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WIPO
WORLD
INTELLECTUAL PROPERTY
ORGANIZATION

CDIP/8/INF/3 REV.
ORIGINAL: ENGLISH
DATE: FEBRUARY 28, 2012

Committee on Development and Intellectual Property (CDIP)

Eighth Session
Geneva, November 14 to 18, 2011

STUDY ON PATENTS AND THE PUBLIC DOMAIN[1 & 2]

prepared by the Secretariat

1. The Annex to this document contains a Study on Patents and the Public Domain prepared under the project on Intellectual Property and the Public Domain (CDIP/4/3/REV). This Study has been prepared by a group of experts. It comprises an overview of patents and the public domain, together with a number of country-specific accounts concerning the relationship between the public domain, national patent law and relevant information-retrieval mechanisms.

2. The CDIP is invited to take note of the information contained in the Annex to this document.

[Annex follows]

[1] The views expressed in the study are those of the authors, and not necessarily those of the WIPO Secretariat or its Member States.

[2] The Patents and the Public Domain part of the study was prepared by Mr. Jeremy Phillips, Professorial Fellow, Queen Mary Intellectual Property Research Institute, University of London, London, United Kingdom. The Development Dimension: National Practices and Experiences part was prepared by:
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EXECUTIVE SUMMARY

At its fourth session, held from November 16 to 20, 2009, in Geneva, the Committee on Development and Intellectual Property (CDIP) agreed to commission a Study on Patents and the Public Domain (hereinafter called "Study") under the Project on Intellectual Property and the Public Domain, as described in document CDIP/4/3 Rev. The overall objective of the Project is established by Recommendations 16 and 20 of the WIPO Development Agenda.

The objective of the Study is to deepen the analysis of the implications and benefits of a rich and accessible public domain and to explore the role of the patent system and patent information in identifying accessing and using subject matter in the public domain. Therefore, the Study focuses principally on the patent system and the role which patent information plays in the identification, access, use and preservation of public domain knowledge. Possibly because the public domain is so familiar and ubiquitous, it does not appear that any systematic study on its relationship with the patent system has been undertaken. Accordingly, this Study should be viewed not as the final word on the subject, but as a set of preliminary thoughts which are not designed to preempt discussions.

The Study comprises two parts: the first part provides an overview of patents and the public domain,[3] and the second part examines a number of country-specific accounts concerning the relationship between the public domain, national patent law and relevant information retrieval mechanisms in South Africa, Egypt, Colombia, Ukraine and India.[4]

I. PATENTS AND THE PUBLIC DOMAIN

(a) The notion of "public domain" in relation to the patent system

There is no single accepted, official definition of "public domain" for the purpose of international patent law. The Paris Convention on the Protection of Industrial Property, the Patent Law Treaty and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) make no mention of the public domain. A few studies on the public domain, published relatively recently, focus on a specific area of intellectual property law, namely, copyright law. One reason why there have been very few studies on the public domain as a generally applicable concept within the sphere of intellectual property law may be that it has simply been taken for granted, like the air we breathe, and has not been adequately recognized as a commodity which can be utilized as a technical resource, packaged for sale and distribution and cultivated for the benefit of mankind in general. As a result of debates concerning the entitlement to gain access to and use known information, the subject can be expected to come under increasing scrutiny within WIPO and other international organizations. One particular complexity in relation to patents is that the private rights of patent owners are not absolute and that, notwithstanding the fact that patent-protected subject matter is inherently private, it may still be lawfully used by others – the aggregate of a large number of individual entitlements to use another's private property may be little different in reality from "public domain".

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[3] The first part of the Study was prepared by Mr. Jeremy Phillips, Professorial Fellow, Queen Mary Intellectual Property Research Institute, University of London, London, United Kingdom.

[4] The following experts prepared these country-specific studies: (i) Mr. McLean Sibanda, Chief Executive Officer, The Innovation Hub, Pretoria, South Africa; (ii) Mr. Hossam El Saghir, Professor of Commercial Law and General Director of the, Regional Institute for Intellectual Property, Helwan University, and Attorney at Law, Cairo, Egypt; (iii) Mr. Ernesto Rengifo García, Professor, *Universidad Externado de Colombia*, Bogota, Colombia; (iv) Mrs. Olena Pavlina Orlyuk, Director, Scientific Research Institute of Intellectual Property, Kyiv, Ukraine; and (v) Mr. Calab Gabriel, Senior Partner, K&S Partners, Intellectual Property Attorneys, Gurgaon, National Capital Region, India.

In terms of the concepts which have traditionally governed the understanding of the patent system, the public domain complements the patent system mainly as a by-product of the following processes: (i) the placing before the public of any new product or process; (ii) the juxtaposition of intellective elements, whether contained in patent documents themselves or in knowledge which resides outside patents; (iii) the termination of any legal restriction placed upon the use of any product or process by virtue of the expiry, surrender, cancellation or revocation of the patent rights. While it is frequently assumed that access to documentation concerning expired patents which have entered the public domain is of assistance in the process of fresh innovation, the connection between the two has not been proven, and there is no evidence upon which to compare it favorably or unfavorably when contrasting it with any other means claimed to foster future creativity. However, it is reasonable to suppose that the provision of better means for identifying and accessing public domain information will confer a benefit on all sectors of the innovation community, if only by assisting in the elimination of previously fruitless attempts to solve technical problems and in the avoidance of duplication of research the results of which have already entered the public domain. An accessible public domain is also expected to offer existing technical solutions to the same or similar problems that might be present elsewhere. The direction of a clear legal policy regarding the public domain would be facilitated if more empirical evidence were available concerning the relevance of the different factors mentioned in this Study.

Public domain in the patent system differs from public domain in other intellectual property rights: there are effectively two dimensions to the patent public domain, namely, the information domain and the action domain. The information domain relates to the information contained in published documents relating to the patent application and grant, as well as to data gleaned from office actions such as opposition proceedings and judicial decisions. The action domain relates to what may be done with the above public information, which is partly defined by each national law in terms of the scope of patent rights and exceptions and limitations to such rights.

(b) Rationale of the patent system and the public domain

In its earliest forms, both in Venice and England, the idea of “technology transfer” into their territory was the driving force of the patent systems, and no explicit reference to public scrutiny of technical contents and the concept of a public domain was made at that time. The description of patented invention was initially a practice introduced by patent owners, on an informal basis, in order to assert the scope of their patents against alleged infringers during patent infringement litigations. An important shift, from the conceptual point of view, was brought by the United States Constitution in which the focus of the patent system was deflected from that of personal advantage to the granters of a patent privilege and possessors of such privilege. Rather, it tied the rationale of the patent system to the aim of progress of science and useful arts and the greater goods of mankind, and for the first time, accommodated the public domain. It was not until the nineteenth century in England that the value of collating the technical information contained in patent applications for the purpose of using them as a research resource was appreciated. Benett Woodcroft conceived the notion of a patent office as a repository of technical information through which descriptions of inventions were laid open for consultation by the public at large.

Besides dissemination and transfer of knowledge, often, the rationale of the patent system is also explained from the points of incentives to invent and invest. However, in the case where patents are seen as investment in themselves, the public domain as a repository of information for technological development has little attraction for such investors.

The policy objectives of the patent system may be distinguished from its rationale in that, while the rationale looks backwards in explaining the reasons for the patent system, its policy objectives are generally identified by the system’s future direction in order to achieve specific targets. In principle, it would be desirable to give an authoritative review of the policy objectives of the public domain, in the same way as the policy objectives of the patent system. In practice, this is not possible due to

the lack of a general agreement on the scope and role of the public domain. However, one policy objective might be that the public domain should be accessible, even if the debate on the extent to which it should be accessible remains diverse between intellectual property rights. However, the debate on the extent to which the public domain should be accessible in the context of copyright may have a certain significance in the context of patents. As computer science advances, public domain storage and retrieval takes on a more than merely archival aspect, since any new technology is a threat to the existing technologies. A further consideration relates to the language and format in which public domain information is held and made available, and the fact that not all the information contained in the public domain is transmittable online via the Internet. In connection with the preservation of the public domain, one of the difficult issues may be the relationship between the public domain and trade secrets, as information which was once publicly available could be forgotten by the public and thereby regain its value in the confidential "private" domain.

Once material is identified as falling outside the scope of patent protection and therefore within the public domain, a number of significant policy issues must still be addressed. First, notwithstanding the lack of patent protection, the use of public domain material may still be restrained due to public law factors that are external to intellectual property law and which generally override it, such as in environmental measures that prohibit the use of toxic chemicals. The second form of restriction on the use of materials which have fallen outside of patent protection arises from a private law factor: those materials may belong to the public domain from the perspective of the patent system while remaining protected by other intellectual property rights. A third form of restriction relates to the recent moves towards the protection of traditional knowledge and genetic material upon which some of that knowledge is based, although much of such knowledge and materials are regarded by classic patent law as falling within the public domain.

Another issue relating to access to unpatented and out-of-patent knowledge is the existence of practical means to access public domain information, for example, the possibility of physical access to public domain archives and databases. A further issue relates to the gap between what public domain materials (for example, patent documentation) disclose, and what the readers need to know in order to fully make use of the information so disclosed. In addition, the relevance of competition law in determining the public domain sphere should be noted.

(c) Relationship and interplay between the patent system and the public domain

While the patent system was not custom-built to create or serve the public domain, its unique and undeniable impact on the creation, use and preservation of the public domain cannot be denied. Depending on the applicable law, the main features of the patent system which assist in the creation of the public domain may be: (i) the definition of a patentable invention and the scope of permissible claims; (ii) the publication of applications for patents and granted patents; (iii) the inspection of files relating to patent applications; (iv) the collective examination of published applications by interested members of the public; (v) the legitimate use of a patent by others (exceptions and limitations to the patent rights); and (vi) the forfeiture of a patent, although there is scarcely any jurisprudence on this topic.

Regarding the patent system's contribution to the use of the public domain, the distinction between the information domain and the action domain is important. Once information is made available to the public via the patent system, that information may be intellectually absorbed, assimilated with other information and used as a means of creating further inventive concepts. All these uses however remain within the domain of mere information. When one seeks to implement those intellectual concepts to put them into action, they enter into the action domain where activity performed in respect of them may or may not infringe a patent. In reality, the patenting of subsequent incremental inventions and improvements over an earlier patent is often dealt with by the owner of the earlier patent. The practice of seeking to retain profitability from the commercial exploitation of those improvements by the owner of the earlier patent even after the expiration of

the earlier patent is sometimes pejoratively termed “evergreening”. Patent information may have higher intrinsic value than the information emanated from other sources in certain cases, because (i) it is classified mostly under the International Patent Classification scheme; (ii) legal rulings on the meaning and interpretation of contested patent documentation are increasingly reported and made publicly available on the Internet; (iii) there is a legal requirement that a claimed invention shall be described in a patent application in a sufficiently clear and complete manner (the enabling disclosure requirement); and (iv) prior art information in patent applications as well as search and examination reports enable members of the public more easily to link one invention with another. In addition, abstracts published with patent applications facilitate the identification of patent-based material within the public domain.

The preservation of the public domain is a concept which is almost too great to comprehend, as in its widest sense, it is the preservation of the entirety of publicly available science, technology, know-how, music and literature since the dawn of civilization. The patent system primarily operates upon the preservation of the public domain through the archiving of past patent documentation. There may be scope for WIPO, and UNESCO, which is primarily tasked with responsibility for the preservation and accessible use of the public domain specifically on account of its historical, cultural and social significance, to consider whether a joint initiative should be undertaken with regard to, for example, the development of a technique or methodology for identifying and categorizing elements of public domain information.

Public policy in the sphere of patent law carries with it the implication that, while the good of the public may in general terms be served by maintaining a patent system, the grant or enforcement of each specific patent must be judged not only in terms of its general acceptability and conformity with the law, but also in terms of its specific impact upon the market in which a patentee may prevent or restrict unauthorized activity. In that regard, the sector-specific nature of public policy implications cannot be overemphasized. For example, public policy addressed in the healthcare sector is very different from public policy considerations which are relevant in the information and telecommunication sector. In some exceptional circumstances, a limitation of the free and unrestricted use of public domain materials may be tolerated for the sake of a public policy interest that outweighs the apparent presumption in favor of the preservation of such free and unrestricted use. One example found in some jurisdictions is the special period of marketing exclusivity for orphan drugs. Where public policy makes demands on the patent system which are not constant as between different technologies, the best that the patent system can do is to respond to those demands on an ad-hoc basis and to do so as quickly as is feasible, so as to deflect accusations that the patent system is out-of-touch with reality and that, in looking after its uses, it fails to serve the needs of the wider public.

(d) <u>The international dimension</u>

While the international conventions currently governing substantive and procedural aspects of patent law make no specific mention of the public domain, it is not to say that there is no international dimension to the subject. In most countries, there is no limitation with respect to the geographical location of prior art under their patent laws. Thus, a national patent application will not succeed if the invention it embodies is anticipated or rendered obvious by public domain material anywhere in the world.

If the term “international public domain” means “everything known and made available to the public everywhere in the world”, and the term “national public domain” means “everything known and made available to the public within any specified national borders”, it could be said that, in general, the international public domain is a mere aggregation of national public domains. In the real world, this aggregation is subject to a number of significant conditions that affect the functionality of the international public domain. These include the following: (i) each country determines under its own patent law what constitutes “public domain”; and (ii) the pervasive nature of the Internet as a

means of storing, disseminating, identifying, accessing and even translating information has transformed our view of the national/international dichotomy.

At present it is fair to say that the public domain is a by-product of the international patent system and does not have a meaningful institutionally-established relationship with it. To the extent that the use of the multinational patent filing system under the Patent Cooperation Treaty results in a larger number of inventions being the subject of the publication of international patent applications, the international patent system accelerates the speed at which information covered by those applications is transferred, via the patent system, into the public domain. The absence of an international institutional framework may not, however, be an obstacle to the preservation of the utility of the patent public domain and to the facility with which its contents may be identified and accessed. This is because the achievement of those ends is something which benefits all members of the patent administration and innovation communities alike, regardless of their economic, cultural or political allegiances. Access to the public domain is necessary in cases where its content is used as a means of invalidating erroneously granted patents or of innovating technical solutions to existing and future problems. Recent experience has shown that patent-granting authorities have worked closely together on matters of mutual interest and concern. It might be reasonable to suppose that, in terms of promoting the utility of the patent public domain and in training people to use that resource more effectively, the same level of cooperation might arise by itself once the importance and significance of the resource is more broadly appreciated.

II. DEVELOPMENT DIMENSION: NATIONAL PRACTICES AND EXPERIENCES

(a) South Africa

This part of the Study looks at how the South African legislation on patents deals with public domain information and when patented inventions fall into the public domain, Furthermore, the study deals with some of the contemporary debates on the role of patents particularly in respect of results of publicly financed research and development and the development of the public domain.

The Patents Act No. 57 of 1978, as amended (hereinafter the “”Patent Act”), provides guidelines in respect of inventions falling into the public domain. The requirements of patentability, including the exclusions of certain inventions from patentable subject matter, provide safeguards with respect to regulating public domain knowledge from being proprietary through the patent system. As there are no instances of extension of the 20 year statutory period of patent protection under the South African laws, any patented invention falls into the public domain in the following circumstances: (i) its validity is successfully challenged; (ii) the patent lapses owing to non-payment of renewal fees (subject to a right for restoration in case where non-payment was not willful); or (iii) the patent expires at the end of the statutory 20 year period.

The South African patent system is a deposit or non-examining system, meaning that there is at all times the danger that some of the patented inventions are in essence part of the public domain. Lack of a substantive examination system places a burden on the public to prove that indeed the patented invention should not have been patented as it already was in the public domain. The Patents Act prevents a patentee from instituting infringement proceedings against a member of the public within a period of nine months from the grant of a patent, except with the permission of the court or the Commissioner of patents. This specific provision is intended to allow the general public to become acquainted with patents that are granted so that they could assess the validity of such patents and review their activities vis-à-vis the scope of such granted patents.

The role of patents and the public domain has become topical in recent years in South Africa with the debate being held during the passage of the Intellectual Property Rights from Publicly Financed Research and Development Act, 2008 (hereinafter the “IPR Act”). The IPR Act regulates the protection, management and commercialization of intellectual property emanating from publicly

financed research and development to the benefit of the people of South Africa. It appears that most of the arguments against the IPR Act are not so much based on the fact that intellectual property emanating from such research and development should not be patented *per se*. The arguments are based on ensuring that researchers are unrestricted in disseminating useful and basic research results, which can contribute further to the generation of knowledge and teaching. The regulations to the IPR Act provide various mechanisms of ensuring that the IPR Act does not prevent dissemination of knowledge. Some of these mechanisms include release to the general public of research results, either through open source, publication or non-exclusive royalty free licenses.

There is a need for more public awareness of the patent system and its interaction with the public domain – what is in the public domain and what is under patent protection. Such awareness needs to also focus on when patented invention becomes freely available for use by the general public. Furthermore, the awareness needs to cover the principles of territoriality, which in general allows the public to use inventions in territories in which such inventions are not patented.

(b) Egypt

The term “public domain” under the Egyptian patent system means the body of ideas, knowledge, science, technical information and innovations upon which no person or organization has any proprietary rights. Therefore, matters fallen into the public domain are available to everyone for free to use and exploit by any means. To widen the scope of the public domain, the policy underlying the Egyptian IP Law concerning patents was to stick to the minimum standard of protection provided under the TRIPS Agreement and interpreting it in accordance with the objectives and principles referred to in Articles 7 and 8 of that Agreement. In the light of such policy, the Egyptian IP Law provides patentability requirements, exclusions from patentable subject matter, the best mode requirement, exceptions and limitations to patent rights and lapse of patent protection.

Patent information disclosed to the public eventually becomes part of the public domain which serves as building blocks to create further inventions. The patent information, containing technical and legal information, is useful for the identification of the legal status of patent applications and patents, and the evaluation of technologies that have become part of the public domain. In addition, patent information can be lawfully and freely used during the term of patent protection in order to develop new inventions, as long as such activity does not infringe the claims of the patent. A Gazette issued by the patent office publishes only certain information regarding the accepted applications, such as bibliographic data, the title of the invention etc. The full text of the claims, description and drawings are made available for public inspections at the patent office. No database has been established to make it easy to search for the accepted applications and other relevant patent information. However, efforts to establish such database are exerted with the cooperation of the European Patent Office and WIPO.

The protection of biotechnological inventions presents a number of new challenges. For example, the IP law does not require applicants to submit the relevant nucleic acid sequence listings in electronic form. In addition, where the invention relates to a micro-organism developed outside Egypt, there are no clear rules pertinent to the clearance of the imported micro-organism from the Customs Authority to be able to deposit the organism with a national deposit center. The end result is that the applications remain suspended for a long period of time.

In relation to the preservation of the public domain, the Egyptian IP Law provides that a law suit may be filed to annul patents. However, in light of the jurisprudence, the civil and criminal courts entrusted to review patent infringement cases may not review the validity of patents which should be challenged before the administrative courts. Since there is no rule to stay in cases where an infringement case and an invalidation case are launched simultaneously, the dual nature of the Egyptian judicial system may lead to the issuance of inconsistent decisions by different courts.

While the introduction of the substantive examination of patent applications by the IP Law No. 82 of 2002 is expected to contribute to the preservation of the public domain, such a change requires an improvement of the skills of the personnel working at the patent office as well as of the infrastructure of the office necessary to conduct adequate prior art searches.

(c) Colombia

This part of the Study analyzes the impact of the patent system and the public domain on the development of science, innovation and technology in Colombia. The Colombian Government seeks to provide effective protection to creative activity by the patent law and to promote access to and utilization of the technical developments found in public domain patent documents. The main objectives of this initiative are to encourage creation and innovation through the use of the intellectual property system and its promotion as a mechanism for business development and employment generation in the country.

In its efforts to attain these goals, the State, through the government entities delegated for such purpose, has advanced in the management and promotion of public domain patent information, by means of training an efficient utilization of the Patent Bank. The Patent Bank provides the service of patent and state-of-the-art searches at the national and international levels, issues certifications regarding the existence and characteristics of patents registered in Colombia and conducts capacity building and technical assistance activities. Facing challenges in promoting the patent system and in disseminating patent information, the following mechanisms have been carried out by the government authorities: (i) awareness seminars addressed to businesspersons, entrepreneurs and university students; (ii) participation in programs for the support of SMEs; (iii) workshops for entrepreneurs regarding ways to gain access to patent documents through the different available public databases; (iv) participation of research centers in training programs; and (v) promoting alliances with universities, public research centers and companies. To further enhance the dissemination of patent information, the entities have completed a searchable patent database and provide information on other public intellectual property databases.

In order to complement those tools, a network of public entities, which informs users about the Colombian Patent system, was established. Further, the academic sector established tools, including Patent Information Centers and Technology Transfer Offices, aimed at encouraging and promoting the use of information contained in patents which are in the public domain. Although this task has generated important progress, it has been insufficient to consolidate the proper utilization of said technological tools and it is necessary to reinforce the strategies and combine efforts so that the use of this information will result in the creation of new technologies or the improvement of existing ones.

The importance of accessing and using this information for the development of industry and knowledge in Colombia has been understood by the academic and business sector. However, this source of knowledge is not efficiently used in Colombia, which is no doubt a disadvantage for a developing country. The main challenge is to strengthen the culture of using and exploiting intellectual property rights and the dissemination of the Patent Bank as a fundamental tool for entrepreneurs to obtain technological information in every region of the country. Currently, if a user wishes to access information in the respective patent file, he/she must come to the physical facility of the Administration in Bogota. The Administration is implementing the “zero paper” project in order to allow on-line consultation of all files.

This study leads to the conclusion that there is a significant quantity of technical documents in Colombia which are in the public domain, but there is no empirical evidence and institutional record to prove the use or exploitation of the information contained in them for the development of new technologies by the business, academic and scientific sectors. Therefore, it is crucial to continue with the task of building awareness in society and developing new strategies to transmit the

importance of taking advantage of this technological tool, which is at the disposal of the various economic sectors of the country.

(d) Ukraine

This part of the Study aims to analyze the level of the development of the public domain in the patent law of Ukraine. While analyzing the relevant Ukrainian legislation, it assesses synergy issues of the Ukrainian national patent system and the public domain area and detects the available methods and tools in accessing patent information.

The current Ukrainian legislation is analyzed in terms of how the transfer of subject matter of industrial property to the public domain is taking place. In general, the subject matter of patents enters into the public domain at the expiration of the term of the patent (after 20 years for inventions and 10 years for utility models). In the case of refusal, non-payment of the maintenance fee and invalidation of patents by courts, the protection terminates prematurely. Further, the patent law of Ukraine contains different exclusions which enhance the public domain. Those issues are regulated by the Civil Code of Ukraine and by special legislation in the patent law. The research specifies general rules related to the protection of subject matter of industrial property (patents for inventions, utility models, and industrial designs) and limitations of such protection, prescribed by law.

The study emphasizes the increasing awareness of the importance of patent information to further the public domain. This leads government offices to enhance the public domain by the use of registers, databases and open data, which are suitable for repeated use and machine processing. While the patent office plays a leading role in the formation of free patent information in Ukraine, the real contribution of commercial suppliers of patent data is substantially less in comparison with developed countries, although certain individual attempts are found particularly in the context of technology transfer.

To provide further background, the main characteristics of the national patent system of Ukraine, its structure and goals are highlighted in the study. In addition, it defines the ways of the development of patent system and its impact on State's innovation development. The study further gives an overview of the different State agencies involved in the development and distribution of patent information and technology transfer, such as the creation of a digital patent library.

The study concludes that the term "public domain" in Ukraine was not subject to a systematic development but is being understood, in particular, as an opportunity to use information that is in free access. Therefore, the important role of patent information and information resources for innovative and scientific activities cannot be overemphasized. Under such circumstances, it seemed reasonable to highlight two main aspects of the public domain: (i) issues regarding the patentability criteria, the term of its legal protection and the conditions for entering into the public domain; and (ii) issues regarding patent information and other information resources that are in free access.

Accordingly, the study provides a review of the mechanisms and instruments existing in Ukraine for access to patent information which entered the public domain, by identifying information resources, defining the existing structures, such as government and scientific institutions, and examining possible ways of access to them. The development of the information society in Ukraine is defined as one of the country's priority areas. In that regard, among the tasks defined at the State level as priorities for the introduction of accessible information infrastructure are, for example, making public domain knowledge accessible for a significantly larger circle of the public and providing free access to the results of scientific research funded by the State budget of Ukraine.

(e) India

This part of the Study starts by assessing certain particular provisions in the Indian Patents Act of 1970 which relate to the public domain and public disclosure. It analyzes the influence of the concept of the public domain in the Indian patent system, in particular, the role of different aspects of the patent system, such as prior art, publication, disclosure and refusal and revocation of patents. In this context, the influence of the Indian "Protection and Utilisation of Public Funded Intellectual Property Bill" 2008, which provides for similar provisions as the U.S. Bayh-Dole Act, on the public domain in relation to publicly funded research is discussed.

The study further analyses existing legislation and proposed legislation governing certain aspects of the public domain, such as data exclusivity, publicly funded research, bio-diversity, traditional knowledge, plant variety protection and folklore. It highlights the influences on the public domain of the so-called "patent linkage" between the Indian patent system and the current and proposed legislation concerning bio-diversity and traditional knowledge, and conversely, it further analyses the proposed legislation relating to traditional knowledge and its impact on the Indian patent system. While analyzing the proposed legal framework on traditional knowledge, the distinction between registered and unregistered traditional knowledge, which can be either of public or confidential nature, and its impact on the Indian patent system and the public domain are briefly noted.

Further, the benefits of accessible public domain knowledge in India which is created by the patent system through the obligation of disclosing a sufficient description and of applying the "best mode" requirement are highlighted.

The study identifies available information tools to access the subject matter and information available in the public domain, such as Indian traditional knowledge documented in the Indian Traditional Knowledge Digital Library (TKDL), and its influence on the patent examination and the public domain. TKDL, which can be called "restricted accessible documented public domain", acts as a bridge between the traditional knowledge information existing in local languages and the patent examiners in IP offices.

With reference to prior art, the study sets out the different steps by which subject matter of patents could fall into the public domain. In this context, special attention is given to secrecy discretion, abandoning and withdrawing applications, which aim at avoiding subject matter potentially fall into the "public domain" by keeping it secret and avoid publication within the patent system. Special attention is given to Section 8(1)(d) of the Indian Right to Information Act of 2005 which strikes a balance between the interest in preservation of confidentiality of sensitive information and the public interest in access to information.

In conclusion, the study highlights the development dimension of the patent system and the public domain in India by building on the experience with the TKDL and its protection against misappropriation of traditional knowledge. It further emphasizes the development dimension of the famers' rights in the Protection of Plant Varieties and Farmers Rights Act of 2001.

I. PATENTS AND THE PUBLIC DOMAIN

1. INTRODUCTION: OBJECTIVE, SCOPE AND CONTENTS OF THE STUDY

1.1 Objective

The objective of this Study, as has been succinctly expressed in the brief laid down by WIPO for its participating authors, is:

> "to deepen the analysis of the implications and benefits of a rich and accessible public domain and to explore the role of the patent system and patent information in identifying, accessing and using subject matter in the public domain".

The concept of the public domain is well-known in all areas of intellectual property law in which some form of demarcation divides an identifiable and legally-defined subject matter which is the "property" of an individual proprietor from that which may be freely accessed and used by all. However, the implications of information and other subject matter being contained within the public domain vary as between different branches of intellectual property law in terms of their effects upon individual intellectual properties. Thus for example a patent may be invalidated if subsequent to its grant it is found to be anticipated by material belonging to the public domain, which is not the case for a copyright work, a trade mark or a design. Likewise, trade mark law and, in some cases, design rights, may provide for a return to the private domain of intellectual property protection of content which belongs within the public domain, which is not the case under patent law.

Possibly because the public domain is so familiar and so ubiquitous, it does not appear that any serious and systematic study of its relationship to the patent system and its accessibility has been undertaken by any international body, trade organization or major industrial or cultural stakeholder. This Study does not therefore enjoy the luxury or the convenience of being able to build on the published results of existing systematic research into the subject. Accordingly, this Study should be viewed not as a final word on the subject but as a set of preliminary and tentative thoughts which are not designed to pre-empt discussion.[5] Its contents are designed to inform subsequent discussion, in keeping with the observations contained in paragraph 1.2 below.

1.2 Scope

This Study owes its origins to the fourth session of WIPO's Committee on Development and Intellectual Property (CDIP), which met in Geneva from November 16 to 20, 2009. At that session the CDIP agreed to undertake a study under the Project on Intellectual Property and the Public Domain, within the context of Recommendations 16[6] and 20[7] of the WIPO Development Agenda. Both fall within Cluster B of the 45 Recommendations, which are subtitled "Norm-setting, flexibilities, public policy and public domain".

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[5] This is clear from the authors' brief: "The Study is the first step in the implementation of Recommendations 16 and 20. Depending on the findings of the Study, WIPO Member States may decide on additional activities that might be undertaken to meet the concerns of the Recommendations. They may also form a basis to promote norm-setting activities related to intellectual property that support a robust public domain in WIPO's Member States".

[6] "Consider the preservation of the public domain within WIPO's normative processes and deepen the analysis of the implications and benefits of a rich and accessible public domain".

[7] "To promote norm-setting activities related to IP that support a robust public domain in WIPO's Member States, including the possibility of preparing guidelines which could assist interested Member States in identifying subject matters that have fallen into the public domain within their respective jurisdictions".

The Development Agenda is a long and complex document, and it is apparent that, while Recommendations 16 and 20 alone mention "public domain" in specific terms, a vital and accessible public domain will at least assist in the fulfilment of many of the other Recommendations too, particularly those which refer to issues such as technology transfer and dissemination and scientific cooperation. This Study may therefore be seen as having a wider scope of applicability than its title suggests.

The WIPO brief to the authors of this Study explains:

> "At the initial stage, the Project focuses on the second part of Recommendations 16 and 20, namely, to analyze the implications and benefits of a rich and accessible public domain, to explore the various tools available for identifying and accessing subject matter that has fallen into the public domain, and wherever possible, to suggest or work towards the development of new tools or guidelines, in order to enhance access to the public domain and preserve knowledge that is already in the public domain".

This focus is difficult to maintain at a time when the traditional technologies of information dissemination are being rapidly superseded in developed economies in which access to information is increasingly made available to sophisticated computer software, powerful and reliable computer hardware and electronic storage and retrieval services with the result that information can be summoned and obtained almost instantly, in a format in which it can be stored, printed or manipulated, in many cases at almost no marginal cost once the necessary hardware and software has been installed. The printed word, once the main means of spreading patent-related information via the printed and published patent application, is fading out while its online equivalent is scanned and monitored by online search engines which tirelessly interrogate each fresh item of information that is made available online; once scanned and recorded, the existence of that information is never forgotten. In many developing countries, however, access to such technology is restricted or virtually non-existent with the result that acquiring either patent-protected technology or public domain information often depends considerably on chance and the vagaries of local postal and telecommunications services. The printed word, finally obtained, must be physically preserved from the risks of flood, fire and theft as well as from more mundane but equally damaging activities such as being misplaced on the wrong library shelf where, intact but useless, they may never be found again.

This Study is not an isolated WIPO initiative, since it is being conducted in parallel with two further preliminary studies. The first of these is entitled "Exclusions from Patentable Subject Matter and Exceptions and Limitations to the Rights".[8] Clearly this study dovetails with the subject matter of this one, since matter which is excluded from being included within a granted patent, and activities which cannot be prevented by even the holder of a valid patent, are things which share some of the characteristics of the public domain in one way or another. Without prejudice to the conclusions drawn by the study on exclusions, this Study will allude to these issues later.

The second initiative is labeled "Dissemination of Patent Information".[9] In contrast with the first initiative on exclusions from liability, which focuses on what may legitimately be done without threat of encroachment on a patent monopoly, this second initiative relates to the information science aspects of the patent system: the identification, classification, search, storage and retrieval aspects which determine both the possibility of tapping the unique and potentially valuable content of each unit of patent information but the speed and efficiency with which this may be done. This Study addresses these issues relatively peripherally, though it does make some reference to the

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[8] Document SCP/13/3 prepared for the Standing Committee on the Law of Patents (SCP). A study by external experts was submitted to the fifteenth session of the SCP, October 2010.

[9] Document SCP/13/5 prepared for the Standing Committee on the Law of Patents.

International Patent Classification system on account of its inherent importance and widespread use by patent granting authorities.

1.3 Contents of the Study

What is included; what is excluded

This Study focuses principally on the patent system and the role which patent information plays in the identification, access, use and preservation of public domain material. Its objective is to explore further the nature of patent information and the features of certain provisions of the patent system which may be used for identifying subject matter that has either fallen into the public domain or which, through the restrictions imposed by the criteria of patentability and the exclusions which specify that which lies beyond its protection, might be described as never having left the public domain in the first place. The Study also considers the implications and benefits of creating and maintaining a rich and accessible public domain as an asset for an effectively worldwide public comprising those individuals, businesses, governments and others who may wish to use it.

The Study is intended to be of both a descriptive and analytical nature. Its function is to provide a snapshot of the interplay of the patent system and the public domain as it stands in 2011, together with a modicum of explanation as to how the present system came to pass. Its authors are not mandated to recommend or prescribe any form of action which they consider it to be necessary or desirable to be taken in consequence of their review: that is properly the role of policy makers at the international, regional and national levels. It is however an accepted principle that policy makers will generally make better policy when they are better informed about any subject on which they are called to take a position and make decisions. It is very much hoped that this Study will assist them in this regard.

A further limitation upon the scope of this Study is that, following the discussions at the fifth session of the Committee on Development and Intellectual Property (CDIP),[10] it is understood that this Study should not address "the impact of certain enterprise practices in the field of patents on the public domain". While that is quite properly the case, it is nonetheless inevitable that while the impact of such practices must remain the subject of separately funded research, the existence of those practices must be mentioned since what businesses do with their information and their patents has a direct consequence upon the public domain.
A final limitation is that this Study should not address "possible norm-setting activities at WIPO on the public domain". This subject is a matter for WIPO itself to determine through the channels established for that purpose.

The geographical range of the Study

The team of external experts engaged by WIPO to carry out and deliver this Study was briefed on the basis that, in addition to the overview of the subject, separate expert contributions would be made in respect of each of one African, Arab, Asian, Latin American and Eastern Europe/Caucasus/Central Asian country.

The contributions of the regional experts serve to reflect on the structure of the patent system in their respective countries, to review the development of access to information within the context of its patent system and to consider both the utility of the tools for accessing that information and the extent to which the resources of the public domain have been harnessed by them. Each of the selected jurisdictions may be taken as being, while unique in itself, typical of similar jurisdictions in terms of the problems which are addressed and the ways in which solutions are considered. In truth, while many aspects of patent law and practice vary markedly from country to country (for

[10] Geneva, April 27 to May 1, 2010.

example the rules governing patent-eligible subject matter, tests of inventiveness and the allocation of legal rights and remuneration from the patent as between the inventor and an employer), there is little to suggest that law and practice with regard to the interrelationship of patent law to the public domain has yet had the opportunity to demonstrate a great degree of diversification of principle as between geographical regions and the different cultures to which they are host.

2. THE NOTION OF "PUBLIC DOMAIN" IN RELATION TO THE PATENT SYSTEM

Defining the public domain

There is no single accepted and in any sense official definition of "public domain" for the purposes of international intellectual property or patent law. The WIPO website explains the concept of "public domain", within the context of copyright, as

> … subject matter which is excluded from protection, and thus may be accessed and used without permission.[11]

This definition is neither corroborated nor contradicted by international conventions and treaties, since the term is not mentioned in the effective constitution of international and reciprocal protection of patent rights — the Paris Convention on the Protection of Industrial Property.[12] That Convention was directed towards the mutual respect for protectable subject-matter, equal treatment of nationals and those from other union countries and cooperation in the reciprocal recognition union countries of events arising in each other's jurisdiction, including the priority date accorded to an application for an intellectual property. Additionally it was not surprising that such a Convention made no express provision regarding the public domain since there was in that era no evidence of a clear perception that subject matter which fell outside the scope of industrial property protection was considered to be a "domain" of any kind. Thus the public domain might fairly be said to be irrelevant to the objectives of the Paris Convention both in 1883 and in its subsequent revisions which have taken place at irregular intervals between1900 and 1979.[13]
Much the same can fairly be said with regard to the Agreement on Trade-Related Aspects of Intellectual Property Rights (the TRIPS Agreement),[14] which is part of the package of agreements to which nations must accede in order to enjoy trade with one another without the impediment of unlawful barriers and tariffs. The TRIPS Agreement requires member countries to subscribe to a respectable minimum level of intellectual property protection, including the adoption of the substantive provisions of the Paris Convention. While the TRIPS Agreement is far more focused on matters of substantive intellectual property law than was the Paris Convention, it again makes no mention of the public domain.

The most recent piece of international patent law, the Patent Law Treaty[15] of 2000, would not be expected to address public domain issues, since this Treaty is principally concerned with administrative matters and bureaucratic formalities.

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11 http://www.wipo.int/copyright/en/general/public_domain.html

12 Paris Convention for the Protection of Industrial Property of March 20, 1883, as revised at Brussels on December 14, 1900, at Washington on June 2, 1911, at The Hague on November 6, 1925, at London on June 2, 1934, at Lisbon on October 31, 1958, and at Stockholm on July 14, 1967, and as amended on September 28, 1979.

13 It is plain from the excellent *Guide to the Application of the Paris Convention for the Protection of Industrial Property* (BIRPI, Geneva, 1968) written by Georg Bodenhausen, Director of WIPO's predecessor BIRPI, that the objective of the Convention was to establish agreement as to the existence and protection of as many forms of industrial property as possible, to facilitate their protection and to remove barriers that might hinder such protection.

14 The TRIPS Agreement is Annex 1C of the Marrakesh Agreement Establishing the World Trade Organization, signed in Marrakesh, Morocco on 15 April 1994.

15 Patent Law Treaty, adopted at Geneva on June 1, 2000.

A Substantive Patent Law Treaty[16] was under consideration by WIPO's Standing Committee on the Law of Patents, but the draft text of this Treaty makes no reference to the public domain. From the foregoing it should not surprise the reader to discover that there have been very few studies of the public domain as a generally applicable concept within the sphere of intellectual property law, and that such studies as there are can be seen to be:

(i) of relatively recent provenance; and

(ii) focused on a specific area of intellectual property law—normally copyright law on account of its relevance to an ongoing debates concerning freedom of speech, privacy and the right of publicity which is perceived to be of wider political, commercial and philosophical significance than in areas such as patent, design, trade mark or plant breeders' rights.

Thus one well-known study of the public domain[17] which was published in 1993 (just three years before the date of the WIPO Internet Treaties, which reflect some of the most up-to-date perspectives on the balance between intellectual property rights and the rights of non-owners) is described as an "early critique".[18] Even in some of the most recent scholarly works on the patent system it is apparent that the public domain is not treated as a topic in its own right but is integrated into the analysis of other issues.[19]

One reason why so little attention has been paid to the public domain as an asset in its own right for so long may be that it has simply been taken for granted, like the air we breathe, and has not been adequately recognised as a commodity which can be utilised as a technical resource, packaged for sale and distribution and cultivated for the benefit of mankind in general. Since the public domain is an amorphous pool of material which is constantly being replenished by the addition of expiring intellectual property rights and by the regular disclosure of previously unknown or inaccessible data, the tendency to take it for granted is understandable. For this reason it is likely that it has hitherto been only on those occasions when a question arises as to whether its use may be limited or prevented that it has attracted close attention. Now, in result of debates concerning the entitlement to gain access to and use known information, as well as being a consequence of initiatives such as that which motivated WIPO to commission this Study into the potentially positive role of an accessible and proactive public domain, the subject can be expected to come under increasing scrutiny.

This increasing scrutiny may be expected to arise on the public side not only through WIPO but through other international bodies and agencies which have an interest in the public domain within their areas of specific activity. Thus for example the World Health Organization (WHO) through its responsibility for identifying off-patent medicinal and healthcare products, needs to be conscious of the ambit of the patent law which initially governs them and the extent to which, both during and after the duration of the patent term, information concerning such inventions can be shared, made the object of further research and indeed manufactured. Likewise the United Nations Educational, Scientific and Cultural Organization (UNESCO) bears responsibility for a suite of duties in relation

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16 http://www.wipo.int/edocs/mdocs/scp/en/scp_5/scp_5_2.doc

17 Ernest Samuels, "The Public Domain in Copyright Law", (1993) 41 *Journal of the Copyright Society* 137, cited in Hugh Breakey, "User's Rights and the Public Domain", (2010) 3 *Intellectual Property Quarterly* 312, 313.

18 One other work dating from the same period, which deals focuses on the greater freeing up of information contained in published intellectual property works from the constraints of private control, is Michael Pendleton, "Intellectual Property, Information Based Society and a New International Economic Order - the Policy Options?" [1985] 2 *European Intellectual Property Review* 31, which has the distinction of being cited with approval by Gummow J, Federal Court of Australia, in *Hogan v Pacific Dunlop Ltd* (1989) 3 IPR 225.

19 A recent example is Alan Pottage and Brad Sherman, *Figures of Invention: a History of Modern Patent Law,* Oxford University Press 2010, which offers readers a fresh, challenging and imaginative reclassification of patent subject headings—but "public domain" is not among them.

to knowledge-sharing while simultaneously administering the Universal Copyright Convention. While there is no reason to fear that any United Nations agency would consciously pursue any policies that were expressly at odds with those of its sister agencies, it might be understandable if agencies which had not specific mandate for the encouragement, creation and protection of intellectual property rights were to focus on the potential of the public domain in a manner that was consonant with their own remit.

The traditional view, expressed by WIPO and cited at the head of this section of the Study, has itself been challenged by those who believe that it is too narrow and that the public domain also includes proprietary matter which members of the public may access and use without legal or technological impediment. This challenge is based on the juridical relationship of a member of the public to the subject matter, rather than on the nature of the subject matter itself, which raises the difficult and unsatisfactory notion that the same work may be regarded as "public domain" *vis-à-vis* a user with a statutory entitlement based on fair use or private use claims, but as not being so vis-à-vis a competitor or other third parties. Since such access or entitlement to use is based on the user's status other than as a member of the public per se, it may be better to regard the concept not as "public domain" but as a "right of access to a private domain".

Either way, it should be recognised that the private rights of patent owners are not absolute and that, notwithstanding the fact that patent-protected subject matter is inherently private, it may still be lawfully used by others; the aggregate of a large number of individual entitlements to use another's private property may be little different in reality from "public domain".
Even on a narrow view as to what constitutes "public domain", it is possible to regard it in different ways. For example it may be regarded as:

- a "commons", that is, a collectively owned asset to which all have an equal entitlement to access and which all may use, in whole or part, without restriction on the part of any other person who is equally entitled to enjoy the same degree of unrestricted access;

- a commons which, while it is open to all, is held in trust for the benefit of those entitled to use it and which may only be used for the benefit of all;

- a reservoir of contents which, while they may have some utility, lack commercial value since investment in them may not be monopolised.

It is reasonable to expect that the manner in which one regards it will help shape the manner in which one seeks to use and regulate it.

Public domain as a by-product of the patent system

Where is the notion of "public domain" found in the patent system? In terms of the concepts which have traditionally governed our understanding of intellectual property in general, and the patent system in particular, the public domain complements the patent system, mainly as a consequence or by-product of the following processes:

- The placing before the public, for its full edification and use and without any restriction, of any product or process, thus depriving that product or process of the quality of secrecy which, when exchanged for its disclosure, we call its novelty;

- The juxtaposition or interpretation of intellective elements such as facts and ideas, whether contained in patent documents themselves or in knowledge which outside patents, to achieve an end which is obvious and not in itself inventive;

- The termination of any legal restriction placed upon the use of any product or process by virtue of the expiry, surrender, cancellation or revocation of the patent rights which impose such restriction.

The three processes correspond respectively to the requirements that a patentable invention be novel, that it possess an inventive step and that it be in force. It is a corollary of the operation of the patent system that, the more inventions are published and the more patents granted, the greater will be the magnitude of the content of the public domain.

From a mathematical point of view, the second of the two processes described above has a less apparent but ultimately far greater impact on the rate of growth of the public domain. This is because the rate at which the novelty effect increases the content of the public domain is linear, while the rate of increase achieved by inventive step criterion is potentially exponential. To illustrate this, let us take the case of a public domain to which five integers of information (A, B, C, D and E) are added. The public domain will now consist of a further five items against which novelty is measured. However, when integers A and B are introduced, a subsequent patent application may be adjudged obvious in relation to A alone, B alone, or a combination of A and B taken together. When C is added, a subsequent patent application may be adjudged obvious in relation to items A, B and C when each is taken alone, as well as in relation to A + B, A + C, B + C and indeed in relation to a grand combination of all three factors A, B and C; and so on.
It can additionally be recognised that, if no further applications for patents are filed in the future and no further patents are granted, the patent system will in time contain no proprietary content at all. However, the public domain, in regard to patents, can never cease to exist and will continue to grow for as long as patents expire and the information which is contained within them can be freely stored, transmitted and used.

Public domain patent records as a springboard for fresh innovation: assumptions and choices

It is frequently assumed that access to documentation concerning expired patents which have entered the public domain is of assistance in the process of fresh innovation. Accordingly, on the basis of this assumption, it would appear reasonable to invest resources not only in the necessary task of maintaining a searchable public domain for the purpose of measuring new applications against old art but also for the purpose of alerting inventors, innovators and investors to the existence of data which might enhance their capacity to create and appreciate new and inventive concepts. Although this assumption is perfectly plausible and may be correct in one or more of the many fields of creative activity that are embraced by patent eligibility, it shares, with the equally plausible notion that the availability of a patent functions as an incentive to invent, the characteristic that it is not backed by any concrete evidence in its support.

While the lack of evidence of its validity does not mean that the assumption is false, it is frustrating for policy-makers and legislators to have to make decisions without hard data for at least one reason. With very few exceptions, the patent laws of most countries treat in like manner the patent applications that emanate from every field of technology. Thus the same documentary requirements, administrative procedures, criteria of validity and techniques of examination for novelty and inventive quality will apply whether the invention covered by the application is one that relates to, say, civil engineering, optical scanning, agrochemicals, ceramics, nanotechnology, telecommunications or pharmaceutical products. However, the rate at which these fields develop, new patents are filed, old patents expire and the old art guides the new is very different. In a slow-moving field, patents that expire and patent applications that are never granted may provide close guidance to those working in that same field even ten or twenty years after the original applications are filed, while in a rapidly-advancing field or one in which the intensity of filing and complexity of content suggests that filed documents are never seriously intended to be read or to divulge useful information, even documentation that has only recently entered the public domain might be, in technological and commercial terms, quite elderly. Such documentation, when considered on its own by the unguided reader, might offer little of assistance.

When faced with the untested proposition that the public domain offers a springboard from which a later innovator might build on the vision of the earlier one and thus enhance his or her own creative ability, the policy-maker and the legislator are faced with a number of choices, each of which may possess some attraction. The three choices described below are not intended to be a complete list, and may be selected in combination with each other or with other options:

(i) Relying on the traditionally serendipitous and random combination of chance factors which has led to so many inventions and innovations in the past, and recognising that greater ease of identification of and access to documents in the patent public domain might facilitate or accelerate these combinations, they might seek to treat all areas of the patent public domain equally on the basis that, by so doing, they will do no harm and may achieve some positive, if unpredictable, good;

(ii) They might wish to identify some of the slower-moving, more stable and well-established technologies in which the connection between current research activities and materials entering the public domain is less distant in time or relevance, in order to experiment with different means of making them accessible and delivering them to innovators at local level, creating a set of studies the results of which may then be compared with one another in order to establish, for example, whether and to what extent translation into a local language or expressing in less technically obscure jargon are a necessary condition to deriving benefit from such available materials, or whether it is possible to cater for the different demands made on public domain materials by laboratory researchers, prototype developers or commercialisers of later innovations;

(iii) Start by seeking to persuade those companies which have contributed the most to the patent public domain through their patent filing programmes to cooperate by explaining more clearly the practical and commercial objectives which their patent applications (and ideally those of their major competitors) supported but which might not be apparent from a reading of the patent documents themselves, giving prospective users of an enhanced public domain an initially purpose-driven view of the documents in their field.

Public domain patent records as a springboard for fresh innovation: incentives to invent

There is a large and mainly anecdotal literature concerning the operation of various causative factors upon the motivation of the innovator, and it is likely that one or more of a variety of factors may be found in any individual case. Psychological theories based on stimulus and response,[20] the need to satisfy an insatiable intellectual curiosity,[21] the prospect of obtaining material wealth,[22] the altruistic desire[23] to benefit mankind and his environment take their place besides the old proverb that “necessity is the mother of invention” and legal fictions which may exist in reality such as the “problem-solution” approach which is favoured by the European Patent Office and by many

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[20] See Ivan Pavlov, *Conditional Reflexes*, Oxford University Press 1927 (translation).

[21] As in the case of the prolific Thomas Alva Edison, who was granted 1,093 patents in the course of a long career that was rich in empirical experimentation: http://en.wikipedia.org/wiki/Thomas_Edison , accessed 16 February 2011.

[22] Thus Tom Ogle (who patented a vapour fuel system) is quoted as saying "I've always wanted to be rich, and I suspect I will be when the system gets into distribution”: http://www.himacresearch.com/books/secret5.html , accessed 16 February 2011. A more institutional version of an appeal to wealth lies in the notion that the patent monopoly should be replaced by a financial incentive directly paid to the innovator by government: see Steve Calandrillo, “An Economic Analysis of Intellectual Property Rights”, (1988) 9 *Fordham Intellectual Property, Media & Entertainment Law Journal,* 301-60.

[23] Thus Louis Pasteur, inventor of the process known as pasteurisation and a pioneer of vaccination, was motivated by the desire to prevent unnecessary death through the spread of communicable illnesses following the death of three of his five children from typhoid: http://en.wikipedia.org/wiki/Louis_Pasteur , accessed 16 February 2011. The British inventor Trevor Baylis was similarly inspired by the plight of people who had become disabled following accidents at work: http://en.wikipedia.org/wiki/Trevor_Baylis , accessed 16 February 2011.

national patent-granting authorities as a means of assessing whether a patent application covers an invention which is obvious.[24] It may be that each of these theories occupies a place within the complex order of social, and personal influences which act upon inventors.

In this context it is unclear what role the bringing together of current innovators and old patent records fulfils. Almost by definition, expired patents which have entered the public domain represent the solution of old problems rather than address new problems that remain unsolved by the person accessing them. Where expired patent records are likely to be at their most useful is when they can be pinpointed and accessed in a situation in which their content can be added to a collocation of other features in order to complete the "jigsaw" of separate integers which, in combination, produce the desired result. Public domain patent records may also be invaluable if they enable their reader to draw an analogy between the technical solution presented by the old document with that facing the reader. In either case the availability of the document and the fact that its contents are known is likely to diminish the likelihood that a later solution based on it will be patentable—though if the solution to an identified problem rather than the creation of a monopoly is the innovator's objective, any resulting lack of patentability will not be seen as a problem.

While the utility of records as a expired patents as a catalyst for present and future innovation remains in question, it is only fair to record that the benefits conferred by any other means of inspiring or generating inventive skills are also open to question. Centuries after the creation and adoption of the patent system as the almost globally recognised standard for fostering invention and innovation, we are still relatively uninformed as to precisely how it influences human conduct on either an individual or a collective basis. It also remains unclear whether innovation as a skill can be taught, rather than merely encouraged, and it is equally uncertain whether problem-solving techniques which are given epithets such as "lateral thinking" can be transferred from the context in which they are taught to one in which they can be applied in order to achieve inventive concepts.

The tentative conclusions to be drawn here are therefore as follows:

(i) the connection between access to records of expired patents and future creativity is assumed, but not proven, and there is no evidence upon which to compare it favourably or unfavourably when contrasting it with any other means that is claimed to foster future creativity;

(ii) both in terms of creating collocations of different concepts and in terms of the use of analogies in fostering creativity, old inventions that have entered the public domain may be of some use, though not necessarily as a catalyst for the creation of new and patentable inventions; and

(iii) given the uncertainties mentioned above, the direction of a clear legal policy regarding the public domain, particularly if it will require spending of the scarce resources already committed to creativity, would be facilitated if more empirical and research-based evidence were available concerning the relevance of the different factors mentioned in this Study as means of stimulating, encouraging and facilitating invention and innovation.

Public domain in the patent system differs from public domain in other intellectual property rights There are effectively two dimensions to the patent public domain: the information domain and the action domain.

The information domain relates to the information contained in published documents relating to the patent application and grant, as well as to data gleaned from office actions such as opposition and cancellation proceedings and judicial decisions in which the meaning of the content of the patent

[24] On the "problem-solution" approach see, for example, Guidelines for Examination in the European Patent Office, <http://www.epo.org/patents/law/legal-texts/guidelines.html>, accessed 2 February 2011).

description and the interpretation of claims are clarified. All of this information is generally accessible to members of the public[25] and may be assimilated into the public understanding as to how a technology operates.

The action domain relates to what may be done with information which is contained in patents and it can be divided into two clear phases. In the first phase, while the benefit of the information contained in the documents mentioned in the previous paragraph can be enjoyed by all since it has been published in a patent application which anyone may access and read, no practical application of that information may be made unless that use fulfils one of a number of conditions:

- it is done with the express agreement of the patent owner in the form of a licence;
- it is done with the implicit agreement of the patent owner even in the absence of a licence;[26]
- it lies within the range of acts which, though falling within the scope of the patent's protection and being done without any form of agreement on the part of the patent owner, are nonetheless removed from any threat of legal liability for infringement by specific provisions of the law;[27]
- it is permitted by grant of a compulsory licence by a body which has been vested under national law with the power to grant such a licence.

This dichotomy between the information domain and the action domain either does not exist with regard to other intellectual property rights or is of only minor significance. This is because, among the family of intellectual property rights, the patent monopoly has the power to exclude unauthorised persons from making a patented product or carrying out a patented process at all—even where the patent proprietor and those authorised by him are not manufacturing or otherwise using the patent themselves and where there exists no available substitute for it.

This power to exclude a product or process totally from the market same cannot be said to exist in respect of, for example, the right which is conferred by registration of a trade mark, which only limits the right of others to use a badge of origin in relation to the goods or services covered by its registration: thus, to give an example based on a ubiquitous brand, ownership of the Coca-Cola trade mark for carbonated cola beverages flavoured with vegetable extract does not give its owner the right to stop others making and selling beverages of identical taste, smell and colour to its own, made with the same ingredients: a competitor may sell such goods confidently, with impunity and in competition with the trade mark owner, so long as it does not use the same trade mark.

Likewise, while the laws relating to the registration of designs are far less homogenous as between countries than are those governing trade marks, in many jurisdictions the registration of a design confers monopoly protection only upon the appearance of those goods which bear the registered

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[25] There are exceptions. In some jurisdictions publication is withheld for reasons of security (see e.g. the United Kingdom's Patents Act 1977, section 22, which empowers the Secretary of State to prohibit or restrict publication in the interest of national security); also, the published transcripts of litigation involving a patent may be redacted by the judge, so that possibly sensitive or commercially valuable information attending the patent, such as a body of technical know-how that is put in evidence and reviewed by the court, will simply be deleted, leaving gaps in the publicly accessible version of the judgment.

[26] An example is when there is found, in the sale of a patented product to a customer, an implied licence to repair a patented product: see *Solar Thomson Engineering Co. Ltd. and another v Barton* [1977] 94 RPC 537, in which a British court held to that effect. This is however a doctrine of limited application: see Brian Whitehead and Richard Kempner, "Manufacture or repair?", *Journal of Intellectual Property Law & Practice* (2011) 6 (1): 9-10.

[27] The range of acts which fall within statutory defences to an action for patent infringement varies in accordance with national laws. Very few defences are provided for by international treaty. Thus the Paris Convention does not require Members to provide a specified range of permitted acts, but it does state in Article 5 that the incidental passage of "patented devices forming part of vessels, aircraft, or land vehicles" through a Member's territory, airspace or waters shall not constitute an infringement.

design, but not upon their functional utility: a competitor is not barred from entering the market in which the proprietor of that design sells or licenses the sale of goods bearing the registered design and can therefore make and sell goods of the same class and quality, so long as they do not bear the same appearance as the part of the goods that is protected by the registered design.

While the considerations governing copyright law are somewhat different, given the entirely different juridical nature of its evolution and scope of protection, the principle remains the same: copyright is a poor and inadequate means of monopolising a market in which equivalent products cannot compete,[28] unlike the patent.

The extent to which information contained in a patent may benefit the public domain as information is limited by the scope of national law in so far as it defines infringing acts. Thus in some jurisdictions the information published in a patent specification may be, or has been, used for the purpose of private and non-commercial purposes, experimental purposes and even for stockpiling patented products so that they may be placed in the market upon expiry of the patent.[29] In others the range of activities that are lawfully open to members of the public may be much narrower.

Regarding the use of patent information for experimental purposes, the tension between private rights and the public interest in using patent-originating information is well reflected in the debate—initially in the United States but now globally—concerning the so-called Bolar Exemption.[30] This "safe harbour exemption" from liability for patent infringement is of particular importance within the pharmaceutical industry since it provides that the performance of research and the testing of pharmaceutical products seeking regulatory approval does not constitute infringement if carried out during a limited term before the expiry of the patent. Of particular interest to developing and least developed jurisdictions, which generally do not have a mature domestic pharmaceutical product innovation industry of their own, is the fact that this exemption allows generic manufacturers to prepare generic drugs in advance of the expiry of corresponding patents.

3. RATIONALE OF THE PATENT SYSTEM AND THE PUBLIC DOMAIN

Since its earliest beginnings, in the grant by a monarch to the holder of "letters patent" of an entitlement to perform a particular act or enjoy a specific status, the justification of such grants of patents has taken many forms. It is fair to conclude that, on a broad survey of the grant of patents, both when the grant was a benefit personally bestowed and, subsequently, when the grant had become systematized, little attention was paid to the notions of creating and maintaining an accessible public domain.

The path to the public domain: from description, through disclosure to dissemination

From a logical point of view, between its intellectual conception and its reception into the public domain, an invention must pass through three phases. The first is description—an invention must be described or at least demonstrated in such a way that someone other than the inventor can

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[28] On the nature of the public domain in copyright law see Charlotte Waelde and Hector MacQueen (editors), *Intellectual Property: the Many Faces of the Public Domain,* Edward Elgar Publishing, 2007.

[29] Canada's "stockpiling" provisions, which enabled stocks of products to be accumulated pending expiry of the patent, were ruled by the World Trade Organization to be in breach of that country's obligations under the TRIPS Agreement. A good summary of the chronology and details of this dispute is available via the Canadian government's Depositary Services Program here http://dsp-psd.pwgsc.gc.ca/Collection-R/LoPBdP/BP/prb9946-e.htm , accessed 31 January 2011. While the TRIPS Agreement at present has 153 Members, the Russian Federation has yet to join. Nor have Syria, Belarus, Iran, Ethiopia, Sudan, among other jurisdictions.

[30] *Roche Products v Bolar Pharmaceutical*, 733 F.2d 858 (Fed. Cir.1984). The Bolar Exemption is also known as the Hatch-Waxman exemption: see Hatch-Waxman Act called §271(e)(1). Equivalent provisions exist in the European Union.

understand what it is. The second is disclosure—the invention as described must be communicated to others; in today's patent system this is done through a series of steps: the inventor or his agent communicates the description to a patent granting authority which examines it and eventually, if the application is not withdrawn, publishes it. At this point the content of the invention is disseminated, though the extent of its dissemination is limited by reference to factors such as:

(i) the extent to which potential recipients know of its existence,

(ii) the amount of technical knowledge demanded of potential recipients before they can understand it,

(iii) the cost and facility with which it may be accessed and

(iv) he clarity with which the nature of the invention is described.

At the point of dissemination, the intellectual content can be said to be in the public domain, although the invention is not in the public domain in the sense that it remains private property and may not be used by others until the patent—if granted—has expired, lapsed or been revoked, annulled or surrendered.

Description and disclosure are closely integrated in modern patent law. This is epitomised by the requirement in the TRIPS Agreement that:

> " … an applicant for a patent shall disclose the invention [i.e. disclosure] in a manner sufficiently clear and complete for the invention to be carried out by a person skilled in the art [i.e. description] …"[31]

As the next paragraphs will explain, that which we regard today as a typical patent system is something which has evolved slowly from an entirely different system. Today the patent system protects investment in creating inventions and putting them into practice. While it is generally agreed that today's patent system is in need of improvement, it may be seen that some of the problems we face today are at least in part a consequence of the fact that the granting of patents in the past has been carried out with very different aims in mind. This also explains the fact that it is only relatively recently that serious attention has been devoted to the public domain.

Technology transfer: the patent as a passport

In its earliest form in the small city-states and kingdoms of Europe in the fourteenth century, the patent grant in at least some of its forms had a surprisingly modern objective of achieving a measure of what is nowadays termed "technology transfer". In comparison with continental neighbours such as Flanders, England was in technology deficit: the country possessed the resources for raising flocks of sheep from which wool was plentifully obtained, but lacked the means to treat it so that it could be used in the manufacture of good quality cloth. Accordingly wool was exported to Flanders in quantity in its raw form, for a low price, but the treated finished product had to be purchased from Flanders merchants at a far higher price. The grant of patents to men of Flanders who could treat the wool in England, thus removing the risk of loss at sea and reducing the amount of British currency spent abroad, was therefore seen as desirable. The patent was little more than a guarantee to its holder that, while he practised his skills, he was entitled to the protection of the Crown against local interests that might threaten him, and the term of protection

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[31] The TRIPS Agreement, Article 29.1 ('Conditions on patent applicants).

was fixed by relation to the length of time which corresponded to a contract of apprenticeship.[32] At the end of each apprenticeship, the apprentice would be expected to trade on his own account, engaging an apprentice of his own, thus increasing the number of practitioners of the skills in question. The letters patent made no explicit reference to the technical content of the skills of its holder and, each being delivered to its recipient for his own personal use, was not in any event centrally stored and made available for the purpose of public search and scrutiny.

Technology transfer: the patent as a tool of trade policy

While the grant of a monopoly through letters patent was an occasional feature of patronage in European city states,[33] it was not until the passage of the well-documented law by the Venetian Senate in 1471 that a patent system, or any clear rationale for it, could be said to exist. The idea of technology transfer was the driving force behind the Venetian law, which specifically addressed non-Venetians wishing to settle in the city and develop their inventions there. On this basis Venice would secure a concentration of know-know that would help preserve its military capabilities and logistical capabilities as a sea-faring power. Individuals seeking a patent, which would be of ten years' duration, had to deposit a model of the invention— or at least a drawing or explanation of it—with the Provedditore who would examine and approve it. Many of the inventions so deposited remain accessible today in the Venetian archives.

While there is substantial evidence that this law was never formally adopted into the Venetian legal code or that its provisions were complied with, its intellectual influence cannot be denied and it is probably the basis upon which inventors sought monopoly protection for patents in Elizabethan England.[34] Again, though, there is no concept of a public domain which might be consulted and profitably exploited.

Description of the patented invention: why?

The requirement that the patent applicant supply the granting authority with a description of the invention in the specification is a feature all contemporary patent systems have: an onerous duty which, in the absence of full compliance with its demands, may lead to the patent's invalidation. It is thus hard to imagine that the description of the patented invention was initially a practice which was introduced by patent owners, initially on an informal basis, for their own protection. When monarchs granted patent monopolies before the Industrial Revolutions of 18th and 19th century Europe, there was little or no need for description: since manufacture was performed by hand (the word 'manufacture' comes from the Latin roots of the words for 'make' and 'hand') and each new form of manufacture was taught by the patent's holder to his apprentices, it was rarely if ever necessary to ask, for legal purposes, what a patent covered. But, from the onset of the Industrial Revolution and the establishment of railway systems as a means of conveying mass-produced manufactured products, the facility to make, distribute and sell goods created great incentives for profit-making which in turn generated much independent research and the creation of many new products. Whereas a description of a patented process such as "a new machine for pumping water" or "new manner of making soap" might once have sufficed, it became necessary for a patent owner to show which new machine the patent grant referred to, or which process for making soap, so that—at the dawn of industrial patent infringement litigation—he could prove that the alleged infringer's water pump or soap-making process was the same as his own.

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[32] On the textile patent granted to John Kempe in 1331, its circumstances and consequences see E. Wyhdham Hulme, "The History of the Patent System under the Prerogative and at Common Law", (1896) 45 Law Quarterly Review at 141-154.

[33] A patent was granted to Florentine architect Filippo Brunelleschi in 1421, in respect of a new means of conveying goods up the river Arno: see "Brunelleschi's Patent", *Journal of the Patent Office Society* 28 (1946), 109.

[34] For an account of the possible importation of the concept of the patent as a reward for invention which draws on original Venetian archival material see Jeremy Phillips, "The English Patent as a Reward for Invention: the Importation of an Idea" [1983] 2 *European Intellectual Property Review* 41.

The description of an invention in early patents was not in any sense compulsory, though it became common practice. It was not until Bennett Woodcroft (discussed below under the subheading "Systematic storage and retrieval of patent information") conceived the notion of a Patent Office as a repository of technical data that the idea of an invention's description being laid available for consultation by the public at large became widely accepted.

Progress of Science and useful Arts: the patent and the United States Constitution

The first jurisdiction to embed the notion of a patent system in its constitutional document, rather than merely promulgating ad-hoc legislation on the protection of innovations, was the United States. By Article I, Section 8, Clause 8 of the United States Constitution (often called the Copyright Clause, though it governs patents too)) Congress was given legislative power to promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.[35]

This formula, agreed in 1787, explicitly attached the patent system to a single objective: the promotion of the progress of science and useful arts, and it is this formula which has been the yardstick against which both the legality and the success of various provisions of the United States patent system has been regularly measured.

Reflecting the contemporary philosophy of the Age of Reason, which underpinned both the American and the French Revolutions, the focus of the patent system was for the first time deflected from that of personal advantage to the party granting a patent privilege (for example where a monarch exercised patronage by buying the support of a subject in exchange for a monopoly) or to the advantage of the party who possessed it (for example an inventor or an investor who by its possession was empowered to exploit its power), towards the aims of progress and the greater good of mankind. This shift is important since for the first time it accommodates (though it does not specifically mention) the public domain: the Copyright Clause intimates that progress is served not merely be the creation of exclusive rights but by their expiry. There is also an implication that, if progress is better served by not granting exclusive rights than by granting them—for example in limiting them through the operation of legal devices like the compulsory licence[36] or the licence-of-right[37]—then Congress should address those options too.

The patent as incentive to disclose

The theory of the patent as an incentive is that it encourages individuals to engage their intellects in a creative and inventive manner by offering them a monopoly of limited duration in the fruits of their inventiveness[38] as well as recognition of their personal contribution to society as an inventor.[39]

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[35] For the background to this remarkable piece of legal foresight see Karl Fenning, "The Origin of the Patent and Copyright Clause of the Constitution" (1929) 11 *Journal of the Patent Office Society* 438.

[36] The compulsory licence is legal a device whereby a party other than the patent owner is permitted to use the patent without the consent of its owner. Although it is provided for by the Paris Convention, Article 5A, and by the TRIPS Agreement, Article 31, and exists in the national laws of most countries, it has not been introduced into United States patent law.

[37] The licence of right is a device whereby any person may make use of another's patent without objection by that person, but on payment of a sum which, if not agreed between them, is fixed by a public authority or tribunal. Examples are found in the Patents Act 1977, section 46 (United Kingdom) and the Patents Act 1992, section 68 (Ireland). While no international convention makes provision for licences of right, there is no basis upon which to object to them either: their nature is consensual

[38] See Fritz Machlup, ""An Economic Review of the Patent System", Study No.15, Sub-Committee on Patents, Trade Marks and Copyrights of the Committee on the Judiciary, US Senate, 85th Congress, Second Session,

[Footnote continued on next page]

In reality the role of the patent system in encouraging the disclosure of inventions is somewhat ambivalent. Since not only products but processes and methods are regularly patented, one might argue that the patent system achieves some success in incentivising disclosure. However, the difficulties inherent in succeeding in infringement litigation against a party suspected of using the same process for manufacturing a staple product have led some commentators to ask whether the patent grant is really worth the effort when the burden of proof and the problems inherent in obtaining evidence of infringement make patent protection less attractive to them.[40]

Disclosure of the details of an invention for critical and often hostile inspection by competitors and, in some cases environmental or other pressure groups, generally leads to the publication of an application for a patent being regarded as a high price to pay for obtaining what is in reality no more than a possibility of obtaining a patent. The norm for the publication of applications is that it should take place 18 months following the date of application.[41] Publication of amendments to the original claims may also be required, and some countries make provision for accelerated publication of patent applications.[42] The period of time that elapses between publication of the application and its grant can be considerable[43]—and during this time it is not possible in most jurisdictions to restrain others from using the published invention,[44] although once the patent is granted financial relief may be secured in respect of at least deliberate infringements committed after the date of publication of the patent application but before its grant.

Statistically speaking, any given application is more likely to be refused than granted, so disclosure often appears to be a way of enriching the public domain at private expense by purchasing no more than a possibility of obtaining a patent monopoly in exchange for the certainty that others will be able to access, appraise and use hitherto confidential information, restricted only to the extent that the patent is granted and the use made of the information falls within legally valid claims.[45]

There are however some real benefits to the patent applicant in the early publication of his application. The first is that the early identification of issues that threaten the validity of a patent

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[Footnote continued from previous page]

Washington DC 1958, in which he refers to the twin objectives of early disclosure and dissemination of technical knowledge.

[39] Thus Article 4*ter* of the Paris Convention on the Protection of Industrial Property states that "The inventor shall have the right to be mentioned as such in the patent", a provision reflected in Article 62 of the European Patent Convention.

[40] On the burden of proof in process patent infringement cases see Aaradhana Sadasivam, "Reversal of burden of proof: a tough nut to crack", (2010) *Journal of Intellectual Property Law & Practice* 5(10): 713-72, which provides a helpful comparative table taking in the laws of India, Malaysia and Singapore as well as UK, US and the provisions of the TRIPS Agreement.

[41] This applies in respect of all 38 European Patent Convention countries under Article 93.

[42] This facility is offered by, among others, the Eurasian Patent Organisation and the United Kingdom Intellectual Property Office.

[43] In the case of applications for European patents, the period is generally between three and five years: http://www.epo.org/metanav/help/faq.html#a24 (accessed 2 February 2011); the performance of the United States Patent and Trademark Office is much better, with an average pendency of applications for just 24.6 months: http://www.uspto.gov/main/faq/p220026.htm , accessed 2 February 2011.

[44] A few countries, and notably Greece and Italy where the national patent application process is generally slow, provide provisional protection in an appropriate case for an application for an intellectual property right which has not yet reached grant.

[45] While there is no precise correspondence between WIPO's annual figures for patent applications and grants, since the patents granted or refused in each year correspond to patents applied for in previous years, the Organization's statistics show that, in each of the calendar years 2006, 2007 and 2008, the number of patents granted totals between 41% and 42% of the number of applications received. Even allowing for a gradual incremental rise in the number of patents applied for each year, it would appear that the applicant's chance of securing a patent grant in any individual case is less than 50%.

can lead to the application being abandoned and to the applicant being able to evaluate at a relatively early stage the worth of his business model, to the extent that it depended on the applied-for patent being able to exclude competitors. In the case of some product patents he may be able to rely on the lesser protection conferred by other rights such as those conferred on industrial designs, or to seek to protect his position through the most effective available use of contract terms when selling or leasing equipment.

The second benefit of publication many months or even years before grant is that it furthers the potential for prospective licensees, collaborators, joint venture partners and investors to identify and locate the patent applicant and, having done so, to work closely with him in a situation in which it is possible to show that mutual benefit may stem from their cooperation in developing the invention or projects involving it. In the days before the use of the internet this benefit was hard to achieve, but now the facility of examining the content of a published patent application and identifying its owner is open to all users of the internet, regardless of their geographical location and, increasingly as mechanical translation improves, regardless of their language.

These benefits can in turn lead to what is sometimes termed "open innovation"[46] when quite unrelated businesses which become aware of the patent applicant's commitment to innovation in a specific area will themselves seek to create improvements, embellishments and add-ons, or goods and services that can interact with the invention for which an application has been published, potentially leading to the filing of fresh patent applications in respect of these improvements which can lead to cross-licensing, cooperation and the acceleration of the rate at which a technology evolves.

Incentives to disclose and the employee inventor

In practice, the vast majority of patents are not granted to inventors but to their employers. Moreover, it is common in national patent law for the employer of the inventor to be the first owner of the invention[47] or to be entitled to exercise, at its option, the right to own it or to take an exclusive or at least a non-exclusive[48] licence to use it.[49] At the point at which it was regarded as the norm for patentable inventions to be held under the ownership or economic control of an employer, who would have invested in the salary and workplace facilities of his inventive employees, the need arose for the patent system to perform the function of an incentive to disclose the employer's inventive assets so that, by means of the patent application process, the measure

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[46] The term "open innovation" was coined by Henry Chesbrough in his book, *Open Innovation: The new imperative for creating and profiting from technology*, Harvard University Press, 2003. The notion has been made generally accessible to a wide public in Dan Tapscott and Anthony D. Williams's popular work *Wikinomics: How Mass Collaboration Changes Everything,* Penguin Books, 2006, and is seen as an evolution beyond freely licensed "open source" innovation. On the possible application of an "open source" model within the realm of biotechnology see Alan G. Isaac and Walter G. Park, "Open development: is the 'open source' analogy relevant to biotechnology?" in David Castle (editor), *The Role of Intellectual Property Rights in Biotechnology Innovation,* Edward Elgar Publishing, 2009 at 225-251 and Robin Cooper Feldman, "The Open Source Biotechnology Movement: Is it Patent Misuse?", (2004) 6 *Minnesota Journal of Law, Science & Technology,* 117-168.

[47] Fredrik Neumeyer and John Stedman, *The Employed Inventor in the United States,* MIT Press, 1971, was the first major study to seek to quantify the proportion of inventors who were employed at the time of their inventions: this study, confined to the United States, estimated that more than 80% of patents were derived from employee inventors. Since then, informal estimates have ranged from around 85% to 95%, but no methodologically sound study is known to this author.

[48] An example is the "shop right", a non-exclusive, non-transferable royalty-free licence in favour of the employer which was developed as a common law doctrine by the United States Supreme Court in *US v Dubilier Condenser Corp*., 289 U.S. 178 (1933). For further details see C.T. Dreschler, Annotation*, Application and Effect of "Shop Right Rule" or License Giving Employer Limited Rights in Employee's Inventions and Discoveries,* 61 ALR2d 356 (1958).

[49] There have been numerous surveys of domestic law relating to the employee inventor, of which the most recent is Nick Cunningham, "Employee ownership of inventions", *Intellectual Property Magazine,* January 2011, 15.

by which they exceeded the prior art could be published, visible to all and eventually capable of use by all—in contrast to the attraction of keeping an invention secret and exploiting it under cover of confidentiality. In the case of inventions consisting of products, non-disclosure was not normally a commercial option, but, in the case of inventions relating to industrial processes such as the manufacture of goods and the synthesis of chemicals, confidentiality might be the regularly preferred option, even at the risk of not being able to prevent others developing and using the same technology themselves, if the patent system did not encourage the disclosure of the invention in return for an expectation that a patent monopoly would be granted in return for it.

Where invention takes place within the employment relationship and is not directly related to the fulfilment of the inventor's employment duties, conditions may not be inherently favourable for an employee inventor to disclose his invention even to his employer. An employee inventor who receives the same salary whether he discloses an invention or not may prefer to keep his discovery "in reserve" in case he should later set up his own business or in order to offer it to a prospective new employer in the future. Even where the invention is directly linked to the discharge of employment obligations the employee inventor may need an incentive to reveal the extent of his inventive contribution.

Although there is no prevalent international norm or national practice,[50] many national patent laws include provisions which entitle the employee inventor to receive from his employer a sum by way of compensation in excess of that provided for in the employment contract. In such cases the amount of compensation is generally related in some manner to the commercial value of the invention and the scale of the inventor's effort in conceiving and developing it.[51] A comparative study of the rate at which national inventiveness, as reflected in the rate of increase of domestic patent applications in those countries which operated employee inventor compensation schemes with those countries which did not, was unable to detect any significant difference in inventive output as between the two groups, which suggests that the rate at which employee inventions are created and subsequently disclosed—and therefore enabled to progress towards the public domain—does not depend on the presence or absence of a personal incentive to disclose the existence of an invention.[52]

Systematic storage and retrieval of patent information

It was not until the nineteenth century that the value of collating the technical data contained in patent applications so that they might be used as a research resource was appreciated, and in this the country which was at that time the most technologically aware, the United Kingdom, took an initiative though the activities of Bennett Woodcroft. Himself an inventor and patentee as well as a collector of old machines, engines and technological artefacts, Woodcroft saw the benefit of

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[50] The employment relationship, in so far as it affects the creation of intellectual property, lies between two United Nations agencies, WIPO and the International Labour Organization. To date, neither body has been mandated by its members to evaluate whether there exists a need to establish such norms and this situation is likely to prevail in an area in which awareness of the existence of genuine individual instances of abuse or grievance has not reached the point at which this issue has become a priority.

[51] Countries such as Germany have evolved complex codes for the establishment of entitlement and to the assessment of compensation; the relevant provisions are contained in the Law on Simplification and Modernization of Patent Law, in force from 1 October 2009 but which derives from collective arrangements made between workers' unions and employers in the early 20th century. Sweden, France and the United Kingdom have far less complex compensation provisions. For further reading see Thomas Bouvet, "Employee-Inventor Rights in France", Loyola Law School Special IP Conference Paper http://www.veron.com/publications/Colloques/Employees_inventions.pdf , accessed 16 February 2011, Sanna Wolk, "Compensation of Employed Inventors in Sweden", (2008) *World Intellectual Property Report* 2/08, 33; Michael Trimborn, *German Act on Employees' Inventions: A Handbook for International Business* (Carl Heymanns Verlag GmbH, 2009).

[52] Jeremy Phillips, "Patents and Incentives to Invent", (1984) *Endeavour (n.s.)* 90. This research was conducted more than quarter of a century ago and may not therefore reflect contemporary trends.

bringing together the descriptions of patented inventions which hitherto had been deposited with various government departments but which had not been stored or arranged by content or technical utility.

Woodcroft's achievement in founding the United Kingdom's original Patent Office Library has long since been built upon and surpassed by superior classification techniques and the emergence of Information Science as a discipline in its own right. The role of the Patent Office Library was subsequently widened to become the Science Reference Library, under the jurisdiction of the British Library (within which it has since been subsumed and is now known as the British Library Business and IP Centre[53]). A further innovation at this point, which had important ramifications for access to material within the public domain, was the assembly under the same roof as patent applications and grants as a collection of non-patent material that also disclosed the sort of technical information which could be used to defeat the novelty or inventiveness of a later patent application: the papers published by learned scientific societies, academic and trade journals relating to specific technical fields and even a substantial collection of legal works on national and international intellectual property law.

The most important developments in the field of patent storage and retrieval since Woodcroft's day are the exponential growth of the power of computers to store information which can be not merely retrieved but searched and interrogated (a subject which lies outside the scope of this Study) and the evolution and continued maturing of the International Patent Classification (IPC) system, which enables users not only to retrieve information which they know to exist but to seek information concerning inventions of which they have no prior knowledge and which, indeed, may not yet exist. The IPC is discussed in more detail elsewhere in this Study.[54]

The patent as incentive to invest

Since the end of the Second World War the patent grant has been increasingly viewed as an incentive not so much to invent as to invest.[55] This shift in perspective, which was gradual, was triggered by a number of factors, some of which are in practice closely interrelated:

- Instead of working for themselves, inventors were increasingly employed by others. The patent resulting from an inventor's work was thus seen as the patent resulting from an employee's work. The patent lost its incentive force with regard to the inventor when it was not the inventor but his employer who would be entitled to its ownership and all or the majority of its benefits.

- The development of new, more complex and in many cases multidisciplinary scientific disciplines required inventors with different competencies and educational backgrounds to work together, with the result that inventors were increasingly not individuals but teams. A prime example is biotechnology, which brought together biologists and computer scientists; also, advances in avionics and astronautics required the cooperation of disciplines as diverse as mechanical, electrical and aeronautical engineers, material scientists, physicists and cybernetics experts. Since the expense involved in putting together such teams was so great, and the likelihood of a commercial return so hard to predict, private sector funding parties were anxious to know that, if a venture succeeded, the repayment of loans through income generated by successful commercialisation would be protected against competition from free-riders.

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53 <http://www.bl.uk/bipc/dbandpubs/intpropres/index.html>, accessed 16 February 2011.

54 See discussion at 4.1 below.

55 The best-known articulation of the patent system as providing an incentive to invest is that of Fritz Machlup, ""An Economic Review of the Patent System", note 34 above.

- Since the possession of a patent, or of a portfolio of patents, is increasingly viewed as providing a degree of comfort to an investor, it is ever more the case that patents are seen as investments in themselves, rather than as means to protecting the interest of a manufacturer or technical service provider. Thus, for example, we have seen pension fund managers purchase the income stream from an existing successful product, thus providing a good return on the purchase price while at the same time providing a capital infusion that enables the patent-owning institution to engage in further innovative research. Online and real-world patent auctions are now regularly held, enabling non-manufacturing entities to invest in patents by taking a rent on their subsequent use, and the United Nations Commission on International Trade Law (UNCITRAL) has devoted much effort recently to the establish guidelines for the securitisation intellectual property rights, among other intangible assets, in order to streamline and harmonise the position of lenders to patent owners and their licensees.[56]

It is plain that, where the patent is seen as an incentive to invest rather than to invent, the public domain has little attraction for the investor, since funding research and development, buying into an income stream and acquiring patents in order to charge rent on them are clearly activities that focus on the exclusionary nature of the patents concerned and on their continued ability to deliver income. All of this has no relevance to the quality of the information contained in, or lying outside, the granted patent.

The patent as shared property

Patent pooling (the sharing of patents by competing businesses in order to prevent the entry of others into their shared market) has been practised since the nineteenth century, when it was viewed either as an efficient manner of avoiding the duplication of research effort or as an anticompetitive and therefore undesirable market practice). However, it was only in the late twentieth century that it became gradually accepted as a means leading towards the establishment of international or global technological norms in certain market sectors.

The information technology and communications sectors provide some of the best examples of the patent pool as a positive phenomenon, where the need for different providers of mobile telephony hardware to enable their products to be used when communicating with one another, for mobile equipment to communicate with terrestrial apparatus and for information to be conveyed successfully in aural, visual, audiovisual and other packages has dictated the course to be taken both by patent owners and ever-watchful competition regulators. Where each competitor in the market seeks to develop its own unique technology, to the exclusion of others, a single global standard may be hard or even impossible to achieve and, if one competitor succeeds to the exclusion of the others, there is no feasible basis for the creation and maintenance of a competitive market.

In such circumstances it is advantageous for innovative companies each to bring their own innovations and patents into the same pool so that they may evaluated, used and ultimately adopted as part of a global standard. Where each member of the pool has its own patents, each may agree to allow the use of its own patents on free or reasonable terms in consideration of it being able to make corresponding use of the patents of others. A non-member of the pool who wishes to enter it and compete with its members, but who has not contributed to the technological pool, may be expected to pay for the privilege. In some fields of technology in which pooling operates it has been argued that patents no longer perform a useful information function at all.[57]

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[56] The papers relating to Working Group VI of UNCITRAL, which deal extensively with intellectual property interests, may be accessed on http://www.uncitral.org/uncitral/en/commission/working_groups/6Security_Interests.html>, accessed 14 January 2011.

[57] This is arguably the case in the information technology and telecommunications sector where a pattern has emerged of a very large number of technically advanced, interlinking or interoperating inventions being patented, none of

[Footnote continued on next page]

Where a standard setting organisation has identified a large number of patents for which a new entrant to market must take a licence or risk legal action, it may be extremely expensive for that would-be market entrant to verify the claims in each of those patents and measure them against its own manufacturing processes and operation procedures before deciding whether a licence is in fact necessary. It is therefore generally cheaper, quicker and easier to take a bundle of licences. Since the licensee is committed to trading within the area identified by the standard setting body, its principal interest lies in knowing what the technical norms are and how it can use them, regardless of whether they are in the private domain of patent protection or lie outside it in the public domain.[58]

It was the launch of the European Telecommunications Standards Institute (ETSI) in 1988 that heralded our presently increasing awareness in legal and commercial circles of the notion that, in respect of some areas of technology at least, interoperability of devices is vital and that its success depends on the fixing, without regard to specific patents and other proprietary interests, of the technical conditions that were most conducive for the achievement of that interoperability. However, in historical terms, the notion of the setting of international standards goes back a long way. Founded in 1865, the International Telecommunications Union (ITU) is the oldest member of the family of organisations that now comprise the agencies of the United Nations.[59] Standardisation in manufacture was not a new concept either. For example, once consumers in the developed world had become a lucrative market for fitted kitchens, and the fitting of kitchens became a standardised procedure, manufacturers of refrigerators, cookers, dishwashers and other kitchen devices had to accommodate the dimensions of their products within the set standards or they would lose sales. But with ETSI the aim was to standardise a technology, so that it would be possible for users of different telephone handsets, relying on land-based or wireless telegraphy, could connect to each other's apparatus and communicate with them. More to the point, ETSI enabled manufacturers to engage in the pooling and cross-licensing of each other's patents on agreed terms which were inoffensive to the European Union's powerful and pervasive laws on the protection of competition. At the time of writing, the number of businesses participating in ETSI was a remarkable 785, drawn from all around the world.[60]

A lengthy list[61] of international, regional and national technical standards organisations shows how widespread the use of standards has become.

The patent as an incentive to patentless disclosure

Sometimes the existence of the patent system acts as a spur to the disclosure of technologically valuable data with the express objective of preventing it from being patented. No better example of the systematic practice of what is sometimes called "defensive disclosure" may be found than on the website of what, in pre-internet times, was solely a printed journal publication, with the helpfully

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[Footnote continued from previous page]

which is any practical use by itself and the majority of which reflect tiny incremental advances on the existing technologies. The volume, length and complexity of these patents make it effectively impossible to read them for the purpose of extracting valuable technical information which may be put to any meaningful use.

[58] For an excellent comparative analysis of the relationship between the setting of technical standards, the exercise of patent rights and the role of competition law see Jae Hun Park, *Patents and Industry Standards,* Edward Elgar Publishing, 2010.

[59] For the background to the ITU and its involvement in setting technical standards see its website at http://www.itu.int/en/history/Pages/default.aspx , accessed 14 January 2011.

[60] The current list is available at: http://portal.etsi.org/Portal_IntegrateAppli/QueryResult.asp?Alone=1&Param=&SortBy=COUNTRY&SortDirection=ASC , accessed 18 February 2011.

[61] http://en.wikipedia.org/wiki/List_of_technical_standard_organisations> , accessed 14 January 2011.

descriptive name of Research Disclosure ("The industry standard defensive service").[62] The website of this commercial business declares that "90% of the world's leading companies have used Research Disclosure", though the capacity in which they have done so is not mentioned.

At present Research Disclosure, which was launched in 1960, offers three services, each of which is charged at a standard rate, irrespective of the nature of the technology or the identity of the user. Thus there is a per-page fee for the publication of information, there are annual subscription fees for the Research Disclosure journal and for unlimited online searches and a per-document fee for delivery of materials. Documents for publication are accepted in all languages and regardless of whether they are accompanied by illustrations. According to the website, its database is among those routinely searched by examiners in respect of Patent Cooperation Treaty and national patent applications. It is clear from the legal notice attached to documents delivered by Research Disclosure[63] that, while it seeks through contract and copyright terms to limit the uses to which documents may be put, it makes to claim to the ownership or control of any technologies described and disclosed in those documents.

The defensive publication with Research Disclosure of documents relating to a technology prevents the patenting not only of any invention contained in them but of any invention which, by operation of the legal requirements of novelty and inventive step, might be adjudged to be unpatentable even though it was not precisely disclosed in those documents. This may be seen to assist the growth of the public domain and, since the documents are in an access-friendly format so that they may be searched, their potential contribution to the public domain is considerable. However, the cost for would-be innovators and manufacturers of using the service may be a deterrent to their use and deposited documents do not become more easily or freely available at such time as they might fall outside copyright. A further disadvantage to users of the disclosed technologies lies in the fact that there is no requirement that the disclosing party reveal its identity, which prevents a potential adopter of disclosed technology from making contact with its developer such that might enable it to obtain valuable tangential or indirect information concerning factors such as environmental impact and technical barriers to commercialisation.

Inventors wishing to disclose inventions so that they may not be patented can do so in any form and need not use a service such as that of Research Disclosure. International Business Machines (IBM) published its research disclosures in its own publication, IBM Technical Disclosure Bulletin, between 1958 and 1998 and is said to have been cited some 48,000 times in United States patent applications.[64]

In the case of companies such as IBM, the disclosure of technologies for defensive purposes was motivated by the rationale that, if no such disclosure were made, the original inventor might later find itself precluded from using an earlier invention because a third party had patented it in the meantime. In the world's only "first-to-invent" jurisdiction, the United States,[65] it would be open to the earlier inventor to institute interference proceedings in order to free itself from the threat of infringing a patent subsequently granted to a later inventor, but elsewhere this is not possible. Some charitable institutions are believed to decline to patent inventions so that they can be made available for use by all. This objective may however make it harder for prospective users to find

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62 Full details of the operation of Research Disclosure may be found at <http://www.researchdisclosure.com/>, accessed 27 January 2011.

63 An example of one such document, together with its legal notice, may be found at http://www.rdjournal.co.uk/rd/free/RD562002.pdf , accessed 27 January 2011.

64 See http://en.wikipedia.org/wiki/IBM_Technical_Disclosure_Bulletin , accessed 27 January 2011.

65 Information available from the European Patent Office website at http://www.epo.org/topics/patent-system/patents-around-the-world.html , accessed 27 January 2011.

the necessary information concerning those inventions, since it will not be found in a search of patent records.[66]

3.1 The patent system: policy objectives, implications and benefits for innovation and dissemination of technology

The policy objectives of the patent system may be distinguished from its rationale (discussed in the previous section) in that, while the rationale looks backwards and explains the reason for the patent system in teleological terms, its policy objectives are generally identified by the manner in which that system is directed by those who ultimately control it operation in order to achieve specific targets which may be short-term, medium-term or long-range.

In the case of patent systems today, one or more of the following policy objectives may be targeted by policy-makers and those who carry out their instructions:

- Compliance with legal norms and requirements imposed upon the patent system from outside it by overriding provisions of international, national law and principles of customary law (while this author is unaware of the provisions of patent law having been affected by, for example, the law relating to human rights, it is notable that complaints concerning the operation of both national copyright[67] and trade mark law[68] have been pleaded before the European Court of Human Rights);

- Compliance with legal norms and requirements incorporated into the patent system by international and national patent law;

- The operation of a means of incentivising or encouraging ongoing innovation by others and at the expense of others (by requiring patent applicants to pay fees to secure their monopolies, to renew or amend them, and by encouraging or facilitating the owner of the patent to take the initiative, at its own expense, in commercialising the patented invention);

- The establishment, operation and ongoing maintenance of a system for processing applications for patents and for keeping and rendering accessible the necessary information for the discharge of those functions;

- The reduction or removal of the effects of disputes between patent stakeholders and each other, their competitors and the administrative structure which operates the patent system;

- The steering of innovation from sectors in which it is less desired and into those in which it is more desired (for example by excluding the availability of patents in certain industrial sectors or by enhancing protection in particularly desired sectors; examples of the latter

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66 Charities such as Cancer Research UK make a point of patenting research so that they can make it freely available for laboratory use while levying royalties for its commercial use. In such cases the invention forms part of patent literature and will enter the public domain in the same way as any other patent. On Cancer Research UK's patent policy regarding the BRCA2 gene see <http://www.bionews.org.uk/page_11868.asp>, accessed 27 January 2011.

67 *News Verlags v Austria* (2001) 31 EHHR 8.

68 *Anheuser-Busch Inc. v Portugal,* European Court of Human Rights (Grand Chamber), Application 73049/01, 11 January 2007.

include extended patent term for some pharmaceutical,[69] agrochemical[70] and paediatric[71] products and incentives such as accelerated patent grant and fee reductions for so-called "green patents" for technologies which confer a beneficial or less harmful impact on the environment)[72];

- The making available, whether at a cost or free of charge, of scientific and technological data relating to the subject matter of patents;

- The provision of information concerning all of the above for users of the patent system to that, in navigating and using the patent system with greater facility, they will derive greater benefit from it while incidentally placing less strain upon the human and material resources of the patent system.

It can be seen from this list that the patent system has many objectives, of which the promotion of innovation and the dissemination of technology are only a part; this part must be balanced against the whole, bearing in mind the fact that patent systems are run by government departments and are obliged to discharge their public functions without necessarily having the power to determine for themselves which functions they feel it appropriate to perform.

The successful administration of any patent system depends on the recruitment and training of staff who possess the ability to execute in an appropriate manner the performance of their official functions. The human resource implications of this are of immense importance because it can be difficult for a patent system to change the focus of its objectives and the management of its operations overnight. In the largest and most sophisticated patent systems there is a relatively stable and predictable need for patent examiners, possessed of a sufficiently high level of education (often at post-doctoral level) to be able to comprehend and therefore examine applications to secure a monopoly of an area of technology which may be so advanced that it creates its own concepts and its own vocabulary in which to express them; the examiner also needs to possess a great sensitivity to the nuances of language when it comes to interpreting and assessing a patent application's claims and the adequacy of the purported disclosure. These attributes may not be easily substituted by the interpersonal skills with which a patent granting authority's representatives deal with public inquiries regarding the existence and quality of information contained within the patent system, the best means of implementing an innovation in the commercial market or with the resolution of disputes and complaints.

It may also be fair to suppose that employees of the patent system are more familiar, and therefore more comfortable with, those features which they regularly encounter within the patent system itself than with phenomena such as the public domain, with which they are less familiar or encounter within only a narrowly defined set of criteria such as whether an applied-for invention is

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69 A particularly interesting exercise is the 74-page report that followed a cross-disciplinary study of the effect of patent term extension on investment within the pharmaceutical industry, conducted under the auspices of the Office of Technological Assessment in the United States, "Patent-Term Extension and the Pharmaceutical Industry", 1981, http://www.fas.org/ota/reports/8119.pdf , accessed 16 February 2011.

70 On which see Alain Nadaï, "The greening of the EC agrochemical market: Regulation and Competition", (1994)3 Business Strategy and the Environment 2, pp 34–42.

71 On which see *Report to the European Commission: Companies and products that have benefited from any of the rewards and incentives in the paediatric regulation and the companies that have failed to comply with any of the obligations in this regulation covering the years 2007 to 2009*, European Medicines Agency (2010), http://ec.europa.eu/health/files/paediatrics/article_50_report2010.pdf , accessed 16 February 2011.

72 The recognition of the importance of green technologies has led to, for example, the European Patent Office creating a fresh classification scheme which enables would-be licensees and manufacturers to identify owners of environmentally friendly patents, thus making it more attractive for would-be licensors to patent and thereby disclose the existence of their technologies: http://www.epo.org/topics/issues/clean-energy/classification.html , accessed 16 February 2011.

anticipated by prior art which contains both earlier patents and public domain material lying beyond the patent system.

As greater cooperation between international, regional and patent systems accelerates, it may be supposed that the duplication of much skilled work such as the examination of patent applications will be reduced and that fewer examiners will be recruited or retained. If this is the case, a reassessment of the aims and objectives of the patent system may result in either a decrease in official fees which reflects administrative savings in operational activities or a redeployment of funds into areas such as the dissemination of technological information and the more assiduous cultivation of the public domain—but these issues lie outside the remit of this report.

3.2 The public domain: policy objectives, implications and benefits for innovation and dissemination of technology

In principle it would be desirable, if it were possible, to give an authoritative review of the policy objectives of the public domain, in the same way as the policy objectives of the patent system were articulated in 3.1 above. In practice this is not possible, since there is no set of policy objectives for the public domain that has received general agreement in international legal terms. There are however some expressions relating to desired objectives of the public domain which we may note here:

- The public domain should be accessible. The extent to which the public domain should be accessible is however a matter for debate since it differs as between intellectual property rights. Thus there is an ongoing debate as to whether material which is no longer protected by copyright should be withheld from public access, even where the material embodiment of the copyright-protected work is not: should therefore the owner of an old painting in which the copyright has expired be obliged to make it accessible to those who have no interest in the physical property of the painting but want only to gain access to and make use of the artistic work which it contains?[73] A second copyright debate relates to public domain works which have been reproduced in a new format: should the creator of the new format of an old painting, such as a high-quality digital reproduction, be able to assert its copyright when the owner of copyright in the underlying work may no longer do so?[74] A third debate relates to the making of a sound recording of a musical work which is out of copyright, but where the sounds are

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[73] The same issues arise with regard to all other material that belongs within the public domain but can only be physically accessed by paying an admission fee to premises on which it is stored, buying the right to access it online, and so on. While it is generally the case that "jailbreaking", the term often given to the circumvention of technical devices that are designed to prevent copyright infringement, is unlawful when conducted in respect of devices that are emplaced in order to prevent copyright infringement, it is by no means clear that, in principle or in practice, the same restrictions should be placed upon "jailbreaking" that seeks to yield access to privately-held public domain works. Article 11 of the WIPO Copyright Treaty ("Obligations concerning Technological Measures") provides that "Contracting Parties shall provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures that are used by authors in connection with the exercise of their rights under this Treaty or the Berne Convention and that restrict acts, in respect of their works, which are not authorized by the authors concerned or permitted by law". This does not prevent Contracting Parties going further and providing the same protection even in respect of non-authors in respect of rights that are not covered by the Treaty.

[74] Issues such as these were sparked off by the United States litigation in which the Bridgeman Art Library maintained that it owned copyright in digital reproductions of out-of-copyright art works: see *Bridgeman Art Library v Corel Corp.*, 36 F. Supp. 2d 191 (S.D.N.Y. 1999), in which Bridgeman's action was dismissed. This case does not however represent a universal proposition of law and, in many countries, it appears unclear whether such reproductions are protected or not.

generated by musicians who are playing from a scholarly edition of a musical score which remains within copyright?[75]

These debates have no real corollary within the law on trade marks and industrial designs. In patent law, however, there is an issue with some similarity, which relates to whether the holder of a patent which expired should be required to divulge further information which enables it to be used by third parties when it transpires, after expiry of the patent term, that the description of the invention in the patent imparted less information than would have enabled the person skilled in the art to put the invention to use. In such a situation the patent owner has had the benefit of a statutory monopoly but without disclosing in return the necessary information which entitled him to obtain that monopoly. In practice this does not seem to spark off much debate. A commercially useful patent which discloses insufficient information to enable it to be worked, and which gets in the way of a competitor's own activities, is likely to be challenged for insufficiency during its lifetime,[76] and if the patent is not commercially useful the failure to disclose sufficient information to implement its technology is unlikely to trouble anyone.

Precisely how accessible the public domain should be remains a matter for debate too. As internet access increases, it seems reasonable to assume that scientific and technological data should be stored in a form in which internet users can access it. But making information available for electronic storage comes at a cost, which must be borne. As computer science advances, public domain storage and retrieval takes on a more than merely archival aspect, since any new technology is a threat to the continued use and existence of the old technology which it replaces. While there are no precise figures for the amount of public domain technical data stored on punched cards, tapes, 5.25 inch floppy disks and other obsolete formats, their preservation—together with the preservation of the decreasingly available equipment for reading or decoding them and the need to train staff to use them—places a further potential burden on the maintenance of the public domain.[77]

A further consideration relates to the language and format in which public domain information is held and made available. Good news in this regard is the increased sophistication and intelligibility of machine-generated translations. In this connection the cooperation between the European Patent Office and Google in improving the quality of translation of technical patent documents should be noted.[78] However, work in this field is confined to the major international languages and will be of little immediate benefit to many potential users of public domain data in developing countries in which the major languages of the patent system are understood poorly or not at all.

A final issue concerning access to the public domain relates to the fact that not all of the information contained in it is transmissible online via the internet. Microorganisms which are stored under the terms of the Budapest Treaty on the Deposit of Microorganisms[79] are held in laboratory

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[75] See eg *Sawkins v Hyperion Records Ltd* [2005] EWCA Civ 565; [2005] R.P.C. 32 (Court of Appeal, England and Wales).

[76] "Sufficiency" and "insufficiency" of a patent disclosure are terms which are widely used in legal practice and in judgments handed down in litigation, but are not normally found in statutes where a disclosure may be described as an "enabling" if it fulfils its function of teaching the art disclosed in the patent application to the person skilled in the art. A helpful short introduction to these concepts can be found at <http://en.wikipedia.org/wiki/Sufficiency_of_disclosure>, accessed 1 February 2011.

[77] Organisations such as the Computer History Museum, Mountain View, California, preserve archaic mechanisms for the storage, retrieval and processing of data: http://www.computerhistory.org/>, accessed 1 February 2011. These can be important not merely for accessing areas of the public domain but for facilitating the recovery of data needed for litigation.

[78] "EPO and Google collaborate on machine translation", European Patent Office Press Release, 30 November 2010, <http://www.epo.org/topics/news/2010/20101130.html>, accessed 1 February 2011.

[79] Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure, last amended over 30 years ago on 26 September 1980.

conditions under which access is restricted and the transmission of stored microorganisms may be restricted or prohibited under national law where the are considerations of national security or dangers for health or the environment.[80] From the perspective of the public domain the Budapest Treaty promises little. Only 73 countries have microorganisms that are recognised under the Treaty (the full list of contracting parties may be consulted here[81]) and, since the deposit of a microorganism in any one recognised depository will suffice for all patent-related purposes, there is a great deal of local specialisation among the depositories. The Treaty does not define the scope of right of public access to deposited microorganisms, which cannot therefore be examined with the freedom given to the examination of a published patent specification, and it does not appear to contain any requirement that a depository store a microorganism for purposes other than those of a "patent procedure".[82] This would suggest that there is no need for any participant nation to make any provision even for the post-patent preservation of a deposited microorganism (apart from the requirement under Rule 9.1 of the Regulations under the Budapest Treaty[83]), and certainly no requirement that it make provision for access to microorganisms that have entered the public domain.

- The contents of the public domain should remain within the public domain. Again, this sentiment is one which generates different levels of debate within intellectual property. It is notoriously difficult to obtain a genuine and valid patent for something which is inherently part of the public domain, though the law recognises that an idea which is in the public domain might still be part of a patentable invention where the subject of the patent is not the idea itself but a new and non-obvious means of putting it into effect.[84] There is a lengthy and controversial literature concerning the patenting of material which existed in nature before the priority date of the patent application, such as gene sequences85 and plant products which have long been used within a body of traditional knowledge in the treatment of medical conditions. Whatever the rights and wrongs of these practices in moral and cultural terms, it remains an axiom of patent law that anything which is known to exist in nature, and for which no hitherto unknown use is found, will not of itself constitute the basis of a valid patent grant.[86] In contrast, the artificial creation of something which exists in nature, and the thing itself as created by

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80 Budapest Treaty, supra, Article 5.

81 <http://www.wipo.int/treaties/en/ShowResults.jsp?lang=en&treaty_id=7>, accessed 31 January 2011.

82 Budapest Treaty, n.75 above, Articles 2, 3.

83 Rule 9.1 of the Regulations under the Budapest Treaty states that: Any microorganism deposited with an international depositary authority shall be stored by such authority, with all the care necessary to keep it viable and uncontaminated, for a period of at least five years after the most recent request for the furnishing of a sample of the deposited microorganism was received by the said authority and, in any case, for a period of at least 30 years after the date of the deposit.

84 An example is the "Workmate" work bench, invented by Ron Hickman and patented in many countries around the world. This invention consisted entirely of well-known items that would be familiar to any handyman, but the invention came in the manner in which the work bench's component parts were arranged in relation to one another in order to achieve an unexpected and useful result. The validity of this patent was contested in several jurisdictions on the assumption that the invention must have been contained or conceived within the state of the art, but without success. See for example *Hickman v Andrews* [1983] RPC 147 (Court of Appeal, England and Wales).

85 For an excellent and accessible account of the scientific and legal issues relating to biopatenting and the particular case of patents for gene sequences see William R. Cornish and David Llewelyn, *Intellectual Property: Patents, Copyright, Trade Marks & Allied Rights* (6th edition, Sweet & Maxwell, London, 2007), Chapter 21, "Intellectual Property in Biotechnology".

86 An elegant explanation of this proposition may found in the speech of Lord Hoffmann in *Merrell Dow Pharmaceuticals Inc v HN Norton & Co Ltd* [1995] UKHL 14 (26 October 1995), in which at paragraphs 37 to 39 he uses as his hypothesis the example of Amazonian Indians' knowledge that cinchona bark was efficacious for the treatment of fevers: the fact that they would have not have known of the existence of a quinine sulphate which could be synthesised as an alkaloid molecule $C^{20}H^{24}N^{2}O^{2}$ did not mean that that molecule was not part of the state of the art and therefore be patented.

that process, may be the subject of a valid patent since its grant does not impinge on the use of the public domain 'original' version on which the patented version is based.[87]

Elsewhere within intellectual property law, the relevant considerations concerning the preservation of public domain contents are quite different. There is a large literature concerning words and symbols within everyday public use that are appropriated by the private domain; some of this relates to the need to keep language free for use by all, or discusses the delicate interplay between a word's etymology and inherent meaning and the secondary meaning which the public is taught by the trade mark owner. In truth this debate is without real substance for two reasons. First, there is a regular flow of public domain language into the private domain and back again,[88] while some words happily remain both within the public domain and the private domain, depending on their context.89 Secondly, it is the force of public use that determines whether a word remains in the domain of private property or enters the commons. These issues are irrelevant to the patent public domain, which is not determined by such use or affected by it. Within copyright too the relevant considerations are quite separate to those of the patent public domain. This is because an original work, made by an author without any copying, may recreate an earlier work including one which lies within the public domain.[90] The requirement of novelty eliminates any risk of an original invention qualifying for restoration to the domain of private property in like manner.

A more difficult case, and one which is particularly relevant to patents because of its proximity in practical reality to the function of the patent system, is that which relates to confidentiality, know how and trade secrets. This is because information which was once publicly available may be lost to or forgotten by the public and thereby regain its value in terms of the ability of its possessor to restrict or prohibit entirely the possibility of anyone else gaining access to it. In such a case it is not normal for a national law to compel a person who reoriginates or rediscovers such information to disclose it or make it publicly available again.

- Material, once in the public domain, should be capable of use which is free from any legal impediment. However, as has been mentioned earlier in this Study, while the patent system itself will not prevent the use of the public domain content of an expired patent, other intellectual property rights and legal duties unrelated to patent law, such as health and environmental restraints, may have the same restraining effect. The main circumstance in which this affects patent law is where copyright is asserted in a diagram which is contained in a patent application and which is reproduced or otherwise used in the course of putting the invention into use following the expiry of the patent,[91] This issue has been the subject of litigation in a number of jurisdictions and is complicated by

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87 On this basis RiceTec Inc could not validly patent the Basmati strain of rice, but it remained possible for the company to secure limited patent rights in respect of processes performed in relation to the development or analysis of such strain of rice: see Saritha Rai, "India-U.S. Fight on Basmati Rice Is Mostly Settled", New York Times, 25 August 2001, available at <http://www.nytimes.com/2001/08/25/business/india-us-fight-on-basmati-rice-is-mostly-settled.html?pagewanted=all>, accessed 20 February 2011.

88 Thus the public domain has been enriched by words which were originally coined as trade marks such as escalator, linoleum and, in some jurisdictions, thermos, walkman, aspirin and Tabasco.

89 Examples drawn from the electronic and communications sector include APPLE, ORANGE and BLACKBERRY.

90 Thus the Israel Supreme Court ruled that a scholarly reconstruction of the Dead Sea Scrolls, more than 2,000 years after they were first written, was capable of being protected as a work of authorship even the original work, had it been extant in its original form, would have been within the public domain: *Eisenmann and others v Elisha Qumron* [2001] *European Copyright and Design Reports* 6.

91 Strictly speaking, the text of a patent application and its accompanying artwork are quite separate as intellectual creations from the invention which they embody, in the same manner as a sound recording is a different intellectual creation from the authors' works recorded on them. However, while it is very frequently the case that copyright in a sound recording enters the public domain before the works it contains, there is only a remote likelihood of the copyright in, for example, an illustration contained in a patent application falling into the public domain before the subject of the patent itself—the invention as defined by the claims and description. See also note 95, infra.

the fact that the owner of the copyright in the diagram may not be the same person as the proprietor of the since-expired patent.

- Information which must be disclosed for the benefit of the public at the expense of the party disclosing it should not be put to unfair use by competitors or free-riders who have incurred no cost in creating and verifying it. This issue is one which touches not on the patent system itself but on those who use it, and it is provided for under international law: it relates to what is often called "regulatory data", information demanded by public authorities as proof of the efficacy, environmental impact or other characteristic of a new medicine or other chemical product. Article 39(3) of the TRIPS Agreement,[92] which neutrally describes it under the heading "Undisclosed Information", requires Members to provide that such regulatory data is either kept confidential or that its use be restricted so as to prevent unfair competition. In theory this provision relates to all test data, whether it relates to a product which has been patented or not; in practice its importance lies in the fact that manufacturers of generic and other equivalent products cannot make free use of the data furnished by the originator of the tested product. While the obvious significance and potential importance of this information to the public domain, it should be understood that this provision of the TRIPS Agreement does not address public domain concerns. There is no indication as to how long such regulatory data should be kept confidential or its use restricted; this may result in the retention of regulatory data in a state of confidentiality long after any related patents and supplementary protection certificates have expired, with the result that the public is deprived of useful material which might save lives as well as be of commercial or technical value.

One matter which is not listed here on the ground of impracticability is the obvious desideratum that material which enters the public domain via the patent system should be of some value, or at least of a reasonable standard in terms of its utility, While the patent system can and does monitor carefully the content of material relating to inventions in relation to their novelty and inventive content, as well as in some cases their compatibility with principles of public order and morality, it is not a requirement of a patent that the invention work well and, in many cases, it will not work at all. The categories of invention which simply will not work include both meritorious inventions, such as those which cannot be put into effect because the means needed for their realisation are inadequate,[93] and those which are lacking in any sort of intellectual merit at all such as patents for perpetual motion machines which either fail to take into account the immutable laws of physics[94] or make assertions that can neither be currently proved or disproved.[95] It can however be seen that patents for inventions which have been successfully made and used will fulfil the desired criterion of being of some value or utility.

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[92] The TRIPS Agreement, Article 39(3): "Members, when requiring, as a condition of approving the marketing of pharmaceutical or of agricultural chemical products which utilize new chemical entities, the submission of undisclosed test or other data, the origination of which involves a considerable effort, shall protect such data against unfair commercial use. In addition, Members shall protect such data against disclosure, except where necessary to protect the public, or unless steps are taken to ensure that the data are protected against unfair commercial use".

[93] The earliest patents for stereophonic sound reproduction are a case in point: they were obtained by Alan Blumlein (EMI) in the 1930s but the equipment needed for the purpose could not then be manufactured commercially with sufficient precision: that did not happen until 1957: on Blumlein see Robert Charles Alexander, *The inventor of stereo: the life and works of Alan Dower Blumlein,* Focal Press, Woburn MA, 1999.

[94] For a recent survey of the patenting of perpetual motion machines see Christopher Wadlow, "Patents for perpetual motion machines", (2007) *Journal of Intellectual Property Law & Practice* 2(3): 136.

[95] An example is the controversy concerning BlackLight Power from hydrinos, described with relevant sources at http://en.wikipedia.org/wiki/Blacklight_Power, accessed 1 February 2011, and analysed by Matthew Rimmer, "Patenting free energy: the BlackLight litigation and the hydrogen economy*" Journal of Intellectual Property Law & Practice* (2011).

3.3 Dynamic interactions between the patent system and the public domain at the policy level

So far as the international sphere it appears that historically there has been no dynamic interaction between the patent system and the public domain at the policy level, which is one of the reasons why the current WIPO initiative is so important and timely. At national level, however, there is some evidence of dynamic interaction—at least in the United States, where domestic patent law imposes upon the patent applicant the obligation to disclose the best mode of putting his invention into manufacture.[96] Under paragraph 112 of the US Patent Code, which deals with the requirements of disclosure via patent applicant's specification, the requirement is made that:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Although the best mode requirement is onerous and failure to comply with it can result in the loss of patent protection, it only applies to what the inventor knows at the time he files the application; if either he does not know the best mode at all, or knows it but has not realised that it is the best mode, the validity of the patent will not be affected.[97] The doctrine has come under heavy criticism within the United States following the Federal Court ruling in Ajinomoto Co., Inc. v International Trade Commission[98] that two of Ajinomoto's patents were invalid and unenforceable under this provision: in infringement proceedings before the International Trade Commission Ajinomoto alleged that a family of companies was violating Section 337 of the United States 1930 Tariff Act by importing and selling infringing products. Although the defendant companies admitted infringement, the patents were held to be invalid and unenforceable for failure to meet the "best mode" requirement.

The best mode of carrying out an invention is not a requirement that relates to the patentability of the invention in terms of its content, which means that the patent applicant may be required to disclose matter which does not relate to the novelty or inventiveness of the invention for which protection is sought. Nor will it confer any extra degree of protection for the patent in excess of that conferred by the claims. Since only the owner of the patent, or those licensed by him, may use the invention, there is no reason based on the use of the patent before its expiry which would require the public at large to know what precisely the best mode is. Its only conceivable benefit is that of the public at large, which receives more information concerning the nature and mode of operation of the invention even while it remains under patent protection, as well as the enhanced benefit the patent applicant's judgement as to which way to implement the invention is best which can be deployed following expiry of the patent term.

In striking a balance between the benefit of users of the public domain and the owners of patents, it may be argued that the United States' "best mode" requirement has made things simply too hard for the patent owner. It may also be asked whether the "best mode" known to the patent applicant

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96 For further reading on the "best mode" requirement" in the United States see Donald S. Chisum, "Best Mode Concealment and Inequitable Conduct in Patent Procurement: A Nutshell, a Review of Recent Federal Circuit Cases and a Plea for Modest Reform**"**, 13 *Santa Clara Computer & High Tech. Law Journal* 277 (1997). At the time of writing there is a piece of proposed legislation in the United States, the Patent Reform Act, which would abolish the best mode requirement since it is an inconvenience to patent applicants but does not clearly confer any benefit which lies within the scope of the US Constitution's Copyright Clause, noted in Section 4 above under "Progress of Science and useful Arts: the patent and the United States Constitution". For a pertinent comment see Vincent LoTempio, "Patent Reform Act of 2010 and Best Mode Requirement", <http://www.lotempiolaw.com/2010/04/articles/patents/patent-reform-act-of-2010a-and-best-mode-requirement/>, accessed 1 February 2011.

97 *Benger Labs. Ltd. v R.K. Laros Co.*, 209 F. Supp. 639, 135 USPQ 11 (E.D. Pa. 1962).

98 597 F.3d 1267 (2010).

is likely to remain the best mode two decades later, when the patent expires and the public domain is open for all to use, given the rapid rate at which technology advances.

3.4 Policy challenges

Once material is identified as falling outside the scope of patent protection and therefore within the public domain, a number of significant policy issues must still be addressed. Some of them are described below. The use of the term "challenges" to describe these policy issues may seem somewhat conflict-oriented since what is really at stake is not a battle between the public domain and opposing forces as a fine-tuning of the balance that needs to be struck and then maintained between the competing benefits that can be obtained from the public domain and from other well-established legal or moral interests—some of which may also be recognised as the beneficial fruits of intellectual property protection.

Lack of legal entitlement to use: public restraints

Notwithstanding the lack of patent protection, the use of public domain material may still be restrained. The source of the restraint may be found in public law factors that are external to intellectual property law and which generally override it, such as in environmental measures that prohibit or limit the use of toxic chemicals and carbon-inefficient fuels, and in public order measures that regulate or prohibit the manufacture, distribution or use of weapons and explosives. Since such restrictions on the use of public domain materials lie outside the scope of intellectual property law and may derive their justification from what are generally regarded as higher norms, such as international treaties on the protection of the environment, they are widely accepted as being necessary. Prudence suggests, however, that these limitations should not be broader than is required for the fulfilment of their objectives. Thus laws regulating the release into the environment of genetically modified organisms achieve their regulatory objective without preventing the use of public domain technology and materials for research and other purposes.

Lack of legal entitlement to use: private restraints

Another form of restriction on the use of materials which have fallen out of patent protection is that which arises from a private law factor: those materials may belong to the public domain from the perspective of the patent system while remaining protected by other intellectual property rights. Thus a patent on a computer-implemented invention may expire or lapse, while copyright protection still prevents the use of a computer program which lies at the heart of the invention in so far as it is a "literary work" and must be protected as such under international law.[99] Other examples may be found even in patent law, where:

> (i) a patent on an improvement upon a basic product is allowed to lapse but there is no entitlement to use that improvement, though it has fallen into the public domain, if its use will infringe a patent still in force on the basic product and where
>
> (ii) copyright is invoked in design sketches contained in the patent specification itself.[100]

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[99] A very recent example of a private restraint on the use of a public domain work is the ruling of the Court of Justice of the European Union in Case C-168/09 *Flos SpA v Semeraro Casa e Famiglia SpA,* 21 January 2011, in which the court affirmed the principle that exploitation of a work, formerly protected by design right but subsequently removed from the public domain to the domain of private copyright by the implementation of a European harmonisation directive, was not only impermissible but could not be rendered permissible by national legislation providing for ten-year 'grace period' within which the performance of an otherwise infringing act on a work formerly in the public domain might be permitted.

[100] The United States Patent and Trademark Office (USPTO) website thus cautions would-be users of material in patent applications which may be protected by copyright or even trade mark law in the following terms:

[Footnote continued on next page]

The exercise of a private right which has the effect of preventing the exercise of a publicly available entitlement may, in appropriate circumstances, overcome by invoking such legal devices as "essential facility" doctrine in European competition law,[101] by the doctrine of *abus de droit*[102] or unfair competition principles,[103] but these depend on the specific circumstances in which a variety of doctrines are applied rather on any overarching issue of policy.

Lack of legal entitlement to use: cultural considerations

A third form of restriction on the use of materials which may be said to be part of the public domain relates to the recent moves towards the protection of traditional knowledge and the genetic stock of life-forms upon which some of that knowledge is based.[104] Much of this material is regarded by classic patent law as falling within the public domain, either because it exists in nature and, as such, is not an invention but merely forms part of the known world and is prior art, or because it has been communicated or used in circumstances in which its existence or use must be taken to be known by the public. This genetic material discovered in the course of the Human Genome Project has been described as "part of the common heritage of mankind,[105] which it would be quite improper to subject to private ownership via the patent system. However, many developing countries have maintained that it is both fair and reasonable to accord the dignity of legal

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[Footnote continued from previous page]

"**CAUTION:** There are instances where **trademarks** may be embedded in patents as part of the drawing, particularly for design patents. There are also instances where a portion of the text or drawings of a patent may be under **copyright**. You should consult an attorney regarding these potential trademark and copyright issues. The USPTO will not assist in determining if a potential trademark issue or copyright issue exists for a particular patent" (USPTO's emphases). See <http://www.uspto.gov/news/media/ccpubguide.jsp>, accessed on 16 February 2011. Further, 37 CFR 1.71(e) **('**Detailed description and specification of the invention'), specifies the form to be taken by a copyright notice on a patent document: "A portion of the disclosure of this patent document contains material which is subject to (copyright or mask work) protection. The (copyright or mask work) owner has no objection to the facsimile reproduction by anyone of the patent document or the patent disclosure, as it appears in the Patent and Trademark Office patent file or records, but otherwise reserves all (copyright or mask work) rights whatsoever".
<http://www.uspto.gov/web/offices/pac/mpep/documents/appxr_1_71.htm>, accessed 16 February 2011.

[101] Case C-7/97 *Oscar Bronner GmbH&Co. KG v Mediaprint Zeitungs- und Zeitschriftenverlag GmbH&Co. KG and others* [1998] ECR I-779, in which the Court of Justice of the European Communities ruled on the scope of application of essential facilities"doctrine within EU competition law.

[102] This doctrine exists both in the national legal systems of civil law jurisdictions and in synthetic systems such as that of the European Union:

"European Union law has a concept of abuse of rights which derives from the case-law of the Court and has by now acquired a relatively clearly defined content. Originally arising in the field of the fundamental freedoms, this concept has been transposed by the Court to other specific fields of European Union law and developed further. It may be understood – putting it simply – as a basic principle prohibiting abusive practices, according to which 'Community law cannot be relied on for abusive or fraudulent ends'. … evidence of an abusive practice requires, first, a combination of objective circumstances in the particular case in which, despite formal observance of the conditions laid down by the European Union rules, the purpose of those rules has not been achieved. Secondly, it requires a subjective element consisting in the intention to obtain an advantage from the European Union rules by creating artificially the conditions laid down for obtaining it":

Per Advocate General Trstenjak in Case C-482/09 *Budějovický Budvar, národní podnik v Anheuser-Busch, Inc.,* 3 February 2011 (not yet reported).

[103] There is a large literature on unfair competition law, which draws principally on the legal traditions of civil law jurisdictions; see eg Reto Hilty and Frauke Henning-Bodewig (editors*), Law Against Unfair Competition: Towards a New Paradigm in Europe?* Vol.1, Springer, 2007.

[104] For an introduction to this topic and a further reading list see *Intellectual Property and Traditional Knowledge,*WIPO Booklet available at <http://www.wipo.int/freepublicationsen/tk/920/wipo_pub_920.pdf>, accessed 20 February 2011.

[105] See John Sulston (a distinguished scientific scholar and a severe critic of the patent system) and Georgina Ferry, *The Common Thread: a Story of Science, Politics, Ethics and the Human Genome,* Bantam Press, 2002, 266-7.

protection to traditional medicines and remedies and that, where genetic material which was hitherto exclusive to them has become subject to refinement, laboratory testing, industrial manufacture and successful commercial exploitation, the fruits of that exploitation should be shared between the original identifier and user of the traditional knowledge and the subsequent commercial developer.[106]

Access to unpatented and out-of-patent material

Even where material is unprotected by intellectual property rights, its very existence presumes that there is some means of gaining access to it. In this instance, the policy issue runs widely through intellectual property law and is not confined to patent protection. For example, it is not possible to make lawful copies of out-of-copyright works which are archived in premises to which the would-be user has no means of access. The same issue arises when the archived work is still protected by copyright but the would-be user wishes to put it to some use which does not infringe copyright at all or which is specifically permitted by copyright legislation. At present there is no legal right of access to public domain material under international law or under the national law of any country which protects intellectual property rights. If such a right is to be granted, policy must determine the balance between such a right of access and the rights of the owner of the physical embodiment of the public domain material to:

(i) his personal property in the embodiment itself, such as a fragile tape-recording of an old interview, and

(ii) his entitlement to the privacy of his home and business premises.

Technical bars to use

As was discovered by the Government of Algeria in its early years of independence, possession of a full set of patent records relating to French technology gave that country only an understanding of the nature of the products and processes that were contained in those records, but not the manufacturing skills, technical know-how and general overall ability to put them into practice or work them commercially.[107] The grant of a patent confers upon the patent owner an entitlement to prevent others making or working the invention, but imposes no duty to teach how the invention is made or to explain to anyone other than the hypothetical person skilled in the art how exactly it works. In many cases the manner of implementation is already a known part of the public domain or is easy to guess, particularly where the invention is of the low-tech variety or is a small incremental improvement upon an area of technology in which there exists a large and known body of technical skill. A further issue related to the gap between what the patent documentation discloses and what the reader needs to know in order to make use of the information so disclosed is that the patent applicant can hypothesise the existence of the skilled reader to whom he discloses the invention more easily than he can imagine an almost infinite range of non-skilled readers of the patent, each of whom would require a different degree of supplemental information before the invention could be made to work.

It is difficult to know how best to empower the would-be user of public domain material to use successfully the information at his disposal other than through the generally osmotic effect of better and more skill-focused education. There is however no doubt that former patent owners will oppose, on policy grounds and in factual terms, any measures that would impose a duty of

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106 An ongoing program of the WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore addresses these issues. The current state of the IGC's activities can be checked here: <http://www.wipo.int/meetings/en/details.jsp?meeting_id=20207>, accessed 16 January 2011.

107 See F. A. Sviridov, *The Role of patent information in the transfer of technology,* published for the World Intellectual Property Organization by Pergamon Press, 1981 (available for download at <http://worid-of-books.com/?id=KKBRAAAAMAAJ>, accessed 3 February 2011).

education upon themselves. For example, "non-practising entities"[108] such as academic research institutions normally commercialise their inventions through others and lack the skills of commercial exploitation themselves; training may be complex or impossible where the intended subject of manufacture incorporates several items of formerly patented public domain material, each of which was developed by a different party; the intended use of public domain material might fall outside the claims of a lapsed or expired patent and, if arguably such use would not have infringed the patent if it was still valid, should not therefore be said to fall within the scope of the former owner's duty to train, disclose or facilitate.

The operation of competition law

Although its impact upon the exploitation of patent monopolies is greater than its relevance to the public domain, the role of competition law should be noted. In the United States,[109] the European Union[110] and a large number of national jurisdictions there has emerged a body of law that regulates the manner in which a trader may use its monopoly power, either by itself or in conjunction with other traders, so as to exclude competitors, control prices which it pays for goods and services or which others pay it, among other anticompetitive practices. The powers that are given to the relevant regulatory or judicial authorities are often very considerable and may include an order that the monopolist make licences available to others on reasonable terms so that a market may benefit from competition where none previously existed or from more meaningful competition than that which existed previously.

Where the exercise of an intellectual property right by its owner has prevented the development of a market other than that in which its owner trades, the Court of Justice of the European Union has forced its owner to license its use[111] and, in more recent times, the competition authorities in the European Union ordered an owner of computer software which was both patent- and copyright-protected to make the source code of that software available for use by competitors.[112] However, there has been no instance of an order that patent-protected subject-matter be placed in the public domain.

Within European competition policy there exists a further concept which may be of greater relevance to the vitality of the public domain: this is known as "essential facilities" doctrine.[113] The idea is that, where no-one may trade in a particular market without the use of a specific facility, that facility is essential for trade and should therefore be accessible to all on comparable and reasonable terms, irrespective of its ownership or control. Outside intellectual property, typical examples might be a railway line which provides the sole efficient means of connection between a commercial port and a city in which imported goods are sold, or a single supplier of electric power to an industrial estate to which all manufacturers must subscribe in order to obtain their power supply. In principle the operation of this doctrine could effectively render a patent available for use

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[108] This phrase, frequently used in the United States to denote businesses that purchase patents in order to seek out unwitting users and charge them a rent for their use, is used here to refer to any entity that does not commercially exploit, or 'practise', its patents through its own manufacturing or trading activities.

[109] On competition law and policy in the United States see the Federal Trade Commission's FTC Guide to the Antitrust Laws at <http://www.ftc.gov/bc/antitrust/index.shtm>, accessed 16 February 2011, and to the copious information it provides.

[110] On the operation of the European Union competition law and policy see the European Commission's Competition website, at <http://ec.europa.eu/competition/index_en.html>, accessed 16 February 2011, which gives both general and sectoral information about the policy which the Commission is entrusted to enforce and the manner in which it does so.

[111] Joined cases C-241/91 P and C-242/91 P, *Radio Telefis Eireann (RTE) and Independent Television Publications Ltd (ITP) v Commission of the European Communities*, 6 April 1995.

[112] See Case T-201/04, *Microsoft Corp.v Commission of the European Communities,* Court of First Instance, 17 September 2007, particularly at paragraphs 270-288, 693 to 695, 785 to 787.

[113] On essential facilities doctrine see note 96 above.

by all on terms which might not require any further payment to its owner, thus placing critically important patents in the public domain, though it should be stressed that this has not yet been done and is unlikely to occur unless the case in favour of their being a economic justification for doing so is so strong as to be unanswerable.

4. RELATIONSHIP AND INTERPLAY BETWEEN THE PATENT SYSTEM, PUBLIC DOMAIN AND PUBLIC POLICY

Public policy: what is it?

Arguably there is nothing that is more influential in determining the structure, scope and function of the patent system than the interplay between that system and public policy. This latter concept operates at all levels. It does not merely provide countervailing forces to balance those of the patent system but has the power to trump them. Thus public policy shapes the aims and objectives of the patent system by rendering certain types of invention unpatentable, certain business practices of a patent owner oppressive and unconscionable, certain consensual practices as between patent owners and their licensees or each other as anticompetitive; it renders court actions inadmissible and contracts unenforceable. What then is public policy?
Perhaps understandably, since public policy operates in so many different spheres of human and commercial activity in which rights and duties regulate conduct, while it is a well-known legal concept it lacks a single formal and universally-agreed definition. Where the term is employed in any form of *lex lata* it is invariably undefined and, like the wind or electric current, it is better understood in terms of its ability to make an impact on other things than as a thing in itself. For the purposes of this report, the following broad descriptions of public policy appear to fit well:

- the body of principles that underpin the operation of legal systems in each state. This addresses the social, moral and economic values that tie a society together: values that vary in different cultures and change over time;[114]

- a broad statement regarded by the legislature or by the courts as being of fundamental concern to the state and the whole of society;115

- declared state objectives relating to the health, morals, and well being of the citizenry. In the interest of public policy, legislatures and courts seek to nullify any action, contract, or trust that goes counter to these objectives even if there is no statute that expressly declares it void.116

The difficulty of defining public policy is compounded by the difficulty in applying it in any given situation in which it is invoked. Generations of law students in common law jurisdictions have become acquainted with the famous aphorism of a judge who complained:

> "I, for one, protest… against arguing too strongly upon public policy; a very unruly horse, and when once you get astride it you never know where it will carry you. It may lead you from the sound law. It is never argued at all but when other points fail".[117]

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114 Wikipedia, <http://en.wikipedia.org/wiki/Public_policy_(law)&sa=X&ei=FXI4TbCFC92L4gbr0qXaCg&ved=0CBEQpAMoAQ&usg=AFQjCNFn2zdd_pC9h5Q8DH9KlGfpC-rmbw>, accessed 20 January 2011.

115 Government of Alberta, Canada <http://justice.alberta.ca/programs_services/public_education/Pages/vocabulary.aspx>, accessed 20 January 2011.

116 BusinessDictionary.com <http://www.businessdictionary.com/definition/public-policy.html>> accessed 20 January 2011.

117 *Richardson v Mellish* (1824) 2 Bing. 229 at 252 (Burrough J).

Bearing these points in mind, it is now necessary to examine the role of public policy in shaping the relationship of the patent system to the public domain.

4.1 Mechanisms and features of the patent system that are relevant to the creation, identification, use and preservation of the public domain

While the patent system was not custom-built to create or serve the public domain, its unique and undeniable impact on it cannot be denied. Below we note some of the elements of the patent system which, despite their creation for other purposes, are specifically relevant to the condition of the public domain. In doing so we must bear in mind that not every patent system possesses the same features but that, since the public domain is the final destination of all patents and most unpatented information, the overall trend towards the creation, enlargement and facilitation of the use of the public domain is not significantly affected by the absence of any of the features reviewed below from any one or more national or regional patent system.

The patent system's contribution to the creation of the public domain

The main features of the patent system which assist in the creation of the public domain may be listed as follows:

- The definition of a patentable invention and the scope of permissible claims provide guidance at the outset as to what may or may not be brought within the scope of patent protection. A WIPO which is being conducted in parallel with this one, "Exclusions from Patentable Subject Matter and Exceptions and Limitations to the Rights",118 will be relevant to this feature. Additionally, some rules of the patent system have operated in the exact opposite fashion to exclusions, by encompassing within the protection of patent law inventions which one might have expected to be arguably regarded as forming part of the public domain. This was the effect of the so-called "Swiss claim" in European patent law, which enabled a patent applicant to secure a monopoly in the use of a known product, for example "the use of known substance X for use in the treatment of disease Y".119 These claims were always controversial and, where substance X was a widely-available product in the context of its earlier known uses, were in practice often difficult or impossible for patent owners to monitor and enforce. Within the context of European Patent Office practice, have now been abolished.

- The publication of applications for patents which are not ultimately granted enables the content of those applications to enter the public domain at an early stage in the patent granting process. It should not be assumed that applications for patents which are ultimately not granted contain necessarily less useful information than applications for patents that are granted, since the discontinuance of an application is so often based on considerations unrelated to its technical value: for example the applicant's lack of funds, an appreciation that the invention may be novel but vulnerable to challenge for obviousness, or the rejection of one means of bringing about a technical effect where the applicant has persisted with a preferred alternative;

- The publication of applications for patents which are ultimately granted has the same effect in terms of purely technical information as does the category described immediately above. This information is often more valuable, though, since it may be

118 Document SCP/13/3 prepared for the Standing Committee on the Law of Patents (SCP). A study by external experts was submitted to the fifteenth session of the SCP, October 2010.

119 A clear and readable account of the "Swiss claim" and relate phenomena can be found in *The Modern Law of Patents,* LexisNexis, 2nd edition, 2010, at paras 2.92 to 2.115.

used in conjunction with accessible data concerning the actual use of a patent either by itself or in conjunction with other technology. Where the patent has been commercially exploited it may have created or met the needs of a specific market, in which case relevant market data may also enrich the purely technical data contained in the patent;

- The inspection of files relating to a patent application may be possible once the application has been provided.[120] The materials available for inspection, which in some cases can be performed online, may include correspondence as well as the original documentation. While information on file may not be of immediate technological use, it may reflect on the functionality of the patent and the scope of its claims, thus for example enabling the person perusing it to avoid performing acts which put him at risk of infringement litigation;

- The collective examination of published applications by interested members of the public via a wiki[121] is not a regular feature of any national or regional patent system, but it has been the subject of substantial and apparently successful trials by the United States Patent in collaboration with the New York Law School[122] and Trademark Office and by IP Australia in collaboration with the Queensland University of Technology[123] and the United Kingdom has announced but not yet implemented its own peer-to-patent trial.[124] A note on this experiment follows under the heading "Public collaborative involvement in the examination process: "Peer-to-patent". Its objectives include the acceleration and improvement in quality of the patent application process, thus identifying relevant prior art more effectively and thus despatching the contents of many applied-for patents swiftly into the ranks of the public domain;

- Those national patent systems which provide under their laws for the legitimate use of a patent by others even where no specific consent is granted provide, in effect, a paying public domain. The legal devices which achieve this are the compulsory licence[125] and the licence-of-right.[126]

- Forfeiture of a patent[127] is another option available under national law, though there is scarcely any jurisprudence on this topic. It is by no means clear what the consequence of forfeiture is and whether it has the effect of making the patent available to all or merely returning it to the control of the granting authority.

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120 Countries which provide for public inspection of files in one form or another include the United States, Canada, the United Kingdom Japan, India and China.

121 'Wiki' is defined by the best-known of wikis, Wikipedia, as " a website that allows the creation and editing of any number of interlinked web pages via a web browser using a simplified markup language or a WYSIWYG text editor": <http://en.wikipedia.org/wiki/Wiki>, accessed 2 February 2011.

122 <http://www.peertopatent.org/>, accessed 2 February 2011.

123 <http://www.peertopatent.org.au/> (website inaccessible at time of writing on account of recent floods in Queensland).

124 <http://www.ipo.gov.uk/about/press/press-release/press-release-2010/press-release-20101104.htm>, accessed 2 February 2011.

125 See note 32 above.

126 See note 33 above.

127 The Paris Convention, Article 5A(3) provides for forfeiture "where the grant of compulsory licenses would not have been sufficient to prevent" an abuse of the intellectual property monopoly; the Convention does not however stipulate the effect of forfeiture or require that a forfeited patent be licensed or made available for use. The TRIPS Agreement does not explicitly permit forfeiture but only provides, by Article 32, that, in the event of a forfeiture, the rights owner shall be entitled to a judicial review of the forfeiture decision.

Public collaborative involvement in the examination process: "Peer-to-patent"

In essence, "peer-to-patent" is an experiment, supported in the United States and Australia by a number of patent applicants as well as by the examining offices. This experiment involves the posting of a published patent application on an interactive website termed a wiki, and making the application available for the posting of comments pertinent to its patentability by interested and informed members of the public. Thus, while a hard-pressed patent examiner might not be able to identify and closely consider all of the elements of the prior art that hold a degree of technical relevance to the invention as claimed in the application, the facility is created whereby people possessing the relevant skills in the art—including people who might be endowed in real life with the characteristics of the hypothetical "PHOSITA"[128]—can offer their insights, comments, insights and suggestions. These comments and contributions from the public are themselves accessible to other members of the public, who can consider their content and decide whether their own comments are necessary.

The peer-to-patent process is expected to assist the examiner to draw his own conclusions as to the outcome of the application and, incidentally, to improve the quality and consequently the value of granted patents, raising the level of public confidence in the patent system and, in consequence, also raising the quality of the public domain information concerning that invention both during and (if the patent is granted) after its term of protection.

Early reports from those conducting both the United States and the Australian trials are very encouraging, though it is apparent that, while users broadly welcome this facility, professional representatives of patent applicants in private practice are less enthusiastic.[129]

The patent system's contribution to the identification of the public domain

There is no formal legal mechanism for identifying the parameters of the public domain or its individual contents; indeed it is difficult to see how there can be one, since the mere fact that a patent has expired does not of itself confer a right to use or to copy on any of its content.[130] However, some national patent offices have sought to make it easier for interested parties to identify patents which have expired by providing online lists of patents that are no longer in force.[131]

The main contribution of the patent system to the identification of the public has however come from an international initiative which, widely adopted by national patent systems and international mechanisms[132] for the processing of patent applications before and sometimes up to grant. This initiative is in the form of the International Patent Classification (IPC) system.

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128 "PHOSITA" is the acronym of "person having ordinary skill in the art", the standard by which obviousness is measured in United States patent law: see *KSR International Co. v Teleflex, Inc.*, 550 U.S. 398 (2007).

129 For a note on the positive assessment of the Unites States experiment, accompanied by some critical comments from members of the patent professions see <http://ipkitten.blogspot.com/2008/06/peer-to-patent-one-year-one.html>, accessed 2 February 2011.

130 Other intellectual property rights may still be applicable: see "Lack of legal entitlement to use: public restraints", in section 3.4 above.

131 One example is the UK Intellectual Property Office's 'Patents Endorsed Licence of Right (LOR) and Patents Not in Force (NIF)' page at <http://www.ipo.gov.uk/types/patent/p-os/p-dl-notinforce.htm>, accessed 23 December 2010. The United States Patent and Trademark Office offers 'Expired Patents for Failure to Pay Maintenance Fees' at <http://www.uspto.gov/patents/process/expform.jsp>, accessed on 10 January 2011. Such services are found also in developing economies. The case of Colombia is mentioned elsewhere in this Study; the Intellectual Property Organisation of Pakistan has an Expired Patents page at <http://www.ipo.gov.pk/Patent/PatentExpired.aspx>, but this resource was not functioning when checked on 16 January 2011.

132 The International Patent Bureau's administration of the Patent Cooperation Treaty, the European Patent Office, the African Intellectual Property Organization (Organisation Africaine de la Propriété Intellectuelle, OAPI) and the African

[Footnote continued on next page]

The IPC was established by an international convention in 1971.[133] It provides for a hierarchical system of language-independent symbols for the classification of patents and utility models according to the different areas of technology to which they pertain. The way it works is by dividing the eight main headings of technology into around 70,000 subdivisions, each of which is unique to a specific field of technology and is represented by a symbol consisting of Arabic numerals and letters of the Latin alphabet. Periodically revised in order to reflect the birth of new technologies and the ramifications of mature ones, the IPC is indicated on every applicable patent document, thus enabling users who are familiar with the classification to establish swiftly and easily whether it is pertinent to their interests. Where a patent document relates to a point at which different technologies intersect, the IPC symbols can reflect both of them.

While the current and earlier authentic versions of the IPC are available for consultation only in English and French, WIPO prepares and publishes translations into other languages, including German, Japanese, Korean, Portuguese and Spanish. The most recent revision is the IPC's eighth edition.[134] The versatility of this classification tool in pinpointing technologies has led to an important recent initiative on the part of WIPO when, on 16 September 2010, WIPO launched an online tool[135] to facilitate searches for patent information relating to what are termed Environmentally Sound Technologies (ESTs), with a view to assist its users in identifying existing and emerging green technologies and potential partners for further research, development and commercial exploitation.

The significance of the IPC to the identification of the public domain is plain. While it was created as a means of identifying the technical subject matter and field of application of patent documents, its use is neither dependent nor contingent upon those documents being associated with a patent which is valid and in force; and a document, once classified, does not cease to be so at the point at which an associated patent is refused, allowed to lapse or invalidated. In other words, in creating a tool for the classification of technology for the purposes of the patent system, the IPC has automatically created a parallel system which applies equally well to the public domain. The use of the IPC does not impose any extra burden on the IPC either; while that system must be constantly reviewed and periodically re-issued in the light of technological advances, the same can scarcely be said for the need to update it form the sake of the public domain—unless it can be said that there are new categories of technology which arise solely outside the scope of the patent system.

The patent system's contribution to the use of the public domain

The reader is referred at this point to the distinction drawn in Part 2 above, under the heading "Public domain in the patent system differs from public domain in other intellectual property rights", between the information domain and the action domain. The distinction reflects the fact that, once information is made available to the public via the patent system, that information may be employed as information, in as much as it may be intellectually absorbed, assimilated with other information and used as a means of understanding and conceiving intellective concepts that may themselves advance technological understanding and even create inventive concepts. All these uses however remain within the domain of mere information. It is at the point when one seeks to implement those intellective concepts, to put them into action, that they leave the information domain. It is at their point of departure from the information domain that they enter the action domain, where activity performed in respect of them may or may not infringe a patent right while a

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[Footnote continued from previous page]

Regional Intellectual Property Organization (ARIPO) all use the IPC system, as do the patent administrations of more than 100 nations.

133 Strasbourg Agreement Concerning the International Patent Classification 1971.

134 <http://www.wipo.int/classifications/ipc/en/index.html>, accessed 2 February 2011.

135 <http://www.wipo.int/classifications/ipc/en/est/index.html>, accessed 2 February 2011.

valid patent exists and will not infringe a patent right once the patent which governs the intended action expires or is revoked.

The reality is inevitably less simple than the theory, since the patent system permits the patenting of subsequent incremental inventions and improvements over an earlier, more basic patent. While it is open to any person to invent and patent an improvement upon an earlier invention, in practice it is often the proprietor of that earlier patent who does so with the intent and expectation that, following the expiry of the earlier patent, subsequent patented improvements to it will remain protected and will enable the original patent proprietor to retain a degree of control and resulting profitability from the commercial exploitation of those improvements even once the protection of the earlier patent is gone and it has entered the public domain.

The practice of seeking to extend patent protection in this manner is sometimes pejoratively termed "evergreening" by critics of the patent system,[136] since it conveys the impression that the patent protection remains intact beyond the limited duration for the protection of innovations which the patent system permits. This criticism is aimed particularly at the pharmaceutical sector, where the effects of evergreening are felt to be particularly pernicious since the patent term of pharmaceutical product patents which have been marketed following lengthy tests for efficacy and side-effects may itself by extended by the grant of supplementary protection certificates or equivalent devices.[137] The effects of extra patent term and the cumulative protection of original products and incremental improvements are in many instances bolstered by the further protection provided by intellectual property rights in trade marks (which protect product names and some forms of delivery such as distinctive containers or capsules) and in designs (for containers and packaging).

So far as the information domain is concerned, evergreening has the predictable result that more technical data is made available to the public for permitted and non-infringing activities involving it. In one sense the information made available during the process of evergreening is more valuable, on the whole, than ordinary information disclosed in a patent specification. This is because the earlier disclosures in the first-to-expire original patents provide both a conceptual backdrop and a commercial framework within which the value of the information to its reader and potential user can more speedily be appreciated and evaluated. In commercial terms, however, evergreening may be of little value until the patented improvements have also entered the public domain.

Purchasers of pharmaceutical products in a sophisticated and well-informed economy are likely to choose to buy an earlier and less efficacious formula for a medicinal product which has fallen out of patent protection than a more expensive but more efficacious patent-protected one. In developing economies, where both public and private purchasing power in respect of healthcare and medicinal products may be weak and the supply of such goods may be contingent on foreign aid, the choice may not be between an evergreened expensive product and a now-unprotected, cheaper and less efficacious one, but instead between the cheap and unprotected product and no medicine at all. This in turn raises issues of fairness and morality which go beyond the scope of this study.

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136 For a recent account of "evergreening" of patented technologies see Graham Dutfield, "A rights-free world—is it workable, and what is the point?", in Charlotte Waelde and Hector MacQueen (editors), *Intellectual Property: the Many Faces of the Public Domain,* Edward Elgar Publishing, 2007, at 220-1.

137 For a good account of the principles and practice relating to the supplementary protection certificate see Duncan Curley, *Extending Rewards for Innovative Drug Development - A Report on Supplementary Certificates for Pharmaceutical Products,* Report on behalf of the IP Institute, London 2007. Regular updates concerning patent term extension may be obtained from The SPC Blog at <http://thespcblog.blogspot.com>.

The patent system's contribution to the preservation of the public domain

The principal manner in which the patent system operates upon the preservation of the public domain is by the archiving of past patent documentation. This is not generally an activity that is specifically mandated by primary national legislation, though rules relating to the administration of patent granting authorities may refer to a general power to make and retain such records as are needed for the discharge of principal statutory functions. Even if no specific empowerment is expressed by primary or secondary legislation, it is implicit that, for example, where an examiner is charged with examining the novelty and inventiveness of an applied-for patent against the prior art, there should be some reference point to which that examiner can turn when seeking to match the application before him against the closest relevant prior art: this is initially done in most circumstances by comparing the invention at hand against earlier inventions for which patents have been sought.

This survey has already mentioned at 3.2 the role played by the patent system in the storage of microorganisms under the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure. The obligations of this Treaty do not explicitly require the storage of microorganisms for anything other than "patent purposes", but national law may presumably extend the role of designated depositories so as to include storage for public domain purposes at its own option.

4.2 The role of patent information in the creation, identification, use and preservation of the public domain

While the role of patent information in the creation, identification, use and preservation of the public domain is important, it is far from exclusive among valuable elements which perform those functions. Let us examine each of these in turn. Other factors include information as prosaic as general knowledge—which by itself or in combination with other information may serve to invalidate a patent for lack of novelty or inventive step—as well as information concerning unpatentable inventions, technical know-how, articles and presentations recorded in the proceedings of learned societies, published results of theoretical research and even apparent ephemera such as the contents of trade journals and advertisements. When examining the role of patent information below, their contribution to the four aspects of the public domain specified here should be understood within this context.

The role of patent information in the creation of the public domain

Patent information contributes initially to the creation of the public domain by virtue of the making available to the public of the information contained in patents. Its second contribution, at the point at which a patent ceases to be in force, is to free up for public use those activities and products that lay within its hitherto enforceable legal claim to exclusivity.

Some jurisdictions make no demands with regard to the quality of the information that supports a valid patent other than that it contains content that is new, non-obvious and sufficient to enable a notional addressee, the reader or readers skilled in the art, to understand it and put it into operation without the need for further invention or experimentation of their own.[138] The United States, however, places a higher informational burden on the applicant, since it requires the inventor to include within his application the best way to put his invention into practice.[139] This is intended to ensure that an inventor cannot obtain a patent while yet retaining as a secret some essential or advantageous aspect of it.

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[138] See for example the European Patent Convention, Article 83: "The European 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".

[139] 35 US Code, section 112.

The role of patent information in the identification of the public domain

Patent information as such is designed to serve the patent system. Thus the claims are directed to prospective infringers in order to warn them off a patented invention and the description of the invention in the patent specification provides the details as to what others must do in order to avoid infringement. The same claims and description are addressed to the patent examining authority, which must determine whether the claims are fairly based upon the disclosed information and whether the content of the invention satisfies the legal criteria for patentability. Once the patent application has progressed beyond this stage, the same claims and description form the basis upon which a prospective licensee or purchaser of the patent may wish to transact the invention's future with its present owner; they are also the raw material from which a court may need to adjudicate on issues such as infringement, validity or a request to amend the granted patent, often with the need to take into account not only the information that was available to the applicant and the examiner but also information which a third party may have possessed and which, while technically available to the public, was unknown to patent applicant and granting authority alike during the application process.

One further element of patent information is often overlooked by lawyers and patent examiners alike, because it has no legal status, does not form part of the prior art, may not be used as a means of interpreting patent claims and contains very little useful information at all—and that is why it is so useful in identifying the public domain. This element is the abstract. Each patent application carries an abstract, this being a brief description of the subject covered by the patent application. The addressee of the abstract is the patent granting authority itself, since it is helpful for internal administrative purposes. When a patent application is filed, a decision has to be made regarding its allocation between examiners whose scientific backgrounds and technical skills span all areas of innovative activity. The efficiency of the patent system would be compromised by expecting an expert in food technologies to pass judgment on the validity of a set of claims relating to a means of disposing of nuclear waste, or for a computer scientist to grasp with confidence the intricacies of genetically modified soybeans. This is where the abstract comes in: it enables the right examiner to be matched up with an invention that is appropriate, or at any rate less inappropriate, for his skills.

Because it is short,[140] is required to be clear and must be shorn of padding, the abstract provides a relatively comprehensible descriptive handle for an invention which may cover tens or even hundreds of pages of text and diagrams. This makes it relatively user-friendly in terms of identification of patent-based material within the public domain. A bonus in this regard is the fact that, in at least one major jurisdiction, the reproduction of abstracts does not in principle constitute an infringement of copyright which they may enjoy as original literary works.[141]

The role of patent information in the use of the public domain

Patent information per se cannot be said to have any specific role in the use of the public domain. However, the fact that the information is known to a prospective user to have emanated from the patent system may raise the implication that it is of higher quality or intrinsic value than information that has emanated from other sources. There are several reasons for this, which include the following:

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[140] Typical of the genre, in the United States will usually be between 50 and a maximum of 150 words in length: 35 US Code, section 111.

[141] Copyright, Designs and Patents Act 1988, section 60(1): "Where an article on a scientific or technical subject is published in a periodical accompanied by an abstract indicating the contents of the article, it is not an infringement of copyright in the abstract, or in the article, to copy the abstract or issue copies of it to the public" (United Kingdom).

- While there is no legal requirement on the part of a patent applicant to engage the professional services of a qualified patent attorney, the vast majority of patent specifications, as well as information on file which relates to the amendment of claims and technical descriptions, are drafted by highly skilled and trained persons, which make it more accessible and reader-friendly than if it had been drafted by a person lacking in such skill and training;

- The application process in jurisdictions where examination takes place involves the citation by the examiner of what appears to him to be relevant prior art against which the novelty, and ultimately also the inventiveness, of the applied-for invention is measured. Citation is made not only of earlier patents in force but also of earlier expired patents and sometimes of public domain information which lies outside the patent system entirely. Thus use of patent information can direct the reader to further materials within the public domain and which he might not have identified through his own efforts;

- Since the disclosure of information into the patent system is achieved at a cost to the applicant, it is reasonable to assume that information labelled as 'patent information', in which its supplier has invested his own resources in the course of seeking to obtain a market monopoly is likely to be of higher commercial or technical value than information that is gratuitously made available in the absence of the motive of commercial gain.

The role of patent information in the preservation of the public domain

The preservation of the public domain is a concept which is almost too great to comprehend, since in its widest sense it is the preservation of the entirety of publicly available science, technology, manufacture, design, know-how, music and literature since the dawn of civilisation. Until the development and maturity of archival practices and curatorship, there was no effective means of achieving such preservation, even had it been desired. Preservation was therefore the consequence of chance, as in the case of the Archivio di Stato in Venice, in which large quantities of busta containing Senate records and documents were held in poor storage conditions for several hundreds of years until they were rescued, scanned and made available as an online resource. These busta contained drawings of dredging and draining inventions, among others, for which patents had been granted. Many of the original documents had decayed beyond redemption or damaged by rodents. The rest survive.[142]

We also know that much public domain know-how has been lost and our awareness is conditioned on the impact of the application of that know-how even today. Thus the means by which building materials were quarried, transported and assembled in the building of the Egyptian pyramids, the Aztec and Inca cities of Central and South America and the ancient religious site of Stonehenge remain the subject of archaeological research and academic speculation since, while they must have been known to a large number of people at the time they were built, the necessary information—unlike inventions contained in Venetian archives—was not, so far as we are currently aware, ever recorded in a format which enabled the know-how to be recorded and transmitted.

While public domain information of a technological nature is initially of interest to the scientific and technological research and manufacturing sectors, as it ages its utility as an adjunct to the patent system diminishes. However, it may be hypothesised that, in approximate proportion to its loss of functional utility to the person who is scouring the public domain for assistance in solving a technical problem or meeting an immediate need, the same information grows in its historical, social and cultural role significance. This accounts, in developed economies, for the proliferation of sites which are designated as being of interest on the basis of the technology which once shaped

[142] Online access to the Archivio di Stato may be gained at <http://www.archiviodistatovenezia.it>, accessed 11 December 2010.

the society which employed it: examples include watermills, factories featuring mechanical looms on which cloth was woven, mines, pumping stations, defunct railway lines and suchlike.

At the point where interest in the public domain shifts from its value as an adjunct to intellectual property to a feature of educational or historical interest, we can detect a shift in international institutional responsibility for its preservation. WIPO is charged with responsibility for matters pertaining to invention, innovation and intellectual property, areas which, while they recognise agendas of cultural proprieties, are not initially driven by such agendas. However, WIPO's sister agency of the United Nations, the United Nations Educational, Scientific and Cultural Organization (UNESCO), which has as a secondary interest some intellectual property-related issues,[143] is primarily tasked with responsibility for the preservation and accessible use of the public domain specifically on account of its historical, cultural and social significance.
In view of the foregoing, there may be scope for WIPO and UNESCO to consider whether a joint initiative should be undertaken with regard to at least two objectives: the development of a technique or methodology for identifying and categorising elements of public domain information that are worth a greater level of protection than might be available through mere chance, and to ensure that there is a dovetailing of the respective organizations' activities and no risk of duplication in the deployment of efforts and resources.

4.3 Challenges in the interplay of the patent system and public policy

Public policy as an agent of challenge to the patent system

At present the patent system faces unparalleled challenges from the direction of public policy. To name only the most obvious, public policy has been invoked in opposition to patents for computer programs, genetic modifications of natural plant and animal products, incremental improvements to pharmaceutical products, medical and surgical treatments. Each of these issues of contention has its own extensive literature and there is no need to recite it here.

Public policy has also been invoked in favour of the extension of the long-standing availability of compulsory licences for patents so as to enable the least developed countries—which lack the facility to manufacture many sophisticated medicines at all and even in the absence of patent protection—to commission their manufacture, sale and distribution for the purpose of alleviating the effects of serious endemic threats to health.

The patent system and public policy: general trends

As a generalisation, it is difficult to think of any argument based on public policy (rather than on economic principles, as in the case of patent term extension for pharmaceutical and agrochemical products) which has ever been raised, let alone been successful, in terms of the strengthening or extension of patent rights. Public policy in the sphere of patent law carries with it the implication that, while the good of the public may in general terms be served by maintaining a patent system, the grant or enforcement of each specific patent must be judged not only in terms of its general acceptability and conformity with the law but also in terms of its specific impact upon the market in which a monopolist may prevent or restrict unauthorised activity.

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[143] UNESCO oversees and administers the Universal Copyright Convention which, while of decreasing relevance in the light of subsequent adherence to WIPO's Berne Convention and the passage of later treaties, played a major part in providing a stepping-stone through which economies as diverse as the United States and the then Union of Soviet Socialist Republics, along with numerous developing countries, could edge their way along the path to full participation in international copyright community. UNESCO also hosts an anti-piracy observatory <http://portal.unesco.org/culture/en/ev.php-URL_ID=39059&URL_DO=DO_TOPIC&URL_SECTION=201.html>, accessed 8 January 2011.

It may be helpful to understand this point by reference to an example, comparing a patent for an original and inventive device for extracting corks from wine bottles with a patent for a medicinal compound for the treatment of a hitherto untreatable and serious disease. The same generalised principles of public policy support the notion that inventions are presumed to be deserving of legal protection if they are new, inventive, have some sort of use and are disclosed to the public, on the basis that the ability to exploit the legal protection—whether use is made of it or not—is the reward given or the notional remuneration earned in consequence of the patent application being granted. Public policy at a general level also demands that the information which is disclosed in the patent application is described in sufficient detail to enable an addressee who possesses the requisite skills to put into effect for himself the invention in the manner in which it has been described, in order to achieve the result which is promised or predicted in the patent application. In the United States, as mentioned previously,[144] public policy requires that the applicant even disclose the best means of putting the invention into manufacture, a sometimes onerous demand which has not been made elsewhere.

Yet once the patents for these two hypothetical inventions are granted, their public policy pathways diverge. Public policy makes no demands at all upon the patented device for opening wine bottles. Regardless of whether this device is patent-protected or otherwise, the public will be able to open wine bottles since, while the precise features of the device are delineated by the scope of the patent claims, the product performs a function which is interchangeable with that of a large number of easily-available low-cost alternatives. Nor, at a secondary level, does public policy make demands on the wider use or availability of the patented invention in terms of its functional utility, since the consumption of wine, and other alcoholic beverages, is unlawful in some jurisdictions and its excessive consumption is discourages in many others.

In contrast the demands made by public policy upon the medicinal compound are extreme and, to some extent, in conflict with one another. To the extent that failure to treat the disease causes pain and the possible outcomes of death or incapacitation, with all the human suffering and financial strain which follows it, public policy demands that the medicinal compound be pressed into production at the earliest opportunity, to relieve the worst physical, cultural and economic effects of the disease. A further demand is made that the medicinal compound be affordable by those who need it—which may not be possible where a patent owner seeks to cover even its original research and testing costs, let alone a reasonable profit, particularly where the price of medicines is set by the market and healthcare products are not subsidised by the public purse. But public policy does not stop there: the medicinal compound may not be placed on the market or applied to patients until such time as the public is assured that the patented product

(i) actually achieves the results which are claimed for it and

(ii) does not inflict upon the patient any side-effects or unintended consequences which will significantly diminish or entirely destroy the benefit of taking the medicinal compound.

The sector-specific nature of public policy implications cannot be over-emphasised. In the case of patents in the healthcare sector there may be considerations such as those mentioned above and additional concerns regarding the limitation or elimination of the risk of epidemics. None of these considerations are relevant in the information technology and telecommunications sectors; there, public policy addresses issues the balance between the protection of private proprietary interests, the preservation of competition and incentives to innovate and the need to establish acceptable global standards regarding the interoperability of communications software and appliances which depend on them for their functionality. In the bio-engineering sector, the manipulation of genes is beset by a public policy issue of an entirely different order—the cultural acceptability or otherwise of patents for what some may regard as ”playing God” by creating new life-forms or genetically re-

144 35 US Code, section 112.

crafting existing life forms for purposes as making them resistant to chemical herbicides[145] or susceptible to cancer.[146]

Public policy may favour limitation of the public domain

In some exceptional circumstances a limitation on the free and unrestricted use of public domain materials may be tolerated for the sake of a public policy interest that outweighs the apparent presumption in favour of the preservation of that free and unrestricted use. In the field of copyright law, some jurisdictions confer a limited period of exclusivity upon the first publication of a work which remains unpublished at the date when, on the expiry of the author's copyright, it enters the public domain. The reason for this is that the limited protection period is held out as an inducement to a would-be publisher to make the arrangements and incur the expense of publishing material that might not otherwise be available at all since, by virtue of its continuing unpublished status, the public might not even know of its existence, never mind its content.

In the field of medicine a similar incentive is deployed in the field of rare diseases. Sometimes a prospective market is far too small to support the necessary level of research, development and testing that is required before a medicinal product can be approved and sold for use; put simply, there are not enough sufferers from a condition for the developer of that product to be able to charge an affordable price for it. In both the United States[147] and the European Union[148] a legal solution has been found for this problem which is based on the concept of the "orphan drug".[149] In effect the first company to be in a position to market a treatment for an "orphan" condition is given a period of market exclusivity in which no other company may sell the same formulation—even if the product in question, being for example non-novel or firmly based on products, processes and information already available in the prior art, would not be patentable and would therefore be legitimately regarded as part of the public domain.

Responding to public policy demands

Where public policy makes demands on the patent system which are not constant as between different technologies, the best that the patent system can do is to respond to those demands on an ad-hoc basis and to do so as quickly as is feasible, so as to deflect accusations that the patent system is out-of-touch with reality and that, in looking after its uses, it fails to serve the needs of the wider public. Some of the demands of public policy, for example those which relate to failure to use a patented technology at all or the need to promote its use more widely than its proprietor wishes to do so, can be handled within the patent system itself by, for example, the facility of

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145 See for example Monsanto Technology's "Roundup Ready" patent for European Patent No. 0 546 090. This patent claimed a DNA sequence coding for the EPSPS enzyme which, when expressed in a plant, rendered that plant resistant to the herbicide glyphosate. Monsanto developed a genetically modified soy plant comprising this gene which was the subject of litigation before the Court of Justice of the European Union in Case C-428/08, *Monsanto Technology v Cefetra*, 6 July 2010, in which it was ruled that the patent for the resistant gene was not infringed by the importation and sale of soya meal made from genetically modified soya beans containing the gene

146 The best-known example is the Harvard "oncomouse", which was the subject of office action and litigation in the United States, the European Patent Office and Canada. For a brief account of this patent application and links to further reading material see < http://en.wikipedia.org/wiki/Oncomouse>, accessed 17 February 2011.

147 Orphan Drug Act 1983.

148 Regulation (EC) No 141/2000 of the European Parliament and of the Council of 16 December 1999 on orphan medicinal products.

149 In general terms, the words "orphan drug" refer to a pharmaceutical agent that has been developed specifically to treat a rare medical condition, the condition itself being referred to as an orphan disease. According to Wikipedia entry for "Orphan drug" at <http://en.wikipedia.org/wiki/Orphan_drug>, accessed 20 January 2011: "… the assignment of orphan status to a disease and to any drugs developed to treat it is a matter of public policy in many countries, and has resulted in medical breakthroughs that may not have otherwise been achieved due to the economics of drug research and development".

granting a compulsory licence to one or more third parties. Other concerns, such as the preservation of a competitive market, are frequently viewed as falling within the responsibility of a corpus of competition law which, while it affects the operation of the patent system, cannot easily be characterised as being a part of that system.[150]

5. THE INTERNATIONAL DIMENSION

As has been mentioned above, the international conventions currently governing substantive and procedural aspects of patent law make no specific mention of the public domain. This is not to say that there is no international dimension to the subject. The concept of the public domain, as enshrined in the notion of its being the "state of the art" against which novelty and inventive step are measured, is not specified as having any national boundaries. While in theory it is open to any Paris Convention country to provide that the state of the art against which patent applications are measured is purely national in its ambit, those jurisdictions which attract the largest volume of patent applications and grant the highest number of patents are unanimous in regarding the prior art as having no geographical limitations at all (although in some countries, non-published information, such as orally disclosed information, does not constitute prior art): thus a national patent application will not succeed if the invention it embodies is anticipated or rendered obvious by public domain material anywhere in the world.

5.1 The international public domain: is it a mere aggregation of national public domains**?**

If by 'international public domain' we mean 'everything known and made available to the public everywhere in the world', and by 'national public domain' we mean 'everything known and made available to the public within any specified national borders', we can say that, in general, the international public domain is indeed a mere aggregation of national domains. At the time of writing this chapter there are nearly 200 countries. The United Nations consists of 192 member states. If we were to equate 'international' with the totality of these countries, then the international public domain (PD) = (country 1 + country 2 + country 3 … + country 195) would indeed be the aggregate of national public domains.

In the real world, this aggregation is subject to a number of significant conditions that affect the functionality of the international public domain. These include the following:

- Each country determines under its own law what constitutes 'public domain'. Thus the same act of disclosure of a piece of technology may be regarded as an enabling disclosure which prevents the subsequent patenting of it, and which therefore permits its free use, in one country but not in another. Since the courts and the patent-granting authorities in each country are in principle autonomous and are not bound by each other's decisions, it is possible that inconsistencies in the application of legal tests of what constitutes the prior art, as well as procedural considerations relating to the disclosure of documents for the purposes of litigation and to the rules of evidence, will result in a public domain-based attack on the validity of a patent succeeding in some jurisdictions but not others;

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[150] For example, within the European Union there is Commission Regulation (EC) No 772/2004 of 27 April 2004 on the application of Article 81(3) of the Treaty to categories of technology transfer agreements. This Regulation affects agreements relating to a variety of registered and unregistered intellectual property rights, of which patents are but one category.

- The pervasive nature of the internet as a means of storing, disseminating, identifying, accessing and even translating information has transformed our view of the national/international dichotomy. Information once uploaded on to the internet has no meaningful physical location and, though its movements may be restricted by copyright enforcement, censorship, protected site technology and the like, these have proved incapable of resisting the tidal wave of information as it surges through cyberspace towards its intended or requested destination.

5.2 Relationship of the public domain to the international patent system

At present it is fair to say that the public domain is a by-product of the international patent system and does not have a meaningful institutionally-established relationship with it. To the extent that the use by international applicants of the facilities for multinational patent filing under the Patent Co-operation Treaty results in a larger number of inventions being the subject of patent applications covering a larger number of countries, the international patent system accelerates the speed at which material covered by a patent application is either rejected or accepted for grant—these both being means by which information which is either confidential or covered by a powerful commercial monopoly is transferred, via the patent system, into the public domain.

The absence of an international institutional framework may not however be an obstacle to the preservation of the utility of the patent public domain and to the facility with which its contents may be identified and accessed. This is because, unlike many of the more controversial areas of intellectual property law, the achievement of those ends is something which benefits all members of the patent administration and innovation communities alike, regardless of their economic, cultural or political allegiances. We all need to access the public domain, whether it is to use its content as a means of denying patent protection to inventions which belong to the public domain or to build upon its content when contemplating technical solutions to existing and future problems.

Recent experience has shown that patent-granting authorities have worked closely together on matters concerning matters of mutual interest and concern. Examples of this can be found in the tripartite working relationship of the Japanese, European and United States offices regarding a number of matters of shared concern, and in the cooperation and bilateral arrangements between national offices on a number of issues. It might be reasonable to suppose that, in terms of promoting the utility of the patent public domain and in training people to use that resource more effectively, the same level of cooperation might arise by itself once the importance and significance of the resource is more broadly appreciated. This is particularly so within the context of national patent offices being able to reduce costly and inefficient duplication of effort if they are able to place confident reliance on the results of each other's search and examination procedures—which themselves depend in part on the availability of a healthy, up-to-date and easily operable means of measuring new patent applications against earlier documents and records.

II. DEVELOPMENT DIMENSION: NATIONAL PRACTICES AND EXPERIENCES

A. SOUTH AFRICA

This paper discusses the development dimension, national practices and experiences in South Africa in respect to the patent system and public domain. The paper details the South African patent system and the interplay with the public domain. It further looks at the various debates in respect of public domain and the patent system and in particular some of the challenges and experiences in South Africa in this regard. The paper is prepared as part of a broader study by WIPO to implement Recommendations 16 and 20 of the Development Agenda.

The broader study focuses on the patent system and the role of patent information in the identification, access, use and preservation of public domain material, with a view to further explore patent information and certain provisions of the patent system as a tool and basis for identifying subject matter that has fallen into the public domain. It is a further intention of the broader study to analyse the implications and benefits of a rich and accessible public domain.

1. OVERVIEW OF THE SOUTH AFRICAN PATENT SYSTEM

1.1 Legislative Framework

The South African patent system is governed by the Patents Act, 57 of 1978, as amended ("Patents Act"). South Africa is also a member of the TRIPS Convention as well as a signatory to the treaty establishing the WIPO.

Other relevant legislation that is of importance in respect of the patent system and the public domain is the Intellectual Property Rights from Publicly Financed Research and Development Act, 2008 ("IPR Act"), which regulates intellectual property, including inventions, emanating from research in which the public has contributed to its funding and development.

1.2 Patentability requirements

In terms of the Patents Act, an invention is capable of protection provided that it is new, inventive and is capable of use or application in trade or industry or agriculture[151]. The Patents Act also details[152] certain inventions which may not be patentable or cannot be considered inventions for the purposes of section 25(1), and these are:*"anything which consists of (a) a discovery;(b) a scientific theory;(c) a mathematical method; (d) a literary, dramatic, musical or artistic work or any other aesthetic creation; (e) a scheme, rule or method for performing a mental act, playing a game or doing business; (f) a program for a computer; or (g) the presentation of information*". Guidance is provided in section 25(5) of the determination of the novelty requirement, as being anything that *"does not form part of the state of the art immediately before the priority date of that invention".* South Africa has an absolute novelty requirement. Other than cases where the "invention was disclosed, used or known without the knowledge or consent of the inventor and reasonable technical trial or experiment by the applicant or patentee or the predecessor in title of the applicant or patentee"[153], any prior disclosure before the date of filing of a patent application is deemed to destroy the novelty of the invention in question. Thus such an invention would be deemed to form part of the prior art and public domain. Section 27 of the Patents Act is instructive in respect of what is deemed to comprise the prior art.

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151 S25(1)
152 S25(2)
153 S26

1.3 Patentability requirements and public domain

According to the Patents Act, the prior art comprises anything that has been made available to the public in any manner, prior to the date of application of a patent for the invention. The definition of public in terms of section26(6) extends to outside the borders of South Africa, thus making the novelty requirement to be an absolute novelty requirements. Whereas in other countries, use or availability within the country may provide a grace period and for the purposes of patentability, it could be argued that the approach taken is that the invention does not comprise part of the public domain or prior art, South Africa, does not take this approach, except for the two instances mentioned above, where the use or disclosure has been in fraud of the rights of the patentee or applicant. Now, if we have a closer look at section 25(6) the manner in which the invention would have been made available to the public is irrelevant - with a broad disclosure approach being taken. Whereas written disclosure or sale or use is easy to deal with, the Patents Act also refers to an oral description. Typically such a description would be deemed to have occurred in the cases where the essence of the invention or the novel aspects are disclosed at a presentation or conference speech or in a meeting where details of the invention are disclosed. According to s61(c), a patent may be revoked on the grounds that it is not patentable under s25, with s25 (5) – (9) dealing with the public domain aspects of novelty. According to a decided South African case[154], which was decided under the predecessor to the Patents Act, it can be inferred that *'prior knowledge and use by a single is sufficient'* ground for any knowledge that was not protected at the time to be deemed to comprise the public domain.

An important specific reference to patents and the public domain in the patentability requirements is found in s25(7) which states that a patent application that is open to public inspection would comprise prior art in respect of any patent application for a invention. Generally, within South African law, a patent application becomes open to public inspection in terms of s43, within 18months from earliest priority date that such patent application claims priority. Generally, patents are granted by publication in the patent journal, the date of publication being deemed to be the date of grant of the patent.

The Patents Act provides that secret knowledge and secret use of an invention other than on a commercial scale is not deemed to form part of the state of the art and does not affect the novelty of the invention[155]. Thus, it would appear that an invention used in secret and not on a commercial scale does not fall into the public domain.

1.4 Other

Inventions not open to public inspection

Despite the Patents Act providing in s12 that the register of patents and any document lodged in support thereof is open to public inspection , patents falling within the provisions of s79(3) and s80, are not open to public inspection save with the written permission of the Minister of Defence. Whereas inventions falling within s79(3) are in respect of armaments, s80 inventions are those which in the opinion of the Minister of Defence it is in the national interest that their relevant application, specification, drawing and other documents must be kept secret. Although it could be argued that in essence, these inventions do not form part of the prior-art or open for public inspection, we would argue that such an argument would not apply in respect of any invention in which s79(3) and s80 inventions or patents would be relevant prior art in determining novelty or inventiveness. The South African courts have not had the opportunity to determine the provisions

154 WA ScholtensChemischeFabrieken NV v Hoechst SA (Pty) Ltd and Another 1966 BP 371 (CP)

155 AECI Explosives Ltd v Ensign-Bickford (South Africa) and Others 1994 BP 42 (60A)

of s25(7) in light of s79(3) and s80. We are however of the view that the patent applications in question would have been available to the Registrar at least.

Duration of patents and exhaustion of rights

According to South African law, a patent subsists, subject to payment of renewal fees, for a period of 20 years from the date on which a patent application on which the patent is based is lodged with the Registrar[156].

A patentee's rights to a patented invention are exhausted when the patent expires. On expiry of the patent, the invention falls into the public domain and there is unrestricted access. In a South African case[157] the courts held that *"no right to exclude others exists after the expiration of the patent'*.

A patentee exhausts his rights when he sells an article embodying the invention. Once that article leaves the patentee or its authorised distributor's hands, and in the absence of any legal restraints being imposed upon the purchaser by the patentee, the article embodying the invention falls into the public domain and the patentee has no further interest in the article[158]. Thus the purchaser is then unrestricted in dealing with the patented product.

Patent renewals and restoration of lapsed patents

The Patents Act requires that a Patentee pays prescribed renewal fees. In terms of the Regulations to the Patents Act, renewal fees are due at the end of 3 years from the date of acceptance of the complete patent application and in each subsequent years thereafter. Failure to pay the renewal fees would have the effect of the patent lapsing owing to failure to pay renewal fees, with the result that the invention will then fall into the public domain.

There is however provision[159] for renewal of lapsed patents, provided that the failure to pay was unintentional and no due delay has occurred in applying for restoration and the unpaid renewal fees are paid. In the case where the application for renewal is unopposed following advertisement thereof, the Registrar of Patents has the authority to grant a restoration order or dismiss the application, whereas in all other cases where there has been an opposition, the Commissioner of Patents may issues such order after having granted an person opposing, the right to be heard. Any persons who infringed the lapsed patent after the end of 6 months from the date on which renewal fees were due and before the advertisement of the restoration application is protected from the patentee instituting infringement proceedings[160]. In essence, the invention covered by the patent in question is deemed to have fallen into the public domain only in as far as that particular person or his executor, administrator, successor or assignee or acquirer as the case may be[161], is concerned.

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156 S46

157 Stafer Chemicals Chemical Products Division of Chesebrough-Ponds (Pty) Ltd v Monsanto Company, TPD, 1987, BP, 37

158 Dana Corporation v Rhobrake (Pty) Ltd 1992 BP 297 CCP

159 S47

160 S48(1)

161 S48(1)(c)

2. RELATIONSHIP AND INTERPLAY BETWEEN PATENT SYSTEM AND PUBLIC DOMAIN

Given the patentability requirements including matter excluded from patentability as well as the duration of patents inventions covered by South African patents fall into the public domain in the following circumstances:

- At the end of 20 years from the date of lodgement of patent application for the patent, in the case where renewal fees have been paid and there has been no successful challenge to the validity of the patent;
- Where there is a successful challenge by a third party, to the validity of the patent, and the South African courts determine that indeed the patent should not have been granted for the invention as the invention did not meet all the requirements for patentability;
- Non-payment of renewal fees, such that the patent in essence lapses in terms of s46(2), subject to the right of the patentee to apply for restoration of the patent in terms of s47;
- Only in respect of the person covered by s48(1) of the Patents Act in respect of lapsed patents in which an order for their restoration has been duly issued by the Commissioner of Patents
- The patent was granted in violation of the provisions of s25(4) or 25(11).

It is also common cause that as South Africa is a signatory to the TRIPS Agreement, there is no provision for extension of the duration of patents. South Africa does not even have a similar legal framework such as that exists in the USA for example, for the extension of protection of patented drugs owing to delays in granting of regulatory approvals.

Since South Africa does not have a substantive patent examination system nor a patent opposition system, the Patents Act prevents a patentee from instituting infringement proceedings against a member of the public, within a period of 9 (nine) months from grant of a patent except with the permission of the court of the commissioner of patents. This specific provision is intended to allow the general public to become acquainted with patents that are granted and assess (i) whether or not such patents should not have been granted, in the case where they are aware of novelty destroying disclosures or (ii) whether or not they may be infringing any relevant patent (based on the priority date of the granted patent) where they might have started with activities that infringe the relevant patent. In the former case, a member of the general public that is affected by such granted patents may have to apply to the Court of the Commissioner of Patents for the patent to be revoked, as the Patents Act does not provide a grant opposition procedure other than revocation proceedings.

3. DISCUSSIONS

The role of patents and the public domain has become topical in recent years in South Africa, with much of the debate being during the passage of the IPR Act. The IPR Act has as its object the protection, management and commercialisation of intellectual property emanating from publicly financed research and development, to the benefit of the people of the Republic of South Africa. This legislation is similar to the Bayh-Dole Act in the USA that regulates federally funded research and development.

Some of the opposition to the IPR Act[162] argue that research results should be exempt from protection and simply "protected by being placed in the commons, for example, software which is open source software should be placed in a category that exempts researchers and research institutions from having to apply for it to be patented/non patented". The same opposition goes further to argue that genetic data for example should not be patented but rather placed in the

[162] *http://aliquidnovi.org/tag/intellectual-property-rights-from-publicly-financed-res/*

public domain as this would be the best way of advancing knowledge. This opposition is correct, perhaps when one considers for example, a recent publication[163] that argues that *"Throughout the 20th century, American universities were the nation's most powerful vehicles for the diffusion of basic and applied research results, which were generally made available in the public domain, where industry and other public sector researchers could use them. These activities were central to the rise of American technological success broadly and to the growth of knowledge-based industries, such as biotechnology and information technology, in particular"*. We submit that basic research results as such lack the inventive element for them to be patented and in essence should be placed in the public domain. Similarly, research tools could perhaps be classified under the same banner as basic research results. Basic research results would be those results whose direct or immediate commercial benefit is unclear. As pointed out during the passage of the IPR Act, *"Professor of Intellectual Property at the University of Cape Town, warned us against undermining the delicate balance between the imperatives of research work and that of commercial interest"*[164].

What is perhaps of significance in the various arguments put forth during the passage of the IPR Act is that there are instances where research results should be placed in the public domain to ensure that the public can be able to build up on that knowledge freely. This has become indeed the case in the age of 'open source' or 'open innovation' where researchers collaborate across the world in virtual research networks. The argument, we would submit, is valid in the case where the research results as such do not comprise significant advances in knowledge as to be considered both novel and inventive as such, and providing patent protection to such would result in frivolous patenting. Another view[165] is that free and unencumbered disclosure and distribution of intellectual property or research results may be more beneficial than protecting it, in order to give scientists the necessary opportunities to achieve the goals of teaching, research, innovation, and community interaction.

Although Khan[166] argues that the regulations to the IPR Act *"in effect ban South African researchers from participating in [multinational] consortiums"* which require sharing of IP on an open-source basis, Moore[167] correctly points out that both the IPR Act and the regulations thereto *"in fact, create a mechanism for placing intellectual property [or research results] in the public domain through open-source systems, provided that various requirements are satisfied*".

The other main point emanating from the promoters of the public domain as opposed to patenting is that particularly in the developing world, public domain knowledge and technologies provide perhaps the greatest prospect for developing countries participating in the knowledge economy without the burden of transactional costs in the form of licence fees and patent litigation. This later argument is perhaps important when one considers *'the public domain as a vital source [of research inputs[168]] to public sector institutions and also companies'*[169].

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163 So AD, Sampat BN, Rai AK, Cook-Deegan R, Reichman JH, et al. (2008) Is Bayh-Dole Good for Developing Countries? Lessons from the US Experience.PLoSBiol 6(10): e26

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165 "Stellenbosch University submissions regarding the Draft Regulations proposed in GG 32120 under the Intellectual Property Rights from Publicly Financed Research and Development Act 51 of 2008", 6 May 2009

166 R. Khan, "Draft Legislation on Intellectual Property could be end of SA Scientific Research," The Mercury, 17 June 2009, p. 10

167 Rory Moore , "Perceived Pros and Cons of the Intellectual Property Rights from Publicly Financed Research and Development Act", Published by The Free Market Foundation, November 2009

168 Our emphasis

169 Intellectual Property Management in Health and Agricultural Innovation: A Handbook of Best Practices. Krattiger A, RT Mahoney, L Nelsen, JA Thomson, AB Bennett, K Satyanarayana, GD Graff, C Fernandez, and SP Kowalski (eds). 2007. MIHR (Oxford, U.K.), PIPRA (Davis, U.S.A.), Oswaldo Cruz Foundation (Fiocruz, Rio de Janeiro, Brazil) and bioDevelopments-International Institute (Ithaca, U.S.A), ch 10

We would argue that the public domain cannot develop per se without sufficient incentives for intellectual property creators to create the knowledge. Thus, patents comprise but one of such incentives. The duration of patent protection coupled with the life cycle of technologies as well as the ability of a patentee to grant licences, in particular, non-exclusive royalty free licences to patented technologies mean that in essence, for the most, patents cannot be deemed to be a barrier to the development of the public domain and strategic use of public domain information. As pointed out by Moore, Bremer *et al*[170] *argue that "While the critics [of Bayh-Dole and similar legislation on publicly financed intellectual property] bemoan the ability of the patent system to grant … ownership of IP, the only alternatives are open source technology or trade secrets, neither of which provides similar motivation and incentives for innovation. It is truly the protection that the patent system creates that makes the commercial development of ground breaking discoveries possible."*

4. CONCLUSIONS

The Patents Act provides clear circumstances of when patented inventions fall into the public domain. There are safe guards against the public, in the cases where the patented inventions inadvertently fall into the public domain owing to lack of payment of renewal fees. The requirements for patentability also provide some safeguards in respect to regulating public domain knowledge from being proprietary through the patent system. The one short-coming of the South African patent system however, is the fact that South African patent system is a deposit or non-examining system, meaning that there is at all times the danger that some of the patented inventions are in essence part of the public domain. This system thus places a burden on the public to prove that indeed the patented invention should not have been patented as it already was in the public domain.

The development of the policy and legal framework for intellectual property emanating from publicly financed research and development, in the period 2002 – 2010, has contributed to the debate regarding public domain and open source as well as the value of patents. It would appear that most of the arguments against the IPR Act and regulations thereto are not so much based on the fact that intellectual property emanating from such research and development should not be patented per se. The arguments are based on ensuring that researchers are unrestricted in disseminating useful and basic research results, which can contribute further to the generation of knowledge and teaching. The regulations to the IPR Act do provide various mechanism of ensuring that the IPR Act does not prevent dissemination of knowledge. Some of these mechanism include release to the general public, research results, either through open source, publication, or non-exclusive royalty free licensing research results.

We are of the view that there is a need for more public awareness of the patent system – what it is and what it is not. Such awareness needs to also focus on when patented information becomes freely available for use by the general public. Furthermore, the awareness needs to cover the principles of territoriality as a specific instance, in which the public has unrestricted use of patented information in territories where there is no patent protection.

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[170] H. Bremer *et al.* "The Bayh-Dole Act and Revisionism Redux," BNA's Patent, Trademark & Copyright Journal, 78 PTCJ 483, The Bureau of National Affairs, Inc., 14 August 2009

B. EGYPT

1. THE DEVELOPMENT DIMENSION OF THE PUBLIC DOMAIN IN THE EGYPTIAN PATENT SYSTEM

1.1 The term "public domain" under the Egyptian patent system

The Egyptian Legislature defined the term "public domain" in Book 3, entitled "Copyright and Neighboring Rights", of the current Intellectual Property Rights Law no.82 of the year 2002 as: "The domain including all works initially excluded from protection or works in respect of which the term of protection of economic rights expires, in accordance with, the provisions of this Book." [171] No parallel definition exists in the Patents Chapter.[172] However, Article 26 enumerated a number of cases in which the patent falls into the public domain due to the lapse of protection.[173] This term also appears in the scholarly writings in the same context.[174]

The meaning of public domain under the Egyptian patent system is not different from its meaning under other legal systems. In respect of patent law it means the body of ideas, knowledge, science, technical information and innovations upon which no person or organization has any proprietary rights, therefore matters fallen into the public domain are available to everyone for free to use and exploit by any means.

The term public domain does not only comprise the inventions which has fallen into the public domain due to the lapse of patent protection, but also includes the inventions which do not meet the requirements of protection; novelty, inventive step, industrial applicability,[175] as well as the inventions which are excluded from patent protection as long as they are not protected by other intellectual property categories.

One of the main principles upon which the patent system rests is the principle of territoriality. It means that, the exclusive rights granted to the patentee remains valid only within the boundaries of the country or jurisdiction in which the patent is issued. Therefore, the inventions which are protected only outside Egypt might be exploited in Egypt without any restrictions. Such inventions lack the novelty requirement under the Egyptian IP Law which provides that the invention is not considered novel if, before the filing date of the patent application, a patent application has been filed for the same invention or a patent was already issued in or outside Egypt for the invention.[176] However, in practice many license contracts are concluded ignoring the territoriality principle where

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171 Art. 138 (8), Law no.82 of the year 2002.

172 Chapter 1 of Book 1 of Law no. 82 of the year 2002 is entitled: "Patents and Utility Models".

173 It states that "The rights conferred by a patent shall lapse and fall into the public domain in any of the following cases:
(1) Expiration of the protection period according to Article 9.
(2) Relinquishment by the patent holder of his rights without prejudice to the rights of third parties.
(3) Final decision taken revoking the patent.
(4) Failure to pay, within one year from the due date, the annual fees or the overdue penalty of 7% of the annual fees, after notification of payment according to the procedure prescribed by the Regulations.
(5) Where the invention is not exploited in Egypt within two years following the grant of a non-voluntary license and upon a request by any interested party submitted to the Patent Office.
(6) Abuse by the patent owner of his rights, where the non-voluntary license is insufficient to remedy that abuse." See also, Art.34 of the IP regulation which states that "… In case of abstaining from payment of the annual fees, or a delay in payment of the surcharge for a period of one year from the due date, the rights resulting from the patent of invention or utility model shall be terminated, thus falls into the public domain."

174 Aktham Al Kholi, *Al Waseet in Commercial Law,* Maktabet Nahdet Masr, 1964, p.97,

175 Art.1 para.1 states that: "A patent shall be granted, in accordance with the provisions of this Law, to any industrially applicable invention, which is new, involves an inventive step, whether connected with new industrial products, new industrial processes, or a new application of known industrial processes."

176 Art.3, Law no.82 of the year 2002,

the licensor due to his economic power and possession of knowledge drafts the contract in a manner that extends the scope of patent rights to countries other than that in which he acquired patent protection.[177] The licensor offers the terms of the license contract as one package to take it or leave it which leaves the licensee a little space at the negotiation table to raise its validity. In addition many licensees in Egypt are not aware of the territoriality principle.

Although the lack of inventive step bars the invention from being protected by patent, it does not necessarily fall into the public domain as Article 29 of the Egyptian IP Law provided for the possibility to protect such inventions by means of utility model.[178]

Under Art.2 para.2 of the Egyptian IP Law, discoveries, scientific theories, mathematical methods, programs and schemes are expressly excluded from patentability. However, the exclusion of these items from patent protection does not guarantee that they fall immediately into the public domain as they might be subject to protection by other means of intellectual property. For example, computer programs are excluded from patent protection. However, they are eligible for protection by means of copyright.[179]

In addition, Art.2 para. 1,3,4,5 of the Egyptian IP Law which will be discussed shortly excludes from patentability other categories of inventions in conformity with Art.27 para.2,3 of the TRIPs Agreement. These inventions fall into the public domain as long as they are not protected by other means of intellectual property.

1.2 The policy underlying the Egyptian patent system and its relation to public domain

As a WTO Member State, Egypt enacted the Intellectual Property Rights Law no. 82 of 2002 to give effect to the provisions of the TRIPs Agreement.[180] The policy underlying the Egyptian IP Law concerning patents was to stick to the minimum standard of protection provided under the TRIPs, [181] and to make use of all the exceptions and limitations provided for in the TRIPs Agreement as well as interpreting it in accordance with the objectives and principles cited in Articles 7 and 8 of the Agreement to achieve the best interest of the country.[182]

In light of Art.27 para. 2 and 3 of the TRIPs Agreement, Art.2 para.1,3,4,5 of the Egyptian IP Law excluded from patentability: Inventions which its exploitation affect the national security, or public order or morality, or is seriously prejudicial to the environment, human, animal or plant life and

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177 For example, the "Patent Rights" is defined in one of these contracts concluded between a foreign multinational company and an Egyptian company as "rights with respect to or transferable interests in patents and patent applications of all countries…"

178 The Egyptian IP Law adopted for the first time a parallel system to protect minor inventions suitable for the need of small and medium enterprises to protect their innovations. Utility model is granted for "petit inventions". The inventive step is not a requirement for granting the utility model protection.

179 Art.140, Law no.82 of the year 2002.

180 This Law replaced the previous Patent Law no.132 of the year 1949, the Law no.57 of the year 1939 concerning trademarks and commercial indications and the law no.354 of the year 1954 concerning the copyright protection.

181 As a consequence to lack of minimum standards of patent protection in the Paris Convention, it was established in 1988 that 49 states of a total of 92 Paris Union states excluded pharmaceutical products from patent protection. See: Joseph Straus, *Implications of the TRIPs Agreement in the Field of Patent Law*, in: Friedrigh-Karl Bier and Gerhard Schricker ed., *ICC Studies*, *Studies in Industrial Property and Copyright law From GATT to TRIPs, The Agreement on Trade Related Aspects of Intellectual Property Rights*, Max Planck Institute for Foreign and International Patent Copyright and Competition Law, Munich, p.174.

182 The Egyptian Peoples' Assembly, *The Report of the Joint Committee between the Committee of Education and Scientific Research and the Offices of the Committees of the Constitutional and Legislative Matters, and Matters of Economy, Industry, Power, Agriculture, irrigation, Culture, Media and Tourism about the Draft Intellectual Property Rights Law*, 8th Season, June 2001, p.13. See also, Hossam A. El Saghir, *Guiding Policy to Draft Intellectual Property Laws with Suggestions of Redrafting Chapter Four of the Patent Draft Law in Respect of Compulsory License,* in: Legal and Economic Researches Review, Mid year, Faculty of Law, Menoufia University, 7th year, vol.14, Oct. 1998, p.49.

health;[183] Diagnostic, therapeutic and surgical methods for humans and animals;[184] Plants[185] and animals, regardless of their rarity or peculiarity, and essentially biological processes for the production of plants or animals, other than micro-organisms, non-biological and microbiological processes for the production of plants or animals.[186] In addition, Art.2 (5) of the IP Law adopted a broad interpretation of Art.27 para.3(b), and it excluded from patentability organs, tissues, live cells, natural biological substances, nucleic acid and genome. Such inventions fall into the public domain, providing a rich substance for local biotechnology industry.

The exclusion of biological matters from patentability applies to matters which already exist in nature and to that which have been modified by genetic engineering. However, such exclusion does not extend to micro-organisms and non-biological and microbiological processes for the production of plants or animals.[187] The protection of biotechnology inventions was a matter of argument under the old IP Law no.132 of the year 1949. Even though the old IP Law did not regulate the biotechnology inventions, a patent was granted to scientists from the Agricultural Genetic Engineering Research Institute (AGERI) on a biological insecticidal gene isolated from a bacterium (*Bacillus thuringiensis*) indigenous to Egypt.[188]

The Egyptian IP Law listed in Art.10 a number of exceptions and limitations to the patentee's rights. One of significantly important exceptions is the research exception concerning the use of the patented invention for carrying out activities for scientific research purposes. In addition, the last paragraph of Art.10 opened the door to the discretion of the competent court to add any other exceptions on case by case basis provided that they shall not unreasonably conflict with the normal exploitation of the patent, and shall not be unreasonably prejudicial to the legitimate interests of the patent owner taking into consideration the legitimate interests of others.[189]

Such policy clearly leads to the extension of the scope of public domain. For example the research exception leads to further innovations. If such innovations are patented, the disclosed information therein becomes part of the public domain upon the lapse of patent rights.

To preserve the public domain, Art.28 of the Egyptian Law provides that, where a patent has been issued lacking the condition of novelty or while its subject matter is unpatentable, a law suit may be filed to annul the patent. Therefore, the Egyptian legislature has been aware of the developmental perspective that comes due to the broadening the scope of public domain as possible as the invalidation of a patent lawsuit serves as a bar from monopolizing the usages of information which exist in the public domain.

1.3 The level of disclosure in the Egyptian patent system

In light of the above mentioned policy, Art.13 required the patent applicant to disclose the invention in the best mode for carrying out the invention. It means that the invention should be disclosed to the extent that it enables the person skilled in the art to execute the invention in the best possible

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183 Art.2 para.1, Law no. 82 of the year 2002.

184 Art.2 para.3, Law no. 82 of the year 2002.

185 It is noted that Book 4 of the Egyptian IP Law provides for the protection of new plant varieties by a *sui generis* system.

186 Art.2 para.4, Law no. 82 of the year 2002.

187 According to Reichman in his commentary on Art.27(3)(b) of the TRIPs Agreement which corresponds to Art.2(4) of the Egyptian IP Law: "In general, the line of demarcation between micro and macro-biological advances is technically unsound, and the application of standard patent-law doctrines to biogenetic engineering has proved unsatisfactory." See J.H. Reichman, *Universal Minimum Standards of Intellectual Property Protection under the TRIPs Component of the WTO Agreement,* The International Lawyer, vol.29, no.2, 1995, p.359.

188 Patent Gazette no.528, Aug. 1995; see also: Atef El-Azab, *Country and Regional Case Studies-Egypt*, in: F.H. Erbisch and K.M. Maredia ed., *Intellectual Property Rights in Agricultural Biotechnology*, Biotechnology in Agriculture Series no. 20, CAB International, 1998, p.71.

189 The Article adopted the three step test provided for under Art.30 of the TRIPs Agreement.

manner known to the applicant. Such level of disclosure requires the applicant to disclose more than what he merely seeks protection. While only the claims of the patent will be privatized, the rest of the disclosed information becomes available to the public for immediate use. This includes the underlying principles of the patent as well as the revealed applications of such principles which the applicant failed to claim.

The requirement of the best mode is aimed at preventing the inventors from obtaining the protection while veiling from the public the preferred embodiments of their inventions. It requires a substantive analysis of what the inventor knew and considered to be the best way of executing his invention at the time of the filing of patent application or the priority date.[190] The IP Law adopts such level of disclosure that is higher than the enablement requirement which only requires the inventor to sufficiently disclose his invention so as to enable a person skilled in the art of executing it. The disclosed information becomes prior art which destroys the novelty requirement for other applications which have the filing dates (priority dates) later than the filing date (priority date) of the disclosed application. Therefore, no one is allowed to obtain another patent on the same invention.

Moreover, where the invention involves biological, plant or animal product, traditional medicinal, agricultural, industrial or handicraft knowledge, or cultural or environmental heritage, the inventor should have acquired the source of such product, knowledge or heritage in a legitimate manner.[191]

Where the invention involves micro-organisms, the applicant shall disclose such organisms in a way consistent with the known scientific rules, including all information necessary to recognize its formation, specifications and utilization, as well as depositing one viable plantation at any laboratory approved by the Minister of Higher Education and Scientific Research.[192] The disclosure of the micro-organism for which the protection is sought is important to enable third parties to reproduce the invention where the law allows, such as in case of compulsory license or the presence of any of the exceptions and limitations, and when the protection lapses for any reason.

2. REVIEW OF THE EGYPTIAN PATENT SYSTEM IN RESPECT OF PUBLIC DOMAIN

2.1 Absolute novelty requirement

The "novelty" requirement ensures that the invention is not an imitation to what is readily present in the prior art. Art.3 of the IP Law adopted the absolute novelty principle, under which the novelty is destroyed (i) if before filing the patent application, a patent application has been filed for the same invention or a patent was already issued in or outside Egypt for the invention or part thereof; (ii) if, before the filing date of the patent application, the invention was used publicly in; or outside Egypt, or the description of which was disclosed in a manner so as a person skilled in the art is able to execute it.

It is noticed that the IP Law does not grant a grace period to the inventor, in which he can apply for the patent protection after he discloses or publicly uses his invention.[193] Accordingly, disclosing the details of invention, for example, in a conference for teaching or other purposes before filing the patent application is sufficient to destroy the novelty requirement.

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190 UNCTAD & ICTSD, *Resource Book on TRIPs and Development*, Cambridge University Press, 2005, p.452.

191 Art.13, IP Law no.82 of the year 2002; and Art.3 (4), Prime Minister Decree no. 1366 of the year 2003.

192 Art.13, IP Law no.82 of the year 2002; and Art.3 (4), Prime Minister Decree no. 1366 of the year 2003.

193 Some countries, like US recognize one year grace period in which a patent application may be filed in spite of the previous disclosure of the invention. As a result, novelty is not destroyed. See: 35 U.S.C.§102(b).

However, Art.3 (2.2) provides that the disclosure of the invention in national or international exhibitions within the six months before the date on which the application was filed does not destroy novelty. The executive regulation required the inventor who desires to guarantee the temporary protection of his invention while displaying it in one of the national or international exhibitions to notify the Patent Office of his display before it occurs. The notification should be supported by a brief statement of the description and drawings of the invention. However, the Office may request the applicant to submit any other statements if it finds it necessary to recognize the claims of the invention or its purpose.[194]

The matter of public use was brought before the Administrative Courts. The claimant challenged a patent obtained by the defendant on a process of refining used mineral oils. The claimant alleged that he was using the same patented process and requested to cancel the patent on the basis that the invented process lacks novelty. The Court referred the matter to an expert to determine whether the process is new or not. In his report submitted to the Court, the expert provided that the patented process is not publicly used on the basis that such usage is not known to the authorities and agencies supervising the petroleum industry, thus does not lack novelty. Contrary to the conclusion of the expert, the Court held that the fact that the authorities and agencies supervising the petroleum industry did not know about such process does not mean that the usage was not in public as long as such usage was not in secret or hidden from the public, and canceled the patent. The decision was affirmed by the Higher Administrative Court.[195]

2.2 Inventive step requirement

The Egyptian IP Law explicitly requires that the inventive step shall be met to grant a patent.[196] Only inventions involving a noticeable level of creativity merits protection. Under Art.1 para.2 of the IP Law, a minor improvement to a previously patented product or process does not merit patent protection. It stated that: "The patent is also granted, independently, for any modification, improvement or addition to a previously patented invention, which meets the criteria of being new, inventive and industrially applicable, as stated in the preceding paragraph; in which case the patent shall be granted, under the provisions of this Law, to the owner of the modification, improvement or addition." These conditions serve as a bar to protect the knowledge readily available to the public from being monopolized. Another positive contribution to the public domain stems out from the limitation of patent protection for 20 years starting from the filing date.[197] After the expiry of the patent protection period, the invention becomes free for others to use as part of the public domain. The inventive step requirement bars the patentees from extending the period of protection by patenting successive minor improvements.

2.3 Disclosure of the genetic resources

It is worth mentioning that there have been many protests from developing countries accusing biotechnological industries of bio-piracy.[198] The charges of bio-piracy against various international companies and research organizations continue to be leveled by NGOs and other civil society actors because of lack of reciprocity in sharing of benefits.[199] Under the Egyptian IP Law, where the invention involves biological, plant or animal matter, or traditional medicinal, agricultural,

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194 Art.49, Prime Minister Decree no. 1366 of the year 2003.

195 Higher Administrative Court, case no. 950, 954 of the year 7, 30 Jan., 1965.

196 Art.1 para.1, Law no.82 of the year 2002.

197 Art.9,Law no.82 of the year 2002.

198 P. L. MARIN, *Providing Protection for Plant Genetic Resources, Patents Sui generis System and Bio-partnerships*, Kluwer Law International, New York , 2002, p.43.

199 A. GUPTA, *How Can Asia Countries Protect Traditional Knowledge, Farmers rights and Access to Genetic Resources Through The Implementation or Review of the WTO* TRIPs Agreement, paper presented at the Joint ICTSD/CEE/HBF Regional Dialogue for Governments and civil society, organized by International Centre for Trade and Sustainable Development, Geneva at Chiang Mai. Thailand March 29-30, 2001.

industrial or handicraft knowledge, cultural or environmental heritage, the applicant should have acquired the source of such product, knowledge or heritage by legitimate means.[200] The applicant is required to submit the documents indicating that he has legally obtained such genetic resources or information according to the provisions of the applicable legislations in Egypt.[201] This entails that he is burdened by two obligations. The first is to disclose the origin of the biological resources and traditional knowledge he obtained. The second is to prove that he has acquired such resources or knowledge by legitimate means.

It is understood that the phrase "The applicable legislations in Egypt" of Art.3 (3) of the Executive Regulation of the IP Law refers not only to the national laws but also to the international conventions, to which Egypt is a party, including the Convention on Biodiversity (CBD).[202] The Egyptian IP Law and its Regulation is drafted in light of the CBD which recognized the sovereign rights of States over their natural resources, that the authority to determine access to genetic resources rests with the national governments and is subject to national legislation, and where granted, shall be on mutually agreed terms subject to prior informed consent of the country providing such resources.[203]

2.4 Exceptions and limitations

The Egyptian Law clearly adopts the international exhaustion doctrine as it recognizes that if a patent owner markets his patented product abroad, by himself or by an authorized person, he cannot oppose its importation on the basis of his patent.[204] The importation of the products as to which exhaustion of patent rights takes place abroad is commonly referred to as "parallel importation." The adoption of this doctrine is in line with the policy of the Egyptian Legislature to stick to the minimum standards of protection provided for in the TRIPs Agreement. However, this brought fears that the pharmaceutical companies may raise the price of the medicine in order to thwart any profitability from parallel trading.[205] This fear is nominal as the medicine prices are subject to government control.

Furthermore, the Egyptian IP Law provided for several types of conduct that are not considered as an infringement to the patentees' rights, namely:

(1) Activities carried out for scientific research purposes;

(2) Where a third party proceeds in Egypt, in good faith, with the manufacturing of a product or use of a process prior to the patentee's filing date he shall, notwithstanding the grant of patent, have the right to continue with such activities only within his

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200 Art.13, IP Law no.82 of the year 2002.

201 Art.3 (3), Prime Minister Decree no. 1366 of the year 2003.

202 Noted that even though Egypt is not a party to the Budapest Treaty on the International Recognition of the Deposit of Micro- organisms for the Purposes of Patent Procedure in 1997 as amended 1980, the Annex of the Euro-Mediterranean Agreement obliged Egypt by the end of the fourth year after the entry into force of the Agreement to accede to the Budapest Treaty; similarly the Annex V of the EFTA Agreement obliged Egypt to accede to the Budapest Treaty by the end of the fourth year of its entry into force.

203 Art.15 (1) (4) (5), Convention on Biodiversity, 1992. Contrary to this view it is thought that the requirement to disclose the origin of genetic resources and prior informed consent in patent applications as a formal condition of patentability aimed at monitoring compliance with the CBD is not consistent with the international obligations, in particular the TRIPs Agreement and the CBD itself. See: Nuno Pires de Carvalho, *From the Shaman's Hut to the Patent Office: In search of a TRIPs Consistent Requirement to Disclose the Origin of Genetic Resources and Prior Informed Consent,* 17 Wash. U. J.L. & Pol'y 111, 2005, p.184.

204 Art.10, Law no.82 of the year 2002.

205 Sahar H. Aziz, *Linking Intellectual Property Rights in Developing Countries with Research and Development, Technology Transfer, and Foreign Direct Investment Policy: A Case Study of Egypt's Pharmaceutical Industry*, 10 ILSA J. Int'l & Comp. L. 22, 2003-2004, p.18.

enterprise and without extending its scope. Such right shall not be assigned or transferred except with the enterprise;

(3) Indirect uses of the production process, subject of the invention, in order to obtain other products;[206]

(4) Use of the invention on a land vehicle, vessel or aircraft belonging to a country or entity Member of the WTO, or a country that applies reciprocity to Egypt, when such a land vehicle, vessel or aircraft is temporarily or accidentally present in Egypt;[207]

(5) Where a third party proceeds, during the protection period of a product, with its manufacturing, assembly, use or sale, with a view to obtain a marketing license, provided that, the marketing starts after the expiry of the term of patent protection;[208]

(6) Any other acts by third parties, provided that they shall not unreasonably conflict with the normal exploitation of the patent, and shall not be unreasonably prejudicial to the legitimate interests of the patent owner taking into consideration the legitimate interests of others.

The language of the last exception is meant to be broad to encompass any other exceptions that satisfy the conditions of Art.30 of the TRIPs Agreement mentioned above.

2.5 Lapse of patent protection

The patent lapses by the expiry of its term of protection. It also lapses by other means provided for in Art.26; abandonment; annulment; failure to pay the annual fees or its overdue penalty; failure of working the invention in Egypt two years after a compulsory license has been granted; and abuse of patentee's rights.

Abandonment of the patent happens where the patentee willfully relinquishes his patent rights. However, such relinquishment should not affect the rights of third parties e.g. the licensee.[209] It usually occurs when the patentee desires to terminate his patent to set him free from the annual fees.

Annulment occurs as an effect of an administrative court decision. The Patent Office, or any interested party, may request the court to annul patents mistakenly granted. While the IP Law expressly provides that the annulment may be based on two grounds; lacking the novelty requirement or where the subject matter of the patented invention is non-patentable,[210] the courts have allowed for the annulment of patents on other grounds.[211] The Patent Office revokes such patents upon the receipt of a final court decision.[212] The Administrative Court is the only

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206 The language of this exception is vague. However, it is logical to interpret it in light of the principles that the patent system relies upon. The indirect use of the patented process should not extend to any matter literally covered by the claims. Nevertheless, it is obvious that the mal drafting could create problems.

207 This exception is based on Paris Convention Art.5 ter.

208 This exception is known as the regulatory review exception. It is also known as the "bolar" provision. It allows the generic pharmaceutical companies to use the patented invention for the purpose of developing a bio-equivalent copy to be marketed immediately after the patent expires. See: Nermien Al-Ali, *The Egyptian Pharmaceutical Industry After TRIPs – A Practitioner's View,* 26 Fordham Int'l L.J. 274, 2002-2003, p.298. See: Canada – *Patent Protection of Pharmaceutical Products*, WT/DS114/R, report adopted by the WTO Dispute Settlement Body on 7 April, 2000.

209 Art.26 para.2, Law no.82 of the year 2002.

210 Art.28, Law no.82 of the year 2002.

211 Higher Administrative Court, case no. 1582 of the year 7 J, 14 May, 1966, the court has annulled the patent because the invention was acquired by theft.

212 Art.28 para.2, Law no. 82 of the year 2002.

competent court to review the challenge of a patent.[213] The alleged infringers are not allowed to attack patents before the criminal or civil courts as such courts are not competent to review such attack.

The patent lapses also if, after the expiration of one year from the due date, the patentee does not pay the annual fees, or its overdue penalty 7%.

Failure to work the patent in Egypt is another reason for its lapse. If the invention is not exploited in Egypt within two years following the grant of a compulsory license, interested parties may request the Patent Office to terminate the patent.[214]

The last ground mentioned in Art.26 is the abuse of the patentee's rights. If the compulsory license is insufficient to remedy the abuse of the patentee's rights, the patent may lapse upon a revocation decision.[215]

3. RELATIONSHIP AND INTERPLAY BETWEEN THE EGYPTIAN PATENT SYSTEM AND THE PUBLIC DOMAIN

3.1 Patent information and its relation to public domain

The patent system is regarded to secure a tradeoff that includes granting the applicant exclusive rights for a limited period of time over the useful application of the invention in the industry against his contribution to the public through the disclosure of the invention. The disclosed information eventually becomes part of the public domain which serves as building blocks to create further inventions. The patent information is of dual nature. It contains technical and legal information. While the technical information is pertinent to the description of the invention and explaining in details how does it constitute a vast advancement in the relevant technology, the legal information sets the owner of the invention, the territory within which the exclusive rights are exercised, the duration of the patent and the scope of the exclusive rights through the patent claims.

Thus, the relationship between patent information and the public domain is obvious. It provides necessary information to the transparency of the market about the status of what is monopolized and therefore, does not constitute a part of the public domain. It provides the research centers with valuable technical information that aids them while conducting their researches. It also aids the patent office examiners while assessing the novelty, and inventive step of subsequent patent applications. Moreover, after the patent lapses the invention becomes part of the public domain. However, patent information can be lawfully and freely used during the term of patent protection to develop new inventions as long as it does not infringe the claims of the patent.

3.2 Accessibility of patent information

Patent information is accessible through its publication and the availability of the patent documents at the patent office. The Egyptian Patent Office possesses more than 28 million patent documents from eight countries, which go back to 1790. These documents are available in paper form,

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213 Court of Cassation, case no.708 of the year 45, 21 Feb. 1983.

214 Art.26 para.5, Law no. 82 of the year 2002.

215 Art.26 para.6 did not provide for the competent body to decide the revocation, however, this Article should be understood in light of Art.23.5 which provides that the Patent Office may decide to revoke the patent if it became clear after the lapse of two years from granting the compulsory license that such license is not adequate to remedy the adverse effects caused to the national economy, due to the abuse of the rights of the patent owner or due to his anti-competitive practices.

microfilm, CDs, and DVDs.[216] These documents are systematically numbered and highly standardized and classified as Egypt is a party to the Strasbourg Agreement concerning the International Patent Classification 1971, since 17th of October, 1975.

The IP Law has established a registrar in which patent applications, decisions and transactions related thereto are recorded.[217] It has also established a Gazette issued by the patent office on monthly basis to publish accepted applications as well as decisions and other transactions related thereto.[218] The Gazette is not only published in a paper-based form but also in an electronic one.[219] Only some information is published in the Gazette including bibliographic data, the filing date, the name of the applicant, title of the invention and others. The full text of claims, the description of the invention and its drawings are present in the patent file which is made available for the public inspection at the patent office. Any person is allowed to obtain a copy of these documents, against the payment of specified fees.[220] In this connection the IP Law does not expressly exclude reproducing the patent documents from copyright protection. However following the rules of interpretation it may be deduced that allowing third parties to copy the patent documents through the patent office does not constitute an infringement to the copyright. Patent information is also available to the public through the patent office library, the patent office publications issued at the first month of each year[221] as well as an index of patent applications.[222] It is noted that no database has been established to make it easy to search for the accepted applications and other relevant patent information. However, efforts to establish such database are exerted with the cooperation of the European Patent Office and WIPO. The Egyptian Patent Office is appointed as an International Searching and Examining Authority under the Patent Cooperation Treaty (PCT). The technical examiners have access to a variety of patent information services, including those from WIPO, epoline, USPTO, JPO, SIPO, KIPRIS, SurfIP, Thompson Patent Store, Patentscope® and Free Patents online.[223]

It is noted that while the Executive regulation of the IP Law requires that the applicant submits a full detailed description of the invention in the Arabic language, it requires him to submit a brief

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216 PCT Committee for technical cooperation, PCT/CTC/24/2, August 4, 2009.

217 Art.7 of the Executive Regulation provides that the applications shall be recorded in the patent registrar including the following information: 1- The serial number of the application; 2-The filing date and hour; 3-The name of the inventor; 4-The name of the applicant, his address, or the name of the legal person, his address, and the correspondent's address; 5-The name of the agent – if any;
6-The name of the foreign country or entity in which the patent of invention or utility model application was filed, as well as the filing date, and the priority date if any; 7-The transactions that had been concluded in respect to the application; 8-The date of the issued decision to grant the patent of invention or utility model, the number of the patent and the name of the right holder; 9-The actions taken in respect to the patent property or right to utilize the patent; 10-Seizure procedure that may be taken in respect to the patent.

218 Art.1, Prime Minister Decree no. 1366 of the year 2003.

219 See: http://www.egypo.gov.eg/inner/english/News_Info_4.html.

220 Art.22, Prime Minister Decree no. 1366 of the year 2003.

221 Art.56 of the Executive Regulation provides that: "The Office shall have a library annexed to it, which will include research material, classification documents and other publications related to industrial property that are related to the work of the Office, as well as, related to science, art, different industries, descriptions of inventions and utility models that may be the subject of patents in foreign countries and have been received by the Office through cooperation with other offices. Documents and indices are to be preserved in the library, where the public is allowed to review all the aforementioned items." Art.57 provides that: The Office shall issue the following publications in the first month of every year: 1- A publication including brief information about the description of the inventions which have obtained patents during the previous year; 2- A publication including the names of persons who have been granted patents during the previous year, in alphabetical order; and 3- A publication including the numbers of patents which have been issued during the previous year, as well as a statement indicating the subject of each patent according to the technical classification followed by the Office with respect to filed patents.

222 Art.8 of the Executive Regulation provides that: "An alphabetical index shall be prepared for the application including the name of the applicant, the name of the inventor, the title of the invention or utility model, the serial number of the application, and its filing date and hour. The application, as well as, its enclosures shall remain secret until the publication of its acceptance after the expiration of at least one-year from the filing date. It shall be permitted for the public to view the index in the patent office library."

223 PCT Committee for technical cooperation, PCT/CTC/24/2, August 4, 2009.

description of the invention in both Arabic and English languages supported by the structural formulas of the chemical compounds, if any.[224]

The patent application, as well as its enclosures, remains secret during the process of its examination until the publication of the patent office decision of accepting the application. The publication of the acceptance decision enables third parties to oppose the procedures before a Committee established under Art.36 of the IP Law prior to the issuance of a final decision to grant the patent. Taking into consideration the priority right provided for under Art.4 of the Paris Convention, the Egyptian Law provides that the acceptance decision may not be issued until the expiry of at least one-year from the filing date. During this period the public is permitted to only view the index that is prepared for the patent applications including the name of the applicant, the name of the inventor, the title of the invention, the serial number of the application, and its filing date and hour.[225] If no opposition has been raised from third parties during 60 days[226] from the date of publishing the acceptance decision in the Patents Gazette, the patent will be granted. The decision to grant a patent is issued by a ministerial decree which is also published in the Patents Gazette.[227]

4. SPECIFIC CHALLENGES IN THE EGYPTIAN PATENT SYSTEM ANALYZED ON THE BASIS OF PRACTICAL EXPERIENCES AND CASE STUDIES

4.1 Challenges regarding the disclosure of genetic engineering inventions

The description of the inventions which involve genetic materials is of special nature. It requires the applicant to submit to the patent office the sequence listings of the nucleic acid relevant to the invention for which the protection is sought. The sequence listing is the technical manner in which the genes are described. These lists are long and complicated, which makes its comparisons with prior art documents a hard task for the patent office examiners. While the presence of sequence listings in electronic format is essential for the patent office to be able to assess the presence of the conditions of protection of genetic engineering inventions, the IP Law did not require the applicant to submit the relevant nucleic acid sequence listings in an electronic form. [228]

If the invention is a developed micro-organism, its disclosure by means of writing and illustrative drawings is not enough to enable the person skilled in the art to reproduce the invention. Therefore, the IP Law requires the deposit of a viable plantation of the micro-organism at any laboratory approved by the Minister of Higher Education and Scientific Research.[229] The Minister of Higher Education and Scientific Research has issued the Decree no.36 of the year 2005 which stated that the micro-organisms should be deposited in any of the equipped laboratories in the universities or the research centers supervised by the ministry of higher education, or health, or agriculture. In practice, many micro-organisms are deposited in the Cairo Microbiological Resources Centre (Cairo MIRCEN) in Ain Shams University.[230]

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224 Art.3, Prime Minister Decree no.1366 of the year 2003.

225 Art.8, Prime Minister Decree no. 1366 of the year 2003.

226 Art.16, IP Law no.82 of the year 2002, Also according to Art.17, the competent minister may oppose the procedures to grant the patent during 90 days from the publication of the acceptance decision in the Patents Gazette if it appears that the invention relates to defense, military production, national security or is of military, security or health significance. Opposition in the aforementioned cases stops the procedure of granting the patent.

227 Art.19, Law no.82 of the year 2002.

228 However, if an international application is filed under the Patent Cooperation Treaty to which Egypt is a party, it becomes subject to the Administrative Instructions of the Patent Cooperation Treaty, Annex C which sets the Standard for the Presentation of Nucleotide and Amino Acid Sequence Listings in International Patent Applications.

229 Art.13, Law no.82 of the year 2002.

230 Cairo MIRCEN is one of the Microbiological Resources Centers that were established during the last three decades under the auspices of UNESCO /ICRO/UNEP, to serve different aspects of Applied & Environmental Microbiology. Cairo MIRCEN was established in 1977 to benefit the different developing countries in Africa, Middle East

[Footnote continued on next page]

It is noted that the national laboratories including Cairo Microbiological Resources Centre are not equipped with the proper technology and devices necessary to preserve the micro-organism for a long time while keeping it from contamination as well as preserving the environment and health. For this reason, they refuse to take the delivery of micro-organisms in many instances. In addition, where the invention is a micro-organism developed outside Egypt, there are no clear rules pertinent to the clearance of the imported micro-organism from the Customs Authority to be able to deposit a live plantation of the organism at any national deposit center.[231] The end result is that the patent applications are suspended for a long time.

Furthermore, the Egyptian Law did not regulate the relation between the applicant and the deposit center. Such gap includes whether the applicant should pay fees for preserving the micro-organism or any other obligations incurred upon the applicant towards the center. In addition, the Egyptian IP Law does not oblige the patent applicant or the patentee to deposit another viable micro-organism if it becomes contaminated, or nonfunctional or if the original depository can no longer furnish samples thereof.[232]

Moreover, the Executive Regulation of the Egyptian IP Law limits the access to the deposited micro-organisms to be granted only upon the presence of three conditions: (i) the person who requests the sample should have capability to preserve the subject of the creature of the sample; (ii) the purpose of obtaining the sample should be to use it in the field of research, development and making experiments; (iii) the person who requests the sample commits not to deliver it to others.[233]

Art. 37 of the Euro-Mediterranean Agreement Establishing an Association between the European Communities and their Member States, of the one part, and the Arab Republic of Egypt on the other part (Euro-Mediterranean Agreement)[234] provides that pursuant to the provisions of this Article and of Annex VI, the Parties are obliged to grant and assure adequate effective protection of intellectual property rights in accordance with the prevailing international standards including effective means of enforcing such rights. Regarding patents, the Annex obliged Egypt by the end of the fourth year after the entry into force of the Agreement to accede to the Budapest Treaty on the International Recognition of the Deposit of Micro- organisms for the Purposes of Patent Procedure in 1997 as amended 1980 (Budapest Treaty). Similarly, the Free Trade Agreement concluded between the Arab Republic of Egypt and the EFTA States (EFTA Agreement) obliged Egypt to accede to the Budapest Treaty by the end of the fourth year after the entry into force of the EFTA Agreement.[235]

The Budapest Treaty was concluded in order to eliminate the need to deposit the micro-organism in each country in which patent protection is sought. It provides that the deposit of a microorganism with any "international depositary authority" suffices for the purposes of patent procedure before the national patent offices. Egypt do not have an "international depositary authority". The deposit of a micro-organism developed outside Egypt pertinent to a patent application filed in Egypt will probably take place abroad. Due to the aforementioned problem of

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[Footnote continued from previous page]

and the Arab Region. Cairo MIRCEN is one of four centers that were founded for collaborative work in Africa. The three other MIRCENs are in Nairobi (KENYA), Bamby (SENEGAL) and Bloemfontein (SOUTH AFRICA).

231 Neither the Law of Customs no.66 of the year 2002 nor the Law of Exportation and Importation no.118 of the year 1975 regulates the clearance of micro-organisms.

232 Many developed countries such as U.S provides for the obligation to deposit a replacement sample. See: Iver Cooper, *Biotechnology and the Law,* vol. I, Thomson West, 2008, p.5-208.

233 Art.22 (second), Prime Minister Decree no.1366 of the year 2003.

234 Presidential Decree no. 335 of the year 2002, The Official Journal, no. 47, 20 Nov. 2003 p. 1847.

235 The Free Trade Agreement between the Arab Republic of Egypt and the EFTA States was signed in Davos, 27 Jan. 2007. The EFTA States are the Republic of Iceland, the Principality of Liechtenstein, the Kingdom of Norway, and the Swiss Confederation.

the importation of micro-organisms, the public will be deprived from having access to such micro-organisms for which the patent protection is sought in Egypt.

4.2 Challenges regarding the preservation of public domain

While the old patent law has adopted the formal examination of patent applications, the IP Law no.82 of the year 2002 has provided for the first time for the substantive examination of patent applications. Such amendment requires a vast improvement to the skills of the personnel working at the patent office as well as the technology present at patent office to be able to conduct adequate search for the relevant prior art in different technological fields. Current efforts are exerted to improve the performance of the patent office to enable the personnel to carry out substantive examination. However, as any other patent office, there is a possibility of issuing bad patents.

While the Law did not provide for the re-examination of an issued patent to contest its validity, it allowed for third parties to; a- oppose the issuance of a patent before its grant; b- to raise a case before the administrative courts seeking the annulment of a patent after its grant.

(a) The opposition of a patent

According to Art.22 (first) of the Regulation, once the patent application is accepted the Patent Office has to publish the acceptance decision in the Patents Gazette, within 90 days from the issuance date of acceptance. Any concerned party may submit to the Patent Office an opposition to the acceptance decision, within 60 days from the date of its publication in the Patent Gazette.[236] The opposition is reviewed by a Committee composed of a chairman who is a judge at the appeal courts level, an administrative judge and three experts as members.[237] If an opposition against the continuation of the issuance of the patent has not been submitted, or has been submitted and refused, the Office continues the issuance procedures of the patent.[238] However, the parties may challenge the decision of the Committee before the administrative court.

It is noted that the Patents Gazette should be issued on a monthly basis.[239] However, there is a delay in publishing the Gazette which usually reaches more than two months.[240] While the printed date on the Gazette should indicate the actual date of publication, the Gazette is not issued bearing that date. Instead it bears the date of a past month. This delay deprives the parties of interest to oppose the issuance of the patent in due time; as the 60 days in which the opposition should take place are calculated from the date which the Gazette bears and not from the actual date of publication. To overcome this problem, it is suggested that the Gazette should be stamped with the actual date of publication.

The other problem is that the information published in the Patent Gazette does not allow others to be aware of the content of the invention. It only includes some information about the invention which does not include the claims.

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236 Art.16, Law no.82 of the year 2002, Art.23 of the Executive Regulation, Prime Minister Decree no. 1366 of the year 2003.

237 Art.36, Law no.82 of the year 2002.

238 Art.30 of the Executive Regulation, Prime Minister Decree no. 1366 of the year 2003.

239 Art.57, Prime Minister Decree no. 1366 of the year 2003.

240 The Gazette available in September 2010 was the one of the month June, 2010 and the Gazette available in October 2010, was the one of the month July, 2010. Similarly, the Gazette published in November 2010 dates back to August 2010.

(b) The annulment of a patent

Under the Egyptian legal system, the decision to grant a patent is of administrative nature. These decisions may be challenged before the Council of State Courts (administrative courts). Art.24 of the Law no.47 of the year 1972 establishing these courts provides that the plea to cancel an administrative decision should be brought before the court within 60 days starting from the date of its publication in the Official Gazette or the gazettes issued from the public authorities or its communication to the relevant parties." The decision of granting a patent is of administrative nature which subsequently would be subject to the 60 days rule. However, in light of the old patent law the Higher Administrative Court[241] has distinguished the cases where the annulment of a patent is sought. It has decided that the "annulment of a patent" is in fact a dispute about the existence of an invention or its property. Therefore it is not a classic case where a cancellation of an administrative decision is sought. Consequently it is not subject to the 60 days rule.

If an administrative decision is issued satisfying the formal requirements it enjoys immunity before the civil and criminal courts, which should abstain from reviewing it and has to abide by its effects in the civil and criminal cases pertinent thereto as long as the administrative courts did not rule its annulment. The presence of an annulment case before the administrative courts does not mean that the criminal or civil courts have to stay, pending the decision of the administrative court; on the contrary they continue to review such cases.

In this connection, a case has been brought to Cairo First Instance Court concerning the damages suffered due to the imitation of a patented product, contraceptive pills. The Court upon deciding the case reviewed a plea of the defendant about the conditions of the patent and found that it has been issued upon a product that does not satisfy the novelty requirement. Therefore, it dismissed the case and refused to remunerate the claimant. While Cairo Court of Appeals has affirmed the decision, surprisingly, the Court of Cassation reversed the decision of the Court of Appeals and ruled that the law has determined the manner to object to the patent issuance during its proceedings before an administrative committee. To that end, if no objection has been raised during such proceedings, and the patent is issued, it remains valid before everyone as long as it is not invalidated by an administrative court decision. Therefore, the Court of Appeals has done a mistake by reviewing the conditions of the patent protection and deciding to refuse the remuneration due to the lack of the novelty requirement.[242]

While this ruling has been issued under the old patent law, the Economic Courts which now has the jurisdiction to review the cases of intellectual property matters has not issued a different ruling under the current IP Law. Therefore, in light of the previous judgment, the courts whilst reviewing the civil and criminal proceedings regarding the imitation of patented products may not review the conditions of the patent as long as no administrative court decision has been issued to invalidate the patent.

From the other side, the Higher Administrative Court ruled that the Egyptian system is of dual nature and that the nature and jurisdiction of the administrative courts on the one hand differs from the civil and criminal courts on the other. Therefore, the infringement case before the criminal courts does not render the invalidation case brought before the administrative courts pending.[243] It is thus concluded that the dual nature of the Egyptian judicial system may lead to the issuance of inconsistent decisions by different courts.

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241 Higher Administrative Court, case no. 1582 of the year 7 J, 14 May, 1966.
242 Court of Cassation, case no. 708 of the year 45 J, 21 Feb.1983.
243 Administrative Court, case no. 1654 of the year 10 J, 13 May, 1966.

C. COLOMBIA

1. DEVELOPMENT OF ACCESS TO INFORMATION IN THE PUBLIC DOMAIN IN COLOMBIA AND ITS RELATIONSHIP WITH THE PATENT SYSTEM

In Colombia, it has been understood for several years that economic, scientific and technological development depends on two important factors: (i) providing effective protection to creative activity through patent law, thereby fostering research and science; and (ii) enabling access to technology and their exploitation by the different players in the market, for which purpose it is relevant to ensure access to the information contained in patents that have become part of the public domain.

Before analyzing the different initiatives and projects that have been implemented in order to ensure access to the documentation of patents that have become part of the public domain, it is useful to briefly mention the relevant public policies and their regulatory foundations.

According to the intellectual property system applicable in Colombia, a patent can become part of the public domain for four main reasons: (i) relinquishment of rights by the patent owner or a declaration of abandonment; (ii) failure to pay the legal yearly maintenance fees; (iii) expiration of the term of protection of the patent; and (iv) denial, rejection or revocation of the patent right by the corresponding administrative or judicial authority.

If and when any one of these conditions applies, the product or process that is the object of the patent, as well as any related technical information, become part of the public domain, that is, they become available to any third party requiring them and said third party may exploit them without infringing the patent rights. This information, of course, becomes essential for the potential generation of future technical development and is considered “the most important source of technological information available to researchers, entrepreneurs and industrialists in Colombia."[244]

The importance of access to the contents of patent information has been well understood by the Colombian Government and has not remained only on paper. In fact, the Government has expressly urged public entities related to innovation, technology and intellectual property, to develop plans and strategies for the furtherance of Colombia's technological development.

In principle, the legal basis for the promotion and furtherance of scientific and technological activities by the State is established in Article 70 of the Political Constitution: "The State has the obligation to promote and foster equal access to culture for all Colombians, by means of permanent education and scientific, technical, artistic and professional instruction at all stages in the process of creating a national identity. (...) The State shall promote research, science, development and dissemination of the cultural values of the Nation." More specifically, the dissemination and disclosure of technological information contained in patents is based on the Community regulation contained in article 271 of Andean Decision 486 of 2000, according to which the Member Countries of the Andean Community (Colombia, Ecuador, Peru and Bolivia) shall undertake the establishment of mechanisms for disseminating and disclosing this type of information.

Together with this and, possibly, in response to these regulations, Colombian public policy with regard to innovation, competitiveness and exploitation of Intellectual Property is set out mainly in

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[244] Article “La ampliación del término de patentes: ¿un atentado a la salud?" (“The extension of patent terms: An affront to health?”) Updated 5 May 2010. Superintendency of Industry and Commerce. Available at: http://www.sic.gov.co/index.php?idcategoria=30&ts=a11ce019e96a4c60832eadd755a17a58. Consulted on 15 October 2010.

Law 1286 of 2009 and in the following CONPES (National Council for Economic and Social Policy) documents:[245]

1.1 The first directive or ordinance with regard to this topic, which constitutes the foundation for the public policy on exploitation of intellectual property and its impact on the country's competitiveness and development, can be found in CONPES Document 3533 dated 14 July 2008, entitled "FOUNDATIONS OF AN ACTION PLAN FOR THE ALIGNMENT OF THE INTELLECTUAL PROPERTY SYSTEM WITH NATIONAL COMPETITIVENESS AND PRODUCTIVITY – 2008 - 2010"

The justification for this directive can be explained in the following terms: "In the 21st century, knowledge is a crucial resource among the multiple determining factors of competitiveness of a country. Generation of value as a result of intellectual creation, that is, the production of knowledge, as well as the application of available knowledge, are fundamental tools for the production of innovative goods and services with a potential for adequate insertion into competitive markets. In the broadest sense, Intellectual Property is a tool for the furtherance of intellectual production and creation and it is therefore a tool available to countries' efforts to contribute to the achievement of higher levels of competitiveness and productivity. In this respect, it is justified to set the foundations for a public policy on Intellectual Property that is consistent with the activities currently being conducted by the National Government within the National Commission for Competitiveness and Productivity (...)."

Specifically, the CONPES indicates the following with respect to the importance of technological information contained in patents: "The most competitive countries are those that, in turn, generate the largest quantities of patentable knowledge, the latter being understood as a proxy for intellectual creation and production. The production of patentable knowledge is based, among other things, on the use of available knowledge to direct efforts, both human and economic, toward innovation based on available technical developments. This use of knowledge, which benefits the productivity and competitiveness of companies, must be accompanied by the benefits for the innovator resulting from the protection of his/her invention."

1.2 CONPES 3582 Of 27 April 2009, on the other hand, refers to the National Policy on Science, Technology and Innovation

This document states that scientific, technological and innovation activities (ACTI) in Colombia are performed by a variety of players that interact with each other under the so-called National System of Science, Technology and Innovation (SNCTI).

The study shows that the System has achieved significant progress that has contributed to the scientific and technological development of society. However, it also concludes that the efforts made to date have been insufficient.

In order to establish the public policy to be followed, the CONPES identified the limitations of the System as follows: (i) poor enterprise innovation levels, (ii) weak system institutionality, (iii) scarcity of human resources to carry out research and innovation, (iv) lack of focus of the policy on strategic areas, (v) poor social appropriation of knowledge and regional disparities with regard to scientific and technological capabilities, which, taken as a whole, results in (vi) inadequate capacity for generation and application of knowledge."

[245] CONPES documents are prepared by the National Council for Economic and Social Policy – CONPES –, which is the Government's technical advisory body and the highest Colombian authority with respect to economic and social planning. The purpose of these documents is the formulation and establishment of public policies that must implemented as part of the country's social and economic policy.

One of the strategies proposed to improve the low innovation levels of companies is the consolidation of the intellectual property system through implementation of the guidelines formulated in the aforementioned Conpes 3533. In this respect, it should be highlighted that this strategy is aimed at "strengthening the dissemination function of intellectual property rights by government entities through seminars, workshops and handbooks about intellectual property institutionality and legislation in force at the national and international levels."

Summarizing, the main objective of this State policy is the "identification, generation, dissemination, application, integration of knowledge to support the productive and social transformation of the country", thereby accomplishing development of the country and a reduction of the existing innovation and technology gap with respect to other countries of the region.

1.3 Finally, enactment by the Government of Law 1286 of 23 January 2009 marked a major milestone in the implementation of national policy on this issue

With respect to the objectives of the law as they relate to access to technical and scientific information which, of course, includes the information contained in patents, it is important to highlight the provision of Article 2 of the law, which refers to "strengthening a culture based on continuous generation, appropriation and dissemination of scientific knowledge and research, technological development, innovation and learning."

This law therefore serves as the legal framework for all initiatives promoted by government entities toward the creation of strategies intended to provide effective access to technological information for users of the patent system.

From the legal viewpoint, this law incorporates into the Colombian regulatory system the concept of innovation, understood as the process that allows the conversion of a creative idea or concept into a product or process subject to protection under patent law.

Thus, the importance, in the innovation process, of access to knowledge and information contained in patent documents becomes apparent, given that said information will make it possible to precisely identify the specific technical problem to be resolved in accordance with the state of the art, in order to obtain a product or process that resolves the problem and may be eventually protected under patent law.

This law also provides a framework for State investment in science, technology and innovation. Thus, the State subsidizes research and development processes, which of course is essential for an effective implementation of the strategies and purposes of the previously defined public policy and is in line with the investment strategies implemented by developed countries for their technological growth. This initiative constitutes an important opportunity for the private sector to carry on its research and development projects, without the initiative being frustrated by the lack of financial resources, which is quite frequent in a country such as Colombia.[246]

[246] Fred Block refers to the importance of State investment in the advancement of research and development processes in his article entitled US Industrial Policies, R&D, And The WTO's Definition of Non-Actionable Subsidies, from which we highlight the following: "(…) a robust strategy of industrial upgrading can be organized through these kinds of subsidies. In fact, a number of countries have very explicitly copied the SBIR program and China has been using all of these tools as part of its development strategy. Chile is another example of a country that has successfully used government-funded research to facilitate the successful upgrading of such industries as salmon farming and wine production. But industrial policy through state R&D subsidies is a problematic development path for those less developed countries that have only a rudimentary science and technology infrastructure. When government budgets are extremely tight and basic human needs have not been met, it would be irresponsible for governments to devote resources to R&D subsidies that are inherently risky". Article published on 23 December 2010 in the Intellectual

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2. STRATEGIES PRESENTED AS PUBLIC POLICY OF THE COLOMBIAN STATE WITH RESPECT TO EXPLOITATION AND ACCESS TO INFORMATION ON PATENTS BELONGING TO THE PUBLIC DOMAIN

According to the study carried out in CONPES 3533 of 2008, Colombia does not take full advantage of the technological information available in patent documentation belonging to the public domain, thus wasting an important source of knowledge for users and society in general.

The limited use made of technological information can be attributed, among other things, to ignorance about the protection granted by intellectual property, including the benefits derived from it. This, in turn, has a negative impact on the development of intensive inventive activities.

In order to resolve this problem and inform users that the documentation of patents belonging to the public domain may be useful as a starting point for new inventions or for the improvement of existing ones, which in turn may be protected by patent law, the Government established two main strategies:

(i) *Stimulate intellectual creation and production through the effective use of the intellectual property system*, proposing for such purpose that the administrative entities in charge of intellectual property management must design mechanisms to disseminate and instruct the different users with regard to the importance, application, exploitation and regulation of intellectual property in Colombia.

By virtue of this government recommendation or directive, these entities have entered into several cooperation agreements with the purpose of spreading this information and have extended their efforts to many regions of the country.

(ii) *Promote Intellectual Property as a mechanism for entrepreneurial development,* with the aim of structuring a competitive system based on creation, technological adaptation and innovation.

As a result of the execution of these strategies, the public entities in charge have promoted the use of the technical information contained in patent documents that are part of the public domain, through implementation of the following tools and services:

2.1 Projects and tools developed by the Superintendency of Industry and Commerce

- Structuring and management of the Patent Bank: In order to facilitate access to the technological information contained in patent documents, the Superintendency of Industry and Commerce has implemented and made available to users a Patent Bank which provides the service of patent and state-of-the-art searches in particular topics, at the national and international levels. Moreover, it issues certifications regarding the existence and characteristics of patents registered in Colombia.

By means of this certification service, at the request of a user, the Superintendency of Industry and Commerce establishes the status of the relevant patent, that is, whether it is subject to any industrial property right or, on the contrary, belongs to the public domain and could be

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[Footnote continued from previous page]

Property Watch website. http://www.ip-watch.org/weblog/2010/12/23/us-industrial-policies-rd-and-the-wto's-definition-of-non-actionable-subsidies/?utm_source=post&utm_medium=email&utm_campaign=alerts.
Consulted on 21 January 2011.

commercially exploited without the patent owner's authorization. The application includes several search criteria, such as: name of the patent owner, inventor, applicant and patent number.

The Patent Bank service provided by the entity also includes technical assistance to the user, who may find answers to certain questions about the invention, establish whether the invention fulfills the legal requirements for protection, and the different forms of protection, among other topics. It is also responsible for the promotion and dissemination of the patent system and the use of information belonging to the public domain.

Promotion and dissemination is carried out by means of the following mechanisms:

- "Awareness seminars addressed to businesspersons, entrepreneurs and university students.
- Participation in programs for the support of SMEs [small and medium-sized enterprises] with the support of the Ministry of Commerce, Industry and Tourism (MCIT).
- Workshops for entrepreneurs regarding ways to gain access to patent documents through the different available public databases.
- Participation of research centers in training programs.
- Promoting of alliances with universities, public research centers and companies."

The Superintendency of Industry and Commerce currently has two ongoing cooperation agreements in place for the development of dissemination and promotion activities. One of these is with the Administrative Department of Science, Technology and Innovation (COLCIENCIAS) and the other, entitled INDUSTRIAL PROPERTY COLOMBIA, was developed together with the Medellin Chamber of Commerce for Antioquia, in an alliance with the Chambers of Commerce of: South Aburra, Barranquilla, Bogota, Cali, Cartagena, Manizales and Eastern Antioquia, and with the support of the Inter-American Development Bank, IDB. The objective of the latter project is "to contribute to the economic development, improve productivity and competitiveness in Colombian micro, small and medium-sized enterprises, and generate added value in their processes through an institutional trademark and the provision of support services fostering innovation and enabling the MSMEs [micro, small and medium-sized enterprises] to improve their use of the intellectual property system" [247]

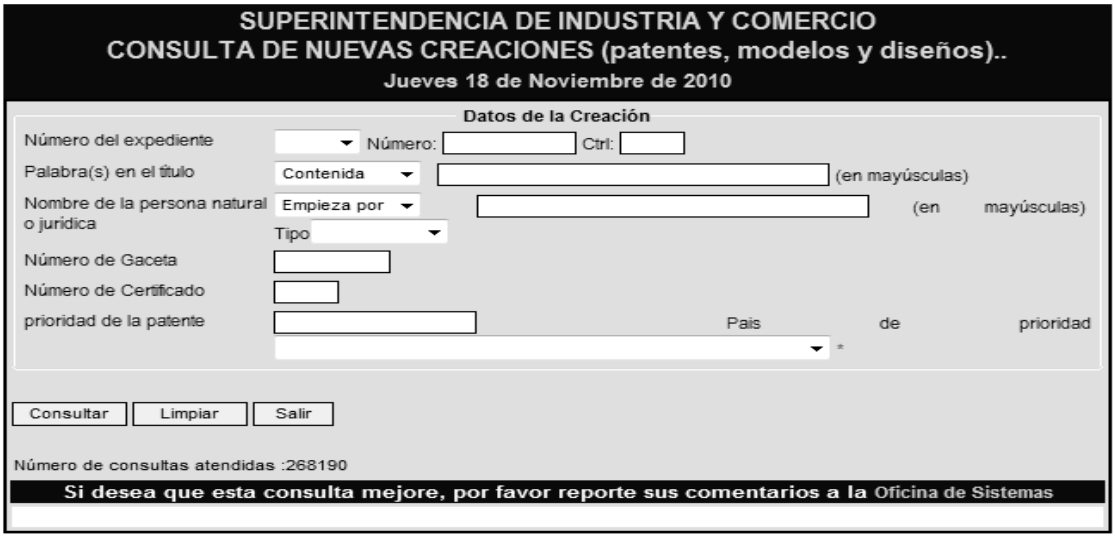
According to the 2008-2009 Management Report of the Superintendency of Industry and Commerce, the entity has conducted various training workshops on the topic of patents and has been present at various dissemination events at the national level organized by the following entities: Society of Engineers and Architects of Antioquia (Sociedad Antioqueña de Ingenieros y Arquitectos) SAI (2nd Inventors and High-Tech Exhibition), Chamber of Commerce of Cúcuta; CEPA – TECNOPARQUE – SIC, CODECYT – Governor's Office of Boyacá, Colciencias – Institute for Research Training in Plastic and Rubber (Instituto de Capacitación de Investigación del Plástico y del Caucho) – EAFIT University, MCIT - COLOMBIA CRECE, Proexport – Zeiky, Tecnoparque – SENA (Bogotá and Bucaramanga Nodes), Education, Research and Development Network of Eastern Colombia (Corporación Red de Instituciones de Educación, Investigación y Desarrollo del Oriente Colombiano) – UNIRED, University of Caldas, Industrial University of Santander UIS, Santiago de Cali University, among others. This report indicates that during the 2008 – 2009 period, the entity attended 47 events, with a total attendance of 3,307 people.

- Databases: The Superintendency of Industry and Commerce also has a complete database on its Web page (www.sic.gov.co), including a record of patents filed and

[247] Web page of the Colombia Intellectual Property Project. Available at: http://www.propiedadintelectualcolombia.com/site/Quiénessomos/Antecedentes/tabid/60/Default.aspx. Consulted on 18 November 2010.

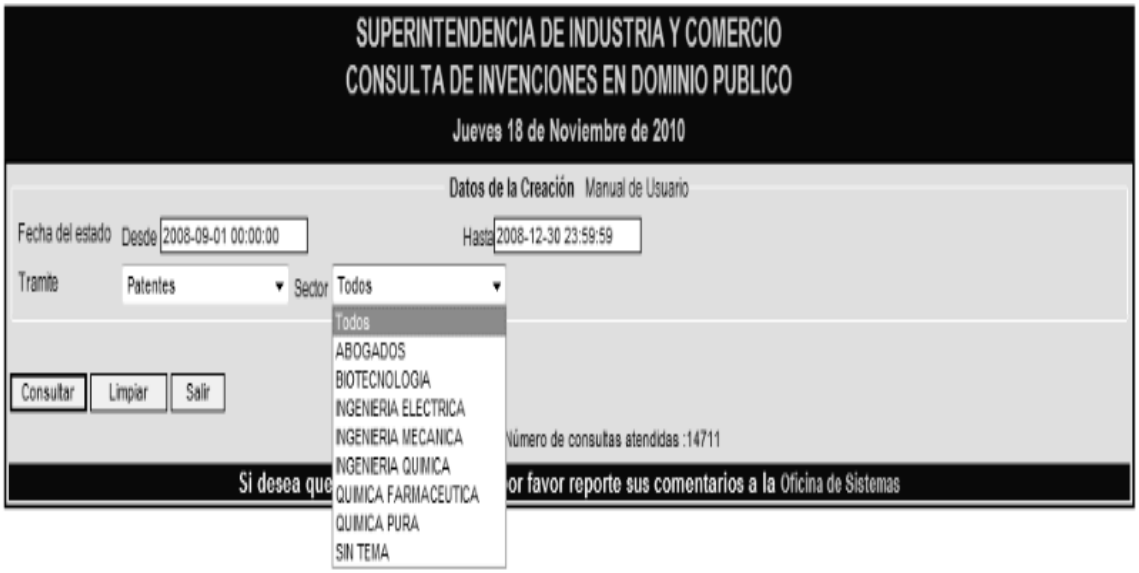
published in Colombia. In addition, there is a database of inventions that are in the public domain.

The following are the search criteria for the database of patents that have been filed and published in Colombia: file numbers, words in the title, name of the individual or legal entity, number of the gazette in which it was published, patent registration certificate or title number or patent priority date, as well as priority country.



With respect to inventions that are part of the public domain, the search criteria are the following: the dates for which the search is desired, indicating "from" and "to" a given date, the right that applied to the invention, that is, patent, utility model or industrial design, and the technological sector to be searched.

The following search criteria have been classified to date: Biotechnology, Electrical Engineering, Mechanical Engineering, Chemical Engineering, Pharmaceutical Chemistry and Pure Chemistry. It is also possible to conduct the search without a specific topic.

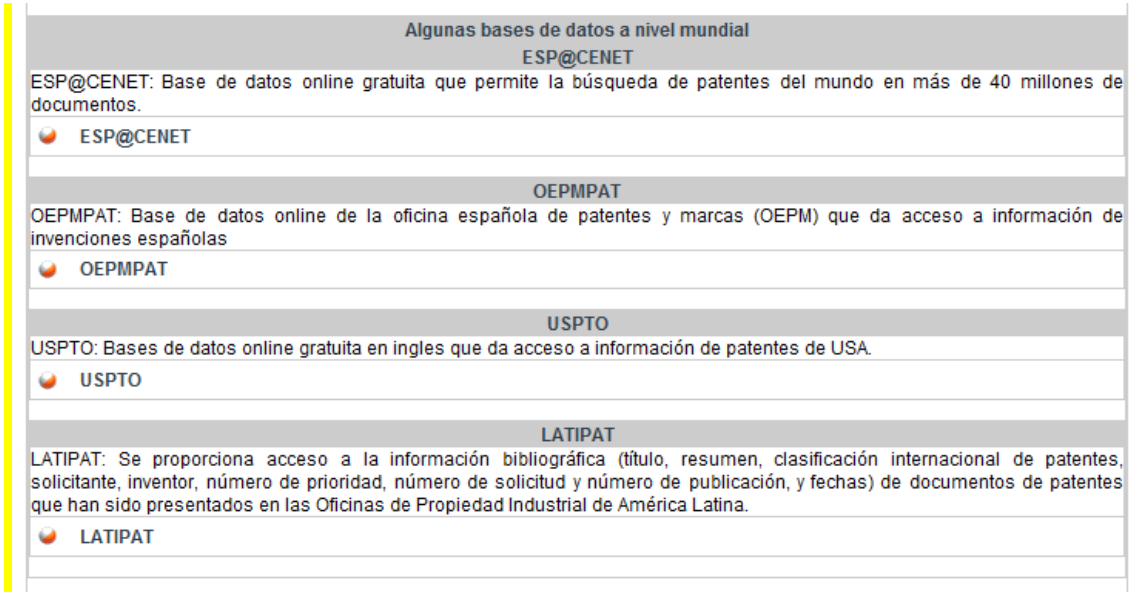


According to information provided in the website of the Superintendency of Industry and Commerce,[248] the list and number of patents, utility models and industrial designs which have entered the public domain from January 1, 2000 until December 31, 2010, in Colombia is the following:

Sectors	Patents	Patents - PCT	Utility Models	Utility Models - PCT	Industrial Designs
ME – Mechanical Engineering	1317	17	160	2	12
PC – Pharmaceutical Chemistry	1302	37	1		1
CI – Chemical Engineering	911	11	8		
PC – Pure Chemistry	499	5			
EE – Electrical Engineering	203		7		1
BT – Biotechnology	106				3
UT – Unspecified topic	4		375		218
Total	**4342**	**70**	**551**	**2**	**235**

In addition to the possibility of reviewing these documents, the user is also provided with information about the different public databases of the intellectual property offices of other countries, such as esp@cenet, oepmpat, uspto and latipat, in which, of course, it will be possible to find a greater number of documents and information regarding the state of the art in the different sectors of technology and knowledge. It is even possible that many of the foreign patents compiled in such databases belong to the public domain in Colombia, due to the principle of patents territoriality and it consequent, lack of protection in our country.

[248] Available at http://serviciospub.sic.gov.co/~oparra/externas/reportes/solultimaactsectorcaducado.php Consulted on 21 January 2011.



Algunas bases de datos a nivel mundial
ESP@CENET
ESP@CENET: Base de datos online gratuita que permite la búsqueda de patentes del mundo en más de 40 millones de documentos.
ESP@CENET
OEPMPAT
OEPMPAT: Base de datos online de la oficina española de patentes y marcas (OEPM) que da acceso a información de invenciones españolas
OEPMPAT
USPTO
USPTO: Bases de datos online gratuita en ingles que da acceso a información de patentes de USA.
USPTO
LATIPAT
LATIPAT: Se proporciona acceso a la información bibliográfica (título, resumen, clasificación internacional de patentes, solicitante, inventor, número de prioridad, número de solicitud y número de publicación, y fechas) de documentos de patentes que han sido presentados en las Oficinas de Propiedad Industrial de América Latina.
LATIPAT

2.2 Participation of other public entities in order to inform users about the effects and characteristics of the Colombian patent system

The Colombian Intellectual Property System was created to support the tasks of the Superintendency of Industry and Commerce, incorporating various government entities, which direct their activities mainly at three types of users:

- Private enterprises;
- Research institutions, such as Universities and research Centers;
- Public institutions with respect to their own inventions.

The objective of structuring this System was the creation of an institutional group in charge of establishing policy on Intellectual Property matters, with particular attention to the following topics: (i) promotion of entrepreneurial development and competitiveness; (ii) furtherance of scientific research; and (iii) establishment of a culture of creation and innovation.

To date, the System is made up of a network of public entity institutions, in charge of fulfilling specific functions, and is organized as follows:[249]

[249] Web page of the Colombia Intellectual Property Project Available at: http://www.propiedadintelectualcolombia.com/site/PropiedadIntelectual/SistemaColombianodePropiedadIntelectual/tabid/67/Default.aspx. Consulted on 18 November 2010.

	Institutional Organization		
	Copyrights and related rights	New plant varieties	Industrial property
Policy design	National Copyright Office (DNDA) Ministry of the Interior and Justice	Ministry of Agriculture and Rural Development	Ministry of Commerce, Industry and Tourism
IntellectualProperty Rights (DPI) Administration	DNDA	Colombian Agriculture and Livestock Institute (ICA)	Superintendency of Industry and Commerce (SIC)
	Test Data Protection – National Institute for Food and Drug Supervision (INVIMA) – ICA		
Foreign policy design	Ministry of Foreign Affairs, Ministry of Commerce, Industry and Tourism		
Compliance	Office of the Attorney General – High Judiciary Council – National Institute of Forensic Sciences and Medicine – Colombian Tax and Customs Administration (DIAN) – National Police		
Promotion and related agencies	Ministries: Culture – Environment, Housing and Land Development – Commerce, Industry and Tourism – Communications – Education – Administrative Department of Science, Technology and Innovation (Colciencias) – National Training Center (SENA) – National Television Commission – Colombian Arts & Crafts (Artesanías de Colombia) – Collective Management Associations – Von Humboldt Institute		

3. TOOLS IMPLEMENTED BY THE ACADEMIC SECTOR REGARDING ACCESS AND KNOWLEDGE OF INFORMATION BELONGING TO THE PUBLIC DOMAIN

In addition to the efforts of the public sector in the promotion and dissemination of the importance of making use of the technological information contained in patent documents, the academic sector has also set itself similar goals.

Its activities are directed at studying the patent and intellectual property system in order to protect its own inventions and intellectual creations, and to train and advise its students and independent inventors with regard to the protection of their rights.

The initiatives carried out by the academic sector are, mainly, training in access to and search for patents in public databases.

Among the various public universities in Colombia engaged in this task and which, of course, recognize its importance and transmit it to their students and professors, is the Universidad del Valle. This University created, in the year 2009, through its Technology Transfer Office, a training workshop dealing with the search for patents in public databases, which is offered in research methodology courses included in the Ph.D. course in Engineering at this University, as well as to undergraduate students. The Universidad del Valle also belongs to the SECOPI INDUSTRY AND ENERGY NETWORK, supported by COLCIENCIAS and directed by the Plastic and Rubber Institute of Medellín, which also trains professors in the topic. The results of this initiative have been evident and several of the students trained through this workshop are now experts on the subject and in turn provide advice in patent search. The initiative and interest in the topic on the part of this University arose in connection with the development of a workshop on the search in patent databases offered by the Superintendency of Industry and Commerce in the year 2005.

In addition to this, it is important to point out that patent databases are used in the research carried out at Universidad del Valle, mainly in order to avoid repeating inventions which are already within the state of the art and unnecessarily wasting efforts. The search in these databases is recommended whenever a research project is to be commenced at the University and, in essence, is useful for them to identify the state of the art and the novelty of the invention.

The Colombian National University has also created initiatives to encourage and promote the use of information contained in patents which are in the public domain. To this end, it established the Patent Information Center (PIC), which provides search and reporting services on the status or state of the art with respect to knowledge protected through patents. Among its objectives is that of determining the status of a given technology with the intention of improving it, inquiring into the current status of a given sector of science and the search for information in order to determine the approach to a project.[250]

By virtue of said commitment, the CIP also has a program called El ABC de las patentes (The ABC of Patents), which deals, among other general aspects, with the usefulness of the information contained in patents. Among the objectives of the course is that of preparing and instructing students and professors regarding the manner in which searches can be conducted in the different databases, making them see that this information will allow them, mainly, "to reduce and refocus research projects or avoid their duplication; reach or generate new ideas and solutions to problems or needs; and facilitate technology transfer, enabling comparisons (technological mapping) and provide the eventual licensee with accurate information regarding the holder of the technology."[251]

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[250] For further information, see www.dib.unal.edu.co/cip/. Consulted on 19 January 2011.

[251] Eng. Jaime Hernando Mayorga. EL ABC DE LAS PATENTES. UTILIDAD DE LA INFORMACIÓN EN LAS PATENTES. Universidad Nacional de Colombia. 23 March 2010.

These programs, which of course are not the only ones implemented by the university sector, allow us to conclude that there is an important academic effort in Colombia aimed at promoting the effective utilization of the various tools offered by the patent system, not only with regard to the manner of protecting new inventions and knowledge, but also to the use and exploitation of the technological and scientific information which can be found in public domain patents. The task carried on by the university sector is, no doubt, of paramount importance in the road taken by Colombia towards technological, cultural and social development.

4. INSUFFICIENT UTILIZATION OF PUBLIC DOMAIN PATENT INFORMATION

Despite the fact that reference has been made in the previous paragraphs to the initiatives and projects undertaken by government control entities and by the academic sector which, it is worth noting, are well directed, the same promising effects are not found in the practical business and industrial field. On the contrary, it can be concluded that in Colombia, even today, this valuable source of scientific and technical information is not effectively used for the development of industry.

On many occasions, the private sector, and even the academic sector, set aside the use of this information and focus their efforts on obtaining and developing new knowledge, that is, knowledge that is not derived from information belonging to the state of the art. This can be very valuable from a scientific point of view, but clearly leaves out an important source of scientific and technological information, which could be of great use, as indicated in this writing.

In this regard, the National Planning Department has stated that, "the Colombian productive sector is still far from making prompt and efficient use of protected or unprotected intellectual property assets. Despite the existence of numerous patents, utility models and industrial designs which have passed to the public domain or may be licensed, the exploitation of these assets by the productive, academic and research sector in order to improve its products or to develop new research processes on these bases is generally low".[252]

This leads to the conclusion that, despite the efforts made to take advantage of the technological tools contained in patents, which as evidenced exceed 5,000 documents in Colombia, the private sector does not use them, or does not consider them necessary or useful for its research.

This view coincides with certain studies that have been conducted, according to which most developing countries exhibit an insufficient utilization of the valuable source of scientific and technical knowledge that can be found in patent documents.[253]

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[252] International seminar. Strategic use of intellectual property for economic and social development. 21 August 2006. John Rodríguez. Coordinator of the Science, Technology and Innovation Group of the National Planning Department.

[253] In this regard, it is stated that "unfortunately, for their business needs, many SMEs [small and medium-sized enterprises] do not use patent documents as a source of competitive intelligence. SMEs, particularly in developing and least developed countries, [such as Colombia], should be made aware of and be equipped to use business, legal, and technical information contained in patent documents, which is in the public domain to come up with innovative products, which have been adapted to local conditions". Cristopher M. Kalanje. Role of Intellectual Property in Innovation and New Product Development. In http://www.wipo.int/sme/en/documents/ip_innovation_development.htm#P3_97. Consulted on 19 January 2011. Likewise, Duncan Matthew states, "So there is great potential for patent information focusing on a particular technology – known as patent landscapes – to contribute to the development needs of developing countries by identifying essential technologies, know-how, processes and methods that are potentially of use to them. However, even though patent information is easily accessible via the internet, this resource is used to only a small fraction of its potential for stimulating invention and innovation. In building their economic success, Japanese firms used the publication provisions of the international patent system as a valuable source of information, even in pre-electronic information days, far more effectively than firms in any other country have done. The use of patent disclosure information remains limited in developing and least-developed countries, despite the existence of a number of free patent database services such as WIPO's Patentscope®15 or Cambia's Patent Lens. General knowledge and techniques in searching patent information, including the extraction of relevant information from patent databases, are not at present readily known and therefore it is fundamentally important to support these through technical assistance

[Footnote continued on next page]

Now then, it is not easy to exemplify the use of said information by the private sector in Colombia either, given that there is no record of its utilization in the attainment of new knowledge or technology, or any empirical evidence to prove this. The Administrative Department of Science, Technology and Innovation – Colciencias - does not have a database corresponding to public domain patents either, given that its job is mainly focused on the fostering and encouragement of access and use of this information for the benefit of independent inventors or private enterprise.

On the other hand, the National Institute for Food and Drug Surveillance – INVIMA, in charge of the protection of test data, even those found in the public domain according with our legislation, does not have a record system for such purpose and, to date, no request for specific test data has been submitted by third parties.

5. CHALLENGES OF THE SYSTEM

5.1. As pointed out in previous sections, there are several government and private entities in Colombia engaged in the task of creating awareness, promoting and disseminating the intellectual property system in the country, considering it an effective tool for its technological growth and development. The challenge for these entities and institutions is the execution of regional and national programs, seminars and training courses in order to generate new scientific and technical knowledge.

5.2. As to the Superintendency of Industry and Commerce, its challenges in the matter of promotion, access and exploitation of the information contained in patents are mainly in the following:

- Strengthening of the culture of using and exploiting intellectual property rights in coordination with productivity and competitiveness programs;

- Disseminating the importance of the patent bank, which constitutes a fundamental tool for entrepreneurs to obtain technological information leading to the optimization and modernization of productive processes and to foster technology transfer, given that technology transfer and inventive activities are determining factors for social and economic progress.[254]

In order to guarantee access to the information contained in patents, it is necessary to decentralize the system. The majority of administrative entities in charge of the promotion and dissemination of technical information regarding patents carry out their activities in a centralized manner.

With the aim of resolving this difficulty, Law 1286 of 2009 considers decentralization as one of the underlying principles and criteria of any activities to foster and promote science, technology and innovation. In this regard, Article 4 provides the following: "(…) Decentralization: The instruments for the support of science, technology and innovation must be promoters of territorial and institutional decentralization, aiming at a coordinated development of the scientific and technological potential of the country, while endeavoring to achieve growth and consolidation of scientific communities in the departments and municipalities."

It therefore becomes an essential challenge for the Administration to promote access by, and participation of all users of the system and to improve its physical and technical infrastructure in

[Footnote continued from previous page]

initiatives in favour of developing and least-developed countries in the future". Matthews, Duncan. Patents in the Global Economy. 2010. A Report to the Strategic Advisory Board for Intellectual Property Policy (SABIP).

[254] Superintendency of Industry and Commerce. Available at www.sic.gov.co. Consulted on 15 October 2010.

order to reach every region of the country, not only in relation to the procedures for patent registration and the observance of rights, but also with regard to access to document information of patents that have become part of the public domain. Today, using a valuable technological tool implemented by the Superintendency of Industry and Commerce, it is possible to consult the patents that are in the public domain in Colombia. Nevertheless, this search is limited to a brief summary of each invention and, therefore, if what a user wishes to know are the documents contained in the respective files, he/she must come to the physical facilities of the entity, located in the city of Bogotá D.C., which represents an obstacle to access said information. The Administration is aware of this difficulty and, consequently, among its challenges is that of implementing the "zero paper" project, the aim of which is to scan and organize all files of the entity on electronic media, in order to allow their online consultation.

6. CONCLUSIONS

Insufficient use is made in Colombia of technological information contained in patent documents that have become part of the public domain; for this reason, despite the fact that the initiatives and strategies set out by the Government are on the right track and represent a step forward for Colombian society and the technological development of the country, these strategies must be effectively implemented and better results must be generated.

As indicated by the administrative authority on the topic of intellectual property, the information contained in patents that are part of the public domain is used in Colombia by private enterprises, by independent individuals and by the university sector, but no records are kept about its use or the outcomes of such use. Without an institutional record regarding the use of public domain patents, it is difficult to identify the private sectors that have accessed said information and have effectively used it to develop their own technology.

A proper coordination of the various State agencies is necessary in order to structure a public policy regarding the utilization of information contained in patents that are in the public domain and continue with the task of building awareness regarding the patent system and the importance of the information it contains. It is necessary to transmit to the various productive and academic sectors of the country that the patent system, beyond the protection it grants, also constitutes the basis for new patentable knowledge.

The commitment of private enterprise and academia is essential to the development of projects concentrated on national competitiveness and productivity. Greater financial investment by the State to finance research and development processes is undoubtedly necessary.

Society must understand that the consideration obtained from the monopoly granted to an entrepreneur for 10 or 20 years over a product or procedure based on patent law, become effective and palpable when the invention becomes part of the public domain and can be exploited by any entrepreneur without requiring authorization for such purpose. If said information is not taken advantage of by the various sectors of society, we would be granting an exclusive right without obtaining any benefit in exchange.

D. UKRAINE

1. DEVELOPMENT DIMENSION OF THE CONCEPT OF THE PUBLIC DOMAIN IN UKRAINE

1.1 Overview of the term “public domain” and related conditions in Ukraine

The transition of Ukraine to an innovation model of development requires a number of fundamental tasks to be resolved. Firstly, the formation within the State of a comprehensive system for the effective transformation of new knowledge into new technologies, products and services, which will be placed on the national and external markets. Secondly, the need to enhance the level of perception of innovations by the real sector of the economy. At the same time, the lack of information in society concerning the protection and enforcement of intellectual property rights leads to such rights being infringed, which reflects negatively on the State’s economic development.

In the context of intellectual property rights, “the public domain” in the broad sense is the plurality of the results of intellectual activity, which may be freely used by any person. In the narrow sense “the public domain” is a subset of the unprotected results of intellectual activity, which have never been protected and/or which have ceased to be protected as a result of the termination or suspension of the term of validity of proprietary rights in the corresponding intellectual property subject matter.

The category "Public domain" can be applied to various forms of intellectual property, including patent law. Subjects of patent law in Ukraine include inventions, utility models and industrial designs. The non-traditional forms of intellectual property subject matter, in relation to which a patent may be granted, include plant varieties and animal breeds, although they are patented beyond the national patent system. Relations in the intellectual property sphere are regulated by individual provisions and rules of the Civil Code of Ukraine (in particular Book IV “Intellectual Property Law”), the Economic Code of Ukraine, the Code of Civil Procedure of Ukraine, the Criminal Code of Ukraine, the Code of Ukraine on Administrative Infringements, the Law of Ukraine on Protection from Unfair Competition and other general laws.

The legal status of intellectual property subject matter is regulated by special legislation (more than ten laws), in particular in the patenting sphere: Law of Ukraine No. 3687-XII on the Protection of Rights in Inventions and Utility Models of December 15, 1993 (as amended); Law of Ukraine No. 3688-XII on the Protection of Rights in Industrial Designs of December 15, 1993 (as amended). The procedures are defined at the level of by-laws contained in normative and legal acts.

In Ukraine the legal definition of the concept of the public domain is contained in copyright legislation. In Law of Ukraine No. 2627-III on Copyright and Related Rights, version of July 11, 2001, the term “public domain” is used as follows: works and subject matter of related rights, term of validity of copyright and/or related rights for which it has expired (Article 1). Book IV of the Civil Code of Ukraine contains “Intellectual property law” in Article 447, as follows: “upon expiry of the term of validity of intellectual property proprietary rights in a work, the work may be used by any person freely and without remuneration, with the exceptions established by the Law”.

Provision for transfer to the public domain is also made for the subject matter of industrial property rights. Pursuant to Part 1, Article 467 of the Civil Code of Ukraine, “where the validity of exclusive intellectual property proprietary rights in an invention, utility model or industrial design is terminated, such subject matter may be used freely and without charge by any person, apart from the exceptions provided for by the law”.

There are established the following general rules to the subject of patent law that affect the transition of such subjects in the public domain.

The term of validity of a patent is 20 years from the application filing date. The term of validity of a patent, the subject matter of which is a medicine, means of protecting animals, means of protecting plants and so on, the use of which is required with the authorization of the corresponding competent authority, may be continued at the request of the owner of the patent for a term equal to the period between the date of filing of an application and the date on which such authorization is received, but for not more than five years.

The term of validity for a utility model patent is 10 years from the application filing date. The term of validity for an industrial design patent is ten years from the application filing date and is continued at the request of the owner, but for not more than five years.

Upon expiry of the term of validity of a patent for an invention, utility model or industrial design, legal protection ceases and such subject matter enters the public domain. The invention or other patenting subject matter becomes open for commercial use by any other persons.

Patent legislation provides for a number of cases, where the effect of patent protection may be terminated prematurely. The grounds for premature termination of a patent are: (1) the refusal of the patent by the patent owner either fully or partially; (2) non-payment within the prescribed term of the fee for maintaining the patent in force; (3) recognition of a patent as invalid by the courts either fully or partially. In the first two cases, the validity of a patent is terminated for the future from the time when the corresponding legal fact occurs: in the case of a refusal – from the date of corresponding publication in the Official Gazette; in the case of non-payment – upon expiry of an additional 12 months following the payment term and from the date of corresponding publication in the Official Gazette. Where a patent or part thereof is recognized as invalid, they are considered such that they did not come into force, from the date of publication of information on the grant of the patent, and an appropriate communication provided in the Official Gazette.

In particular, Law of Ukraine No. 1771-III on Protection of Rights in Inventions and Utility Models, version of June 1, 2000, enshrines the right of a patent owner at any time to refuse the patent either fully or partially. Such a refusal is effected by submitting a declaration to the Institution[255] and enters into force from the date of publication of appropriate information in the Official Gazette of the Institution (Part 1, Article 32 of the Law). In addition, full or partial refusal of a patent is not permitted without warning the person, to whom the right to use the invention has been granted in accordance with a licensing agreement, registered with the Institution, and also where the property on which debts are served is confiscated, if it comprises rights which are certified by a patent.

In addition, the validity of a patent is terminated in the case of non-payment, within the prescribed term, of the annual fee for maintaining its validity (Part 2, Article 32) from the first day of the year for which the fee has not been paid. At the same time, the annual fee for maintaining the validity of a patent may be paid within 12 months of the prescribed term being fixed[256]. In this case, the size of the annual fee is increased by 50 per cent. When the fee is paid, the validity of a patent is renewed. Where a fee is not paid within these 12 months, the Institution publishes in its Official Gazette information on the termination of validity of the patent. A similar rule is contained in Law of Ukraine No. 3688-XII on the Protection of Rights in Industrial Designs, of December 15, 1993.

In free use could be foreign inventions, for which during the convention period an application is not filed for a Ukrainian patent.

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255 i.e., the State Service of Intellectual Property.

256 The annual fee for maintaining the validity of a patent is paid for each year of its validity, beginning from the application filing date. A document concerning first payment of the fee in question shall be sent to the Institution not later than four months from the date of publication of information on the grant of the patent. A document concerning payment of the fee for each subsequent year shall be submitted or sent to the Institution before the end of the current year of validity of a patent, provided that the fee is paid within the last four months of that year.

However, the analysis of the current situation in Ukraine allows to state that there is no systematic development of the category "Public domain" at the level of normative or methodological support. This category hasn't received the level of distribution, which is inherent in the developed economic countries, and among potential users of intellectual property.
The term "public domain" in the field of patent law in Ukraine is perceived mainly as an opportunity to use the information that is in free use. First of all it concernes patent information and information resources related to innovation and scientific activities. These circumstances have caused the consideration in this review mainly regulations relating to the patent information and other information resources that are in free use in Ukraine.

A particular role in the sphere of the public domain is played by patent information. The public domain contains information on patenting subject matter, the minimum scope of which is defined by the legislation in force, and which must be publicly disclosed by the patent owners in order for them to obtain patent protection. The above patent information, aimed at enriching society with technical knowledge, assists the subsequent development of creative innovative activities for any interested persons.

The public domain in Ukraine may also include subject matter to which copyright or patent law does not extend. In particular, copyright does not extend to any ideas, theories, principles, methods, procedures, processes, systems, means, concepts and discoveries, even if they are expressed, described, explained or illustrated in a work. Nor is protection given as the subject matter of copyright to State symbols, monetary signs, works of national creation (folklore), press-information, official documents of State authorities and so on.

In the patenting sphere, legal protection according to national legislation does not extend to such subject matter of technology as fundamentally biological processes of the recreation of plants and animals, which are not part of non-biological and microbiological processes, or to the subjects of unstable liquid, gaseous, friable or other similar substances etc.

The public domain may also include information relating to technologies and processes which are not patented by their developers for particular reasons, but information in relation to which is disclosed. Primarily, such information which is as a rule scientific and often connected with innovation processes may be accessible in both paper and also electronic form. The disclosure of information in the narrow sense in relation to technologies and innovations is effected on the sites of technology parks, set up in Ukraine, the sites of national higher education institutions (in particular, the polytechnic universities of Kiev, Khar'kov, L'vov etc.), the scientific institutions of the system of the National Academy of Sciences of Ukraine and national sectoral academies of sciences. The above information may also be accessible in the information resources of libraries.

At the same time it should be emphasized that in Ukraine understanding of the need for high-profile offices to create and provide a significant part of their registers and databanks in a user-friendly form is being gradually established. A culture of work with information and understanding of its importance and value is increasing.

Open data are used by citizens and legal entities for public good and to create high-quality information products. Public catalogs of open data, which may be freely used by citizens or business, are created by a significant number of appropriate corresponding offices and central authorities. In this regard, there is observance of the rule according to which information provided on sites is disclosed in forms which are suitable for repeated use and machine processing. Documents may be not only downloaded or printed, but statistical, tabular and other similar data may be analyzed and used in the new products created by business as well as for public needs. Examples include sites with selections of State registers, statistical data, databases of normative-legal documents and other data arrays.

1.2 Identification of information resources and patent information as a subject which may enter the public domain

The existence of patent information and information resources relating to technologies and innovations promotes the transition of the economy to a model of scientific, technical and innovation development, and an increase in the share of science-intensive products, the enhancement of Ukraine's competitiveness and the productivity of labor in all spheres of the economy, accordingly. This also influences the degree of development of the information-telecommunication infrastructure, in particular, of the Ukrainian segment of the Internet.

Expansion of access to information is considered to be a main strategy which should lead to expansion of the sphere of the public domain and generally accessible information services. The possibility to use publicly available information, relating to patents, and its public disclosure are based both on the rules of current legislation containing industrial property law, and also on the technical and information resources of the patent system of the State and other subjects, which have come into operation during the process of creating or disseminating patent information.

In Ukraine, legal and organizational mechanisms, and information and technical resources have been created, which firstly provide access to the public domain and, secondly, allow verification regarding the existence of the corresponding intellectual property rights in the appropriate subject matter of patent law. Within the State the possibility has been established to determine the effects of the corresponding patents, since generally accessible databases exist, which define the legal status of patents.

For this purpose, in particular, the following registers are kept in Ukraine: the State Register of Patents of Ukraine for Inventions; the State Register of Patents of Ukraine for Utility Models; the State Register of Patents of Ukraine for Secret Inventions; the State Register of Patents of Ukraine for Secret Utility Models; and the State Register of Patents of Ukraine for Industrial Designs. The State registration of a patent is accompanied by publication, in the Official "Industrial Property" Gazette, of the information relating to the grant of a patent established by national legislation.

Provision for the requirements of the Ukrainian public in relation to information concerning patent law subject matter is defined as one of the most important trends in the activity of the national patent system and is covered in a number of ways[257].

[257] (1) The Collection of Patent Documentation for Public Use (FOP), which was formed in 1999 and in reality performs the functions of a State patent library, is supplied with national and foreign patent information. The Collection contains patent documentation from 65 countries in the world and four international and regional organizations, on paper and electronic carriers. As of October 1, 2010, the overall volume of the collection of CD-ROMs and DVDs within FOP stood at more than 16,240 copies.

(2) The patent collections of the authorities of the national system of scientific and technical information, in particular the Ukrainian Institute of Scientific, Technical and Economic Information (UKRINTEI), and the State Scientific and Technical Library and regional centers of scientific, technical and economic information (TSNTEI) are supplied free of charge with national patent documentation on paper carriers and CD-ROMs, as well as with international classifications for industrial property subject matter translated into Ukrainian on paper.

(3) The information resources available on a non-fee paying basis through the Internet have been created and are continually updated, in particular 12 databases of industrial property subject matter and information reference systems regarding the state of prosecution of applications for industrial property subject matter, and also on international classifications of such subject matter.

(4) Lists of foreign patent and scientific and technical databases, industrial property subject matter databases, and information resources have been created and are continually updated, and free access is provided thereto through the Internet.

Access to documentation in Ukrainian, in a number of cases also in Russian, is provided through internal databases kept by national authorities. The process of creating an abstract database in English for national information is also

[Footnote continued on next page]

At the same time, the volume of non-paper literature and information resources is increasing significantly more quickly than the volume of patent information. This is one of the difficulties when a patent search is conducted both by specialists of the patent system, and also by any interested persons. As regards patent office examiners, when they carry out a qualifying examination of applications for inventions, they use the information resources of the patent-information examination database (PIB)[258]. The patent system provides for the dissemination of normative-legal, method-related and reference publications on intellectual property matters, information in relation to which is stored on the site of the State Service of Intellectual Property.

While the patent office plays a leading role in the formation of patent information in Ukraine which comes to free use, the real contribution of commercial suppliers of data is substantially less in comparison with developed-economy countries. Commercial companies or innovation structures, which would already have created information products that would allow users to become familiar with and observe the basic qualities and scope of technical globalization, including taking into account official patent statistics, are absent. While in Ukraine there are individual attempts at the above actions, in particular in the context of technology transfer (for example, the United Center for Technology Transfer, which has established as a goal the creation of the corresponding array of information in the sphere of innovations, inventions and technology transfer).

In addition, there is no site which would contain arranged lists allowing users to select individual search criteria in accordance with their interests. According to national legislation, the creation of such a site is not a task of the patent office.

Another source of information in Ukraine is provided by normative-legal, method-related and reference publications. The use of many of these is free and without charge, in particular databases containing normative and legal acts (for example, http://www.rada.gov.ua).

Access to information relating to news in the patenting sphere (but not patent information) is provided by means of mass media, including specialized information sources. In particular, in 2010 on the website of the Ukrainian National News Information Agency (UNIAN) a section entitled “Intellectual Property” has been set up (under the heading “UNIAN Human Rights”). Specialized editions include scientific and practical journals such as “Intellectual Property” (www.intelvlas.com.ua), “Theory and Practice of Intellectual Property” (www.ndiiv.org.ua), “Inventors and rationalizers”, etc. Information of a scientific, technical and innovative nature, located in journals, is freely accessible; from 2009 onwards it has been freely provided in electronic form on the website of the National Vernadskiy Library.

From 1999 in Ukraine is kept the State Register of scientific object that are national treasure. The register includes unique objects that can not be reproduced, loss or destruction of which would have serious negative implications for the development of science and society. Register is maintained by the State Agency for Science, Innovation and Information of Ukraine.

For conservation and use of the genetic of microorganisms in Ukraine was developed Interindustry Scientific and Technical Program "Depository of microorganisms and other biological materials" for 2003-2018 which is directed to the development of biotechnology, protection of industrial property, etc.

[Footnote continued from previous page]

continuing. References to foreign web-resources, which contain information relating to the public domain, primarily in English, are provided. A number of references relate to Russian-language Internet resources.

[258] The overall volume of the collection of CD-ROMs and DVDs within PIB stood, as at November 1, 2010, at 13,330 disks.

1.3 Definition of the structures operating in Ukraine and creating the possibility to use patent information and information resources which are in free use

Among the structures operating in Ukraine and creating the possibility to use patent information, and also information resources in the sphere of science, innovation and technology transfer, and which are in free use, the following may be included.

(1) National patent system

According to current legislation, the national patent system is known as the "State system for legal protection of intellectual property". It is constituted by all the expert, scientific, educational, information and other specialized State institutions which form part of the management sphere of the Ministry of Education and Science, Youth and Sports of Ukraine. The authorities which form part of the national patent system and play a fundamental part in creating patent information include the State Service of Intellectual Property (SSIP, State Service); the State Enterprise "Ukrainian Institute of Industrial Property" (Ukrpatent) created by SSIP; and the branch of Ukrpatent "Ukrainian Center of Innovation and Patent Information Services".

(2) The State Agency for Science, Innovation and Information of Ukraine

After the administrative reform, the Agency is the central authority of executive power and falls under competence of the Ministry of Education, Youth and Sports of Ukraine by the direction and coordination of its activities through the Minister. The official site (http://dknii.gov.ua/). The site contains publications relating to innovation and information development, and technology transfer. The Agency provides information relating to approved State specific-purpose scientific and technical programs as well as to programs being devised. The language of the site is Ukrainian. Access is free[259].

(3) National system of scientific and technical information and its structures

- the Ukrainian Institute of Scientific, Technical and Economic Information (UkrINTEI) (www.uintei.kiev.ua); - State Scientific and Technical Library.
- Regional scientific and technical information centers.
The main aim of UkrINTEI's activities is to provide information, analysis, consultation and organization for scientific, production and economic activities, and to keep databases. Among these databases it is useful to distinguish: "Technologies of Ukraine", database of research and development, research and constractive works and thesises of Ukraine, International Database AGRIS / CARIS, "Scientific and technological activities," "Scientific and technical achievements of Ukraine" etc. Conditions of access depend on the database: free Internet access, commercial and noncommercial (for government), on request.

[259] Within the Agency operates the State Fund for Basic Research which, in 1992, established a basis for the competitive system of grant support for scientific developments by national scientists. Experience in holding competitions for initiative-based projects, the results of conducting research based on grants, method-related principles of examination and definition of scientific priorities are located on the Fund's website (http://www.dffd.gov.ua/). Within the Agency remit lies a number of national scientific centers and scientific-research institutes, the Ukrainian State Center for Scientific, Technical and Innovation Examination, the State Center for Information Resources and other establishments, as well as institutions of the national system of scientific and technical information.

(4) Libraries of Ukraine

- Vernadskiy National Library of Ukraine. On the Library website (http://www.nbuv.gov.ua), presented in Ukrainian, Russian and English, free access is provided to the Library's information resources
- Regional scientific libraries.
- Electronic libraries. These contain links to sites on which are stored: (a) databases which contain the texts of normative and legal acts of Ukraine. Documents are submitted in Ukrainian. There is free access; (b) scientific publications and educational materials. There are references to global library online resources, ncluding arXiv.org, DOAJ — Directory of Open Access Journals, International Federation of Library Associations and Institutions, World Digital Library; (c) fiction.- Other library institutions.

(5) Scientific institutions in which library and electronic information resources have been created

- National Academy of Sciences of Ukraine and its scientific institutions (www.nas.gov.ua). Information is provided on State scientific and technical programs, all-purpose and special-purpose scientific programs, joint competitions for scientific projects etc.;
- Scientific institutions of the National Academy of Sciences of Ukraine, for example, the E.O. Paton Institute of Electric Welding of the National Academy of Sciences of Ukraine (http://www.paton.kiev.ua);
- National sectoral academies of sciences of Ukraine (in Ukraine there are five). Examples of the storing of patent information include the resources of the National Academy of Medical Sciences of Ukraine (http://www.amnu.gov.ua/), and the National Academy of Agrarian Sciences of Ukraine (http://www.uaan.gov.ua/).
- Scientific institutions of sectoral academies. An example is the Scientific Research Institute for Intellectual Property of the National Academy of Legal Sciences of Ukraine (http://www.ndiiv.org.ua).

(6) Higher education institutions of Ukraine in which library and electronic information resources have been created

In Ukraine most higher education institutions have their own information resources providing free access to data on scientific programs and also scientific developments, where provision is made for this within a given higher education institution. Examples of storing information on patenting subject matter, innovations, information technologies etc. (but not patent information) include the websites of leading polytechnic universities, in particular the Kiev National University "Kiev Polytechnic Institute" (www.ntu-kpi.kiev.ua), the Khar'kov National University (www.univer.kharkov.ua), and the Taras Shevchenko Kiev National University (www.univ.kiev.ua/).

(7) Science parks and technology parks

Science parks. An example may be the "Kiev Polytechnic" science park, created on the basis of the Science and Technology Institute "Kiev Polytechnic Institute". The work of the park combines the interests of the main participants in the innovation process relating to science, education, production and business. The park's website (http://spark.kpi.ua) contains information on innovation projects, their content, a description of the technologies used etc. Examples of innovation projects are the "Creation of an educational segment for the national grid – infrastructure for conducting scientific research" and the "Creation of the Ukrainian science education network, URAN".

Technology parks. In 2010 there was a total of 16 technology parks in Ukraine, of which 12 were registered; 17 active projects were registered. Information relating to the activities and projects on which the technology parks are working is contained in general form on the web portal of MON Ukraine and directly on the technology parks' sites.

(8) Other enterprises, institutions, organizations and centers, which store information relating to innovations, technology transfer etc. In particular, information relating to innovation technologies is stored on their sites by enterprises which form part of technology parks, within the system of the National Academy of Sciences and so on.

2. MUTUAL COOPERATION AND RELATIONS BETWEEN THE NATIONAL PATENT SYSTEM OF UKRAINE AND THE PUBLIC DOMAIN, AND SPECIFIC CHALLENGES FACING SOCIETY

2.1 Key development aspects of the patent system of Ukraine

2.1.1 Structure and tasks of the patent system of Ukraine

(1) *Ministry of Education and Science, Youth and Sports of Ukraine* (hereinafter - Ministry). After the administrative reform in Ukraine in December 2010 and February 2011, the Ministry is the main government authority within the central organs of executive power in the forming and implementation of public policies on education and science, innovation and information, intellectual property, etc.

It takes measures relating to the creation and development of infrastructure to support innovation activities. It coordinates activities for the acquisition of rights in intellectual property subject matter, including those created fully or partially using State budgetary funds. In the sphere of sectoral and regional innovation activities and technology transfer, Ministry is entrusted with responsible for: ensuring the development of the national system of scientific and technical information, the national innovation system, state registration of technology parks and their projects, state registration and keeping the State Register of innovative projects, the State Register of projects and technology parks, the State Register of science parks projects, monitoring and control the implementation of such projects, etc. The Ministry website is: http://www.mon.gov.ua/.

(2) The State system of legal protection for intellectual property in Ukraine is the responsibility of the State Department of Intellectual Property. As a result of administrative reform SDIP is now at the reconstructive stage to *the State Service of Intellectual Property (SSIP)*. The State Service is the the central authority of executive power and falls under competence of the Ministry of Education, Youth and Sports of Ukraine by the direction and coordination of its activities through the Minister. The main tasks of the State Service of Intellectual property are implementation of the state policy in the sphere of intellectual property, making suggestions of organization of the State policy in the sphere of intellectual property rights, organizational support for the protection of intellectual property.

(3) *State enterprise "Ukrainian Institute of Industrial Property" (Ukrpatent)*, was established by MON Ukraine Decree No. 175 of June 7, 2000. Ukrpatent is the only examination institution, authorized to consider applications filed for industrial property subject matter, including for inventions, utility models and industrial designs, and to examine such applications. The results of an examination, which are reflected in the examiner's conclusions, are used as the grounds for adoption by State Service of Intellectual property of a decision to grant a document providing protection – a patent for an invention (utility model), or industrial design, or to refuse to grant such.

The State enterprise "Ukrainian Institute of Industrial Property" is the main subject in Ukraine, creating a patent information database. The Institute's official web portal is to be found at http://www.ukrpatent.org/. The data in question correspond to the official web portal of SSIP, which contains general information relating to the activities of the national patent system as a whole, keeps State registers of intellectual property subject matter, stores patent statistics and patent information databases, and so on. The SSIP web portal is to be found at: http://www.sdiv.org.ua/.

(4) *"Ukrainian Center for Innovation and Patent Information Services" (UkrTSIPIP)* is a branch of the State enterprise "Ukrainian Institute of Industrial Property". The aim of establishing UkrTSIPIP is to provide real mechanisms for promoting inventive and innovation activities. The work of the Center is mainly to provide patent-information services for the public. Information searches are conducted regarding inventions, utility models, industrial designs and so on; patent research is carried out in order to identify infringements of the rights or owners of existing documents providing protection; as well as patent research for defining the trends of the development of the subject matter of economic activities. Patent documents are translated. Since 2001, the Collection of Patent Documentation for Public Use (FOP) has been kept. Based on users' orders, copies of foreign patent documentation, not contained in FOP, are ordered. The UkrTSIPIP website is at http://www.ip-centr.kiev.ua. The Center's site operates a successful Internet industrial property exchange market.

2.1.2 Ways of developing the patent system of Ukraine and its influence on the country's innovation development

The intellectual property sphere and its influence on the innovation environment in Ukraine are constantly monitored by the State authorities and the public. At the general State level, such events are held as parliamentary hearings relating to the problems of enforcing intellectual property rights (2007), economic and legal provision for innovation activities and the influence thereon of intellectual property (2008), discussions on the Innovation Development Strategy of Ukraine for 2010-2020 in the context of globalized challenges (2009). The intellectual property sphere has on many occasions become the subject of discussion at sessions of high-profile committees in parliament and the government, the Council on National Security and Defense of Ukraine and other bodies. One of the issues which have been raised during public discussions with public participation was that relating to the facilitation of access to patent information and enhancement of the information available, which constitutes the public domain. The above issues have been implemented in terms of policy, conducted by the National Patent Office in the past two years.

The patent system of Ukraine is developing in accordance with the State system of legal protection for intellectual property for 2009-2014 and the program of development of the State system of legal protection for intellectual property for 2010-2014, aimed at practical implementation of the provisions of the development concept and approved thereby. The anticipated results of implementation of the program of development of the State system of legal protection for intellectual property in Ukraine for 2010-2014 include the creation of conditions for the effective functioning of the State system, including enhancement of the investment climate in Ukraine and support for entrepreneurial activities; increasing the level of awareness and legal culture of Ukrainian society in the intellectual property sphere, etc.

Taking into account the priorities of Ukraine's external and internal policy, in particular, the requirements relating to the creation of a free trade area between Ukraine and the European Union, and also taking account of the fact that Ukraine became a member of the World Trade Organization in 2008, in Ukraine the State system of legal protection for intellectual property directs

its efforts toward active promotion of the use of the nation's intellectual resources for the State's economic development taking into consideration the innovation and investment aspects.[260]

A trend in the development of the national patent system should be an increase in its contribution to the innovation component of Ukraine and the development of the national economy. At the same time, it should be pointed out that support for national industry from the country's patent office is insufficiently developed in terms of such industry being given recommendations regarding the role of patent information and the content thereof. Part of the services are fee-paying, as will be shown later.

As part of the realization of the above aim, it is planned to create a digital patent library, preparatory work for which began at the end of 2008 and is close to completion.

One of the aims of the national patent system must be continued cooperation with the European Patent Office (EPO) regarding participation in the formation and exchange of patent information, including through the possibility to use the European server for publications and, above all, esp@cenet. SSIP and Ukrpatent are defined by the possibility of adoption of WIPO plans regarding the creation of a global knowledge infrastructure, which will include databases of scientific and technical information, free of charge and freely available to the wider public. It is planned to implement the plan devised for measures relating to patent-information provision regarding the functioning of the system of legal protection for industrial property subject matter in Ukraine, taking into account global experience and WIPO recommendations; this is together with subsequent unification and harmonization of patent documentation of Ukraine in accordance with WIPO international standards and national legislation.

2.2 Review of mechanisms and instruments existing in Ukraine for access to patent information, which enters the public domain

2.2.1 How does information relating to the subject matter of a patent enter the public domain in Ukraine: legislative provision and practice

Patent information is of great significance as a means for business analysis and technological forecasting. A patent search is one of the methods which provides for different kinds of important economic indicators. At the same time, strategic decisions regarding the contribution of investments in carrying out research and developments should be implemented not only on the basis of technological analysis using patent data, but also with consideration of market requirements.

Accordingly, if a patent is granted based on the results of a substantive examination, its quality is usually significantly higher, and the patent stronger, than a patent which is granted based on the results of an examination as to form. Simultaneously, in Ukraine contrary to the patenting of inventions, the patenting of utility models provides only for an examination of form to be carried out, while a patent is granted subject to the responsibility of its owner for compliance of the utility model with the requirements of patentability. The consequence of this is the annual growth in the number of judicial disputes, relating to the recognition of such patents as invalid.

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[260] From 2007 onwards, a process of negotiations began relating to a basic agreement between Ukraine and the European Union, within which a Free Trade Agreement was concluded between Ukraine and the European Free Trade Association, signed in June 2010, based on the results of five rounds of negotiations. The negotiations relating to the creation of a free trade area between Ukraine and the European Union are continuing, 13 rounds of negotiations have been held. The draft Agreement includes a separate section which will define the key principles of the legal protection of intellectual property, including patent law subject matter, in accordance with European norms and standards (Section IX "Intellectual Property").

Invention (utility model). In accordance with the current legislation of Ukraine legal protection is granted for an invention (utility model), which does not contravene public order, the principles of humanity of morality, and satisfies the conditions of patentability. The subject matter of an invention (utility model), legal protection for which is granted may be: - a product (device, substance, strain of a microorganism, culture of cells of a plant and animal etc.); or a process (means), as well as a new application of a known product or process.

A person wishing to obtain a patent for an invention (utility model) and which has the right thereto, may file an application[261] for the grant thereof with the SSIP, which adopts, considers and examines applications.

Upon expiry of 18 months from the filing date of an application for the grant of a patent for an invention, and where priority is claimed, from the date of priority, the Office shall publish in its Official Gazette the information regarding the application defined by it, provided that the application has not been withdrawn, is not deemed to have been withdrawn or a decision has not been taken on it to refuse to grant a patent. The publication includes bibliographical data and claims. At the applicant's request, the Office publishes information on an application earlier than the period in question.

After information about application is published, any person may consult the application materials in accordance with established procedure. A fee is payable for consultation of application materials. Information on an application for the grant of a patent for a utility model is not published. Information on applications in relation to which a State Examiner on matters of secrecy has taken a decision to include such applications among State secrets is not published.

On the basis of examination results, where an examination institution prepares a positive report regarding an invention (utility model), the Office takes a decision to grant the corresponding patent. On the basis of a decision to grant a patent and provided documents concerning the payment of the State fee for the grant of a patent and the charge for publication for grant of a patent exist, the information concerning the grant of a patent, as defined in the established procedure, is published.

Following the publication of information on the grant of a patent, any person has the right to consult application materials in accordance with established procedure. A fee is payable for the consultation of application materials.
A patent owner may at any time refuse the patent either fully or partially on the basis of a statement submitted to the Office. Such a refusal enters into force from the date of publication of relevant information in the Official Office Gazette.

The validity of a patent is terminated in the case of non-payment, within the prescribed term, of the annual fee for maintaining the patent in force. The validity of a patent is terminated from the first day of the year for which a fee has not been paid. The annual fee for maintaining the validity of a patent may be paid within 12 months of the end of the prescribed term. In this case, the size of the annual fee increases by 50 per cent. When the fee is paid, the validity of the patent is renewed. If a fee is not paid within these 12 months, the Office publishes, in its Official Gazette, information on the termination of validity of the patent.

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[261] Requirements regarding the content and compilation of application materials and the filing of an application are defined by the Law of Ukraine on the Protection of Rights in Inventions and Utility Models and by the Rules for Compiling and Filing an Application for an Invention or an Application for a Utility Model, as approved by Decree of the Ministry of Education and Science of Ukraine No. 22 of January 22, 2001, and registered with the Ministry of Justice of Ukraine under No. 173/5364 of February 27, 2001.

The patent may be recognized, according to judicial procedure, as invalid either fully or partially. Where a patent or part thereof is recognized as invalid, the Office shall provide relevant information thereon in its Official Gazette.

2.2.2 Review of information resources formed and supported by the patent system of Ukraine, which may enter the public domain

Patent-information provision for the functioning of the State system for the legal protection of intellectual property and the provision to natural persons and legal entities of information on industrial property subject matter constitute one of the main tasks for the examining institution, i.e. Ukrpatent.

Ukrainian legislation does not contain provisions which would provide for the special publication of information relating to the end of the term of validity of a patent for an invention (utility model) or industrial design.

The Office shall issue publications on paper and optical carriers, in particular:

(a) The "Industrial Property" Official Gazette. Published since 1993. Since April 2007 the Official Gazette has been published twice a month in two books. Subscriptions are available to the Gazette.
(b) Specifications relating to patents for inventions and utility models.[262]

(c) Full information on registered patents for inventions (utility models) in structured form and patent documents in PDF format are also stored in the specialized "inventions (utility models) in Ukraine" database, access to which is provided free of charge on the GDIS web portal and the Ukrpatent website. Since 2005, the "Industrial Property" Official Gazette has also been published on CD-ROM.[263]

(d) Since 2005, together with the publication of the Official Gazette a national CD-ROM "Inventions in Ukraine" is issued, which contains full information on registered patents (declaratory patents) for inventions, (utility models) in the form of structured information: bibliographical data, abstract, claims and text of an invention (utility model) specification. Beginning from April 2009, the author's tool MIMOSA has been used as a search system in the national "Inventions in Ukraine" CD-ROM.

(e) A cumulative DVD optical disk "Industrial Designs Registered in Ukraine" is issued, which contains information on all industrial designs registered in Ukraine since January 1993 up to the date of completion of the current registration[264].

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[262] They contain bibliographical data, the appropriate description, claims (for a utility model), and also drawings to which there is a reference in the specification. The specification discloses the essential features of an invention (utility model) and confirms the scope of legal protection defined by the claims (utility model). Patent specifications are published by the State Service. Specifications for patents and declaratory patents for inventions and utility models on paper are published at the same time as the "Industrial Property" Official Gazette. Following publication, any person has the right to consult application materials in accordance with established procedure, for which a fee is payable.

[263] Since 2006, an electronic version of the "Industrial Property" Official Gazette has been stored on the websites of GDIS and the State Enterprise "Ukrainian Institute of Industrial Property". Since 1994, together with the "Industrial Property" Official Gazette an Annual Index has been issued, which contains numerical, systematic and name indexes for industrial property subject matter, information on which has been published in the course of the year.

[264] The disk contains specific information on registered industrial designs, i.e.: bibliographical data, alternatives and embodiments of industrial designs. The bibliographical data are presented in Ukrainian. The disk contains information on

[Footnote continued on next page]

The "Industrial Property" Official Gazette, patent specifications on paper and CD-ROM are sent free of charge to the patent collections of the national system of scientific and technical information, in particular to the State Scientific and Technical Library, the State Scientific and Medical Library and regional scientific, technical and economic information centers.

The Regional Patent-Information Product of the CIS countries, CISPATENT, is freely available has been issued since 2002. The technical operator and coordinator of the project is Rospatent. Belarus, Armenia, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Uzbekistan, Ukraine and the Eurasian Patent Organization (EAPO) participate in the project.

In the first quarter of 2010 Ukrpatent issued a guide "Patent documentation. Compilation and possibilities for access in Ukraine". The above guide has been distributed free of charge to State authorities and institutions and organizations concerned in Ukraine.

In order to carry out the given task, in previous years the following information resources and products have been created: (a) interactive electronic databases and information-search systems housed on servers connected to the Internet; (b) databases on CD-ROM and DVD optical information carriers; (c) technology and auxiliary databases for internal use by examiners of the examining institution; (d) a search portal of the examining institution and numerous information-search systems[265]. These information resources and products have been available in Ukraine for

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the grant of patents in Ukraine for industrial designs, numerical and systematic indexes and information relating to patents for industrial designs.

[265] **In the "DATABASES" group**

Official Gazette category: ***"Electronic version of cumulative "Industrial Property" Official Gazette"***

Inventions and utility models category:

- ***"Future-oriented inventions of Ukraine" database***

This has operated free of charge since 2008. It contains information on inventions which are specially selected by the Examination Council, set up within the National Academy of Sciences of Ukraine, to select future-oriented inventions. A thematic review is conducted of the categories: Human needs; Technologies and transportation; Chemistry, Metallurgy; Textiles, paper; Construction, mining; Mechanics, engines and pumps, lighting, heating; Physics; Electricity. Access to the above information is free.

- ***"Inventions (utility models) in Ukraine" specialized database***

(http://base.ukrpatent.org/searchINV/search.php?action=viewhelp#results)

The specialized database contains information on patents for inventions (utility models) registered in Ukraine. Brought into operation as of December 2002, each month (in accordance with publication) the database receives new information on patents granted for inventions (utility models). The following information is loaded into the database: bibliographical data and claims (in Ukrainian or Russian) for patents registered since 1993; bibliographical data, claims and specifications for inventions (in Ukrainian or Russian) for patents registered since 2000; bibliographical data and abstracts for inventions (Ukrainian, English and Russian), claims and specifications for inventions (in Ukrainian or Russian) for patents registered since 2002. Based on the wishes of users, access free of charge was provided to the "Inventions and utility models in Ukraine" specialized database as of June 1, 2007.

- ***"Information on applications for inventions, accepted for consideration" Collective use database*** *(http://base.ukrpatent.org/searchbul/search.php?action=viewhelp).* Access to the above database is free.
- ***"Inventions of foreign countries" Internet database (test version)***

(http://www.ukrpatent.org/upatentais/ua/help.html)

The proposed form of search request may be displayed by formulating one of two kinds of request: (a) a complex search; (b) an examination search. Also proposed is a method for working with search results: "search results" and a reverse communication form.

Industrial designs category:

- ***"Industrial designs registered in Ukraine" interactive database***

(http://base.ukrpatent.org/searchBul/search.php?action=viewhelp)

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use since 2003. During the whole period of operation more than 60,000 clients have used the services of no more than three main databases (on inventions, industrial designs and trademarks). In this regard, more than 1.2 million information searches were carried out.

Also on the SSIP web portal the following reference information is stored: (1) a list of information-reference systems of Ukrpatent. The systems were introduced in 2005-2008. They contain information which is displayed in the corresponding international classifiers; (2) an "automated intellectual property database for UEFA and its commercial partners" is stored.

To satisfy the information needs of examiners, a first example of an integrated "information-reference examination collection" system has been devised and brought into operation, in particular a database and software for the automatic formation of Ukrainian and Russian dictionaries explaining scientific and technical terms in relation to five index levels of the International Patent Classification (section, class, subclass, group, subgroup) etc.

Respecting the recommendations of WIPO regarding the use of data formats when creating patent-information products, Ukrpatent has devised software, with the aid of which in the MIMOSA author's instrumentation format, all the information arrays relating to documents providing protection for inventions, industrial designs, and marks for goods and services, registered in Ukraine, were presented. In 2009 measures were taken, which provided the possibility to build a system for the formation, storage, periodical renewal and operative access to bibliographical data and abstracts for inventions registered in different countries in the world. This database is already operating on the website: www. ukrpatent.org. For the system supporting the adoption of examiners' decisions, the modules providing machine translation into Ukrainian of abstracts for patents for inventions registered in different countries in the world are being modernized.

On the Ukrpatent site, information is stored relating to the online search service PATENTSCOPE®, created by WIPO, and there is a link to the WIPO website. A description of the new "SmartSearch" service is provided. For users, its advantages and possibilities are described, and it also contains an access address.

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The interactive database contains information on industrial designs for which the corresponding State registration patents have already been granted. The system contains information on bibliographical data and representations of the industrial designs. The bibliographical data are presented in Ukrainian. As of September 2004, the "Industrial designs registered in Ukraine" database was brought into operation and connected to the Internet (www.ukrpatent.org), which provides numerous information users with operative interactive access to one of the most important information resources. As of June 1, 2007 access to the "Industrial designs registered in Ukraine" interactive database was provided free of charge.

➢ ***"Information on international registration of industrial designs which have obtained legal protection in Ukraine" database*** *(http://www.ukrpatent.org/cgi-bin/inetppbul).*

Access to the database is free.

"INFORMATION-REFERENCE SYSTEMS" group

Inventions and utility models category: "Prosecution of applications for inventions (utility models)" information-reference systems"; "International Patent Classification. Core level (2009). Ukrainian version (January 2010)". Information-reference systems"; "Information on patents of Ukraine for inventions (utility models) which are recognized as invalid and patents which have lapsed" information-reference systems (information may be obtained only when a specific request is formulated).

Industrial designs category: "Information on the prosecution of applications for industrial designs in Ukraine" information-reference systems; "Information on patents of Ukraine for industrial designs which are recognized as invalid and patents which have lapsed" information-reference systems (information may be obtained only when a specific request is formulated); "International Classification of Industrial Designs (Locarno Classification). Ninth edition". Information-reference systems.

Access to all information data systems is free of charge. Additional registration is not required.

The deepening of the harmonization of patent-information activities in Ukraine with contemporary policy of the world community in the patent-documentation and standardization sector significantly helps the fact that SSIP and Ukrpatent specialists constantly take part in work done within the activities of the Standards and Documentation Working Group of the Standing Committee on Information Technologies (SDWK-SCIT) as a result of the review of WIPO standards.
In order to provide users with information in a more complete manner and create an additional source of information for a broader public among the scientific and technical community of Ukraine regarding the information activities of the State Service, the section “Plans and reports” on its web portal, in 2009, received for the first time the technical reports which also in future will be issued annually on the Internet.

In order to provide information for the public on the review of WIPO standards, the introduction of amendments and additions thereto, according to the results of the work of the regular sessions of the WIPO SDWG-SCIT, the State Service web portal and the website of the State Enterprise Ukrainian Institute of Industrial Property house the corresponding information communications; information relating to the drafting of WIPO standards in force is systematically updated (with the provision of hyperlinks to official texts of the standards in English and Russian); the unofficial translation into Ukrainian of a number of WIPO standards Information is provided regarding the provision by EPO specialists of distance learning (with a view to informing users interactively of the news and latest achievements in the sector of patent-information services. The language of the free seminars is English).

2.2.3 Restrictions on access to patent information provided for by current legislation

The grant of a patent for a secret invention (secret utility model) is provided for by national legislation. The receipt of information relating to the patenting of such subject matter is limited. Such limitations are established by the Law of Ukraine on the Protection of Rights in Inventions and Utility Models (in Articles 1, 12, 16, 23, 27 and 28).

The inclusion of information contained in an application among State secrets is done according to the Law of Ukraine on State Secrets and the normative and legal acts adopted on the basis thereof. Where an invention (utility model) is created using information registered in the Collection of Information containing State secrets of Ukraine, or such an invention (utility model) according to the Law of Ukraine on State Secrets may be included among State secrets, the application is then filed with SSIP by means of a secret authority of the applicant or through a competent authority of the local State administration in the place of business (for legal entities) or place of residence (for natural persons). Attached to the application is a proposal by the applicant to include the invention (utility model) among State secrets with a reference to the corresponding provisions of the Law of Ukraine on State Secrets. Information on applications in relation to which a State Examiner has taken a decision to include it among State secrets is not published.

From the date of receipt of an application by SSIP and until publication of information on the application or publications containing information on the grant of a patent, application materials are considered to be confidential information. Access by a third party to application materials is forbidden, apart from in the cases where such access is gained with the authorization of the applicant or on a decision by a competent authority. Persons guilty of infringing the requirements of confidentiality of application materials bear the liability envisaged by the laws of Ukraine. Information on the grant of a patent for a secret invention and of a patent for a secret utility model is not published. The procedure for declassifying a secret invention (utility model) is enshrined in legislation.[266]

[266] (1) The owner of a patent for a secret invention (utility model) has the right to submit to the appropriate State Examiner a proposal to declassify an invention (utility model) or amend the established degree of secrecy. In this case,

[Footnote continued on next page]

The compulsory alienation of rights in an invention (utility model) in relation to the owner of a patent for a secret invention or a declaratory patent for a secret utility model envisages the possibility for the owner to grant a license for the use of its invention (utility model) only to a person who has authorization for access to this invention (utility model) from a State Examiner.

2.2.4 Reverse link between the public domain and the patent system of Ukraine

The development of the information society in Ukraine is defined as one of the priority tasks. At the legislative level, the Basic Principles for the Development of the Information Society in Ukraine for 2007-2015 have been adopted, as the creation of an information society is a key value for a representative democratic State.

In addition, Ukraine has assumed responsibility for carrying out obligations relating to international cooperation aimed at developing the information infrastructure and expanding its participation in the corresponding international initiatives. Among the tasks defined at the State level as priorities for the introduction of a generally accessible information infrastructure is the creation of the necessary technical and technological infrastructure, and electronic information resources in archives, libraries and museums, and scientific research institutions, in order to define the requirements relating to the compulsory unified electronic storage of the results of scientific activities and the provision of free access to the results of scientific research carried out using funds from the State Budget of Ukraine. Moreover, the acquisition of the possibilities offered by national programmers for devising and disseminating software using Ukrainian, and the languages of the national minorities of Ukraine, for more comprehensive coverage of the use of ICTs among the different sections of the population has been recognized.

Thus, the measures in question promote the receipt of patent information which is provided by the national patent system and authorities that participate in the formation of information resources connected with innovations, technology transfer etc., and which can be considered as the public domain, for a significantly larger circle of users.

Institutions of higher education in Ukraine are planning to devise and introduce a system of distance learning for intellectual property, technology transfer and innovation activity specialists; together with the creation of an Internet portal for institutions of higher education in Ukraine, which provide training for staff on intellectual property, technology transfer and innovation activities. In Ukraine research is being carried out into the meaning and role of patent information, and improvements made to legal, organizational, technical and information provision. Research is

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the State Examiner must examine the proposal and provide a written response within one month of the date of receipt of the proposal.
(2) The amendment of the degree of secrecy of an invention (utility model) or its declassification is done on a decision of the corresponding State Examiner, following a proposal by the patent owner as a result of the end of the term of validity of the decision to include information on the invention (utility model) among State secrets or on the basis of a court decision.
(3) The owner of a patent for a secret invention or a declaratory patent for a secret utility model may, within one year of the date of receiving the decision of the State Examiner to declassify an invention (utility model), submit to the Institution a request to grant a patent for the invention for the term remaining until the end of the validity of a patent for a secret invention or declaratory patent for a secret utility model. In this case, SSIP enters the corresponding amendments in the Register, publishes the grant and grants the patent according to the general procedure, provided that the appropriate dues and State fee have been paid.
(4) The exclusive rights of the owner of a patent for a secret invention and a declaratory patent for a secret utility model are limited by the Law of Ukraine on State Secrets and corresponding decisions of a State Examiner.
(5) The owner of a patent for a secret invention or a declaratory patent for a secret utility model has the right to obtain from the State authority determined by the Cabinet of Ministers of Ukraine monetary compensation to cover the expenses for payment of the fees provided for by the Law. Disputes relating to the levels of and procedure for payment of monetary compensation are settled by the courts.

being carried out primarily within the structures of the national patent system. During the past ten years working groups and committees have been created and are in operation, which propose ways to resolve the aforementioned problems. Databases, both those introduced and those which it is proposed to introduce, are on the agenda of professional meetings, including with the involvement of European experts, and specialists from other countries and international organizations.

E. INDIA

1. OVERVIEW OF THE TERM 'PUBLIC DOMAIN' AND ITS RELATED TERMS IN INDIA AND IDENTIFYING SUBJECT MATTERS THAT COULD FALL INTO PUBLIC DOMAIN.

In India the term 'Public Domain' is neither defined in the Indian Patents Act, 1970 (hereafter referred as Patents Act) nor in any other Intellectual Property laws like Trade Marks, Design, Geographical Indication and Copyright Acts. Patent information is one of the tools to establish whether a specific subject matter is in public domain or not.

The only provision in which the term 'public domain' is mentioned but not defined is S. 2[1(l)] of the Patents Act, 1970. Section 2[1(l)] of the Act actually defines the term 'new invention' as..[1]

> *"new invention' means any invention or technology which has not been anticipated by publication in any document or used in the country or elsewhere in the world before the date of filing of patent application with complete specification, i.e., the subject matter has not fallen in public domain or that it does not form part of the state of the art*".

In view of the above lines, it is a normally accepted supposition that **public domain** means any information, Knowledge, Document, Technology or Invention which is readily available and accessible, either directly or indirectly to the public, not only in India but across the globe, in any form. In other words, any knowledge or information which is available, published or used in any part of the world prior to date of filing/priority of an Indian application, may be considered as knowledge or information in the public domain.

Further, there are many artificial exclusions prescribed under S.3 of the Patents Act [2] and any information or invention created in these areas of exclusions, which when disclosed would deemed to be in public domain. Such non patentable inventions are as follows;

- Any invention which is frivolous or which claims anything obviously contrary to well established natural laws;
- An invention, the primary or intended use or commercial exploitation of which could be contrary to public order or morality or which cause serious prejudice to human, animal or plant life or health or to the environment;
- The mere discovery of a scientific principle or the formulation of an abstract theory or discovery of any living thing or non-living substances occurring in nature;
- The mere discovery of a new form of known substance which does not result in the enhancement of the known efficacy of that substance 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.
- A 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;
- The mere arrangement or re-arrangement or duplication of known devices each functioning independently of one another in a known way;
- A method of agriculture or horticulture

- Any process for the medicinal, surgical, curative, prophylactic diagnostic, therapeutic or other treatment of human beings or any process for a similar treatment of animals to render them free of disease or to increase their economic value or that of their products;
- Plants and animals in whole or any part thereof other than micro-organisms but including seeds, varieties and species and essentially biological processes for production or propagation of plants and animals;
- A mathematical or business method or a computer programme *per se* or algorithms;
- A literary, dramatic, musical or artistic work or any other aesthetic creation whatsoever including cinematographic works and television productions;
- A mere scheme or rule or method of performing mental Act or method of playing game;
- A presentation of information;
- Topography of integrated circuits;
- An invention which in effect, is traditional knowledge or which is an aggregation or duplication of known properties of traditionally known component or components.

Apart from the above, section 4 of the Patents Act [3] prohibits inventions relating to atomic energy patentable.

2. INFLUENCE OF PUBLIC DOMAIN IN THE INDIAN PATENT SYSTEM- CERTAIN PECULIAR PROVISIONS IN THE INDIAN PATENS ACT OF 1970 RELATING TO PUBLIC DOMAIN AND PUBLIC DISCLOSURE.

One of the widest scientific, technological, informative knowledge resource available in the world is Patent information. So, if an invention is not covered by patent protection, the invention is in the public domain and in such a way any public can use and build upon it without any restrictions. Any information, whether patentable or non-patentable available in the public domain are considered as public goods. Even though the primary objective of the Indian patent system is to enlarge the private goods, eventually, after the expiration of term and made available in public domain, it becomes public goods.

In India, a patent application can be viewed as anticipated upon previous publication (Section 29)

> "(1) An invention claimed in a complete specification shall not be deemed to have been anticipated by reason only that the invention was published in a specification filed in pursuance of an application for a patent made in India and dated before the 1st day of January 1912.
>
> "(2) Subject as hereinafter provided, an invention claimed in a complete specification shall not be deemed to have been anticipated by reason only that the invention was published before the priority date of the relevant claim of the specification, if the patentee or the applicant for the patent proves; —
>
> (a) that the matter published was obtained from him, or (where he is not himself the true and first inventor) from any person from whom he derives title and was published without his consent or the consent of any such person; and
> (b) where the patentee or the applicant for the patent or any person from whom he derives title learned of the publication before the date of the application for the patent, or in the case of a convention application, before the date of the application for protection in a convention country, that the application or the application in the convention country, as the case may be, was made as soon, as reasonably practicable thereafter: PROVIDED that this sub-section shall not apply if the invention was before the priority date of the claim commercially worked in India, otherwise than for the purpose of reasonable trial, either by the patentee or the applicant for the patent or any

person from whom he derives title or by any other person with the consent of the patentee or the applicant for the patent or any person from whom he derives title.

"(3) Where a complete specification is filed in pursuance of an application for a patent made by a person being the true and first inventor or deriving title from him, an invention claimed in that specification shall not be deemed to have been anticipated by reason only of any other application for a patent in respect of the same invention made in contravention of the rights of that person, or by reason only that after the date of filing of that other application the invention was used or published, without the consent of that person, by the applicant in respect of that other application, or by any other person in consequence of any disclosure of any invention by that applicant. "

Some of the inventions are very unique and it may be needed to disclose the same to the Government**.** As per Section 30 of the Patents Act, An invention claimed in a complete specification shall not be deemed to have been anticipated by reason only of the communication of the invention to the government or to any person authorised by the government to investigate the invention or its merits, or of anything done, in consequence of such a communication, for the purpose of the investigation.

According to Section 31 of the patents Act, **a**n invention claimed in a complete specification shall not be deemed to have been anticipated by reason only of—

"(a) the display of the invention with the consent of the true and first inventor or a person deriving title from him at an industrial or other exhibition to which the provisions of this section have been extended by the Central Government by notification, in the Official Gazette, or the use thereof with his consent for the purpose of such an exhibition in the place where it is held; or

"(b) the publication of any description of the invention in consequence of the display or use of the invention at any such exhibition as aforesaid; or

"(c) the use of the invention, after it has been displayed or used at any such exhibition as aforesaid and during the period of the exhibition, by any person without the consent of the true and first inventor or a person deriving title from him; or

"(d) the description of the invention in a paper read by the true and first inventor before a learned society or published with his consent in the transactions of such a society, if the application for the patent is made by the true and first inventor or a person deriving title from him x[not later than twelve months] after the opening of the exhibition or the reading or publication of the paper, as the case may be."

An invention claimed in a complete specification shall not be deemed to have been anticipated by reason only that at any time within one year before the priority date of the relevant claim of the specification, the invention was publicly worked in India [Section 32]—

"(a) the patentee or applicant for the patent or any person from whom he derives title; or

"(b) by any other person with the consent of the patentee or applicant for the patent or any person from whom he derives title, if the working was effected for the purpose of reasonable trial only and if it was reasonably necessary, having regard to the nature of the invention, that the working for that purpose should be effected in public."

Anticipation by use and publication after provisional specification is not a prior disclosure as per section S.33 of the Patents Act

> "(1) Where a complete specification is filed or proceeded with in pursuance of an application which was accompanied by a provisional specification or where a complete specification filed along with an application is treated by virtue of a direction under sub-section (3) of section 9 as a provisional specification, then, notwithstanding anything contained in this Act, the Controller shall not refuse to grant the patent, and the patent shall not be revoked or invalidated, by reason only that any matter described in the provisional specification or in the specification treated as aforesaid as a provisional specification was used in India or published in India or elsewhere at any time after the date of the filing of that specification.
>
> "(2) Where a complete specification is filed in pursuance of a convention application, then, notwithstanding anything contained in this Act, the Controller shall not refuse to grant the patent, and the patent shall not be revoked or invalidated, by reason only that any matter disclosed in any application for protection in *a* convention country upon which the convention application is founded was used in India or published in India or elsewhere at any time after the date of that application for protection."

Notwithstanding anything contained in the Act, as per Section 34, the Controller shall not refuse to grant a patent, and a patent shall not be revoked or invalidated by reason only of any circumstances which, by virtue of section 29 or section 30 or section 31 or section 32 do not constitute an anticipation of the invention claimed in the specification.

Nevertheless, the Indian patent system has provisions through which an invention may fall into the public domain, like rejection of a patent application, failure to renew, successful opposition or revocation of patent application or patent. Thus, this system enables the public to identify and use such inventions which fall in the public domain.

Public disclosure such as 18 month publication, not only provides patent information to opponents and other stake holders, but also allows others an opportunity to improve on it and create improved or alternate technologies. In this way, the public domain plays a dual role.

Section 53(1) of the Patents Act [4] states the term of every patent granted as twenty years from the date of filing of the patent application. Under section 53(2), a patent shall cease to have effect due to non-payment of renewal fee within the prescribed period.

Under section 8 of the Patents Act,5 the patent applicant has to submit particulars of corresponding foreign applications in respect of the same or substantially the same invention, at the time of filing the Indian application or within six months from the date of the availability of such data, till the date of grant. Moreover, the Controller of Patent may require the applicant to furnish details relating to the processing of such corresponding applications at any time upto the grant of the patent application in India. In addition, it is mandatory for the applicant to furnish an undertaking to keep the controller of patents informed from time to time of the particulars of similar applications the applicant may prosecute in other countries in future.

Though, there is no direct provision in the Trade Marks Act, 1999, the practice in Indian Trade Mark registration system does not allow representation of any patented article gets registered as Trade Mark under Trade Marks Act, 1999. A device which is a representation of a patented article may be *prima facie* distinctive but may be refused on the ground that after the expiration of the patent the public should have the liberty to utilize the innovation to the full extent [6].

Publication of research papers in national or international Journals or magazines are always considered by the scientists as a prestigious action. However, such publications are considered as unintended disclosure of valuable knowledge having potential of intellectual property protection by the scientist; these leads may be developed further as it is available in the public domain and such developments may be patented. Taking all these into account, the department related parliamentary standing committee headed by Chairman Dr.T.Subbarami Reddy[7] has proposed

some relevant amendments in '*Protection and Utilisation of Public Funded Intellectual Property Bill, 2008*'[8] as a report and the report was presented to the parliament of India on 2nd August, 2010. This proposed amendments safeguards the interest of scientists of Public funded Government Institutions; whose research paper(s) were published before the filing of their patent application(s).

3. EXISTING LEGISLATIONS AND PROPOSED LEGISLATIONS GOVERNING CERTAIN ASPECTS OF PUBLIC DOMAIN SUCH AS BIO-DIVERSITY, TRADITIONAL KNOWLEDGE, PLANT VARIETY PROTECTION AND FOLKLORE.

As mentioned earlier, [in the first point] there is no exclusive legislation in India to deal with Public domain. Legislations with respect to patent related aspects in India are like *The Biological Diversity Act, 2002*,[9] *The protection of plant varieties and farmers Rights Act, 2001* and the proposed legislation '*The protection, conservation and effective management of traditional knowledge relating to biological diversity rules, 2009*'.

There is a special Act to deal with the accession of information in India called *The Right to information Act 2002*, Section 8(d) of the said Act[10] categorically exempt some nature of information including Intellectual Property, Trade Secrets and Commercial Confidence from disclosure. But, this exemption is not absolute unless the competent authority is satisfied that larger public interest warrants the disclosure of such information. The Right to information Act has a specific provision under section 10 envisaging the principles of severability. So, when a request for access to information is rejected on the ground that it is in relation to information which is exempt from disclosure, then access may be provided to that part of the record which does not contain any information which is exempt from disclosure and which can reasonably be severed from any part that contains exempt information.

Apart from the above, India currently has no special Act exclusively to deal with Trade secrets and Commercial confidence. However, the common law practice and provisions of Contract Act is the legislative tool upon which the disputes relating to trade secrets are tackled in India.

Access to Data and Data Exclusivity:- Though, the Patents Act, 1970 is in conformity with the general provisions and basic principles of TRIPS, it does not have any provisions dealing with data exclusivity and its protection. The Government of India formed a committee to look into the Data exclusivity under the chairmanship of Mr. Satwant Reddy[11] in 2004 and the committee submitted its report in 2007. The report recommended a period of 3 years of Data Exclusivity Agro Chemicals products. But time being, the committee did not recommend any specific Data Exclusivity period for Pharmaceuticals products.

The Pesticides Management Bill, 2008[12], which replaces and repeals Insecticides Act, 1968, was introduced in *Rajya sabha* (one of the houses of Indian parliament). Later this bill was referred to the Parliamentary standing committee on Agriculture. Section 12(6) the Bill speaks about the data exclusivity in agro chemicals for 3 years.

Reproduced hereunder is the proviso clause of Section 12 of Pesticide Management Bill, 2008.

> *"12(6) The data submitted for the purpose of registration in respect of a pesticide under this section which has not been previously registered shall not be relied upon for grant of registration of the same pesticide in respect of any other person for a period of three years.*
>
> *"12 (7) Subject to sub-section (6), where a pesticide has been granted a patent, the period of non-reliance on data shall be limited to the period of the patent.*
>
> *"Explanation.. The words "not been previously registered" in respect of a pesticide shall include its name or label expansion through "new uses":*

"Provided that the provisions of non-reliance on data submitted for registration of a pesticide by the first registrant shall be available for the period with effect from the date of the first marketing approval granted anywhere in the world and this shall not apply to the data relating to bio-efficacy and shelf-life part of pesticides where data is to be generated for use under Indian conditions."

Further, the Central Government may relax or exempt the provision of non-reliance of data submitted for registration of a pesticide by the first registrant during the circumstances of national exigency or urgency, for public interest, for use by the Government for academic and research purpose.

The Parliamentary Committee on Agriculture submitted its report on 18th February 2009 and had recommended the data protection period under Section 12 (6) of this Bill to be raised as 5 years. The only reason given by the Committee for increasing the term is that this five year period would help in encouraging the introduction of newer pesticide molecules in the country. Presently, the Bill is pending before the Parliament of India.

Protection and Utilisation of Public Funded Intellectual Property Bill, 2008. The Bill, contains provisions similar to the U.S. Bayh-Dole Act. Having tabled in the Rajya sabha (one of the houses of Indian Parliament), the bill was referred to the parliamentary standing committee headed by Mr.Subbarami Reddy[13] for review. Report with the proposed amendments presented to the parliament of India consists of some salient features, which protects the interest of Scientists who are part of public funded Government institutions and their patents. The proposed amendments say that the bill will cover only patent and plant varieties. Presently the bill is pending before the parliament of India.

Some of the proposed recommendations are:-

- It is not mandatory for the public funded institutions to disclose and patent every invention. But has to disclose only such invention to the government that it wishes to so patent.

- The government has the right to "use" any invention patented by a public funded institution. It also has the right to issue non-exclusive licenses to any third party for the use of the public funded patent in the public interest.

- The public funded institution has to disclose all its patents, and licensing and commercialization details on its website.

- Public funded patents cannot be assigned without the permission of the government.

4. BENEFITS OF ACCESSIBLE PUBLIC DOMAIN KNOWLEDGE IN INDIA.

Access to knowledge available in the public domain could be utilized by the public for the purpose of their choice. But, the information of a valid patent available in the public domain cannot be utilized as free source of information as any other information available in the public domain. The thin line which goes between accession and utilization of general information and the patent related information is the conditional utilization. Only upon compliance with this stipulated condition, one can utilize the patent related information available in the public domain. So, the patent information available to the public is not conclusive one, but is restricted under the provisions of patent Act.

The only consideration in grant of a patent is with the complete disclosure of the invention through its specification.

Under section 10 read with Rule 13 of the Patents Act[14], the specification should contain a full and sufficient description of the invention, the abstract accompanying the specification should commence with the title of the invention, and the title should disclose the specific features of the invention. The applicant is required to disclose the best mode of performing the invention in the specification. These provisions really enable and assist the public or any person skilled in the art to perform/work the invention after the expiry of patent term.

So that on expiry of the term of the monopoly any member of the public can use the invention of the expired patent. Subject to the provisions of the Indian Patents Act, under section 72, the register kept in Indian Patent Office is open to inspection by the public; and certified copies, sealed with the seal of the Indian patent office and any entry in the register shall be given to any person requiring them [on payment of the prescribed fee]. The copies obtained so is *prima facie* evidence of any matters required or authorized by Patent Act.

5. IDENTIFYING AVAILABLE TOOLS TO ACCESS THE SUBJECT MATTER AND INFORMATION AVAILABLE IN PUBLIC DOMAIN.

Accession of the subject matter and information plays an important role in the patent granting system, especially as prior art to oppose any patent application or patent. India, a multifaceted country having rich knowledge in culture, tradition, ethno-religious medicinal system and bio-resources. These knowledge is available in the form of religious scripts and literatures in the languages of Sanskrit, Tamil, Urdu, Arabic, Persian etc., these age old scriptures are available only in the form of local vernacular and are hard to decipher. To facilitate the examiners of patent to go through these contents, for deciding whether an invention is devoid of novelty or not, the Government of India is keep on documenting and has documented most of these available knowledge into other popular languages like English, French, German, Japanese and Spanish. This documented knowledge is called Traditional Knowledge Digital Library[15] (briefly called TKDL). Nowadays this TKDL is accessible by the patent examiners in Indian Patent Office, USPTO, EPO and JPO. But, it can not be accessed by the people including the citizen of India.

Under Section 11A of the patents Act, 1970 the patent applications are published and are made available in the Indian Patent Office website [16]. Any person, who wants to challenge the patent application before it is granted, may lodge pre-grant opposition under section 25 (1) of the patents Act, 1970. Any person interested may give notice of opposition under section 25 (2) of the patents Act, 1970 after the grant (But before the expiry of one year period from the date of publication of grant of a patent). The publication and accessibility of such published information fulfils the required knowledge for filing such oppositions by the general public before the Indian Patent office.

If a patent applicant mentions a biological material in the specification, which is not available to the public; under section 10(4)(d)(ii) the Patents Act, the applicant has to deposit the claimed biological material at an international depository authority under the Budapest Treaty recognized by the WIPO [for example: Microbial Type Culture Collection and Gene Bank (MTCC)[17]]. Upon publication of a patent application under section 11A of the Patents Act, the depository institution shall make the biological material mentioned in the specification available to the public on payment of fee.

Another peculiar provision under section 10(4)(d)(ii)(D) is to disclose the source and geographical origin of the biological material in the patent specification, when used in the invention. This is a unique provision in India, which enables the Biological Diversity Authority of India to identify whether the bio material, is of Indian origin and provides a sort of patent link between the Indian Patent Act and the Biological Diversity Act, 2002. Unfortunately, this requirement is not restricted only to the inventions originating from the biological materials of Indian origin. Therefore, foreign

applicants for patents in India will have to include this information in the Indian patent application at the time of filing. If this requirement is not met, it's a ground for opposition and revocation of the patent application/Patent.

Government of India through its Department of Information Technology has finalized its draft policy on open standards for e-Governance[18]. The aim of this policy is to make all Government services accessible to the common man in his locality. Sub clause 4.1.2 of the policy specifically says that the Patent claims necessary to implement the identified standard shall be made available on a royalty-free basis for the life time of the standard. It further states that any standard, with patent and free from IPR relate encumbrance, be considered as open standard.

Internet is one of the tools for accessing the subject matter and searching patent. Free patent search resources on the internet also include the search solutions offered by the Indian patent office. They offer search of both granted patents and published applications. Indian patent search is a free patent search offered by the Government of India[19]. Big patents India is also a free website for searching pending Indian patent applications in India[20].

It is pertinent to say that one of the objectives of National Policy on Intellectual Property (draft)[21] is expeditiously disseminating the information contained in Intellectual Property documents.

6. HOW THE SUBJECT MATTER OF PATENTS FALL INTO PUBLIC DOMAIN.

The knowledge available in the public domain at the time of filing the patent application is known as prior art. Subject matter restrictions (S.3 and 4) and proper prior art search are under the procedural purview of the Patents Act, 1970.

Under Section 11A read with Rule 24 of Patents Act, 1970, an application for patent shall ordinarily be open to the public after 18 months from the date of filing of the application or the date of priority of the application, whichever is earlier.

It is also possible to request an early publication of the patent application. So, the period within which the Indian Patent Authority publishes the application in the Journal shall ordinarily be one month from the date of expiry of said period, or one month from the date of requesting publication.

But, at three stages or situations the subject matter does not come under public domain where,

- Any secrecy direction is issued.
- The application is abandoned.
- The application is withdrawn.

These are explained here below:

(1) No application for patent is published where there is any secrecy direction issued by the Patent Authority with regard to that application which falls under subject matter of Atomic energy or Defence purposes. This secrecy direction issued by the Indian Patent Authority is subject to the approval of Government of India. However, if the said secrecy direction is approved, it can be periodically reviewed or reconsidered by the Government of India at the intervals of six months. Interestingly, if an application filed by a foreign applicant with regard to defence purposes and is found that invention is published outside India, Government of India shall forthwith give notice to controller to revoke the secrecy direction.

(2) No application for patent be published when such an application is devoid of complete specification which should have been filed within 12 months from the date of filing of application, such kind of applications are deemed to be abandoned, as enshrined in the Patents Act, 1970.

(3) No application for patent is published; if the application is withdrawn 3 months prior to the period of 18 months publications.

Apart from that subject matter of patent will fall into public domain on cessation of the patent right due to non-payment of renewal fee or surrender of patent by applicant and consequent revocation by patent authority and on expiry of the term of patent.

7. PECULIAR PATENT LINKAGE BETWEEN THE INDIAN PATENT SYSTEM AND BIO-DIVERSITY/ TRADITIONAL KNOWLEDGE IMPOSED BY THE LEGISLATION AND PROPOSED LEGISLATION IN INDIA.

The system of 'patent linkage' refers to the practice of linking drug marketing approval to the status of the patent of the originator's product. Patent Linkage system, followed in some member countries, is born out of harmonious reading of Article 28 and 39.3 of TRIPS and TRIPS Plus agreement. But, in India there is no such provision either in the Patents Act, 1970 or Drugs and Cosmetics Act, 1940 governing or enabling linkage between Indian Patent Office and Drug Controller Authority of India.

India, being a signatory at the United Nations Convention on Biological Diversity, wherein the sovereign rights of the States over their biological resources are reaffirmed, has enacted in its Parliament '*The Biological Diversity Act, 2002'*. Under the Biological Diversity Act, 2002, results of research, relating to any biological resources occurring in or obtained from India and knowledge obtained from India, cannot be transferred to any non-residential Indian or any foreign entity without approval of National Biodiversity Authority.

Under section 6 of the above Act, no application for intellectual property right in or outside India for any invention based on any research or information on a biological resource obtained from India without obtaining the previous approval of the National Biodiversity Authority before making such application. But, it exempts any application for protection of Plant Varieties.

But, this Act is silent on the nature of procedure while giving approval for filing Patent application. Whether the invention be disclosed to the official concerned or be kept in secret manner are not specifically mentioned. Moreover, under section 20(4) of Biological Diversity Act, every approval granted by the Biological Diversity Authority shall be given a public notice. While, there is no specific provision to ensure the confidentiality of the disclosed information/invention based on the biological resource obtained in India, it is possible for any third party to access the details by availing the provisions under the Right To Information Act, 2005.

This particular provision of Biological Diversity Act, 2002 seems not only to be a novel type of Patent Linkage in India but also thereby leading to accessible of inventions by third party.

This Act not only provides for Conservation of Biological Diversity, Sustainable use of its components and Fair and equitable sharing of the benefits arising out of the use of biological resources and knowledge, but also enables the Government of India under section 36 of the said Act to formulate the guidelines, develop national strategies and plans to provide incentive for research, training and public education and increase awareness with respect to biodiversity.

Under section 36 of the Bio-Diversity Act, 2002, India introduced Bio-diesel Purchase Policy, 2005. The Policy says that no one can claim the right to utilize biological resources for commercial purpose as it is regulated and controlled by the sovereign state of India. So, the manufacturer of

bio-diesel from any edible or non edible vegetable oil has to follow some restrictions stipulated in the policy. This restriction mandates the manufacturers to get their sample approved and certified by the Oil companies, get them registered with authorized supplier and should be equipped with minimum testing facilities for ensuring purchase of bio-diesel of requisite specification.

In addition to the Bio Diversity Act of 2002, a few other Acts are also relevant in this context, for example

- *The Scheduled Tribes And Other Traditional Forest Dwellers (Recognition Of Forest Rights) Act*, 2006 wherein the forest dwellers have right to access to biodiversity and community rights, IP and TK; and

- *Wild Life [Protection] Amendment Act,* 1991 Permission needed from chief wild life warden for accessing specified plants for the purpose of Education, scientific research, collection, propagation, etc.

The Biological Diversity Act has no overriding effects on any other Act (S.59)

8. THE PROPOSED LEGISLATION RELATING TO TRADITIONAL KNOWLEDGE AND ITS IMPACT ON THE INDIAN PATENT SYSTEM. BRIEF NOTE ON REGISTERED AND UNREGISTERED TRADITIONAL KNOWLEDGE WHICH IS PUBLIC OR CONFIDENTIAL IN NATURE AND ITS IMPACT ON INDIAN PATENT SYSTEM.

In the modern pharmaceuticals era, Traditional knowledge (TK) is more important in the drug discovery. Though the value of Traditional Knowledge is underestimated in the past, its potentiality remains still unexplored. To prevent or avoid any misappropriation of TK from the public domain and as a measure to comply with the provisions of the Biological Diversity Act, 2002, the Government of India made a draft rule called "*The Protection Conservation and Effective Management of Traditional Knowledge Relating to Biological Diversity Rules, 2009*"[23].

In the issue of patent linkage Indian judiciary faced a very first case filed by Bayer Corporation against Cipla and Union of India [24]. The Division Bench of Delhi High Court while dismissing the writ appeal held that it is a *policy decision* which the Government is entrusted with not Section 3(p) of the Patents Act, 1970 prohibits an invention patentable which is in effect, is traditional knowledge or which is an aggregation or duplication of known properties of traditionally known component or components.

Law related to Traditional Knowledge (TK), is relatively a novel area till the scope of Intellectual Property Rights especially the Patent protection became inevitable in India. It is very difficult to define TK, since a nascent knowledge can become TK after certain time. In addition, it is not possible to define a TK in terms of time since a recent knowledge/information, when promoted in a big way could become TK very soon. However, proviso 2 (v) of the above draft legislation defines the term Traditional Knowledge as;

> "*Traditional Knowledge means the collective knowledge of a traditional community including of a group of families, on a particular subject or a skill and passed down from generation to generation, either orally or in written from, relating to properties, uses and characteristics of plant and animal genetic resources; agricultural and healthcare practices, food preservation and processing techniques and devices developed from traditional materials; cultural expressions, products and practices such as weaving patterns, colors, dyes, pottery, painting poetry, folklore, dance and music; and all other products or processes discovered through a community process including by a member of the community individually but for the common use of the community*".

National Biodiversity Authority, established under Biological Diversity Act, 2002, facilitate the traditional communities to exercise their collective rights and regulate the access by others including fair and equitable benefit sharing and relief on abuse/misuse and/or misappropriation/infringement of the traditional knowledge.

In addition, the National Biodiversity Authority (NBA) shall maintain a Traditional Knowledge Register to register (Electronic or Paper form) Traditional knowledge. On registering the traditional knowledge, NBA shall mark such knowledge as either "PUBLIC" or "CONFIDENTIAL" depending on the confidential nature and are so indicated by the traditional community.

All existing and future databases pertaining to traditional knowledge relating to genetic resources under the control of Government of India including Traditional Knowledge Digital Library (TKDL) and the People's Biodiversity Registers shall form part of Traditional Knowledge Register.

ACCESS TO REGISTERED TRADITIONAL KNOWLEDGE:- Any person desirous of accessing traditional knowledge register or any component thereof shall apply to the National Biodiversity Authority in the prescribed form with the prescribed fee. If the traditional communities expressed their unwillingness to participate in consultation thereby allowing the applicant to access the Register, then the applicant will be denied accession to the TK.

Where there is a consensus on the granting of access to Traditional Knowledge, the Biological Diversity Authority shall initiate the process for negotiating the terms and conditions of the access, use and benefit sharing of the TK.

ACCESS TO NON-REGISTERED TRADITIONAL KNOWLEDGE:- Where an application is for accessing the TK which is not registered, the Authority will evaluate the availability in public domain. National Biodiversity Authority shall register the unregistered Traditional Knowledge after receiving the recommendation and assessment report of the said TK.

9. DEVELOPMENT DIMENSION OF THE PATENT SYSTEM AND PUBLIC DOMAIN IN INDIA.

(a) Traditional Knowledge Digital Library (TKDL):

India fought successfully for the revocation of turmeric and basmati patents granted by United States Patent and Trademark Office (USPTO) and neem patent granted by European Patent Office (EPO). As a sequel to and with the aim to prevent the misappropriation of various traditional systems of medicine (Traditional Knowledge) available in public domain, the Government of India in the year 1999 engaged Council for scientific and Industrial Research (CSIR) and Department of AYUSH in the collaborative project to collect and document the ways and means of traditional medicine practiced to treat diseases afflicting people. The project Traditional Knowledge Digital Library (herein forth called TKDL) was launched in 2001.

Documentation of this existing knowledge, available in public domain, on various traditional systems of medicine has become imperative to protect it from being misappropriated in the form of patents on non-original innovations, and which has been a matter of national concern.

TKDL provides information on traditional knowledge existing in the country, in languages and format understandable by patent examiners at International Patent Offices (IPOs), so as to prevent the grant of wrong patents. TKDL thus, acts as a bridge between the TK information existing in local languages and the patent examiners at IPOs.

The project TKDL involves documentation of the traditional knowledge available in public domain in the form of existing literatures related to Ayurveda, Unani, Siddha and Yoga, in electronic format in five international languages which are English, German, French, Japanese and Spanish.

Originally the Indian traditional knowledge exists in local languages such as Sanskrit, Tamil, Urdu, Arabic, Persian, etc. which either was not available or not understood by patent examiners.

The TKDL would have long term implications on protection of Patents in international arena as is evident from the fact that in the past, patents have been granted at EPO on the use of over 285 medicinal plants due to the lack of access to the documented knowledge in public domain for the examiners of EPO.

Presentation on Traditional Knowledge Resource Classification (TKRC) at IPC Union led to the creation of WIPO-TK Task Force consisting of USPTO, EPO, JPO, China and India by (IPC) Union for enhancing the sub-groups in IPC for classifying the TK related subject matter and considering the linking of TKRC with IPC. Director General of WIPO considered the TKDL as a strong tool which has made unparallel contributions to the International Policy context of the patents systems by offering a template for other countries who seek to protect their Traditional Knowledge.

Thus, TKDL gives legitimacy to the existing traditional knowledge and enables protection of such information from getting patented by the inventors acquiring patents on India's traditional knowledge systems. It will prevent misappropriation of Indian traditional knowledge, mainly by breaking the format and language barrier and making it accessible to patent examiners at International Patent Offices for the purpose of carrying out their search and examination.

Approval to access TKDL database under access agreement by;

Country/Organization	Month/Year of Accessibility
European Patent Office (EPO)	: February, 2009
USPTO (Formal Agreement)	: July, 2009
Indian Patent Office (CGPDTM)	: July, 2009
USPTO	: November, 2009.
German Patent and Trademark Office (DPMA)	: October, 2009
UKPTO	: January, 2010

Today, India is capable of protecting about 2 lakh (0.2 million) medicinal formulations including 36,000 Ayurveda formulations in the languages of English, German, Spanish, French and Japanese.

European patents based on 13 medicinal plants were prevented by India using public document TKDL.

PISTACHIO – For Anti-Cancer Drug
MELON – For Anti-vitilgo Cream

11 applications were withdrawn:-

BENGAL GRAM	- For treating obesity and diabetes.
NEEM, ALOE VERA, DALCHINI	- For treating Diabetes
TURMERIC, JEERA, GINGER, ONION	- For slimming agents
ARJUNA	- For Anti-aging and anit-wrinkle agent
GRAPE & APPLE JUICE	- As Cardio tonics
OPIUM,SPINACH & FENUGREEK	- Immuno-modulator agents
ASHWANGANDHA	- For treating stress, sleeplessness and Anxiety.
BRAHMI, TEA LEAVES, ASHWAGANDHA & TURMERIC	- Anti-aging, anti-inflammatory and wound healing agent

In Asia, India has thwarted China's attempt to patent the use of medicinal plants *pudina* (mint) and *kalamegha* (Andrographis) for the treatment of H5N1 Avian Influenza or Bird Flu. TKDL dug out medicinal formulations from ancient ayurveda and unani texts dating back to 9th century to show that both pudina and kalamegha have been widely used in India since ages for influenza and epidemic fever.

This initiative of TKDL of India has resulted in sharp decline of filing of patent applications at EPO concerning Indian system of medicine, in particular, on the generic group of medicinal plants.

Now the TKDL can be arrayed as an Institutional mechanism as it has been conferred the status of Independent entity. TKDL can otherwise be called "Restricted accessible documented public domain'.

The Protection of Plant Varieties and Farmers Rights, 2001 was enacted in India not only to protect the plant breeders but also the rights of the farmers who sustained, improved, and preserved plant materials.

Though the above Act is essentially to protect and encourage the plant breeder's rights, it has balanced the rights and privileges of the farmers and communities, since they are agents and source of traditional knowledge in farming.

Some of the relevant provisions from the Act are reproduced here below:

FARMERS RIGHTS

39.Farmers' rights

(1) Notwithstanding anything contained in this Act,—
(i) a farmer who has bred or developed a new variety shall be entitled for registration and other protection in like manner as a breeder of a variety under this Act,
(iii) the farmer who is engaged in the conservation of genetic resources of land races and wild relatives of economic plants and their improvement through selection and preservation shall be entitled in the prescribed manner for recognition and reward from the National Gene Fund; Provided that material so selected and preserved has been used as donors of genes in varieties registerable under this Act;
(iv) Shall be deemed to be entitled to save, use, sow, resow, exchange, share or sell his farm produce including seed of a variety protected under this Act in the same manner as he was entitled before the coming into force of this Act; Provided that the farmer shall not be entitled to sell branded seed of a variety protected under this Act.
Explanation: For the purpose of clause (iv) branded seed means any seed put in a package or any other container and labelled in a manner indicating that such seed is of a variety protected under this Act.
(2) Where any propagating material of a variety registered under this Act has been sold to a farmer or a group of farmers or any organisation of farmers, the breeder of such variety shall disclose to the farmer or the group of farmers or the organisation of farmers, as the case may be, the expected performance under given conditions, and if such propagating material fails to provide such performance under such given conditions as the farmer or the group of farmers or the organisation of farmers, as the case may be, may claim compensation in the prescribed manner before the Authority and the Authority shall after giving notice to the breeder of the variety and after providing him an opportunity to file opposition in the prescribed manner and after hearing the parties, it may direct the breeder of the variety to pay such compensation as it deems fit, to the farmer or the group of farmers or the organisation of farmers, as the case may be.
Certain information to be given in application registration.

40. (1) A breeder or other person making application for registration of any variety under chapter III shall disclose in the application the information regarding the use of genetic material conserved by any tribal or rural families in the breeding or development of such variety.
(2)If the breeder or such other person fails to dislose any information under sub-section (1), the Registrar may after being satisfied that the breeder or such person has wilfully and knowingly concealed such information reject the application for registration.
Rights of communities.
41. (1) Any person, group of persons (whether actively engaged in farming or not) or any governmental or non-governmental organisation may on behalf of any village or local community in India, file in any centre notified, with the previous approval of the Central Government by the Authority in the Official Gazette any claim attributable to the contribution of the people of that village or local community as the case may be in the evolution of any variety for the purpose of staking a claim on behalf of such village or local community.
(2) Where any claim is made under sub-section (1), the centre notified under that sub-section may verify the claim made by such person or group of persons or such governmental or nongovernmental organisation in such manner as it deems fit and if it is satisfied that such village or local community has contributed significantly to the evolution of the variety which has been registered under this Act, it shall report its findings to the Authority.
(3) When the Authority, on a report under sub-section (2) is satisfied, after such enquiry as it may deem fit, that the variety with which the report is related has been registered under the provision of this Act, it may issue notice in the prescribed manner to the breeder of that variety and after providing opportunity to such breeder to file objection in the prescribed manner and of being heard, it may subject to any limit notified by the Central Government, by order, grant such sum of compensation to be paid to a person or group of persons or governmental or non-governmental organisation which has made claim under sub-section (1) to the Authority, as it may deem fit.
(4) Any compensation granted under sub-section (3) shall be deposited by the breeder of the variety in the Gene Fund.

The compensation referred above is one time payment and it will be decided by the authority after giving the opportunity to the parties.

New Development: **-** Kerala, one of the southern states of India, has recently unveiled a IPR policy[25] especially to regulate 'traditional knowledge' and to prevent misappropriation of the same for the commercial utilization like Patent. This policy, though it involves constitutional implications as Intellectual Property Rights come under central list of Constitution of India (Entry 49) not under state list, *inter-alia* providing for some form of 'property rights' over this body of knowledge.

The timing of introduction of such policy by a state government is very crucial as a joint campaign by India and Brazil with other developing countries to amend the Trade Related Aspects of Intellectual Property Rights (TRIPS) Agreement so as to include the protection of 'traditional knowledge, genetic resources and folklore' held in New Delhi in 2008.

10. JUDGMENTS, CASE STUDIES AND PRACTICAL ISSUES RELATING TO PUBLIC DOMAIN IN INDIA.

In order to ensure greater and more effective access to information, the Parliament of India has passed a legislation called "*The Right To Information Act, 2005*". The revelation of information in actual practice is likely to conflict with other public interests including the preservation of confidentiality of sensitive information.

Section 8 of the The Right To Information Act, 2005 [26] (RTI ACT) provides for exemption from disclosure of some information which includes Intellectual Property. Section 3 (1)(d) of this Act goes as….

Section 8(1)(d) :- Notwithstanding anything contained in this Act, there shall be no obligation to give any citizen, "information including commercial confidence, trade secrets or intellectual property, the disclosure of which would harm the competitive position of a third party, unless the competent authority is satisfied that larger public interest warrants the disclosure of such information."

In the case of
Ms. Divya Raghunandan……Appellant
Vs
Department of Biotechnology…..Respondent [27]

Appeal No.CIC/WB/A/2006/00548; under section 19 of RTI Act before the Central Information Commission, dated 26.6.2009

The aforesaid matter arose against the respondent's order denying information relating to details of Genetically engineered agro products, applied by a 3rd party called MAHYCO, sought by the appellant from the Department of Biotechnology. They are:

- A list of field trial locations of genetically engineered Brinjal, okra, mustard and rice approved by the RCGM (Review Committee on Genetic Manipulation) for the multi location trials.

- Toxicity, allergenicity and other bio-safety data on transgenic Brinjal, okra, mustard and rice approved by the RCGM Minutes of the RCGM meetings.

Citing section 8(1)(d) of Right to Information Act, 2005, as the information sought by the query falls under "commercial confidence, trade secret and intellectual property", the respondent rejected the application. In addition, the respondent argued that the disclosure of information would compromise the commercial confidence in competition and is also an intellectual property and a trade secret which would prejudice the interest of the applicant. The questions arose in this issue are;

- Whether information supplied in regulatory documents to the Department of Biotechnology containing information or data that could later be converted to an application for intellectual property rights, are allowed for public access?

- In the event that such information is made available in the public domain prior to the filing of an application for such intellectual property rights, whether the information then would become part of the public domain and prevent the same from being the subject of any application for intellectual property rights filed subsequent to such publication?

- If the company (the aggrieved third party) intends to file for a patent application in relation to processes, methods or data supplied in regulatory documents, if this information is made public, say pursuant to an RTI application, Will the company be able to file for patent protection in respect of such information either in India or in any other country in the world?

Proviso to Section 11(1) (Third Party Information) which reads as follows:

> *Provided that except in the case of trade or commercial secrets protected by law, disclosure may be allowed if the public interest in disclosure outweighs in importance any possible harm or injury to the interests of such third party.*

Contrary to the contention put forth by the respondent MAHYCO, the Central Information Commissioner partly agreed with the contention of the applicant's counsel Mr. Prashant Bhushan that "Exclusion of such information under section 8(1)(d) of Right to Information Act, 2005 will not apply because the information supplied to RCGM by the parties is patented information, to obtain patents for which the information is open to public disclosure". 'Exercise of processing by the GEAC is indeed an exercise in assessing public interest' the valid version and interpretation by applicant was also taken into account while deciding this matter.

The order of Appellate Authority, clearly recommending Brinjal for large scale field trial, had already placed the product in the public domain. The Authority is of the view that this information becomes disclosable, if it is determined and relevant to the public interest. Toxicity and allergenicity of any product to be put on large scale field trial is a matter of overriding public interest.

The core of the order says that 'the minutes of RCGM consists of record of the applications, decisions and detailed arguments of every side under consideration for R&D which it is expected will lead to application of the technology patented by the different organizations. There can be little doubt that such information, including experimental technique, if opened to public disclosure, will not be damaging a competitive position.

However, the issue is the sensitivity and importance of public interest involved in the matter, the Central Information Commissioner allowed to access only the information for which larger field trial is allowed and refused the contention of MAHYCO that the whole minutes of RCGM be not allowed for access. The disclosure in this case will therefore adhere to exemption from disclosures provided under Section 8(1)(d) of the RTI Act.

(ii) Syngenta India Ltd vs Union of India [28]**:-** This matter is about data exclusivity. Here, the writ petitioner Syngenta India Limited had obtained registration for its insecticide that was allegedly useful in tackling the bollworm problem plaguing Indian cotton. Another company namely Jaishree Agro Industries Ltd., filed an application for a "me too" registration and submitted essentially "bio-efficacy" data and asking the government to rely on data already submitted by the writ petitioner herein.

Syngenta objected to this and took the matter to the High court of Delhi. Contention of Syngenta was that the Government of India should not approve generic version of the insecticide in question to the 'me too' registrant Jaishree Agro Industries Ltd. Holding that the petitioner was speculative and attempting to invite the court to make a policy declaration on Data exclusivity, the court in appeal held that in the absence of any Act or rule to prescribe the data exclusivity or protection, the person who desires to import the same insecticide but from a different source, the requirement of submission of data is appropriately reduced.

(iii) Gomti Biotech Limited vs State *of Uttar Pradesh* [29]
The aforesaid case involves utilization of biological resources for invention and application of the same in commercial purpose within the stipulated condition envisaged in Bio diesel purchase policy of 2005 notified by the Government of India.
The Bio-diesel purchase policy of Government of India was declared under Section 36 of Biological Diversity Act, 2002. Here the petitioner, Gomti Biotech Limited manufacturing Bio-diesel from vegetables oil, edible oil and non-edible oil, was claiming right to utilize the biological resources for commercial purpose claiming it to be uncontrolled and unregulated.

But, the Purchase policy required getting their sample approved and certified by the oil companies, get them registered with authorized supplier and should be equipped with minimum testing facilities for ensuring purchase of bio-diesel of requisite specification.

(iv) Patent for Red Tooth *Powder and Legal Action* [30]:- Red Herbal Dentrifice which has been known to millions of Indians for years as 'Lal Dant Manjan'. This red tooth powder comprising red mud and herbs (a traditional herbal medicinal tooth powder) discovered and being used by the people in India, is now patented in U.S. by Colgate Palmolive. The Association of Manufacturers of Ayurvedic Medicines, India is under consideration to challenge the validity of the patent as it is in public domain in the form of TK and obtaining patent for this Traditional Knowledge would tantamount to piracy of TK.

01) The Patents (Amendments) Act, 2005 (15 of 2005)
02) Ibid
03) Ibid
04) Ibid
05) Ibid
06) "Law of Trade Marks and passing off" by Mr. P.Narayanan. Chapter:8; Heading: What Marks are Registrable; Page No: 149
07) http://rajyasabha.nic.in/rsnew/reweb.asp
08) http://loksabha.nic.in
09) http://www.nbaindia.org/Act/Act_english.htm
10) http://cci.gov.in
11) http://chemicals.nic.in/DPBooklet.pdf
12) http://loksabha.nic.in
13) http://rajyasabha.nic.in/rsnew/reweb.asp
14) The Patents (Amendments) Act, 2005 (15 of 2005)
15) http://www.tkdl.res.in/tkdl/langdefault/common/Home.asp?GL=Eng
16) www.patentoffice.nic.in
17) http://mtcc.imtech.res.in/
18) http://egovstandards.gov.in/
19) http://www.patinfo.nic.in/main.php
20) http://www.india.bigpatents.org
21) N.R.Subbaram: Patent Law Practices & Procedures; 2nd Edition 2007 Page No.466.
22) http://cdsco.nic.in/ (Form 44 under Drugs and Cosmetics Act, 1940 is an application for grant of permission to import or manufacture a new drug or to undertake clinical trial.)
23) http://www.nbaindia.org/docs/tk_rules2009.pdf
24) http://lobis.nic.in/dhc/SMD/judgement/09-02-2010/SMD09022010LPA4432009.pdf (http://delhihighcourt.nic.in/**)** The Supreme court of India has recently dismissed the appeal against the division bench order of Delhi High Court.
25) http://www.keralalawsect.org/ipr2008.pdf
26) http://cci.gov.in
27) http://www.rti.india.gov.in/cic_gov_decisioncic1.php
28) http://delhihighcourt.nic.in/ (LPA 367/2009; Decided On 11.08.2009 by Hon'ble Judges**:** Ajit Prakash Shah, C.J. and Manmohan, J.)
29) Civil Miscellaneous Writ Petition 63299 of 2008 - AIR 2009 (NOC) 2735.
30) http://economictimes.indiatimes.com/news/news-by-industry/cons-products/fmcg/Indian-ayurvedic-body-slams-Colgate-for-patenting-lal-dant-manjan/articleshow/6777436.cms

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