

# The TRIPS Regime of Patent Rights

By Nuno Pires de Carvalho

KLUWER LAW INTERNATIONAL

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## FOREWORD

In my professional activities, formerly with the World Trade Organization (WTO) Secretariat, and currently (since 1999) with the Secretariat of the World Intellectual Property Organization (WIPO), I have been in contact with tens, if not hundreds, of government officials from many countries, both developed and developing, who share a common concern: the correct implementation of Trade Related Intellectual Property Rights (TRIPS) obligations. The complexity of the TRIPS Agreement and its numerous links to areas that are outside intellectual property, such as the environment and public health, human rights and non-tariff barriers to trade, to mention only a few, make it very difficult to apprehend all the aspects and implications of the Agreement, let alone to convert all TRIPS obligations into national law.

The purpose of this book is to provide simple and objective comments that may serve as a walkthrough to those provisions of the TRIPS Agreement that have an impact on the protection of patent rights. It aims at clarifying the general principles of the TRIPS Agreement relating to patents, how they intersect with the general principles of the GATT, and how the TRIPS patent-related provisions can be (or should have been) implemented in practice. This book is indeed about the *practice* of the TRIPS Agreement. The comments that follow, therefore, are not about what the Agreement *should be*, but about what it actually *is*.

Because of this practical approach, I have opted for resorting as much as I could to the official documents issued by the two intergovernmental organizations involved in assisting WTO Members to implement their TRIPS obligations, namely the WTO and WIPO, rather than the academic works of commentators, who generally are less familiar with the approach taken by those two organizations to TRIPS implementation. Given that a consistent set of case law on the TRIPS Agreement is being gradually built by WTO Panels and the Appellate Body, the following comments contain frequent references to GATT/WTO jurisprudence, both pre- and post-1995.

The TRIPS Agreement being a controversial Agreement, all views expressed on its provisions are prone to be challenged, particularly when they stand, as this book does, on the general idea that the main objective of TRIPS patent provisions is to reduce non-tariff barriers to trade by means of the enhancement of patent protection, and that only in exceptional circumstances can WTO Members relinquish such protection. As a matter of course, all opinions expressed in this book are exclusively of my responsibility, and they do not necessarily reflect the views of the organizations with which I was or am affiliated.

Geneva, August 12, 2002

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## INTRODUCTION

**The primary function<sup>1</sup> of patents: to meter inventions in a relatively accurate manner (as compared to trade secrets and public subsidies)<sup>2</sup>**

**I.1.** Patents have the primary function of serving as metering devices for society to measure an invention's value, thus allowing patentees to stipulate competitive prices for inventions and, consequently, on the products and services that embody them. Patents, therefore, are primarily neutral social mechanisms that contribute to an adequate allocation of private resources to the creation of technology.

**I.2.** Promotion of invention and innovation is accomplished by allowing inventors to obtain rents from the results of their activities. That can be done in two different ways. The first is requiring users of the inventions to pay for them directly. For that to happen, it is necessary to establish a legal mechanism that allows inventors to put a price on their inventions. That is precisely the role that patents and trade secrets perform. The second way to obtain rents is to provide inventors with public funds or other privileges. In this case, governments allocate rents to inventors. Users of the inventions will still pay for them, but in an indirect manner, through taxes. For that matter, so will tax-paying non-users.

**I.3.** Social welfare and economic growth depend, in part, on technological innovation, which not only facilitates a more efficient utilization of available scarce resources, but also provides access to new resources. It is a truism, therefore, that society needs that a continued flow of inventions be developed and made generally available. To many persons, it is also a truism that patents are necessary to induce such a flow of inventions. However, that is not true. Patents are not strictly necessary to promote inventive activities. History shows that societies around the world have lived and evolved technologically without a patent system, i.e., without a system of private property rights whereby owners have the right to exclude others from using their technical creations. For thousands of years governments have relied on public awards to promote and encourage invention. And in technological fields where the

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<sup>1</sup> These paragraphs discuss the function of the patent system from a strictly utilitarian approach, which should be distinguished from the philosophical justifications of the system, such as the social contract or the natural rights theories. "Function," for the purposes of these paragraphs, means the practical results the system is, by law, supposed to accomplish.

<sup>2</sup> The following paragraphs are updated and revised excerpts of Nuno Pires de Carvalho, *The Primary Function of Patents*, 1 J.L. Techn. & Policy 25-74 (2001).

awards did not reach or were not granted, economic interests in inventions have been protected through trade secrets.

**I.4.** The following paragraphs will explain what functions the patent system has *not* been devised to primarily perform: to reward inventors and to prospect the markets.

## 1. THE TWO BEST KNOWN EXPLANATIONS OF THE FUNCTIONS OF PATENTS: THE REWARD AND THE PROSPECT THEORIES

**I.5.** The function of the patent system has thus far been explained in two different ways. The most common and accepted view is that patents are rewards granted to individuals who contribute to economic and technological progress by inventing and disclosing the inventions.<sup>3</sup> This is the reward doctrine in a nutshell.

**I.6.** A second theory challenges the reward doctrine on the ground that when patents are granted, the inventors may not yet be aware of the usefulness of their inventions. Patents, therefore, operate as titles of legal security that permit the inventors to prospect the market for commercial opportunities, very much like concessions granted to gold prospectors. This is the prospect theory, proposed by Edmund Kitch.<sup>4</sup>

**I.7.** The next paragraphs show that both theories fail to give a complete and systematic explanation for the patent system as a whole. Some patents can indeed be viewed by inventors as awards. Other patents can actually permit some inventors to seek practical applications for their inventions, applications that might not have been obvious while they were developing them. The problem with these theories, however, is that they rely on secondary effects of the patent system; therefore, they do not have a general validity and cannot provide an overall explanation of the system.<sup>5</sup>

### *a) Primarily, Patents are not Rewards*

**I.8.** Three elements of patent law show that, primarily, patents do not perform a rewarding function. First, patents represent a technical evaluation that inventions are new, non-obvious, susceptible of industrial application, and represent a conceptual unity. They do not contain any judgment as to the economic relevance of inventions. Actually, most patented inventions are economically irrelevant, since most remain

<sup>3</sup> See, e.g., Arthur R. Miller & Michael H. Davis, *Intellectual Property – Patents, Trademarks, and Copyright in a Nutshell*, at 14–15 (West Publ., 2d ed. 1990); J. Schmidt-Szalewski & J.L. Pierre, *Droit de la Propriete Industrielle*, at 1–7 (Litec, 1996); Daniel Gervais, *The TRIPS Agreement – Drafting History and Analysis*, at 65 (Sweet & Maxwell, 1998).

<sup>4</sup> Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & Econ. 265, 266 (1977).

<sup>5</sup> The same observation can be made with respect to other secondary effects of the patent system. Patents, for instance, disseminate technology. But it is not correct to allege that the primary function of patents is to disseminate technology, since there are cheaper and more effective ways to do so. No sound government would have thought of creating such a system with the single purpose of disseminating technology.

unexploited and therefore never reach the market. Second, patents are subject to identical standards, regardless of the field of technology and irrespective of the technical merits of their subject matter.<sup>6</sup> Third, the laws of some countries expressly establish that patents further social goals, rather than reward individuals.<sup>7</sup> Moreover, the United States Supreme Court has several times made the same point.<sup>8</sup> Consequently, sometimes patentees may not be allowed by courts to extract from the market a reward as large as they would like.

**I.9.** It has been suggested that there must be a balance between the patentee's capacity to extract monopoly income from the invention and the invention's intrinsic value.<sup>9</sup> Ultimately, the reward should be tantamount to the invention's worth. But it is precisely this kind of comparison that the U.S. Supreme Court deemed unacceptable when it stated that patents are not certificates of merit.<sup>10</sup> What the Court intended to emphasize is that the legal value of a patent does not maintain any equivalence with the invention's technical or economic value. As far as the legal dimension of patentees' rights is concerned, the owner of a patent for a toy has

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<sup>6</sup> Agreement on Trade-Related Aspects of Intellectual Property Rights, Annex 1C to the Marrakesh Agreement Establishing the World Trade Organization (WTO), of April 15, 1994 [hereinafter "the TRIPS Agreement" or, simply, "TRIPS"], Article 27.1:

"[P]atents shall be available for any inventions [...] in all fields of technology [...] and patent rights enjoyable without discrimination as to [...] the field of technology [...]."

However, an exception to the non-discrimination principle might be identified in the laws of several WTO Members, which provide for the extension of patent terms in some fields of technology, such as pharmaceuticals and agricultural-chemical products. See, e.g., Council Regulation (EEC) No. 1768/92 of 18 June 1992, *Concerning the creation of a supplementary protection certificate for medicinal products*, 1992 O.J. (L182) 2. See also 35 U.S.C. § 155 (1994). However, such an extension has nothing to do with the relevance or the merits of the technology, but rather with the fact that those products are delayed in reaching the market by the necessity of obtaining prior government approval. The WTO Agreement and its annexes, WTO documents and some GATT documents cited or quoted from throughout these comments can be found on the WTO website, at <www.wto.org>.

<sup>7</sup> See, e.g., Japanese Patent Act, Law No. 121 of 1959, Article 1 (as last amended by Law No. 30 of 1990): "The purpose of this Law shall be to encourage inventions by promoting their protection and utilization so as to contribute to the development of industry."

<sup>8</sup> See, e.g., *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 330–31 (1945) ("The primary purpose of our patent system is not reward of the individual but the advancement of the arts and sciences."); *United States v. Masonite Corp.*, 316 U.S. 258, 278 (1942) (quoting from *Penneck v. Dialogue*, 2 Pet. 1, 19 ("[T]he promotion of the progress of science and the useful arts is the 'main object'; reward of inventors is secondary and merely a means to that end."); *Motion Picture Patents Co. v. Universal Film Mfg. Co.*, 243 U.S. 502, 511 (1917) ("[T]his court has consistently held that the primary purpose of our patent laws is not the creation of private fortunes for the owners of patents but is 'to promote the progress of science and useful arts'"); *Morton Salt Co. v. G.S. Suppiger Co.*, 314 U.S. 488, 492 (1942) ("The grant to the inventor of the special privilege of a patent monopoly carries out a public policy adopted by the Constitution and laws of the United States, 'to promote the Progress of Science and useful Arts.'").

<sup>9</sup> See, e.g., William F. Baxter, *Legal Restrictions on Exploitation of the Patent Monopoly: An Economic Analysis*, 76 Yale L.J. 267, 314 (1966).

<sup>10</sup> See *supra* note 8.

precisely the same rights as the owner of a patent for a drug that cures cancer. Actually, if the merit of the invention were to be taken into account for purposes of rights enforcement, courts might take two different (and opposing) approaches. On the one hand, an important invention might induce courts to yield a benevolent treatment to the patentee (such as in cases involving misuse); on the other hand, if courts leaned towards the public interest, they might feel compelled to impose a stricter standard of behavior upon the patentee.<sup>11</sup> It is not practical to try to detect whether the externalities arising from the patentee's conduct are equivalent to or exceed the value of the patentee's contribution to knowledge. An objective comparison between such factors is just not feasible for lack of reliable figures.

**I.10.** Patent rights are assets, and their use, license, and transfer should be submitted to only the highest possible standards of certainty. To require from patentees that they prove their intent is yielding to uncertainty and subjectivity. Therefore, the real question that ought to be asked with regard to patents and their function is: how can the patent system work in order to make it socially (and not individually, from the patentee's perspective only) more efficient? Transaction costs will rise whenever patents are submitted to subjective approaches. Because higher transaction costs run counter the primary purpose of patents, they are not socially desirable.

**I.11.** Another shortcoming of the reward theory is that the predetermined lifespan of patents does not correspond to the merits of the protected inventions. As Penrose said, if patents were a matter of reward they would show some sort of proportionality with the subject of the reward, that is, they would measure adequately the economic

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<sup>11</sup> This approach was implicit in *Vitamin Technologists, Inc. v. Wisconsin Alumni Research Foundation*, 146 F.2d 941 (9th Cir. 1945), where the court fell short of invalidating a patent on the ground of suppression because the invention was related to public health, particularly the health of the poor people. *Id.* at 952. The patented invention was a process to produce vitamin D in organic substances by exposing them to ultraviolet rays of the spectrum. *Id.* at 942. Its main benefit was to enhance the nutritional qualities of oleomargarine, a cheap substitute for butter. *Id.* at 945. Consumption of foods with vitamin D helps prevent rachitism, by increasing the body's bone metabolism. *Id.* at 942. On the ground that Wisconsin is a state where production of milk-derived products is a very important economic activity, the patent had been licensed under the condition that the process were not used to irradiate oleomargarine. *Id.* at 945. Thus, the suppression only affected a particular class of consumers, the poor. The court found enough grounds to invalidate the patent for lack of novelty, but made it clear that it would not be unwilling to invalidate it for suppression: "Suppression of the use of the property in a patent has often been held the right of the holder of the patent monopoly," the court conceded, "but the question has not been raised in connection with the public interest in restoring the health of the afflicted." *Id.* at 946. The court added: "It is strongly arguable that such a suppression of the patent's use is vastly more against the public interest than its use for a mere control of prices as in *United States v. Masonite Corp.* [...] or the tying [*sic*] of unpatented with patented material in *Mercoid Corp. v. Mid-Continent Co.* [...]" *Id.* at 946 (citations omitted). The conclusion is that resale price maintenance and tying (the two anti-competitive practices at stake in those two cases) may be minor offenses if compared with suppression of an invention that would enhance the health of the poor.

value of the reward<sup>12</sup> – something like “for great inventions, great patents; for small inventions, small patents.”

**I.12.** However, a system of individual awards, taking into account the technical and economic value of the invention, would be impractical because it would require an *a priori* determination of such a value.<sup>13</sup> Furthermore, some serious externalities would arise, such as the risk of abuses in granting favored treatment to some inventors or to some inventions. For these reasons, patents have a standard lifespan, regardless of the technical field the inventions belong to as well as of the effective progress they may bring to the prior art.<sup>14</sup>

**I.13.** Nor does the shorter duration of industrial designs<sup>15</sup> mean a certificate of less merit, for there are designs that demand much more ingenuity and investment than some inventions. What distinguishes designs from inventions is the very nature of the idea, not the creative efforts that have produced them. The reason for design patents to expire more quickly than utility patents is that the former have basically fashionable products as their subject matters. Therefore, they generally and naturally lose economic significance sooner. The same reasoning applies to the utility models that are protected in some countries – their subject matter basically comprises new shapes of known objects (such as tools) which enhance their utilization and improve their performance.<sup>16</sup> The average economic survival of those utility models tends to be shorter than the life of utility (or invention) patents.

<sup>12</sup> Edith T. Penrose, *The Economics of the International Patent System*, at 28–29 (John Hopkins Press, 1951).

<sup>13</sup> Patent law, in general, does not require that a meritorious invention be specified and claimed, but only that it might work. See Kitch, *supra* note 4, at 270: “If the claim is for a battery, it must produce current – not much, not reliably, not inexpensively. If the claim is for a copying process, the copies need not be legible, cheap, or useful, but they must in some sense be copies.”

<sup>14</sup> Originally, the term of validity of patents, as granted under the Statute of Monopolies, in 1623, was the time that apprentices needed to learn the new technique. Perhaps the term of fourteen years (which corresponds to two seven-year periods of apprenticeship) was justified because, the technique being new, it required a longer period to be mastered by the apprentices. Such curious explanation may be inferred from the King’s Bench opinion in *The Clothworkers of Ipswich Case*, Am. & Eng. Pat. Cases 1662–1833 6, 8 (K.B. 1615) (“[B]ut when that patent is expired, the King cannot make a new grant thereof: for when the trade is become common, and others have been bound apprentices in the same trade, there is no reason that such should be forbidden to use it.”). For an economic explanation of patent terms, see *infra* comments to Article 33.

<sup>15</sup> Industrial designs shall have the duration of at least ten years, while patents shall be protected for at least twenty years counted from the filing date. TRIPS Agreement, Articles 26.3 and 33.

<sup>16</sup> Portugal, Brazil, France, Japan, Germany, and China are among the countries that grant patents for utility models. The functional aspect of the creation is what distinguishes utility model patents from design patents: the former protect creations that aim at being of practical use, the latter protect aesthetic creations. On the other hand, utility models should be distinguished from petty patents. Petty patents, as provided by the Australian Patent Act of 1990, before being amended in 2000, protected the same inventions as utility patents. The difference was that applicants for petty patents did not submit the inventions to a substantive examination, but only to a formal one. Therefore, petty patents were subject to a shorter term of protection (twelve months, renewable for a further term of five years). The petty patent system has been replaced in Australia by a second tier innovation patent system. The

**I.14.** What explains the different duration of utility patents, industrial designs, and utility model patents is the average economic and technical lifespan of the protected creations.<sup>17</sup> The social costs of providing patent protection should therefore not be taken into account in detecting abuses, because those costs bear no direct correspondence to the merits of each invention. Patent laws have established a uniform term of protection irrespective of the rent the patentee is able to extract from the market.<sup>18</sup>

**I.15.** The obligation to exploit patented inventions is another element commonly present in patent laws that supports the notion that patents are not individual rewards. Under the laws of a number of countries, and in accordance with the Paris Convention,<sup>19</sup> the patentee may be required to make the invented product (or the product produced with the use of the invention) available to consumers. Failure to do so may justify the grant of a compulsory license to a third party.<sup>20</sup> Such a burden does not appear to fit in with a concept of reward. Indeed, once the invention is “awarded” a patent, the “deal” would be over. To impose the burden of exploitation on the inventor seems to make the patent dependent upon its exploitation, rather than upon the making of the invention. What then, one may ask, is the patent rewarding: the invention or its exploitation?

*b) Primarily, Patents do not serve to Prospect the Market*

**I.16.** Kitch’s proposal that patents are not rewards and that they rather serve to guarantee that inventions will not be pillaged by free riders (thus enabling patentees

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difference between innovation patents and petty patents is that the former require a lower inventive level – thus currently the Australian second tier patents are not distinguishable from utility models. See Caroline Bommer, *New Second Tier “Innovation” Patent System in Australia*, 23 *World Patent Information* 157 (2001).

<sup>17</sup> See an explanation of the term of patent protection in comments to Article 33, *infra*.

<sup>18</sup> The British Patents Act of 1949 established an exception to this principle. A court could order an extension of the patent term if the patentee was able to show that it “has not been adequately remunerated by the patent.” Patents Act of 1949, Articles 12 to 14. Of course, the wording was a mistake: the patent does not remunerate the patentee, only the market does. The exception was not absolute, because the extension itself would be subject to a defined term (no more than five years, or exceptionally, ten years), regardless of the patentee’s success in obtaining the remuneration it sought during the additional term. Third parties were allowed to oppose the application, and any extension might be subject to conditions and restrictions (Article 23(3)). However, the Patents Act of 1977 superseded that provision. A similar provision can be found in Article 31 of the New Zealand Patents Act, of 1953, which provides (“[an] extension [of the term of the patent] on ground of inadequate remuneration”).

<sup>19</sup> “Each country of the Union shall have the right to take legislative measures providing for the grant of compulsory licenses to prevent the abuses which might result from the exercise of the exclusive rights conferred by the patent, for example, failure to work.” Paris Convention for the Protection of Industrial Property, of 1883, last amended in 1967 [hereinafter designated simply as “the Paris Convention”], Article 5(A)(2). The text of the Paris Convention as well as of the other Treaties administered by the World Intellectual Property Organization (WIPO) and the WIPO documents cited throughout this work can be found on WIPO’s website, at <www.wipo.int>.

<sup>20</sup> See *infra* comments to Article 31. .



to seek the highest market value for their inventions) relies on three features of the patent system that he identified. The first is the scope of patent claims, “a scope that reaches well beyond what the reward function would require.”<sup>21</sup> Second, some rules (such as priority and time-bar) compel the inventor to an early application “whether or not something of value (and hence a reward) has been found.”<sup>22</sup> “And third, there is the fact that many technologically-important patents have been issued long before commercial exploitation became possible.”<sup>23</sup> Thus, Kitch concluded, patents are not rewards.<sup>24</sup> Actually, he added, it is common that when a patent is issued there is still nothing to reward, for the patentee does not yet know what its invention is good for.<sup>25</sup> Kitch cited fifty examples of inventions whose inventors were obliged to apply for a patent early, yet their commercial success took too long to become a reality.<sup>26</sup>

**I.17.** The prospect function presents the same problems as the reward function: both are only partially correct and neither constitutes a primary concern of the patent system. Actually, inventions are always patented before being market-tested as a consequence of the legal requirements that urge inventors to rush to the patent offices,

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<sup>21</sup> Kitch, *supra* note 4, at 267.

<sup>22</sup> *Id.*

<sup>23</sup> *Id.* at 267. An example of a practical application of the prospect theory (an optimal patent life economic model) can be found in Lawrence M. DeBrock, *Market Structure, Innovation and Optimal Patent Life*, 28 J.L. & Econ. 223 (1985).

<sup>24</sup> *Id.* at 268.

<sup>25</sup> *Id.*

<sup>26</sup> *Id.* at 272. Roger Beck proposed a different prospect theory. Roger L. Beck, *Competition for Patent Monopolies*, 3 Res. L. & Econ. 91 (1981). Beck contended that competing for patent monopolies generates misallocation of resources, namely by leading to premature inventing and to duplicating invention. *Id.* at 99–100. So as to avoid the social loss of rent that these consequences provoke, Beck suggested that researchers could compete for patents by filing an application before inventing. *Id.* at 103. The best application (in terms of research methodology and expected results) would be granted a patent. *Id.* at 105–06. Then, and only then, would the patentee start the research. *Id.* However, one cannot be sure that prospective inventors would not file early applications so as to acquire a better competitive position before the Patent Office. Actually, Beck’s proposal is not new. Boorstin tells that, back in 1662, Henry Oldenburg, when organizing the Royal Society, “moved that when any Fellow have any philosophical notion or invention not yet made out, and desired the same, sealed in a box, to be deposited with one of the secretaries till perfected, this might be allowed, for better securing inventions to their authors.” Daniel J. Boorstin, *The Discoverers – A History of Man’s Search to Know His World and Himself*, at 409–410 (Vintage Books, 1985). If Oldenburg’s suggestion had been retained, Boorstin says, “The progress of science would be haunted by the specter of priority. Even the most eminent scientists would seem more concerned to claim the credit than to prove the truth of their discoveries.” *Id.* at 410. On the other hand, duplicating inventions, where it generates different (i.e. non-infringing) solutions for the same problem is not the same as cloning or reverse-engineering an invention; in fact, it is inventing anew. Hence, improved technical results may arise. Furthermore, offering alternative technical solutions to consumers is, to say the least, pro-competitive. Actual invention duplication does not arise from the race for patents, but from the race for the head start (which would exist even though patents were not available). Finally, no inventor can be sure beforehand that it will be able to find the creative solution for a certain technical problem. Therefore, no applicant could guarantee in advance a successful inventive result.