[1]TECHNICAL ARTICLE ON:

ROLE OF INTELLECTUAL PROPERTY SYSTEM IN DEVELOPMENT: PATENT LAW PERSPECTIVE

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RESPONSE TO KIPI MANAGING DIRECTOR'S 2008 INVITATION TO KIPI STAFF TO AUTHOR TECHNICAL ARTICLES FOR PUBLICATION BY KIPI

WITH OBJECTIVE OF:

"AWARENESS CREATION AND DISSEMINATION OF INDUSTRIAL PROPERTY KNOWLEDGE" AS PART OF FULFILLING KIPI'S "MANDATE TO PROMOTE INVENTIVENESS AND INNOVATION IN KENYA

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Preamble

It is well understood that property is that which is owned by a person, whether natural or legal. Property is that which can be sold (assigned), leased (licensed), developed (exploited), mortgaged and is usually enforced by law. Property is classified into two types namely tangible and intangible property. In our region people are well conversant with tangible property, which includes fixed property like house, land etc. as well as movable property like a car or a shirt. It is part of their daily lives. However, intangible property, which constitutes **Intellectual Property (IP)**, is not well understood and thus is highly unutilised in Africa.

Intellectual property is so called because it arises from the human intellect – it is a product of **human creation, an idea that can only be protected upon expression**. IP is divided into three aspects: Plant Breeder Rights **(PBRs),** Copyright and Neighbouring Rights **(CNRs)** and Industrial Property Rights (IPRs).

Like other rights to property, intellectual property rights are granted and administered by an arm of a state(s) with the state reserving the right of eminent domain.

The Government of Kenya recognizes intellectual property rights (IPRs) as an important tool for trade and as a cornerstone of modern economic policy of any nation and a catalyst for development. In order to attract investment in this world's liberalised economy the Government is devoting resources towards putting in place machinery for effective and efficient management of IPRs within its territory for enhancement of national growth. As a commitment to regional / international co-operation, Kenya is actively involved in formulation and implementation of regional/international policy on IPRs. Kenya is party to the main regional/international treaties/agreements on Intellectual Property (IP)[5].

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[5] Including the **Paris Convention** for the Protection of Industrial Property (1883), the **Nairobi Treaty** on the Protection of the Olympic Symbol (1981), the Trademark Law Treaty (TLT) (1994), **Madrid Agreement** Concerning the International Registration of Marks (1891) since 26th June 1998, **Protocol**

In view of the above, Kenya has enacted legislations on IPRs to accommodate changes in the local, regional and international scenes including conformity to the TRIPS Agreement – a prerequisite vital for attraction of investment. Aspects of intellectual property rights are protected within Kenya's territory as follows:

- Administration of Industrial Property Rights is the mandate of the Kenya Industrial Property Institute (**KIPI)** under the Ministry of Industrialisation through the newly enacted Industrial Property Act, 2001 and the Trade Marks Act, Chapter 509[6] of the Laws of Kenya.
- Copyright and Related Rights that constitute of literary (books, poems, etc.) and artistic (paintings, music, etc.) works as well as cinematographic works, performers rights, broadcasting rights, rights of producers of phonograms etc. are administered by **The Kenya Copyright Board** under the Attorney General Chambers (State Law Office) through the recently Copyright Act, 2001.
- Plant Breeders Rights, which cover new plant, varieties are administered by the Kenya Plant Health Inspectorate Service **(KEPHIS)** under the Ministry of Agriculture and Rural Development through The Seeds and Plant Varieties Act, Cap 326 of the Laws of Kenya.

Relating to the Madrid Agreement Concerning the International Registration of Marks (1989) since 26th June 1998, Patent Co-operation Treaty (**PCT**) of 1970 since 1994, **Lusaka Agreement** establishing ARIPO of 1976, **Harare Protocol** for the Protection of Patents and Industrial Designs of 1982, **WIPO Treaty** Establishing WIPO of 1970, International Union for the protection of New Plant Varieties (**UPOV**), Agreement on Trade-Related aspects of Intellectual Property Rights (**TRIPS Agreement**) of 1995.

[6] As amended in 2004

Chapter 1

The Role of IPRs in Economic Development

Intellectual Property (IP)[7] although being an intangible product of human creation has attributes[8] of tangible property[9] and confers exclusive commercial rights[10] to the owner[11] of the property over the rest of the world, safe for the sovereign[12], for the exploitation and dominion of the property. Although the society may not fully "appreciate" the role of intellectual property mainly because, due to its intangibility - do not conform to the layman's conception of property or of its "arcane and complex legal nature[13]", intellectual property rights and in particular "patentable inventions have revolutionised the society economically and socially[14]".

Generally, IP impact in all areas of development: land use, science and technology, art and music, international and regional relations, social science, business and profession, modern culture[15], etc. Thus IP directly relates to the three criteria used in the determination of development levels of countries by the United Nations: Gross National Income (GNI)[16], human assets (nutrition, health, school enrolment and literacy) and economic vulnerability (natural shocks, trade shocks, exposure to shocks, economic smallness and economic remoteness)[17]. Indeed in this knowledge driven economy[18] a well balanced and utilised IP system potentially play an important role in "the technological, industrial, cultural,

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[7] Intellectual property is so called because it arises from the human intellect, an idea that can only be protected upon expression. It is divided into three aspects: Plant Breeder Rights **(PBRs),** Copyright and Neighbouring Rights **(CNRs)** and Industrial Property Rights (IPRs).

[8] It is owned by a person (whether natural or legal), is granted and administered by an arm of a State(s) with the state reserving the right of eminent domain, can be sold (assigned), leased (licensed), developed (exploited), mortgaged and is usually enforceable in law

[9] Includes fixed property like house, land etc. as well as movable property like a car or watch, shirt, etc.

[10] This exclusive commercial rights are commonly referred to as Intellectual Property Rights

[11] Most intellectual property systems require that the owner of the property is the creator or one (assignee) who has been assigned, in writing, the property by the creator. The assignee may also conclude further assignment contracts.

[12] In the precincts of the advantage or practical right of the sovereign called "eminent domain" the sovereign may take the property of a private citizen. This applies to all countries although some of them have legal provisions that such take-over for "public use" must be associated with "just compensation".

[13] See ICTSD and UNCTAD, 2003 Page 3. Other related factors include constraints in resources and limited access to research material, facilities and prototyping possibilities, deficiency in technical and managerial skills, disorganized markets (Idris, 2002, P. 37), lack of public awareness and related education, etc

[14] See Kayton, 1989, Pages 1-3

[15] See details at http://en.wikipedia.org/wiki/Development

[16] IP influence knowledge intensive industries that increasingly contribute to the GNI ((Idris, 2002, P. 34)

[17] See UNCTAD/LDC/2007, P. (iii) at http://unctad.org/en/docs/ldc2007_en.pdf

[18] See UNCTAD/LDC/2007, P. 123; USPTO, 2008 ; Carlos Gutierrez (2006) and Idris, 2002, P. 115

social and economic development[19] of many nations of the world[20] …. Intellectual property (is) a cornerstone of modern economic policy of nations, a catalyst for development and an acknowledged major development tool[21]".

However, effective utilisation of the IP system is a preserve of the developed countries - for example, developed countries own 97% of the world's patents[22] and more than 95% of patent applications in developing countries are filed by foreigners[23]. Although in developing countries including the Least-Developed Countries (LDCs) people are well conversant with tangible property, since it is part of their daily lives, IP is not well understood and thus is highly unutilised in most of them. The disparities of IP assets between the developed and developing countries are as wide as the gaps in other forms of wealth[24].

This notwithstanding, there have been significant efforts to globalise IP as evidenced by significant changes in the international regulatory system aimed at strengthening IP protection[25] and the pressure being exerted on developing countries to implement such system[26].

This has caused a divide between developed countries including LDCs and developed countries. The former, supported by various experts, advocate various theories in favour a strong IP system – See Table 2.1 Below.

On the other hand, developing countries also backed with expert opinion fall under a different school of thought – vide Table 2.1 below:

Due to this divide, the developing countries have called for " a more careful analysis of which IP policies will serve what goals and whose interest, and under what conditions" and the need for policy space commensurate with that "developed countries relied upon to serve their national development[27]". Their

[19] See details in Idris, 2002. "Intellectual Property could be called the Cinderella of the new Economy" (Idris, 2002, P. 24). "Economic growth is driven by two main sources: the supply factors of production, namely physical capital and labor (or human capital), and technology … IP significantly influence the appreciation in value and accumulation in quantity of human capital, and the rate and direction of technological change" (Idris, 2002, P. 33)

[20] With over USD 290 million in export earning from biotechnology, Foreign exchange revenue from sales of just Menengitis B Vaccine owned by a Cuba's Finlay Institute and licenced to SmithKline Beecham (an Anglo-American firm) has helped Cuba repay its debts to Argentina, Brazil and Colombia (Idris, 2002, P. 117).

[21] See WIPO, 2005: WO/GA/32/13 Page 30 Paragraph 125; USPTO, 2008 , Carlos Gutierrez (2005), Condoleezza Rice (2005), Susan Schwab (2006), Alberto Gonzalez (2006) and Rob Portman (2005)

[22] See UNESCO, 2005

[23] See details in Idris, 2002, Page 37

[24] See details in Idris, 2002, Page 3

[25] USPTO, 2008 , President George W. Bush (2006)

[26] See ICTSD and UNCTAD, 2003 Page 3-4

[27] See ICTSD and UNCTAD, 2003 Page 5. "Historically evidence confirms that several of today's developerd countries readily exploited the absence of agreed international standards in the past, adapting their level of protection according to national needs" and "benefited from the freedom to choose from a variety of possible national systems.

underlying philosophy is very clear: : "that IP protection should be enacted in accordance with the level of development of different countries and that protection of private interests should be balanced with that of the larger public interest[28]", to strengthen technological progress and to ensure that the poor have better access to new technologies and products[29]". In that context there is need for "reform of the current IPR regime" to yield and "promote a better-balanced international system adapted to the requirements of developing countries emphasizing on "the transfer of technology and access to knowledge and information, crucial to developing countries in stimulating innovation and creativity" [30]

This call has not only been reflected in several international multilateral fora[31] but also in bilateral and pluralateral (regional) arrangements including ACP-EU[32], UNDP[33], WTO[34], WHO[35], and WIPO[36] and has planted some fruits which are still to be natured for good harvests.

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[28] See UNCTAD/LDC/2007, Page 100 and Idris, 2002, Page 45-46.
[29] The statement of the Secretary-General of the United Nations, Mr. Ban Ki-moon (www.un.org/ecosoc)
[30] See UNCTAD/LDC/2007, Page 100
[31] See WIPO, 2004 WO/GA/31/15 Page 68
[32] IP constitute a whole chapter in the Economic Partnerships Agreements (EPAs) being negotiated between the African Caribbean and Pacific (ACP) countries and the European Union (EU). Although EU is not very keen on new development offers, some negotiating blocks have insisted that if there is no development, then there is no EPAS.
[33] The Millennium Development Goals (http://www.undp.org/mdg/basics.shtml)
have featured consistently in IP and development matters under various UN specialized bodies
[34] The Doha Development Agenda (DDA) set on 14th November 2001 by the 4th Ministerial Conference, the top decision making organ of WTO, also addresses issues of IP and development especially in Paragraphs 17-19. The Conference also adopted a separate Declaration on the TRIPS Agreement and Public Health. See details in WTO, 2002
[35] After about three years of volatile negotiations, on 24th May 2008 WHO adopted a Global Strategy and Plan of Action on Public Health, Innovation and Intellectual Property. Element 5 strategises and action plans on Application and Management of IP to Contribute to Innovation and Promote Public Health and thus development. Several other elements also address issues of IP and development. For details see WHO, 2008
[36] The mission of WIPO is "to promote the protection of IP rights worldwide, and to help extend the reach of the benefits of the international IP system to all its Member States" (Idris, 2002, Page 5). In 2004, Argentina and Brazil initiated the proposal for the Establishment of a Development Agenda for WIPO (WIPO, 2004 WO/GA/31/11) that was appreciably embraced by a group of other developing countries – Friends of Development (WIPO, 2005 IIM/3/3, Par 117) – and many others(WIPO, 2004 WO/GA/31/15 Pages 33-68; WIPO, 2005 WO/GA/32/13 Pages 21-40; WIPO, 2006 WO/GA/33/2 Rev. Pages 6-31; WIPO, 2007 A/43/16 Pages 135-160; WIPO, 2005 IIM/1/6; WIPO, 2005 IIM/2/10; WIPO, 2005 IIM/3/3; etc) including intergovernmental and non-governmental organizations. This Development Agenda was prompted by, among others, "the recognition of global knowledge asymmetries and the need for greater integration of a development dimension into global IP policymaking" (UNCTAD, 2007, P. 100). Upon four years of intense consultations, discussions and negotiations under various WIPO structures (WIPO, 1988 WO/CF/16/2, P. 2-3; WO/GA/31/15, P. 68; WIPO, 2005 WO/GA/32/13, P. 40 and WIPO, 2007 A/43/16, P. 152), in 2007, a WIPO Development Agenda was adopted. The WIPO Development Agenda aims to ensure that development considerations form an integral part of WIPO's work and as such, it is a cross-cutting issue which touches upon all sectors of the Organization. It is currently organized into a 6-clustered 45 recommendations, 19 of which are for immediate implementation under the Committee for Development and Intellectual Property (CDIP) (http://www.wipo.int/ip-development/en/agenda/)

Table 1.1: Selected Quotes in Favour of (Strong) IP System

1.	"Help countries create incentives structure and institutional framework necessary for knowledge generation and diffusion, technology transfer and private investment flows" thus encouraging "innovation and commercial investment in new technologies[37]"
2.	Facilitate "international competitiveness" by curbing "..."free-riding" where other, foreign companies may benefit economically from the technological investment of one company, and potentially undercut its competitiveness[38]"
3.	"Preserve private appropriation of rents from investment in innovation in the context of international trade and investment[39]"
4.	"Fuel innovations and enhance economic growth and welfare"[40]
5.	"Innovation is the primary engine of long term development"[41]
6.	"Innovation is a pioneering activity to develop a new product or process and is rooted in the rational behaviour of a firm[42]"
7.	Patent Law "encourage inventions, and thereby ... contribute to the development of Industry[43]".
8.	"The patent system is designed to strike the proper balance between the inventor's (private) interest and the public interest[44]"
9.	The patent is an incentive that gives the inventor a temporary, but sturdy and durable, qualified and quantified shelter from the forces of market competition thereby safeguarding the inventor's investment from competitors and price predators, create new inventions and hire and train others to do so on his behalf[45].
10.	The patent system generates competitive innovations by enabling competitors to carry further research and development based on the already protected inventions[46]
11.	"The patent system promotes technological and business competition because patent holders and their competit(ors) race to improve inventions and create new ones ... (and thus) the patent system serves as the framework to keep the wheel of invention turning" [47].
12.	"Patents facilitate technology transfer and FDI (Foreign Direct Investment)... stimulates R&D activities and universities and research centres ... catalyses new technologies and businesses; and (enables such) businesses, especially small and medium-sized enterprises (SMEs) (to) accumulate IP assets and engage in (licensing, sharing and distribution) transactions based on such assets .. (an activity that) that can provide jobs, job training, and human resources development, supply needed goods and services, and increase business and individual income" [48].
13.	Economists have established "that a country's economic growth rate is influenced by government IP policies" [49].
14.	"Patents are an essential component of economic strategy regardless of whether the country is developed or developing." [50]

[37] See ICTSD and UNCTAD, 2003 Page 4 and Idris, 2002, P. 34 and 80
[38] See ICTSD and UNCTAD, 2003 Page 4
[39] See ICTSD and UNCTAD, 2003 Page 4
[40] An economist's perspective, see UNCTAD/LDC/2007, P. 101
[41] See Rosenberg and Birdzell, 1986, P. 595–596
[42] See UNCTAD/LDC/2007, P. 102
[43] See JPO, 2007, Art. 1
[44] See Idris, 2002, P. 79
[45] See Idris, 2002, P. 80
[46] See Idris, 2002, P. 80
[47] See Idris, 2002, P. 82
[48] See Idris, 2002, P. 84 and 129
[49] See Idris, 2002, P. 93
[50] See Idris, 2002, P. 132

Table 1.2: Selected Quotes Against (Strong) IP System

15.	Current IP system contributes to raising prices of essential drugs beyond affordability by the poor[51],
16.	Current IP system contributes to limiting availability of educational, technical and scientific information and knowledge in general[52].
17.	Current IP system legitimises the piracy of traditional knowledge thereby undermining self reliance of resource poor framers and can give rise to ethical and environmental disorder[53].
18.	Current IP system reinforcing the concentration and market power of large economic actors and thus encouraging anti-competitiveness[54]
19.	Current IP system inhibiting, rather than enhancing, the flow of trade by limiting market access opportunities for foreign investors[55]
20.	Treating IPRs as an "end in themselves" instead of "as a means for development, growth and poverty reduction"[56]
21.	Reducing innovation to the workings of the price mechanisms"/models and thus leaves innovation as if its "contribution to economic welfare can be easily traced through changes in relative prices" and as "a profit seeking activity linked, in particular, to R&D"[57]
22.	"Visible and demonstrable evidence of economic payoff attributable to IP protection is currently not sufficiently developed … there is no data to support the role of IP in economic development … (and) "complexities in separating or disaggregating the effects of IP protection from other factors that impact developing economies" do exist.[58]
23.	The economic rewards for innovation flow from the developing to the developed countries, the capital investment in developing countries centre on foreign-owned or controlled enterprises and thus payment of royalties to such enterprises. [59]
24.	"Too strong patent protection may give rise to ethical and environmental disorder" [60].
25.	There is "growing value of intellectual commodities as central assets in a knowledge based society"[61].
26.	Developing countries are not technologically at the forefront and thus the incentives provided by IP and patents in particular, for investment in R&D are not meaningful[62].
27.	"Although more than US$ 56 billion is spent annually on health research, less than 10(%) percent is directed toward(s) diseases that afflict 90(%) percent of the world's population … (and) between 1975 and 1977, 1,223 new compounds were introduced on the market, but only 11 (less than 0.9%) of these were aimed at tropical (developing country) diseases."[63]

[51] See Idris, 2002, P. 115
[52] See more details in UNCTAD/LDC/2007, Pages 101-138
[53] See ICTSD and UNCTAD, 2003 Pages 4-5 and Idris, 202, P. 115
[54] See more details in UNCTAD/LDC/2007, Pages 101-138
[55] See more details in UNCTAD/LDC/2007, Pages 101-138
[56] See UNCTAD/LDC/2007, P. 101
[57] See UNCTAD/LDC/2007, P. 101
[58] See Idris, 2002, P. 37
[59] See Idris, 2002, P. 38
[60] See Idris, 2002, P. 115
[61] See Idris, 2002, P. 115
[62] See Introduction of Lesser, "The Effects of TRIPS-Mandated Intellectual Property Rights on Economic Activities in Developing Countries" at www.wipo.int/about-ip/en/index.html/?wipo_content_frame=/about-ip/en/studies/index.html
[63] See Idris, 2002, P. 122

Chapter 2

Historic Perspective of Patent System

For centuries millions of patents have been granted throughout the world under various patent laws of various countries but for similar reasons: "to encourage an inventor to disclose his invention to the public and thereby promote the progress of science and the useful arts"[64]. Tamara S. Eisenschitz (1987) looks at this arrangement as "a bargain or contract between a government and an inventor" where the inventor discloses[65] the invention and the government in return provides the "monopoly" for a period of time (22).

The history of patents is a four thousand-year journey from the Code of Hammurabi, C. 1750 b.c. Law No. 188 to the TRIPS Agreement (1995) and beyond. Let us consider what scholars have established.

Dr Nuno Pires De Carvalho[66] traces the history of IP to Code of Hammurabi, C. 1750 b.c. Law No. 188: "If an artizan has undertaken to rear a child and teaches him his craft, he can not be demanded back." Law No. 189: "If he has not taught him his craft, this adopted son may return to his father's house."

That notwithstanding, from antiquity to the fall of the western Roman Empire i.e. 1750 b.c. to 5th Century, "neither Greece nor Rome had a a system of private private appropriation of technology, the reason being that they were and remained primarily agricultural economies. Artisan were seen with social despise. The patents granted in Sybaris (5th Century) were an anachronistic eruption of a legal institution (a historical deadend)."

But inventors would not be completely ignored in Antiquity. For example, the Museum of Alexandria would patronize several inventors, namely Ctesibius, Hero and Phiolo (1st-2nd centuries), who developed many new machines including automatic temple door and steam engine. Throughout Antiquity, inventors were not granted "patents", but they instead received a salary.

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[64] See Brink, Gipple and Hughesdon, 1959.

[65] The disclosure involves a description of the invention that must be clear and sufficient enough such that a man skilled in the "art" can carry it out.

[66] Dr Carvalho is a Brazil national who is currently the Acting Director advisor in the Legis;ation for Public Policy and Development Division at the World Intellectual Property Organisation (WIPO). Prior to WIPO, he worked as Counselor in the Intellectual Property Division of the World Trade Organisation (WTO) from 1996 to 1999. He was a Visiting Adjunct Professor at the Law School, Washington University in St. Louis, Missouri, USA, in 1996. He is scholar with a Doctorate in Legal Sciences (SJD) and he I s aproud holder of a number of other degrees in law and economics from USA, Portugal, Brazil. He has several publications on Intellectual property to his credit.

Between the 5th century and 1000 industrial/commercial activities were carried out by members of the household – the Family system of production. The few technical advancements were in the area of irrigation and windmills that were promoted by abbeys and monasteries. There was no outside demand and hence no sale, no competition and no capital. Consequently, no intellectual property.

The followed the Guild System (1000 – 1400) when work was carried out by small masters, with two or three employees referred to as journeymen or apprentices. The fact that these masters doubled as shopkeepers and merchants, capital was not an issue. This localized sale, highly restricted competition within each town under the control of the guilds.

During the Guild System, artisans wrote, and rulers approved, by-laws on containing technical standards as well as labour and industrial property rules. However, the patent regime had not yet emerged because competition in technology was still quite constrained. First privileges were granted to importers of foreign techniques, the secrecy of guilds were protected interference in the apprentice and labour contracts were prohibited – **The Trade Secrets Regime**.

Then followed the Domestic System: 1400-1700. During this era, production was carried out mainly by guilds while masters specialized in producing upon commands of merchants – **commercial capitalism.** As fairs and markets expanded, manufacturers and consumers became distinct necessitating establishment of legal institutions (like titles of credit and commercial records) that favoured trade expansion. This enhanced competition giving birth to the **Patent System** on new or imported techniques to compete with the structure of the guilds.

It is believed that the British patent system is the "prototype of patent systems throughout the world" (Williams[67], 1999) and that modern patent law originates from Section IV of the 1623 Statute of Monopolies[68] whose enactment was

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[67] Prof. Judith Williams is a lecturer at the University of Alicante. She presented a series of lectures on "English and Patents" to the students pursuing a Master of Intellectual Property 1999/2000 at Aula 13 – Edificio German Bernacer, University of Alicante.

[68] John Bochnovic (1982) seems not to agree with this assumption and in his publication *The Inventive Step* he says that it is "sometimes erroneous" (9). In support of his ideology he writes that "the Statute of Monopolies itself acknowledged and preserved the existence of a body of common law relating to monopoly grants for new inventions" as "noted by one of the earliest writers on the subject, Thomas Webster:

> It has not been unusual to refer to the saving clause of the Statute of Monopolies as the origin, and to the decided cases since that statute as the only authorities in illustration, of this branch of the law. But the statute itself, in declaring that a particular class of grants and certain letters patent, excepted from its operation, should be and remain of like force and effect as if that act had never been made, distinctively recognises the existence of an old common law, which, as modified by that statute, constitutes the present law of letters patent for invention.

influenced by the publication of the Book of Bounty[69] in 1610. John Bochnovic (1982) in his book, *The Inventive Step,* hints that a submission[70] by defence counsel Fuller during one of the cases[71] based on the statute, "was to become the common law foundation for present patent system" (10). Judge Giles S. Rich, an eminent Justice of the United States Court of Customs and Patents Appeals admits that the US inherited its idea of patents for inventions from England[72].

Thus a brief history of the development of the patent system and the evolution of the inventive step in England can act as a basis of understanding the origin and evolution of patent rights now practised worldwide.

Prior to the Statute of Monopolies of 1623 there existed in medieval England a system of common law relating to monopoly grants which aimed at encouraging trade in general rather than new inventions. Prof. Williams writes:

Patents were originally granted by the Crown in the exercise of his Royal prerogative. The Word "patent" comes from the practice of the monarchs in the middle ages conferring rights and privileges by means of "open letters"" that is documents on which the royal seal was not broken when they were opened, as distinct from "closed letters" that were not intended for public view. Open letters were open to inspection by any interested party. In Latin the language of government in medieval England, "open letters" were "litterae patentes" and as English took over from Latin for official purposes, the documents became known as "letters patent". Letters patent were a royal proclamation that the bearer had the Crown's authority to do whatever had been authorised within the letters. In time just "patents" became the term most frequently associated with inventions. (1)

Records indicate that the earliest patent was granted in 1331, to a Flemish weaver who wanted to practise his trade in England. "The earliest of all known English patents for inventions was that granted by Henry VI to John of Utynam in 1449 for making coloured glass required for the windows of Eton College, but it was not until after 1590 that such patents were commonly granted" says Prof. Williams.

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[69] "The Book of Bounty was simply an exposition by the Crown of the very limited extent to which the Crown's prerogative right in respect of the granting of patents would be exercised" (Bochnovic, 10).

[70] "Now therefore I will shew you how the Judges have heretofore allowed of monopoly patents which is that where any man by his own charge and industry or by his own wit or invention doth bring any new trade into the Realm or any Engine tending to the furtherance of a trade that was never used before and that for the good of the Realm; that in such cases the King may grant to him a monopoly patent for some reasonable time, until the subjects may learn the same, in consideration of the good that he doth bring by his Invention to the Commonwealth; otherwise not."

[71] Darcy v. Allin (1602) Noy 173: !.p.c.1: 74 E.R. 1131. See also content note 7.

[72] See details in Witherspoon (1980), p.3:301 at 3:313 and also APLA Bulletin of May-June 1978, P. 238 at
250-251

Grant of monopolies degenerated into being the Crown's method of controlling trade and by the end of Elizabeth's reign (1558-1603) the public basic freedom of trade and commerce had already been severely eroded. To deal with and avoid such erosion, grants started being restricted by subjecting them to particular conditions - thence the doctrine of conditions for patentability was born. Among the earliest known conditions were that the monopolies be granted for a limited period of time, to the inventor of a new manufacture or introducer of such a manufacture from abroad and not be contrary to common law, nor mischievous to the State or generally inconvenient – the doctrine of public interest[73].

In 1589, Queen Elizabeth denied a patent to James Lee, inventor of hand knitting machine on public interest: that the action in question will destroy jobs for her poor people and make them beggars [74].

The Statute of Monopolies of 1623 harboured these conditions and rendered illegal all monopolies except those "for the term of 14 years or under for the sole working or making of any manner of new manufacture within the Realm to the true and first inventor". During Queen Anne's time, the doctrine of disclosure[75] was also asserted as one of the requirements of patentability. These conditions were enforced[76] and developed with time.

For the next two hundred years after the Statute of Monopolies "enquiries into the validity of patents was concerned with three aspects of validity: **novelty**, subject matter (i.e. whether the subject matter was a "manufacture"), and sufficiency of the specification". "During the first half of the 19th century an additional argument began to be raised as a requirement for patent validity. Initially this argument was

[73] In 1610, James I, the Queen's successor, issued a declaration that he would only grant patents for " projects of new inventions so that they be not contrary to the law, nor mischievous to the State or generally inconvenient". So the doctrine of public interest was introduced to the patent system at this stage.

[74] :To enjoy the exclusive priveledge of making stockings for the whole of my subjects is too important to be granted to any indivitual… I have too much love for my poor people who gain their bread by the employment of knitting to give my money to forward an invention that will tend to their ruin by depriving them employment and making them beggars"

[75] A clause that the letters patent would become void if the inventor did not particularly describe his invention and its manner in an "instrument of writing" i.e. a specification, to be filed within a stated period after grant was inserted in the grant.

[76] In 1596, the Queen on grounds of propriety rejected an application made by Sir John Harrington for grant of a patent for a design of a water closet.
In Darcy V. Thomas (1602), exclusive rights on playing cards granted to a merchant was held void because it was contrary to common law.
In 1778, James Buckle's patent for a machine gun was the first one to be subjected to the requirement of a specification.
In 1778, Lord Mansfield declared a patent voidable on grounds of insufficiency of the specification.
In 1783, Arkwright's patent for spinning was nullified on grounds of insufficiency of the specification after being in existence for 10 years.

formulated as lack of novelty, or lack of subject matter" (Bochnovic, 14). Lack of subject matter resulted to **Inventive Step**[77] criteria.

Within the Factory System (1700-1990), workmen gathered together in great masses, usually in large buildings under the immediate control of capitalist employers - industrial **capitalism.** There was substantive improvements in transportation and communication that increased international trade. Patents become business assets – frequently granted to or owned by partnerships inventor/capitalist:; in the middle of the 19th century, patent law acknowledges the control of invention by industrial capitalists: patent law starts dealing with employees' inventions; but patents are seen as national institutions aiming at attracting foreign inventors (free riding on foreign technology – obligation to exploit; sanctions against imports of patented goods); no bilateral agreements; no harmonized standards in the Paris Convention (which had a very modest ambitions).

France enacted its first patent statute in 1763 and later, a modern statute, in 1791: the U.S. follows suit in 1790 and 1793.

In 1883, the first international law on industrial property (read patents) – the Paris Convention is born. In 1970, the World Intellectual Property Organisation (WIPO) is established to promote the protection of intellectual property (read patents) worldwide. By 20th Century about 21 international arrangements on intellectual property are enacted under the administration of WIPO. Towards the end of the 20th century the TRIPS Agreement consolidates and harmonizes national standards developed by the major users of the system.

In 1989, Kenya enacts the Industrial Property Act covering among others patents. Prior to 1989 Patent regime existed in Kenya under the Patents Act based on the British patent system. In 2001, the Industrial Property Act is repealed to accommodate changes in the local, regional and international scenes including conformity to the TRIPS Agreement.

[77] The first case in which the inventive step requirement received judicial acknowledgement was *Crane v. Price* (1840) during which Chief Justice Tindel, while upholding the case, referred to "quality or degree of invention" which was interpreted to be a consideration of the "newness" or simply, the novelty of the invention and thus formed an harbinger of the kind of analysis which the requirement of inventive step involves. The first case in which a patent was invalidated due to lack of inventive step was *White v. Toms* (1868). The confusion arising from the development with regard to the interpretation of the word "manufacture" in the mid-19th century continued to mid-20th century in the way courts would deal with the requirement of subject matter and inventive step. Since then further developments have been in progress but still the determination of the requirement is characterised by confusion

Chapter 3

Rationale for Patent System

A patent is an official document, especially one issued by a sovereign power, conferring a right or privilege on some person or party - a writing security to an inventor for a term of years, giving him the exclusive right to make, use and vend his invention[78]. Indeed "patents are intensely practical, really life legal instruments with which an inventor or corporation can protect the investment in time, money, effort and other resources expended in order to create a new contribution to technology" and patent law, as a specialised field of endeavour and as a special form of the law that protects property without which the doctrine of "survival for the fittest" would reign[79], is the legal system designed to provide government sanctioned remedies and means to protect the inventor's rights in his or her new contribution to society and is "peculiarly effective in any society where private property is recognised"[80]. "A society that provides no legal shelter for its inventors is likely to have a weak economy" [81].

Although this same society does not fully "appreciate" the role of patent law mainly because patent inventions, due to their intangibility, do not conform to the layman's conception of property, "patentable inventions have revolutionised the society economically and socially[82]"

Legally, patents have attributes of personal property in that its owner has exclusive rights over the rest of the world, safe for the sovereign[83], for its exploitation and dominion. This property system permits organisations to "plan rationally and effectively" in order to "carry out business activities relative to new technology in an orderly way"[84] .

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[78] Definition in Webster's New International Dictionary, see also Gifis, 1984 and Idris, 2002, P. 18

[79] " . . . if the creator of new technology does not have the financial, production, distribution, merchandising and related powers of another organization, then the most powerful organization will reap the profit of the added value, just as the strongest ape in the jungle will get the bananas to the exclusion of his weaker competitors" (Kayton, 1989, P. 1-3).
Similarly, the "powerful and mighty" will continue to unfairly exploit the "weak(er)" and would continue to acquire unmerited ownership to IPRs. Besides, large corporations and individuals will resort to trade secrets and thus deny the rest the technology vital for the society

[80] See Kayton, 1989, P. 1-2. Kayton is a George Mason University Foundation Professor of Intellectual Property Law.

[81] See Idris, 2002, P. 81

[82] See Kayton, 1989, P. 1-2

[83] In the precincts of the advantage or practical right of the sovereign called "eminent domain" the sovereign may take the property of a private citizen. This applies to all countries although some of them have legal provisions that such take-over for "public use" must be associated with "just compensation".

[84] The organisations treat the expenses of the invention, innovation and patenting as a cost of doing business, which is transferred directly to the product and service costs paid by the consumers who are thus immediate and direct beneficiaries of the invention or innovation. For details see Kayton, 1989, P. 1-2.

Although there are several documented reasons as to why governments grant patents, all single up to one reason: "to encourage an inventor to disclose his invention to the public and thereby promote the progress of science and the useful arts"[85]. Some experts look at this arrangement as "a bargain or contract between a government and an inventor" where the inventor discloses[86] the invention and the government in return provides the "monopoly" for a period of time[87]. Typically the purpose of the patent system is three fold[88]:

1. to promote creativity and inventiveness by offering exclusive ownership rights and a reasonable period for covering R&D costs for the invention;

2. To promote investment to commercialise new inventions through limited exclusive rights in working and marketing the invention;

3. To diffuse knowledge and information through publication of patent applications and grants for the benefit of other R&D and society as a whole;

While performing its purpose, patent system ends with four significant functions[89]:

1. To stimulate R$D at universities and research centres:

2. To promote technology transfer and FDI;

3. To serve as a catalyst of new technologies and new businesses; and

4. To empower businesses, especially SMEs, with regard to IP asset accumulation, management, and use.

Purposes one and two above are patent-owner financial benefits that are usually achieved in three levels: recouping R&D costs for the invention (usually capital, time, equipment and labour), making profit from the unit sales of products incorporating the invention and getting royalties and fees from licensing or assignments of the invention (technology transfer)[90]. This forms the basis for patent rights.

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[85] See Brink, Gipple and Hughesdon, 1959
[86] The disclosure involves a description of the invention that must be clear and sufficient enough such that a man skilled in the "art" can carry it out
[87] See Tamara, 1987, P. 22 and Idris, 2002, P. 81
[88] See Idris, 2002, P. 37
[89] See Idris, 2002, P. 133
[90] See Idris, 2002, P. 78-79

Table 3. 1: Patent Rights as per Laws of Selected WIPO Member States

	Type of Right	Country or Regional Office				
		Kenya[91]	Spain[92] (EPO[93])	Japan[94]	India[95]	USA[96]
1.	In respect of Patented Product	§ 54		Art. 68	§ 48	§ 271
	(a) Making the product	(a) (i)		Art. 100 (iii)	(a)	(a)
	(b) Importing the product	(a) (i)		-	(a)	(a)
	(c) Offering for sale the product	(a) (i)		Art. 100 (iii)	(a)	(a)
	(d) Selling the product	(a) (i)		Art. 100 (iii)	(a)	(a)
	(e) Using the product	(a) (i)		-	(a)	(a)
	(f) Stocking the Product for purposes (c) – (e) above	(a) (ii)		Art. 100 (iii)	-	-
2.	In respect of Component(s) of Patented Product	-	-	-	-	§ 271
	(g) Importing the component(s)	-		-	-	(c)
	(h) Offering for sale the component(s)	-		-	-	(c)
	(i) Selling the component(s)	-		-	-	(c)
	(j) Exporting the component(s)			-	-	(f)
3.	In respect of Marketing Approval of Patented Product	-				§ 271
	(k) Applying for such Approval	-		-	-	(e)(2)
4.	In respect of a Patented Process	§ 54	✓	Art. 100	§ 48	§ 271
	(l) Using the Process	(b) (i)		-	(b)	-
	(m) Doing acts (b)-(e) above for product got directly by the process	(b) (ii)		(vi)	(a)	(g)
	(n) Doing act (f) above for a product obtained directly by the process	(b) (ii)	(64(2)	(vi)	-	-
5.	In respect of material(s) for use in a Patented Product/Process	-		Art. 100	-	§ 271
	(o) Importing the material(s)	-		(i), (ii), (iv)	-	(c)
	(p) Offering for sale the material (s)	-		(i) - (ii)	-	(c)
	(q) Selling the material(s)	-		(i)	-	(c)
	(r) (i) Exporting the material(s)	-		-	-	(f)

Notes:

1. *Numbered entries indicate the section or article of the law containing the provision either expressly or implication or the author's interpretation as established by the author.*
2. *Hyphen indicate that no section or article of the law containing the provision either expressly or by implication or by the author's interpretation was established by the author*

[91] As per KIPI, 2003
[92] As per SPO, 2008
[93] As per EPO, 2007
[94] As per JPO, 1959
[95] As per IPOI, 2005
[96] As per USPTO, 2007

Patent rights enforcement is territorial while patent granting procedure, although territorial, has universal effect: a patent once granted in one territory to a particular applicant cannot be granted to another applicant in neither the same nor different territory since it will lack novelty, that is determined world-wide[97], and the inventive step. A territory can reflect national, regional or international jurisdiction[98]. Each territory has got its own procedures for grant, exploitation and litigation of patent rights, although there are efforts of harmonising them. These procedures are governed by patent laws and highly depend on qualified personnel, all of which differ from one territory to another. This means that there exists some risks: one territory may grant a, and another reject to grant the same, patent because of non-uniformity of these procedures and capacities. For the same reasons exploitation and litigation are subjects of the risk and thus constitute unfairness in patent practice / protection. This has been the case and until a system is in place for obtaining, exploiting and litigating patent rights - the so-called "global patent[99] system", there continues to be an erosion of the really essence of granting patent rights which in turn threatens the importance of patent law.

Table 3.2: Patent Infringement Remedies in Laws of Selected WIPO Member States

	Type of Right	Country or Regional Office				
		Kenya[100]	Spain[101](EPO[102])	Japan[103]	India[104]	USA[105]
1.	Civil Remedies			Article		
	(a) Injunction Relief	§ 55 (a)		100	§ 108 (1)	§ 281
	(b) Damages Claim	§ 55 (b)		102	§ 108 (1)	§ 281
	(c) Compensation Claim	§ 55 (c)		102	-	§ 281
	(d) Seizure of Infringing Goods	§ 106 (a)		-	§ 108(2)	-
	(e) Forfeiture of Infringing Goods	§ 106 (a)		-	§ 108(2)	-
	(f) Destruction of Goods	§ 106 (a)		-	§ 108(2)	-
2.	Criminal Penalties			Article	-	-

[97] Patent laws provide that an invention is new if it is not anticipated by prior art. Written and oral disclosures, use, exhibition or other non-written means, wherever they occur anywhere in the world, constitute prior art and thus destroys novelty of the invention.

[98] International and regional arrangements on patents currently in place include PCT, EPC, ARIPO, OAPI, etc. Although patents granted under the said arrangements have international effect, the member states reserve the right to contest the grant at national level.

[99] Q. Todd Dickinson, an Assistant Secretary of Commerce and Commissioner of Patents and Trademarks of the United states, at the Intellectual Property Rights Symposium Panel Discussion held at Tokyo, Japan in November 16, 1999, said that "A number of initiatives are underway that will eventually lead to the creation of a global patent system. The pace at which this change takes place and the timing of its completion are unpredictable. Nevertheless, the journey has begun and, at some point in the future, we will have an international patent system where the rights of inventors will be universally recognized without having to seek patent protection in individuals countries".

[100] See KIPI, 2003

[101] As per SPO, 2008

[102] As per EPO, 2007

[103] As per JPO, 1959

[104] As per IPOI, 2005

[105] See USPTO, 2007

	(g) For Wilful Infringement	§ 109 (1)		-	-	-
	(h) Fine	§ 109 (2)		196	-	-
	(i) Imprisonment	§ 109 (2)		196	-	-
	(j) Both Fine and Imprisonment	§ 109 (2)		196	-	-

Notes:

1. *Numbered entries indicate the section or article of the law containing the provision either expressly or implication or the author's interpretation as established by the author.*
2. *Hyphen indicate that no section or article of the law containing the provision either expressly or by implication or by the author's interpretation was established by the author*

Given that patent law is vital in a society for enhancement of social, technological and economic development, ideally its fair practice is mandatory. However in reality, various factors effectively contribute to unfairness in the grant, exploitation and litigation of patent rights. Among them is the requirement for patentability and exclusions thereof, and relativity of doctrines like public order, morality and public health.

Patent laws provide for three conditions of patentability: newness (novelty), industrial applicability and inventive step[106]. The requirements of novelty and inventive step have been contributory factors to the challenges to fair patent practice posed by patentability. In substantiating the inventive step patent laws provide that an invention is conceived to involve an inventive step if it is not obvious to a person skilled in the art[107].

Patents as Moral & Economic Rights

Patents are intensely practical, really life legal instruments with which an inventor or corporation can protect the investment in time, money, effort and other resources expended in order to create a new contribution to technology. Patent law, as a specialised field of endeavour and as a special form of the law that protects property without which the doctrine of "survival for the fittest" would reign[108], is the legal system designed to provide government sanctioned remedies and means to protect the inventor's rights in his or her new contribution to society and is peculiarly effective in any society where private property is recognized. This property system permits organisations to plan rationally and

[106] Section 7 of KPL, Section 29 of JPL, Sections 101-103 of USPL, Article 27(1) of TRIPs, Article 52(1) of EPL. See details in content note No. 20

[107] Section 9 of the KPL, Section 29(2) of the JPL, Section 103(a) of the USPL, Article 56 of the EPL.

[108] " . . . if the creator of new technology does not have the financial, production, distribution, merchandising and related powers of another organization, then the most powerful organization will reap the profit of the added value, just as the strongest ape in the jungle will get the bananas to the exclusion of his weaker competitors" (Kayton 1-3).
Similarly, the "powerful and mighty" will continue to unfairly exploit the "weak(er)" and would continue to acquire unmerited ownership to IPRs. Besides, large corporations and individuals will resort to trade secrets and thus deny the rest the technology vital for the society.

effectively in order to carry out business activities relative to new technology in an orderly way"[109].

Patents as Technological and Industrial Development Indicators

The cost of obtaining protection varies, but is never negligible. This means that a patent is only requested for a given country if there is an **economic interest** in doing so. The first reason for a patent application for a given country is that the invention could be reproduced by the industry of that country. This means that the nature of the invention will determine whether protection will be sought in some countries and not in others. The **number of applications** for patents in a specific branch of industry and for a given country is therefore an indicator for the development of that country in such field.

Applying for a patent in a given country indicates an **important market** for the subject matter of the patent, even if the country is not in a position to produce it itself. However, this factor applies only if protection has been neglected for some of the producers' countries; it applies only therefore in a secondary manner. It is related to the size of the markets. As an illustration, it may be noted that the United States of America bases its industrial expansion on ownership of 20% of all patents in force throughout the world.

Patents as Elements for Assessing Economic Dynamics

Since the term of patents is relatively long - 20 years in most TRIPs countries - their average useful lifetime, despite the obsolescence of a number of inventions, is still some 10 years. Protection of inventions abroad takes into account not only the status of industrial development at the time the patent application is filed, but also of the forecasts for the development of that country during the following years. Thus, for example, certain countries that are rapidly becoming industrialized and for which it is foreseeable that they will soon become producers of highly sophisticated products, may receive applications for patents for those types of products although they do not yet manufacture them. "Economic success of companies and countries can be measured in terms of patent filings."[110]

Patents as Indicators of Innovative Capacity

The capacity for innovation may be studied either in respect of one undertaking or in respect of a field of industry or again as regards one country. In the first case, the number of patents filed by the undertaking and the development of those patents over time will show the innovative capacity of the undertaking.

[109] The organizations treat the expenses of the invention, innovation and patenting as a cost of doing business, which is transferred directly to the product and service costs paid by the consumers who are thus immediate and direct beneficiaries of the invention or innovation.
[110] See Idris, 2002, P. 119

Since the undertaking will generally file the initial applications in the country in which it is located, these will therefore be "domestic" applications, that is to say applications filed in the country in which it is located and which will serve as indicators.

The same applies if we study the overall innovative capacity of a country. It is only the number of domestic applications that will indicate the inventive possibilities of the country concerned. If we wish to study the development of given new technologies throughout the whole world, it is the total of all domestic applications of all countries committed to the development of those technologies that will constitute the most accurate indicator.

The figures for applications for protection abroad, which do not concern inventions, other than those covered by domestic applications, depend on the decision factors analyzed above and, consequently, represent the expansion dynamics of their originators as much as the inventive capability.

Patents as Elements for Monitoring Domestic and Foreign Competition

The system of exploitation of patent data makes it possible to draw up statistical profiles of the filing trend in the various technical fields and therefore to use patent information as an element in assessing the technological position of a country or an industrial sector or of an undertaking. The exploitation of data on the filing of patents over a number of years constitutes an indicator for technological development and firm strategy.

Some of the purposes for which technological information based on patent documents is of prime importance and usefulness include providing technological information for research activities, identifying technology, evaluation of specific technology offered for acquisition (e.g. licensing offer), identifying enterprises which are active in a specific field of technology, identifying solutions to a technical problem, etc. For example if a company has early reliable information of its competitors it can learn about it, react on time, reorient its research and development and increase its competitiveness on the market.

The importance of patent documentation is today recognized throughout the world. Patents represent not only an incomparable source for the history of technology, but also a mirror, less of the technology of a given era than of the generation of technology for the following era. At any given time, it reflects the direction taken by researchers' endeavors at all levels, from the ingenious craftsman to the advanced laboratory. However, it should not be forgotten that inventions published the same year only apparently belong to the same juncture in the development of technology. For instance, an improvement to apparatus that is already in use is applied as of the filing of the application, whereas a revolutionary concept will demand twenty years of development work before

leading to an innovation. Again another invention, that appears promising, will sleep eternally on the paper which the patent is printed.

In conclusion, the role played by the patent system is twofold – legal and economic aspects. The technological aspect is the third active role patents play in the scientific, technological and industrial development, making the patent system as a right of property a weapon that is both offensive and defensive - its publication, as a counterpart to the monopoly it affords, constitutes a privileged element of scientific and technical information.

Facilities for study, documentary searching and monitoring created by patent databases today enable them to be used as technological and industrial development indicators elements for assessing economic dynamics, innovative capacity indicators elements for monitoring domestic and foreign competition.

PATENTS AS SOURCES OF TECHNOLOGICAL INFORMATION:THE ROLE OF THE PATENT SYSTEM IN R&D

Patents posses some unique characteristics some with clear advantages over other sources of information that make them eminently useful sources of technological and thus scientific (R&D) information. As it has already been established, the patent system contract is about monopoly verses disclosure (page). Consequently conventional patent law requires disclosure as a condition of patentability - that the disclosure, besides involving a description of the invention that must be clear and sufficient enough[111], should also present the best method of achieving the invention. Such disclosure is very vital for two main reasons:

1. To enable a person skilled in the “art” to carry out the invention; and

2. To facilitate and inspire further research activities around the invention, improve on it and yield new inventions based on the already existing one.

The following are some basic facts that make disclosure in patent law and the uniqueness of patents in general powerful tools for research and development:

(a) Patents **disclose technological information** by describing the invention in accordance with the requirements of the applied patent law and by indicating the claimed novelty and inventive step by reference to the existing state of the art. They are thus sources of information not only on what is new (the invention) but also on what is already known (i.e. the state of the art), and in many cases furnish a history, in summary form, of the technological progress in the field to which they relate.

[111] See Idris, 2002, P. 81

(b) Patents normally disclose complete information on new inventions **earlier than other documentary sources** of technological information. Here are examples of some important inventions that were disclosed in patent documents several years before their appearance in other forms of literature[112].

(c) Patents often disclose, in addition, to concepts concerning the general utility of the invention, detailed information on the possibility of its **practical application to industry**.

(d) Patents generally convey the **most recent (state of the art) information**. This is so because applicants always try to file their applications as soon as possible on the principle of first to file will be granted the patent.

(e) Patents have a fairly **uniform composition**. The claims give the essence of what is new, the description is required to show the background to the invention, what was known before the invention (i.e. the prior art) and to state clearly the difference between the pre-existent technology and what the inventions contributes, as a new matter, as a step forward to technology. This fairly uniform structure of patent documents makes their reading, once one gets accustomed to it, generally easier.

(f) Patents have a fairly **uniform presentation** with respect to layout and bibliographic data, and frequently have explained drawings.

(g) Patents often **contain unique information** that would not be divulged through articles or journals, as much information is divulged only in consideration of the legal protection that the patent affords. For example many patents contain an abstract. Abstracts allow a general idea to be formed of the contents of the documents within a few minutes.

(h) Patents belonging to the same family (i.e. patent documents published in different countries but relating to the same invention) are frequently in a number of **different languages**. The reader may choose the document that is in the language most familiar to him.

(i) Patents bear **"Classification Symbols"**. For the purpose of maintaining search files and performing searches for the state-of-

[112] The invention of television by Baird had its patent published in 1923, and took 5 years by 1928, to be disclosed in other forms of literature. The jet engine invented by Whittle was patented in 1936 and took 10 years by 1946 to be disclosed in other forms of literature.

the-art, industrial property offices classify patent documents according to the fields of technology to which their contents relate. The International Patent Classification (IPC) allows retrieval of patent documents belonging to any given branch of technology.

(j) Patents belonging to a given IPC sub-division contain **highly concentrated technically advanced information** on a given technological field.

(k) Patents bear a date, from which conclusions can be drawn as to the age of the invention and to the question whether the inventions they describe are still under legal protection. If they are no longer legally protected, they can be exploited without the consent of the patentee.

(l) Patents indicate the **name and address** of the applicant, the patentee, and the inventor, or at least one of these. The indication allow any potential licensee to contact the person or entity concerned in order to find out under what conditions they may be authorized to exploit the invention.

Indeed, information disclosed in patents contributes to the scientific and technical knowledge upon which a nation is built. It is estimated that "there are over 30 million patents in the world today, and each year an average of 1 million new patent documents are filed and published … usually 18 months after the filing date"[113] and that between 80 and 90% of the technical knowledge is stored in the archives of patent offices all over the world. However, until recently use of this information has been largely limited to the patent granting procedure, while it's potential for industry, research and public information have been left unexploited. "The EPO estimates that the European industry is losing US$ 20 billion every year due to lack of patent information, which results in duplication of effort such as re-inventing existing inventions, resolving problems that have already been solved, and developing products that already are on the market.' [114]

The patent system generates competitive innovations by enabling competitors to carry further research and development based on the already protected inventions[115]. Experts estimate that about 30% of all expenditure incurred on developing new technical processes and products could be saved if information contained in patent documents were known and used. In order to maximize the role played by patents in R&D, the patent system is designed to strike the proper balance between the inventor's (private) interest and the public interest. In this regard, patent law safeguards public interest through several ways including limitations to exercise of patent rights and prevention of abuse and anti-

[113] See Idris, 2002, P. 86
[114] See Idris, 2002, P. 88
[115] See Idris, 2002, P. 80

competitive practices thereof. As regards R&D patent law provide expressly for the exclusion of research activities from acts of patent infringement. Besides I consider the following provisions of patent law as designs to facilitate R&D.

(i) Patent rights do not extend to acts done for research (scientific or otherwise);

(ii) Patent Rights are exhausted by the first sale of the patented product (exhaustion of patent rights);

(iii) Patent Rights do not extend to products temporally present in the territory of jurisdiction of the patent right;

(iv) Patent rights are subjects of compulsory licensing including governmental use;

(v) Patent rights do not extent to activities existing before the filing or priority date of the patent.

(vi) Patent rights do not extend to acts done solely for uses reasonably relating to the development and submission of information required under law in the territory of jurisdiction of the patent rights;

(vii) Patent rights do not extend to a territory outside that of its jurisdiction;

(viii) Patent rights can be licensed (voluntary or compulsorily) and the licencee has rights to carry out further R&D[116];

(ix) Patent rights can be assigned and the assignee has rights to carry out further R&D;

(x) Patents rights are subjected to annual maintenance or renewal fee otherwise they lapse. Actually "the average "effective life" of a patent before abandonment is five years ... (and) only 37% of patents are maintained until the end of their (twenty-year) term"[117].

(xi) Patent rights are territorial - limited to and valid in only the territory of the country or jurisdiction that issued the patent[118].

[116] E.g. see www.os.dhhs.gov/asl/testify/t990112a.html
[117] See Idris, 2002, P. 92
[118] See Idris, 2002, P. 79

Thus the invention can be exploited in the rest of the countries and jurisdictions[119].

Table 3.3: Limitation to Patent Rights as per Laws of Selected WIPO Member States

	Type of Right	Country or Regional Office				
		Kenya[120]	Spain[121] (EPO[122])	Japan[123]	India[124]	USA[125]
1.	Do not extend to acts for	§ 58				
	(a) Non-industrial Purposes	(1)		-	-	-
	(b) Non-commercial Purposes	(1)		-	-	271-3
	(c) Research (scientific or otherwise)	(1)		Art. 69 (1)	§ 47 (3)	273 (2)
2.	Exhaustion of Patent Rights	§ 58		-	-	§ 273
	(d) National Exhaustion	(2)		-	-	(b) (2)
	(e) International Exhaustion	(2)		-	-	
3.	Others					
	(f) Temporal Territory Presence	§ 58 (3)		Art. 69 (2) (i)	§ 49	272
	(g) Compulsory Licensing	§ 58 (4)		-	§ 84	
	(h) Prior User	§ 56		Art. 69 (2)(ii)	-	
	(i) Development and Submission of Information			-	§ 107A	271(e)(1)

Notes:

3. *Numbered entries indicate the section or article of the law containing the provision either expressly or implication or the author's interpretation as established by the author.*
4. *Hyphen indicate that no section or article of the law containing the provision either expressly or by implication or by the author's interpretation was established by the author*

[119] See Idris, 2002, P. 80
[120] As per KIPI, 2003
[121] As per SPO, 2008
[122] As per EPO, 2007
[123] As per JPO, 1959
[124] As per IPOI, 2005
[125] As per USPTO, 2007 and USC, 1980

Chapter 4

Policy Issues in Optimised Patent System

1. Economists have established "that a country's economic growth rate is influenced by government IP policies. Recent recognition of the importance inherent in the "endogenous growth theory" (that economic policy and external factors can drive economic growth) suggests that governments should give a higher priority to policies that promote research[126] and engineering activities and that create a solid basis for indigenous technologies, as opposed to imported technologies" [127].

2. "In every country there are bright people who have the ability to innovate, and it is hoped that the capacities of such people are invested positively for national economic development" through "the IP system" [128]..

3. "In many countries, particularly developing countries, it is the public research facilities (institute) and academia (universities) that provide the primary source of knowledge … (by conducting) basic and applied research … (facilitating the) transfer of technology … to the private sector in the form of intellectual property … (Therefore,) it is vital for policy-makers to establish a framework in which intellectual property encourages those research institutions to transfer and exploit knowledge (instead of seeing them only as academic achievements), by bringing together the public and academic efforts with those of the commercial sector[129] …(encouraging) joint research (and development) activities, and sharing of expertise." [130]

4. Policy makers should appreciate that the relationship between "research (and thus pro-active patent policies) and national (industrial and) economic development (policy) is particularly important because of the dearth (and global declining) of resources for R&D in commercial sectors, as well as the relative absence of foreign direct invest in the technology sector."[131] Thus "significant inward investments are required for research

[126] According to Idris, 2002, although "economists have not adequately dealt with issues directly related to economics and intellectual property, it is common knowledge that investment in R&D is quite an expensive undertaking" (P. 38-39) and "indeed it is estimated that the average cost of developing and launching a new drug is US$ 802 million" (P. 116) with 70% going to clinical trials (P. 119) and "it is estimated that R&D investments by the global pharmaceutical industry increased from US$ 39 billion in 1998 to US$ 43 billion in 1999 with USA firms accounting for US$ 24 billion (P. 120).
[127] See Idris, 2002, P. 93
[128] See Idris, 2002, P. 43
[129] "It is typical for accompany to invest between 50 to 100 times more than the initial licensing fee paid to the university (or other research centre) to develop the technology" and yield products in the market place (Idris, 2002, P. 96)
[130] See Idris, 2002, P. 93-95
[131] See Idris, 2002, P. 94

efforts to intensify and a promising approach to enhance this is through FDI and partnerships with the private sector, which are demonstrably encouraged through, i*nter alia*, strengthening IP laws …Stronger IP rights would "increase private funding in this area, or to increase income from commercially successful products and services using the research results, for further R&D investment." [132]

Box 4.0

A number of difficult issues arise with respect to the role of IPRs in the LDCs. Economists have found it notoriously hard to measure the costs and benefits of IPRs, particularly at different stages of development. It seems clear, however, that IPRs do not automatically lead to learning and innovation, and may even jeopardize the latter in an LDC context.

In that regard, important lessons for LDCs' learning strategies can be drawn from the successful development experiences of countries that have achieved catch-up, such as a number of East Asian countries. In the first, *initiation* stage of their technological development, the basic conditions for patents to operate as incentives for innovations, namely large R&D investments and capacity for reverse engineering and low-cost production, do not exist. In the second, *internalization* stage, and local firms can learn through imitation under a flexible IPR regime; technology owners face a growing risk of imitation and tensions between domestic and foreign firms increase. It is only in the third, *generation* stage that local innovative firms in the most dynamic sectors aim at a more stringent IPR regime to protect greater R&D investments and accumulate IPRs as a defensive strategy, as well as to improve their bargaining position vis-à-vis competitors.

In the light of that, IPRs are unlikely to play a significant role in promoting local learning and innovation in the initiation stage, the point in the catch-up process where most LDCs are now located. Moreover, technology transfer through licensing is unlikely to provide great benefits for LDCs. Even if under certain conditions IPRs were to positively encourage technology transfer through licensing, LDCs are unlikely to become significant recipients of licensed technology. The low technical capacity of local enterprises constrains their ability to license in technology, while the low GDP per capita in LDCs is not likely to stimulate potential transferors to engage in such arrangements. IPRs, particularly patents, promote innovation only where profitable markets exist and where firms possess the required capital, human resources and managerial capabilities. Similarly, licensing is out of reach for firms without a certain level of absorptive capacity, particularly in countries with low GDP. As firms' capability increases, patents may increasingly perform their incentive, transactional and signalling functions and the information contained in patent applications may be more useful for planning and undertaking innovative activities.

Source: UNCTAD/LDC/2007, Pages (viii) – (ix)

[132] See Idris, 2002, P. 94-95 and 116: "According to a recent survey, leading German, Japanese and US chemical and pharmaceutical companies stated that the extent to which a country protected IP rights had a major influence on their decision as to whether or not to invest in R&D facilities in that country" (See details in Mansfield, 1995)

5. Countries should facilitate and promote commercial "sense" at public R&D institutions, especially universities in developing countries who still concentrate on their belief that their only mandate is education and research. In this regard, countries should, not only, enact, but promote laws[133] "to facilitate the transfer of technology from the universities and the public institute(s), to the private sector, by allowing the universities and public institutes to obtain patents, and to grant exclusive[134] or non-exclusive licenses to private firms with an interest in the commercialization of the patented technology"[135].

6. Encouraging universities and research institutions develop expertise in technology licensing (negotiation skills and knowledge of both technology and IP) by one, or a combination, of the following ways:

(a) establishing or strengthening national patent offices to facilitate their capacity to provided necessary patent and technology transfer services to such institutions;

(b) establishing or strengthening public institutions to facilitate their capacity to provided necessary patent and technology transfer services to such R&D institutions[136];

(c) Encouraging the private sector and NGOs to establish or strengthen their capacity to provided necessary patent and technology transfer services to such R&D institutions;

(d) establishing or strengthening consortium(s) consisting of public R&D institutions and private sector or NGOs or both to facilitate the capacity to provided necessary patent and technology transfer services to such R&D institutions[137]; or

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[133] Like the Bayh-Dole Act of 1980 in USA, Chines new patent law of 1999, Kenyan patent law of 2001, Technology Licencing Office Law of Japan in 1998, etc.

[134] "In some cases, economics of the development and market environment may mean that the private sector licensee will require exclusive rights to commercialize the invention" to facilitate investment protection from the competing licensees who do not make any further "investment but piggyback on the work of the original licencee" (Idris, 2002, P. 98

[135] See Idris, 2002, P. 96

[136] Like the 1948 National Research Development Corporation in UK now privatized as British Technology Group since 1981. Magnetic Resonance Imaging, (MRI) technology, combining inventions developed by three univeesities: Nottingham, Aberdeen and Oxford, alone fetched the organization some US$ 150 million. See details at http://www.btgplc.com/company_profiles/index.html; the 1949 Fraunhofer-Gesellschaft in Germany which by 1999 had 9,300 employees working in 47 insitutes and generating about USD 640 million in annual revenue. See details at http://www.fhg.de; the 1949 Weizman Institute of Science of Israel and its 1959 licensing arm: Yeda Research and Licensing Co., Ltd. That between 1995 and 1999 was granted 108 patents in USA with international licenses. See details at http://wis-wander.weizmann.ac.il/ (Idris, 2002, Pages 102-105)

[137] Like the Japanese Government did in 1970's and 1980s

(e) Encouraging the R&D institutions to establish or strengthen their own technology transfer offices (TTOs) with the capacity to provided necessary patent and technology transfer services to such R&D institutions[138].

7. "Policy-makers and legislators should continually review the patent system in accordance with technological advances as well as social, ethical, and environmental issues in an attempt to strike an equitable balance between the interests of patent owners and the public."[139]

8. "Developing nations can take advantage of IP licensing joint ventures … that enable small companies possessing patent assets some leverage in negotiations … (in) licensing and cross- licensing agreements … (thereby sharing) the cost of development" [140]

9. "Parallel with policies that promote FDI, policy makers (in developing countries) can adopt policies that support business in the accumulation, management and use of patents … including financial and tax incentives for R&D as well as for improvement and enhancement of old technologies and traditional knowledge." [141]

10. Adopt public policies to promote "technology transfer opportunities and utilization of the patent information in all the facets in which the information can be useful". [142]

11. Embrace regional integration and develop human capital "from early childhood to post secondary levels, to encourage creativity, invention, respect for new ideas, and confidence in indigenous development" [143].

12. "Public recognition of inventors and awards for their work help the culture see that patents are valuable to the entire society" [144].

13. Embrace "use of indigenous and local resources and specialise on patent tools that work with the economic landscape of the country" [145].

14. Develop "policies in IP administration (by patent offices) that make the patent system accessible, such as electronic filing, help desks, graphical

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[138] Like the effects of Bayh-Dole Act of 1980 in USA, Chines new patent law of 1999, Kenyan patent law of 2001, Technology Licencing Office Law of Japan in 1998, etc. and the 1988 Isis Innovation of Oxford University in UK; 1995 Office of Technology Transfer of Stanford University in USA.
[139] See Idris, 2002, P. 114
[140] See Idris, 2002, P. 129
[141] See Idris, 2002, P. 134
[142] See Idris, 2002, P. 135
[143] See Idris, 2002, P. 136
[144] See Idris, 2002, P. 136
[145] See Idris, 2002, P. 137

user interfaces that emphasize ease of use, and differential filing fees based on the inventor's gross revenues" [146].

15. "Effective patent laws, adequate technology infrastructure, and adequate IP protection and enforcement all permit the patent system to work optimally" [147]

[146] See Idris, 2002, P. 137
[147] See Idris, 2002, P. 138

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Brief Background about the Author

Mr Mboi E. Misati posses a Master of Intellectual Property from the University of Alicante, Spain and a Bachelor of Science degree majoring in Chemistry from Kenyatta University, Kenya. He has undergone other extensive academic/professional training with a specialty in Intellectual Property (IP) matters in various institutions in Kenya and abroad. He is computer literate and multilingual including three UN languages: English, French and Spanish.

He is currently the Senior Patent Examiner in-charge of the Physical/Chemical Sciences Section at the Kenya Industrial Property Institute[148] with over fifteen years technical knowledge and practical experience in management and administration of industrial property activities in various establishments of the Institute. He is very conversant with various national, regional and international IP systems.

Being a trained and experienced trainer including of trainers, leader, manager and negotiator with excellent communication and analytical skills, in the field of IP locally, regionally and internationally, Mr Misati has participated in over 48 forums, attended over 41 courses, presented over 45 technical papers and published over 32 articles.

As the Chairman of the National Committee on the World Trade Organisation (NCWTO) Sub-Committee on TRIPS since 2001, his main role is to effectively and efficiently co-ordinate development, articulation and negotiation of Kenya's position in IP matters under EAC, COMESA, ARIPO, WTO, WIPO and WHO. This avails him the privilege of being a high-level Government advisor on IP matters and often represents the Institute and Kenya in various fora in intellectual property matters. He was actively involvement in the negotiations and drafting of break-through decisions of WTO on TRIPS and public health under the Doha Development Agenda, and WHO's Global Strategy and Plan of Action on Public Health, Innovation and Intellectual Property.

He is a member of several national and regional technical committees including the Technical Committee for EAC Cooperation on TRIPS and Access to Medicines since March 2005. He is the interim Chairman of Kenya Intellectual Property Professionals Association (KIPPA) [149].

(End of Document 1st December 2008)

[148] KIPI is a body corporate under the Ministry of Industrialisation and is charged with the management and administration of industrial property rights in Kenya.
[149] Registration process of KIPPA is ongoing