11. Assignment of the patent by the King to the Government or other designated party because of war or danger of war and crisis situations connected therewith, subject to remuneration.<br>12. Compulsory licenses. |
| Oman | 1. Continued prior use by a person who, in good faith before the filing date (priority date), used the invention in Oman, or had made serious preparations for that purpose.<br>2. Compulsory licenses. |
| Pakistan | 1. Acts in respect of articles put on the market by, or with the consent of, the patent owner.<br>2. Use of articles on foreign aircraft, vehicles or vessels which temporarily or accidentally enter national territory.<br>3. Acts for experimental purposes.<br>4. Continued prior use by a person who, in good faith before the filing date (priority date), was using the invention, or making effective and serious preparations for that purpose.<br>5. Exploitation, authorized by the Minister, by a Government agency or other person in the public interest (in particular national security, nutrition, health, or development of vital sectors of the national economy) , subject to remuneration.<br>6. Exploitation authorized by the Minister to counter anti-competitive practices, subject to remuneration.<br>7. Compulsory licenses. |
| Panama | 1. Private acts for non-commercial purposes.<br>2. Use for experimental purposes or scientific or educational research.<br>3. Acts concerning products lawfully put on the market.<br>4. Continued prior use by a person who, in good faith before the filing date (priority date), had used the invention, or made necessary preparations for that purpose. |

| Country | Exceptions and Limitations of the Rights |
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| Papua New Guinea | 1. Acts in respect of articles been put on the market in Papua New Guinea by, or with the consent of, the patent owner.<br>2. Certain uses relating to foreign aircraft, land vehicles or vessels which temporarily or accidentally enter national territory.<br>3. Acts for experimental purposes.<br>4. Continued prior use by a person who, in good faith before the filing date (priority date), was exploiting the invention in Papua New Guinea, or making effective and serious preparations for that purpose.<br>5. Acts performed by any person who proves that he was unaware, that the patent existed.<br>6. Exploitation, authorized by the Minister, by a Government agency or other person in the public interest (in particular national security, nutrition, health, or development of other sectors of the national economy) , subject to remuneration.<br>7. Exploitation authorized by the Minister to counter anti-competitive practices, subject to remuneration. |
| Peru | 1. Private acts for non-profit making purposes.<br>2. Acts for purposes of experimentation, teaching or scientific or academic research.<br>3. Certain uses concerning foreign aircraft, land vehicles or vessels which temporarily or accidentally enter national territory.<br>4. Acts concerning products put on the market in Colombia or other country by, or with consent of, the patent owner.<br>5. Continued prior use by a person who, in good faith before the filing date (priority date), used the invention, or had made effective and serious preparations for that purpose.<br>6. Non-repeated use of biological material, other than plants, to obtain viable new material.<br>7. Biological material obtained by reproduction, multiplication or propagation of the material put on the market by the patent owner for that purpose, other than for multiplication or propagation purposes.<br>8. Compulsory licenses. |
| Philippines | 1. Use of products put on the market in the Philippines by, or with consent of, the product owner.<br>2. Private non-commercial acts not prejudicial to the patent owner.<br>3. Acts for the purpose of experiments.<br>4. Preparation of prescribed medicines in pharmacies or by medical professionals, and acts concerning those medicines.<br>5. Certain uses concerning foreign aircraft, land vehicles or vessels which temporarily or accidentally enter national territory. |

| Country | Exceptions and Limitations of the Rights |
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| Philippines (cont'd.) | 6. Continued prior use by a person who, in good faith before the filing date (priority date), was using the invention for business purposes, or had made serious preparations for such purposes.<br>7. Exploitation, authorized by the Government, by a Government agency or other person in the public interest (in particular national security, nutrition, health, or development of other sectors of the national economy), subject to remuneration.<br>8. Exploitation authorized by the Government to counter anti-competitive practices subject to remuneration.<br>9. Compulsory licenses. |
| Poland | 1. Exploitation by any person in the public interest, after three years from patent grant, where the supply to home market is of inadequate quality or quantity or excessively expensive.<br>2. Certain uses concerning means of transport temporarily located on national territory.<br>3. Articles in transit through national territory.<br>4. Exploitation for national purposes to prevent or eliminate a state of emergency relating to vital State interests (in particular security or public order), subject to remuneration.<br>5. Use for purposes of search, experiment, evaluation, analysis or teaching.<br>6. Use for registration or marketing authorization, in particular for pharmaceutical products.<br>7. Preparation of prescribed medicines in pharmacies or by medical professionals.<br>8. Acts in relation to products lawfully put on the market in Poland or other prescribed State by, or with consent of, the patent owner or person economically connected with him.<br>9. Continued prior use by a person who, in good faith before the filing date (priority date), had exploited the invention in Poland, or made substantial preparations for that purpose.<br>10. Compulsory licenses. |
| Portugal | 1. Private acts done for non-commercial purposes.<br>2. Preparation in a pharmacy of a medicinal product according to a prescription in individual cases or acts concerning the medicinal product so prepared.<br>3. Acts done for experimental purposes relating to the subject-matter of the patented invention including those for the preparation of the necessary administrative procedures for approval by the competent authorities, without, however, the ability to start industrial or commercial exploitation before verification of patent expiration. |

| Country | Exceptions and Limitations of the Rights |
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| Portugal (cont'd.) | 4. Use on board of vessels of other Union or WTO members of the patented invention in the vessel's body, machinery, tackle and other accessories when it temporarily or accidentally enters this country provided that such invention is used exclusively for the needs of the vessel.<br>5. Use of the subject of the patent in the construction or operation of aircraft or land vehicles of other Union or WTO members, or of accessories of such aircraft or land vehicles, when those aircraft or land vehicles temporarily or accidentally enter national territory.<br>6. Acts provided for in art 27 of the Convention of International Civil Aviation of 7 December 1944 if they concern aircrafts of another state to whom, however, the provision of the referred article are applied. |
| Republic of Korea | 1. Use for non-industrial and non-commercial purposes.<br>2. Use for purposes of research or experiment.<br>3. Certain uses concerning vessels, aircraft or vehicles passing through national territory.<br>4. Articles existing in the Republic of Korea at the filing date (priority date).<br>5. Manufacture of medicines in accordance with national law, and medicines so manufactured.<br>6. Non-exclusive license for continued prior use by a person who, in good faith at the filing date (priority date), was commercially working the invention in the Republic of Korea, or had made preparations for that purpose.<br>7. Exploitation by, or authorized by, the Government for national defense or other emergency, subject to remuneration.<br>8. Non-exclusive licenses in the public interest. |
| Romania | 1. Certain uses concerning foreign aircraft, land vehicles or vessels which temporarily or accidentally enter national territory.<br>2. Continued prior use by a person who, in good faith before the filing date (priority date), exploited the invention in Romania independently of the patent owner, or had taken real and effective steps for that purpose.<br>3. Use for experimental purposes.<br>4. Marketing or offering for sale of products previously sold by the patent owner.<br>5. Exploitation authorized by the Municipal Court for the purposes of public health, the national economy, national defense or State security, subject to remuneration.<br>6. Compulsory licenses. |

| Country | Exceptions and Limitations of the Rights |
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| Russian Federation | 1. Certain uses concerning foreign vehicles (river and marine, air, automobile and railway transport, spacecraft) which are temporarily or accidentally located on national territory.<br>2. Scientific research or experiments.<br>3. Use in emergency situations (natural calamities, catastrophes, accidents), subject to payment of remuneration.<br>4. Use for private, family, domestic or other non-business purposes not for profit.<br>5. Preparation of prescribed medicines in pharmacies.<br>6. Certain uses of products put on the market in the Russian Federation by, or with authorization of, the owner.<br>7. Continued prior use by a person who, in good faith before the filing date (priority date) independently of the inventor, had conceived and was using the invention in the Russian Federation, or making necessary preparations for that purpose.<br>8. Compulsory licenses. |
| Saint Lucia | 1. Private acts for non-commercial purposes.<br>2. Acts for experimental purposes.<br>3. Preparation of prescribed medicines in pharmacies or by medical professionals, and acts concerning those medicines.<br>4. Certain uses concerning foreign ships, aircraft, hovercraft or vehicles which temporarily or accidentally enter national territory.<br>5. Certain acts in relation to products produced by or with the consent, of the patent owner or licensee in any country.<br>6. Continued prior use by a person who, in good faith before the filing date (priority date), was exploiting the invention in Saint Lucia, or had made effective and serious preparations for that purpose.<br>7. Exploitation by, or authorized, by a Government department, in particular for the purposes of public health, defense or atomic energy.<br>8. Compulsory licenses. |
| Serbia and Montenegro | 1. Biological material obtained by multiplication or propagation of the material put on the market by the patent owner for that purpose, but not used for multiplication or propagation purposes without authorization.<br>2. Use for personal, non-commercial purposes. |

| Country | Exceptions and Limitations of the Rights |
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| Serbia and Montenegro (cont'd.) | 3. Acts related to research and development, including acts obtaining an authorization to market drugs and medicinal products.<br>4. Preparation of prescribed drugs in pharmacies and placement of such drug on the market.<br>5. Use and disposal of product is placed on the market in Serbia and Montenegro by, or with the consent of, the patent owner.<br>6. Continued prior use by a person who, in good faith before the filing date (priority date), exploited the invention in Serbia and Montenegro, or made all necessary preparations for that purpose.<br>7. Certain uses concerning foreign ships, aircraft, hovercraft or vehicles which temporarily or accidentally enter national territory.<br>8. Compulsory licenses. |
| Singapore | 1. Private acts for non-commercial purposes.<br>2. Acts for experimental purposes.<br>3. Preparation of prescribed medicines in pharmacies, and dealings with those medicines.<br>4. Certain uses concerning foreign ships, aircraft, hovercraft or vehicles which temporarily or accidentally enter national territory.<br>5. Certain acts in relation to products produced by or with the consent, of the patent owner or licensee in any country.<br>6. Exploitation authorized by a Government department, in particular in respect of national security, defense or civil defense emergency, subject to remuneration.<br>7. Continued prior use by a person who, in good faith before the filing date (priority date), exploited the invention in Singapore, or made effective and serious preparations for that purpose.<br>8. Compulsory licenses. |
| Slovak Republic | 1. Continued prior use by a person who, before the filing date (priority date), had already worked the invention independently, or made preparations for that purpose.<br>2. Certain uses concerning foreign vessels, aircraft or land vehicles which temporarily or accidentally enter national territory.<br>3. Preparation of prescribed medicines in pharmacies or by medical professionals.<br>4. Compulsory licenses. |

| Country | Exceptions and Limitations of the Rights |
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| Slovenia | 1. Private acts for non-commercial purposes.<br>2. Acts for research and experimental purposes.<br>3. Preparation of prescribed medicines in pharmacies or by medical professionals, and acts concerning those medicines.<br>4. Certain uses concerning foreign vessels, aircraft or land vehicles which temporarily or accidentally enter national territory.<br>5. Compulsory licenses. |
| South Africa | 1. Certain uses concerning foreign vessels, aircraft or land vehicles which temporarily or accidentally enter national territory.<br>2. Acts solely for the purposes reasonably related to the obtention, development and submission of information required under any law that regulates the manufacture, production, distribution, use or sale of any product.<br>3. Exhaustion<br>4. Compulsory assignment to the Minister of Defense of inventions relating to armaments.<br>5. Compulsory licenses. |
| Spain | 1. Acts carried out in private and not for any commercial purpose.<br>2. Acts carried out for experimental purposes.<br>3. The extemporaneous preparation of medicines in pharmacies carried out singly in making up a prescription and acts related to the medicines thus prepared.<br>4. Certain acts concerning foreign vessels, aircraft, spacecraft, or land vehicles which temporarily or accidentally enter national territory.<br>5. Exploitation of products put on the market in Spain by, or with his consent of, the patent owner.<br>6. Continued prior use by a person who, at the filing date (priority date) was using the invention commercially in Spain, or had made substantial preparations for that purpose.<br>7. Compulsory licenses. |
| Sri Lanka | 1. Acts for non-industrial and non-commercial purposes.<br>2. Acts for purposes of scientific research.<br>3. Certain acts concerning foreign vessels, aircraft, spacecraft, or land vehicles which temporarily or accidentally enter national territory.<br>4. Continued prior use by a person who, in good faith before the filing date (priority date), exploited the invention in Sri Lanka, or had made serious preparations for that purpose. |

| Country | Exceptions and Limitations of the Rights |
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| Sweden | 1. Non-commercial acts.<br>2. Acts for experimental purposes.<br>3. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>4. Exploitation of products put on the market in the European Economic Area by, or with consent of, the patent owner.<br>5. Multiplication or propagation of biological material put on the market by the patent owner for that purpose, other than for further multiplication or propagation.<br>6. Use by farmers of harvested plant propagating material for multiplication or propagation on own farm.<br>7. Use by farmers of breeding stock or other animal reproductive material for own agricultural activity but not sale for commercial reproduction.<br>8. Biological material obtained by multiplication or propagation of the material put on the market in the European Economic Area by the patent owner for that purpose, other than for multiplication or propagation purposes.<br>9. Use by farmers of harvested plant propagating material for multiplication or propagation on own farm.<br>10. Use by farmers of breeding stock or other animal reproductive material for agriculture purposes on own farm, but not sale for commercial reproduction.<br>11. Continued prior use by a person who, at the filing date (priority date) was using the invention commercially in Sweden, or had made substantial preparations for that purpose.<br>12. Certain uses concerning foreign vessels, aircraft or other means of communication which temporarily enter national territory.<br>13. Surrender of patent right, by Government decree, to the State or other designated party, in case of war or danger of war, subject to remuneration.<br>14. Compulsory licenses. |
| Switzerland | 1. Continued prior use by a person who, before the filing date (priority date), was using the invention professionally in Switzerland, or had made special preparations for that purpose.<br>2. Vehicles temporarily in Switzerland and their equipment.<br>3. Expropriation of the patent by the Federal Council in the public interest.<br>4. Compulsory licenses. |

| Country | Exceptions and Limitations of the Rights |
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| Thailand | 1. Acts committed before patent grant unless the application was already published, or the person concerned knew, or had been informed in writing, that the application had been filed.<br>2. Acts for purposes of study, research, experimentation or analysis.<br>3. Continued prior use by a person who, in good faith before the filing date (priority date), had used the invention, or acquired equipment for that purpose.<br>4. Preparation of prescribed medicines by pharmacist or medical practitioner, and acts concerning those medicines.<br>5. Acts for registering pharmaceutical products for production, distribution or importation after patent expiration.<br>6. Certain uses concerning foreign vessels, aircraft or land vehicles which temporarily or accidentally enter national territory.<br>7. Certain acts concerning products produced or sold with consent of patent owner.<br>8. Expropriation by the Prime Minister with the approval of the Cabinet, for the purposes of national defense or security, subject to remuneration.<br>9. Compulsory licenses. |
| The Former Yugoslav Republic of Macedonia | 1. Private acts for non-commercial purposes.<br>2. Acts for purposes of research and development.<br>3. Acts for registration of medical, veterinary and plant protection products.<br>4. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>5. Continued prior use by a person who, in good faith before the filing date (priority date), had used the invention non-publicly in the Former Yugoslav Republic of Macedonia, or made necessary preparations for that purpose.<br>6. Certain uses concerning foreign ships, airplanes or road vehicles which temporarily or accidentally enter national territory.<br>7. Compulsory licenses. |
| Trinidad and Tobago | 1. Private acts done privately and for non-commercial purposes.<br>2. Acts for experimental purposes.<br>3. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>4. Use on foreign aircraft, land vehicles or vessels which temporarily or accidentally enter national territory. |

| Country | Exceptions and Limitations of the Rights |
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| Trinidad and Tobago (cont'd.) | 5. Acts in respect of articles put on the market in Trinidad and Tobago by, or with consent of, the patent owner.<br>6. Exploitation, by a State agency or other person authorized by the Minister, for the services of the State in an national emergency or other circumstance of extreme urgency, subject to remuneration.<br>7. Exploitation authorized by the Minister to counter anti-competitive practices, subject to remuneration.<br>8. Non-voluntary licenses. |
| Tunisia | 1. Private acts for non-commercial purposes.<br>2. Acts for experimental purposes.<br>3. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>4. Certain acts concerning products lawfully put on the market by, or with consent of, the patent owner.<br>5. Acts relating to manufacture generic drugs for commercial exploitation after patent expiration.<br>6. Use of objects on foreign aircraft, land vehicles and vessels which temporarily or accidentally enter national territory.<br>7. Continued prior use by a person who, in good faith before the filing date (priority date), was using the invention in Tunisia, or had made serious preparations for that purpose.<br>8. Exploitation, by third parties authorized or ordered by the Minister, in the public interest (in particular, the national economy, safeguarding the environment or public health).<br>9. Compulsory licenses. |
| Turkey | 1. Acts for non-industrial and non-commercial purposes.<br>2. Acts for experimental purposes.<br>3. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>4. Certain acts concerning foreign vessels, spacecraft, aircraft or land vehicles which temporarily or accidentally enter national territory.<br>5. Acts concerning products placed on sale in Turkey by, or with consent of, the patent owner.<br>6. Continued prior use by a person who in good faith, between the filing date and the priority date, worked the invention in Turkey, or had made genuine and effective preparations for that purpose.<br>7. Compulsory licenses. |
| Ukraine | 1. Continued prior use by a person who, in good faith before the filing date (priority date), had commercially used the invention, or made serious preparations for that purpose.<br>2. Certain acts concerning foreign vehicles temporarily or occasionally situated in national territory. |

| Country | Exceptions and Limitations of the Rights |
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| Ukraine (cont'd.) | 3. Use for non-commercial purposes.<br>4. Use for scientific or experimental purposes.<br>5. Use in emergency conditions (natural disaster, accident, epidemic etc.)<br>6. Acts relating to products manufactured or put on the market by, or with permission of, the patent owner.<br>7. Use, by a person authorized by the Cabinet of Ministers, to protect the health of population, ecological safety or other public interests.<br>8. Compulsory licenses. |
| United Kingdom | 1. Acts which cannot be prevented by the patent owner under provisions of the Community Patent Convention relating to exhaustion of the rights.<br>2. Private acts for non-commercial purposes.<br>3. Acts for experimental purposes.<br>4. Preparation of prescribed medicines in pharmacies, and acts concerning those medicines.<br>5. Certain uses concerning foreign ships, aircraft, hovercraft or vehicles which temporarily or accidentally enter national territory.<br>6. Use by farmers of harvested plant propagating material for multiplication or propagation on own holding.<br>7. Use by farmers of breeding stock or other animal reproductive material for own agricultural activity, but not sale for commercial reproduction.<br>8. Continued prior use by a person who, in good faith at the filing date (priority date), had used the invention in the United Kingdom, or made effective or serious preparations for that purpose.<br>9. Exploitation, by a government department or other person authorized by the Secretary of State, in particular for the purposes of defense, medicines, atomic energy, war or other emergency.<br>10. Compulsory licenses. |
| United States of America | 1. Solely for uses reasonably related to the development and submission of information under the Federal law which regulates the manufacture, use or sale of drugs and veterinary biological products, other than those products primarily manufactured using certain genetic manipulation techniques.<br>2. Certain uses concerning foreign vessels, aircraft or vehicles which temporarily or accidentally enter national territory.<br>3. As regards business method patents, continued use by a person who in good faith, had put the invention into practice at least one year before the filing date (priority date) and commercially used it before that date. |

| Country | Exceptions and Limitations of the Rights |
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| Uruguay | 1. Private acts for non-industrial and non-commercial purposes not prejudicial to patent owner.<br>2. Preparation of prescribed medicines under the supervision of authorized professionals.<br>3. Acts for experimental purposes (including acts anticipating future commercial exploitation) carried out within year before patent expiry.<br>4. Acts for teaching, scientific or academic research purposes.<br>5. Importation or entry of small quantities of non-commercial goods in personal effects of passengers or sent in small packages.<br>6. Acts relating to products manufactured or put on the market in Uruguay by, or with consent of, the patent owner or with legal authorization.<br>7. Continued prior use by a person who in good faith, before the filing date (priority date), had exploited the invention in Uruguay, or had made serious preparations for that purpose.<br>8. Expropriation by the State in accordance with prescribed rules, in particular for the needs of the State.<br>9. Exploitation, by persons authorized by a special resolution of the Executive, in special situations (in particular, the general interest, defense or national security, the economic, social and technological development of strategic sectors strategic, urgent health reasons or other public interest reasons), subject to remuneration.<br>10. Compulsory licenses. |
| Uzbekistan | 1. Certain uses concerning foreign means of transport temporarily or accidentally located on national territory.<br>2. Use for purposes of scientific research or an experiment.<br>3. Use in cases of natural calamities, disasters, epidemics and other exceptional circumstances.<br>4. Use of products lawfully introduced into civilian circulation.<br>5. Non-profit use for personal reasons.<br>6. Preparation of prescribed medicines in pharmacies.<br>7. Continued prior use by a person who in good faith before the filing date (priority date), had used the invention independently of the inventor, or made necessary preparations for that purpose.<br>8. Compulsory licenses. |

| Regional Offices | Exceptions and Limitations of the Rights |
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| African Intellectual Property Organization (OAPI) | 1. Acts in relation to products put on to the market in an OAPI Member State by, or with consent, of the patent owner.<br>2. Use of objects on board foreign aircraft, land vehicles or ships that temporarily or accidentally enter the territory of an OAPI Member State.<br>3. Acts for experimental purposes in scientific and technical research.<br>4. Continued prior use by a person who in good faith, before the filing date (priority date), had exploited the invention in an OAPI Member State, or made effective and genuine preparations for that purpose.<br>5. Exploitation, by an administration or organization authorized by the Minister of the Member State concerned, for the purposes of vital economic interest, public health, defense or the country's needs, subject to remuneration.<br>6. Non-voluntary licenses. |
| African Regional Intellectual Property Organization (ARIPO) | National law issue |
| Eurasian Patent Organization (EAPO) | 1. Certain uses in relation to means of transportation that temporarily or accidentally enter the territory of an EAPO Member State.<br>2. Use for scientific research and experimental purposes.<br>3. Preparation of prescribed medicines in pharmacies.<br>4. Private use for non-profit making purposes.<br>5. Use of products put on to the market in an EAPO Member State by, or with consent, of the patent owner.<br>6. Continued prior use by a person who in good faith, before the filing date (priority date), had used the invention in an EAPO Member State, or made necessary preparations for that purpose.<br>7. Compulsory licenses. |
| European Patent Organisation (EPO) | National law issue |

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