



A Paradigm Shift in Indian and International Patent Regime- Critical Review on Ex- and Current Scenario (Covid-19 Impact)

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Received: 16th July 2021; accepted: 19th January 2023

The innovation markers are namely patents which give the creation the identity, novelty and utilization in industry or for commercial use in public. There were many patents filed under different judicatory laws of different countries which give the sole right and responsibility to own the invention till the expiry of patent by the owner (Patentee). The rules and regulations also enable the patentee to take necessary action against the misuse or prior use and also copying of invention. There are circumstances like national emergency like the Covid -19 pandemic which could create the urgency to make public access for the medicines under the clinical trial or the generic form before the expiry of the patent in order to increase the health care needs. The national emergency globally has awoken to recreate or amend few judiciary laws of different countries like waiver of patents, compulsory licenses and also paying a remuneration amount to the patentee. The countries like U.S, India, China, Japan have played a key role in managing the pandemic by encouraging generic medicine manufacturing and licensing. The COVID-19 crisis affects not only Patent Law. However, COVID-19 clearly presents an imminent threat to public health which, in most jurisdictions, is likely to justify the grant of compulsory licenses and more changes in the few penal codes and articles under specific provisions made by the government. There was also huge impact on the patent filings by different countries which enumerated the increase of 16 % by China and also a significant contribution by the countries like U.S, India, Europe, Japan, Italy, etc. The Data exclusivity was reported including the women investors share which is considerably high. The pandemic has shaped new reforms in digitalization aspects and kept open many avenues in the medical and technology sectors in the years to come.

Keywords: Patent, Covid-19, Reforms, Impact on Patent Rights, Digitalization

The creation or the invention which was termed as Intellectual Property could be protected under the subset status of Patent for a limited period of 20 years which can prevent the making, use, and selling of the invention.¹ The Inception of the Patent Act in 1790 by U.S Congress gave the provisions that provide the protection of useful arts and the first patent was awarded to Samuel Hopkins for a method of producing the potassium carbonate. The Patent provides exclusive rights for the inventor to protect his invention in form and prevents the fraud practice of the invention. The number of the patents filed, granted and being used majorly relates the economic growth in the areas of science and technology.² The patent is a reliable parameter that indicates the innovator activity and summarizes the innovations and development of new technologies. The stringent patent systems worldwide which are different in each country provide suitable criteria for selection of the innovation which potentiates the dominance of new technology and necessitates the creation to be novel,

useful and enabled. The patent systems which are followed in different countries have particular laws and regulations which are amended time to time and are notified as official gazette. The judiciary control prevents the infringement of innovation. The patent infringements have strict enforcements of criminal laws. The patent acts were named in different countries are summarized and the latest amendments are listed in the Table 1. The growing economies of the world have posed few challenges in the GDP growth that address there are lacunas in the areas of innovation of science and technology during these recent years of Covid pandemic.³ The global economic outlook of economy could statically prove that there was 5.56% rise in 2021 and yet to increase to 4.2% in 2022. There was huge rise in the world economy during 2021 due to the vaccine production and also the approval of new drugs for Covid 19 pandemic that lead to marked rise in the GDP scenario. There was adverse fall in the economy during the 2020 due to high impact of health due to Covid 19 pandemic in all ages and gender races. The later quarter could show a prominent increase i.e., in

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Table 1 — Patent laws in different countries and latest amendments

S. no	Country	Patent law	Governing body	Latest amendments
1.	U.S	U.S Patent Law 1790	United States Patent And Trademark Office	2020
2.	India	Indian Patents Act 1970	Indian Patent Office	2020, Form 27
3.	Europe	European Patent Convention, 1973	Europe Patent Office	2018
4.	Russia	Rospatent, 2014	Russian Federal Service for Intellectual Property, Rospatent	2020
5.	Japan	Japanese Patent Law, 1885	Japan's patent office	2019
6.	China	China Patent Law, 1985	China National Intellectual Property Administration	2020 Article 71 4 th Amendment

2021. The surging infections in late 2020 kept on posing challenges which include new variants of the virus, lockdowns, problems with vaccine distribution and also ambiguity in take up that are important disclaimers to the favorable economy news.⁴ The filing of patents (Table 1) is a regulatory process governed by patent offices of the respective countries.

The Covid 19 infection⁵ was declared as a pandemic on March 11, 2020, which emphasized the need of restricting populations in their own country. The human drive for the mass production of medicines for the Covid infection created a mess due to the several laws in different countries that require patent applications to be filed first in the country where the invention conceived with the inventor. The international collaboration creates dilemma, conflict of laws for inventors and the patent practitioners which is ambiguous and the issue till date is unresolved. There is still lacuna in the vaccine and medicines⁶ drives in few imbalanced countries without facilities and supply which may cause the economical controversies. At the same time the rise in the infection and the spread may even continue still two years if the vaccine and treatment drive will not reach the mass population of different countries. There is lack in the IP control and the pharmaceutical companies should forgo some part of profits share to take the situations in hand. The Covid 19 pandemic fluctuations in terms of deaths and survivors of different countries poses a serious challenge to the Government organizations to capacitate mass immunization drives and also potentiates RNA based vaccines that could answer as an alternative to Covid 19 infection. There is no perspective of competition between the countries but it's time to address the globalization issues in the matters related to research and development, judiciary control of patents for new drugs and also need of advancements in IP waivers⁷ for the mass production. This study would address the issues on the recent patent applications and new

medicine approvals by different countries change in IP laws (inclusions and exclusions) and also an update on population statistics in each pharmaceutical sector due to the Covid 19 pandemic. The literature was compiled and elucidated based on sources from few website contents.

WIPO Web Site

The electronic review of the version along with the underlying data which was utilized to design the figures and tables could be downloaded¹⁻⁵ from www.wipo.int/ipstats. The WIPO webpage not only provides IP Statistics links to the Data Center but also offers access to WIPO statistical data linked with the IP Statistical Country Profiles. The other following patent resources reported in the WIPO's website are:

- (i) PCT (<https://www.wipo.int/pct/en/>) – WIPO's website- PCT resources for all user applicants including offices and public
- (ii) PCT Newsletter – the monthly publication with information on filing PCT applications and also new findings on PCT related changes.
- (iii) PATENT SCOPE – enables the activity related to published PCT applications i.e., search and download and along with programs and services related to patent and technology information.
- (iv) International Law Office – this website <https://www.internationallawoffice.com/> provides information on the latest updates of legal related aspects of commentary and also changes in the current scenario of the global economic legal perspectives.
- (v) Official website of Intellectual Property India – this website provides detailed information on filing, publishing, grants and commercialization aspects of India.
- (vi) USPTO – this website <https://www.uspto.gov/> provides detailed information of patents and trademarks related aspects of US and its membership countries.

- (vii) IP Centrum – this website <https://www.ipcentrum.com/> provides detailed insights into the European patent related aspects.
- (viii) Eurasian Patent Organization – this website provides legal information and restrictions of patents related to Europe and its contracting states
- (ix) Japan Patent Office – this website provides detailed information on patent related aspects of Japan.

The detailed and updated information⁹⁻¹¹ on the most reviewed websites (Fig. 1) reported key factors, assumptions and the statistical approaches to the world wide data records on new medicine approvals, treatment, and health care needs of various populations. The WHO releases the weekly bulletin of the COVID 19 pandemic records which affects the economic status of huge populations across the world and the results include the change in the laws and regulations of the respective countries in managing huge crowd for the health care needs which are still deprived of the specific medicines and vaccines used in the treatment of Covid 19 pandemic.

In the past week, the number of new COVID-19 cases¹² and deaths (Fig. 2) continued to decrease, with over 2.6 million new cases and 72,000 new deaths reported globally. While the number of cases reported globally now exceeds 175 million, over the past week, the lowest weekly case incidence since February 2021 was reported. The decline and the increase in the number of cases is continuously varying in different countries¹³ which is posing serious challenges to the practical scale of the pharmaceutical industry. The growing concern of this pandemic since two years has completely shut down the worlds market in terms of economy and production. The production of vaccines has grown and the approvals related to the vaccine and other lead drugs for the treatment of Covid infection has increased many fold . But due to the lack of proper regulatory control over the patent revisions there are many drugs that could not hit the market in time and that led to huge demand of the medicines related to the treatment of the Covid infection. The statistical data¹⁴ of deaths and infection in different countries could be gathered from WHO bulletin and reported as graph as shown below.

The graph simulation in the Fig. 3 proves the demographic isolation on mortality which clearly indicates a counter fact that the each individual has same tendency to develop the infection irrespective of the race and age (COVID-19 age-discriminating nature). As per the data¹⁵ there were in few countries

they was large number of deaths associated with the Covid and other opportunistic infections or diseases and also there were no much raise in the Covid infections. There were many changes in the patent related rules which emphasize the digital priority and very simple filing due to the spreading infections. The digitization tools in 2020 have made people work all around the world even in the pandemic. There were many changes in the patent rules during 2020 in many countries. Demographic analysis acts as a warning signal for the mortality rate in the pandemic out coming gravitate. It represents the trend in the mortality structure and the shift in the developing countries as a result of pandemic. the reason lies in the pyramid structure of demographic pyramids of developing countries where the young populations dominate over the elder ones significantly. The simulations reveal the unequal share in the mortality

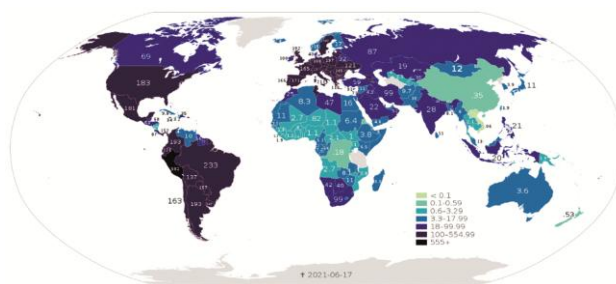


Fig. 1 — Pandemic Covid 19 emergencies reported globally

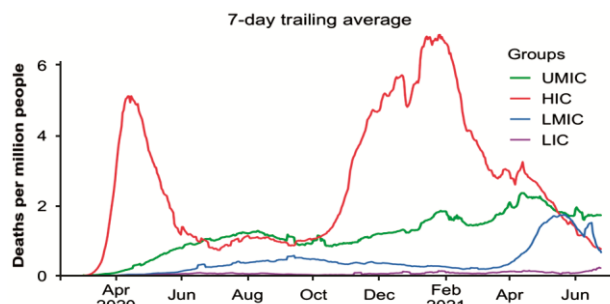


Fig. 2 — Recent reports of mortality rates of Covid 19 second wave

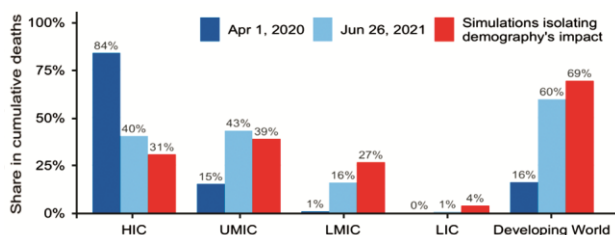


Fig. 3 — Demographic analysis of mortality rates

Table 2 — Change in Patent Laws in India due to Covid crisis

S. no	Indian Patents Act	Scope	Changes	Importance
1.	Section 3(d) 2005 amendment on the basis of Novartis case (6 SCC 1: (2013) SCC (Civ) 227: (2013) SCC Online SC271 SCC Online SC271)	Enhanced efficacy and prevents the ever greening of patents	Change in form or properties doesn't change the behavior of the drug	Enhancing generic drug production
2.	Section 47	Merely of its own use for importing patented products	Merely of its own use- in terms of public interest by the government	Improves imports
3.	Section 83	Balance public health with patents	Ensure the control that impede the protection	Ensuring availability of the patent at reasonable costs to the public
4.	Section 84	Compulsory licensing expiry of three years from the date of grant	Issue of compulsory license under provisions of invention not in use	Compulsory license
5.	Section 84(6)	Compulsory license	Waived in national emergency non-commercial use; or anti-competitive practices	Ensuring the access to medicines by public
6.	Section 90	Reasonable royalty or other remuneration provisions for the patentee,	Revoked in national emergency	Ensuring the access to patented inventions which are intended for public use
7.	Section 92	Section 84 provisions	Waive three-year requirement in Section 84 including compulsory license provisions in national emergency, for non commercial use	Ensuring the generic medicine availability to public
8.	Section 102	Ensures the availability of patent to central government that is useful to public	Publish initially in official gazette	Ensures the invention for public use
9.	Section 102	Compensation to patentee on using the invention	Pay the compensation decided by the high court in the absence of inventee or related person	Ensuring justice to the patentee

burden between rich and poor countries is relatively excessive to what demography would indicate.

Patent Waivers in the Surge of Public Health Concern

The public health as a primary perspective was addressed at the 4th World Trade Organization (WTO) ministerial conference held at Doha in 2001. The 'Doha Declaration' clearly stated the there is need of governmental action in the public health protection by inventing certain provisions for WTO participating countries in order to grant compulsory licenses to export the generic version of patented medicines for the developing countries which need pharmaceutical imports. The Oxfam report released recently could reveal that there are raising medical needs in terms of treatment and health care in the developing countries than the rich countries as they imported the future vaccine supplies at early stage. In order to t have frontline public health priority the World Health Organization (WHO) in June 2020 has established¹⁶ the Covid-19 Technology Access Pool (C-TAP) which gathers the information related to patent grants and all

forms of IP products which helps to expand and enumerate new technology driven factors in development and production strategies related to the pandemic. 'Paragraph 4 of the Doha Declaration' prioritizes public health over IP rights and clarifies that this extends not just to medicines, but also to vaccines, diagnostics and other health tools as required. The major changes which were adapted by different countries that include key market players are listed below:

India

India is a developing country with inadequate health care facilities and access to medicines. But, India is a pharmaceutical hub for the production of drugs at low costs and is a major supplier worldwide with its key market players like Dr. Reddys, Cipla, Aurobindo Novartis, SEBI, etc. It is a developing generic hub and pharmacy of developing countries. In India, changes in patent laws, economy and health care strategies¹⁷ for treatment of Covid19 occurred due to the COVID -19 pandemic infection, lockdowns etc. The changes (Table 2) include formation of new start ups with small innovators ups, MSM'es which could

handle production, validation and conducting research related works, not only these there were many incentives given along with the recognition of female applicants for the patents (Fig. 4) with special grievance in the matters of fee concessions. There were amendments in the Indian Patent Act (recent amendment, 2020). The major changes include

Digitalization Tools in PCT National Phase Applications Demanding Priority and Translation

The priority document is valid only if the certified copy of the priority document is available on the digital library of the International Bureau (IB) along with the access applied within the 31 months of the which thereby prevents the rejection of the a priority claim by the Indian patent office due to digital access of the priority document. There were also changes in the translation requirement PCT priority documents in languages other than English. The translation in English for the priority document could be submitted when the PCT Regulations Rule 51bis1(e) are applicable. The priority document in English translation will be prioritized when the valid priority claim is relevant to the determination of patentability where the terms and conditions abide with the international regulations. Further the concern of the international patent date could be accorded on the terms of inclusion of reference elements or some parts; addition of missing parts or in the case of

correcting the filed elements.¹⁸ Hence, the translated filing defines the purpose of the modifications necessary in the priority document.

Change in Patterns of Granted Indian Patents

Indian Patent Law is flexible, conducive and potentiates the need of advancement in the social and economic reforms that helps to innovate things. The patents encourage inventions and also secure them at commercial scale to fullest extent as possible. The post patent grant formality requirements are submitted annual with the maintenance fee. There was a major change in 2020 rule in the commercialization aspect of the filed patent which include both patentee and the registered exclusive licensee which states that while filing the commercial working statement in India the patentee should file along with the licensee or without him inclusive of the licensed agreement which makes license agreement registration of a patent a priority.

Change in the Commercial Working Statement

The new format was prescribed for making commercial working statements in India in 2020 to prevent the right of owners to prevent the intrusion by public and stake holders which were directed to the Indian patent office by the court of law. The statement was simplified and the statement period was adjusted for the Indian financial year i.e April 1 to March 31 of the subsequent year by making September 30 as due date. The two changes for a patentee needs to consider are:

One statement for one commercial product - means that a single statement for multiple patents may be filed in case when the commercial statements are inseparable. The only criteria such that all such patents should be owned by the same entity. Thus, this prevents the cross-licensing. Patentee and Licensee to file separate¹⁸ statements under the commercial working statement rule. There is no filing of joint commercial working statements preventing the penal charges for the patentee due to non compliance of the commercial working statements where the licensee is facing obligation and also burdens patentee with the aspects of the compulsory license proceedings.

Balancing Patents and Public Health Emergencies

In the light of public emergence, the Indian Patents Act is termed to be flexible enough to change based on the requirements and national emergence that encourages the scientific research, innovation and

CSIR is the Top Indian Patent Grantee



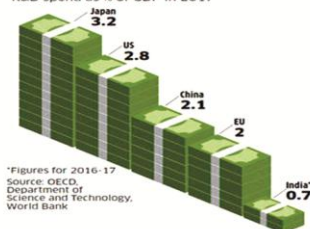
Domestic Patents in India are One-fifth of Foreign Patents



India Takes Way Longer Than Other Countries to Grant Patents



India Spends Less than 1% of its GDP on R&D



Source: *The Economic Times*, G Seetharaman, 6 October 2019

Fig. 4 — Role of India in technological advancement referring patent activities

industrial progress. There should be proper balance between the two issues of public and patent to ensure the safety of the public. India plays crucial role in managing the tech advancement than the US and china India spent just 0.7% of its GDP in 2016-17 on R&D. Japan, US and China spent 3.2%, 2.8% and 2.1%.

United States

The United States of America¹⁹ has made significant contribution by supporting the world trade protections (WTO) to lift the patent protections in case of corona vaccines. There were prominent changes in the practices, laws, filing and the clearances in the patent laws due to covid pandemic. The stay at home orders has changed the scenario of the United States Patent and Trademark Office (USPTO) and the US Court of Appeals for the Federal Circuit (CAFC) to have a modification in their operations. The Coronavirus Aid, Relief, and Economic Security (CARES) Act when was made into law it lead to few changes in deadline extensions, waivers of fee and also substantial practice changes (Table 3). The CARES Act lead to extension in the certain deadlines made before the 31 March 2020. In Public Notices dated 31 March, the USPTO announced that certain patent and trademark-related documents and fees with deadlines between, and inclusive of, 27 March to 30 April 2020 were extendable 30 days from the initial deadline. on 28 April there was further extension to this deadline i.e till 31 May 3020 provided the patentee files the

document in the prescribed time schedule. The USPTO has described the eligibility standard of in the view of pandemic as meaning that a practitioner, applicant, registrant, patent owner, petitioner, third-party requester, inventor or other person associated with the filing or fee was personally affected by the Covid-19 outbreak, including, without limitation, through office closures, cash flow interruptions, inaccessibility of files or other materials, travel delays, personal or family illness, or similar circumstances, such that the outbreak materially interfered with timely filing or payment.

Pilot Programme for Small and Micro Entities

The USPTO has launched pilot programme for small and micro entities involving electronic filing patent systems for plant applications with reference to the Covid-19 prioritized examination. The pilot Covid 19 examination includes

- (i) Waiving fees associated with priority examination
- (ii) Applications disposition in pilot programme within six to 12 months from the date when the prioritized status was granted dependent on the response to USPTO communications.

Vaccine Surge-Demand and Supply

The surge in the production and filing a patent²⁰ for vaccine was stimulated due to the raise cases and deaths. As a result the pharmaceutical companies including AstraZeneca have signed sub-license agreements with producers like Serum Institute of India in order to increase the future supply of

Table 3 — Patent Laws in US with few changes as per USPTO

S. No	USPTO Patent right	Changes	Advantage
1	37 CFR 42.107 or 42.207	Extension of patent renewal time or filing document time when the patentee is affected with Covid	Enhancing the patent filing time
2	37 CFR 1.137(a)	Fee waivers for expired patents of patents under renewal by filing appropriate petition on the Trademark Electronic Application System (TEASP)	Enhancing the patent filing with waiver in fee
3	37 CFR 1.137(a)	The term 'materially' used in the petition	Caution followed by patentee clearly defined in the Covid 19 related relief
4	Original Handwritten signature	Waived	Digitalization
5	Accept petitions fast-track review of COVID-related ex parte appeals	Not more than 500 under pilot program	Fast reviewing process
6	Live solution to IP litigations	Digital platforms	Fast solving
7	Bayh-Dole Act revision	"March-in" rights force the funded company to license its rights to a third party to bring the patented invention to market "upon terms that are reasonable under the circumstances".	Enable marketing provision for third party
8	US Federal Code 28 USC Section 1498, Domain rights	Patentee rights over the product	Force a compulsory license to waiver owners rights

Table 4 — Patent Law changes in different member countries of Europe

S. no	Country	Federal law	Change
1	France	Article L.3131-15	Waiver of compulsory license
2	Germany	Protection against Infection Act	Amendment -population has access to medicines against the corona virus for appropriate compensation
3	Italy	Patent expiry in case of emergency without approval	Allow the use of patent by the public
4	Spain	Broaden the compulsory licensing regime by Order SND/276/2020	Imposes information, supply and manufacturing obligations to manage health crisis

vaccines. Gilead has licensed its remdesivir patents to generic manufacturers in India, Pakistan and Egypt for supply in 127 countries. Further, AstraZeneca has agreed to provide vaccines at non-profit prices for as long as the pandemic lasts. The announcement recently by the US introduced in Oct 2020 to support partially the joint proposal for patent waivers—before the World Trade Organization (WTO) by South Africa and India—has been called it everything from ‘stunning’ to ‘symbolic’. The proposal originally was to cover IP rights and products like patents, copyrights, industrial designs and trade secrets protection across medicines vaccines, and diagnostics while extending waiving IP rights in vaccines. After being largely absent from diplomacy, the Gates Foundation following the US turnaround for handling COVID-19 made an announcement supporting a ‘narrow’ waiver on IP protections.

Europe

The manufacturing companies and pharmaceutical companies²¹ have faced major challenges due to the Covid 19 crisis raised globally. In order to maintain the proper balance in between the patent interests of patentees, third parties and the users there were few changes (Table 4) in the patent rights proposed as law of exceptions and limitation in France and other member countries.

European media director of Human Rights Watch, Andrew Stroheim, tweeted on that high-income countries were ‘throttling vaccine production globally by blocking the TRIPS waiver ... is a scandal that affects us all’. The European Patent Office (EPO) released the Patent Index 2020, which gives an overview of the filing activities in the EU during the past year. Despite the Covid-19 pandemic’s dramatic impact on all aspects of the economy, the number of patent applications filed only slightly declined with a 0.7% decrease compared to 2019.

The Article L.3131-15 in the French Public Health Code (CSP) newly cited during the Health Emergency. The Law will allow the country to take

hold of seizing and launching of the generic products before the expiry of the patents which helps to approve the medicines for the treatment. However the loss cannot be compensated by patentee who will be entitled to claim the damages by the early launch of generic medicine by the French Government.

The Article L.3131-15 CSP introduced by Law No. 2020-290 relating to only COVID-19 included the provisions in a broader section entitled: "State of Health Emergency" (Etat d'urgence sanitaire), that is kept in force in the event of ‘a health disaster endangering under the determination by its nature and severity, the health of the population’ which is a revision of Article L.3131-12 CSP.

Healthcare innovation was the main factor of European patent applications²² in 2020 (Fig. 5) with dominant Medical technologies+2.6% followed by major growth in pharmaceuticals+10.2%, and biotechnology +6.3% all registered strong performance overall 16.7% of all patent applications filed at the EPO level. The European countries maintained a share of almost half of all patent applications filed, while China (+9.9%) and South Korea (+9.2%) saw the most significant growth. Germany applications decreased by 3.0% in 2020, same like that of Netherlands (-8.2%) and UK (-6.8%). Italy had a growth of 2.9% and is currently ranked 10th for the overall number of patent applications filed. Italy plays a key role in pharmaceutical innovation with a significant growth of more than 22% compared to 2019 contributed only by the furniture and games sector. Italy has also registered with 6% rise in medical technology application that is considerably higher than the top-10 countries for the sector.

The European Patent Office (EPO) today announced that U.S. companies and inventors filed 4.1% fewer patent applications at the EPO in 2020 compared to the previous year, a total of 44,293, according to the EPO Patent Index 2020. It was the biggest drop among the main regions (Fig. 6) that account for the majority of patents filed at the EPO.

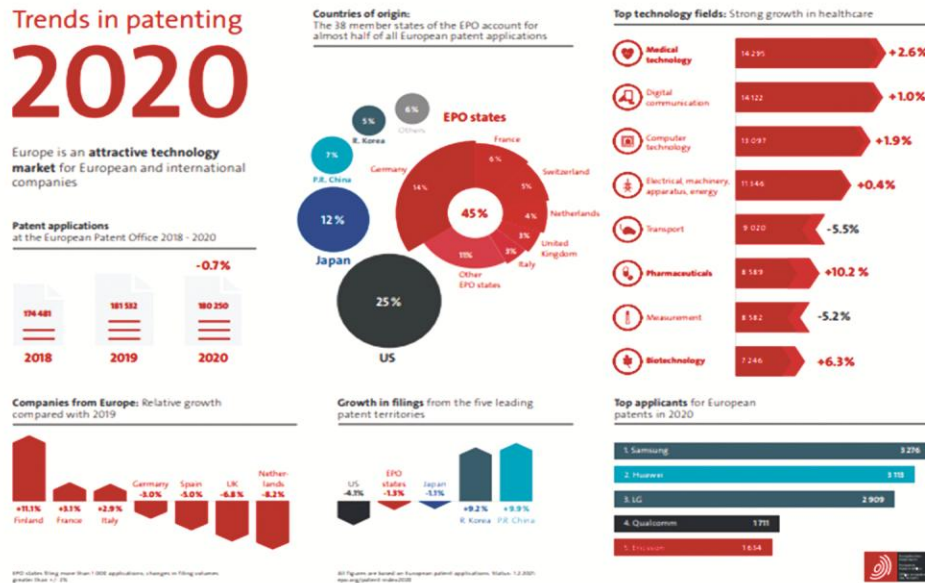
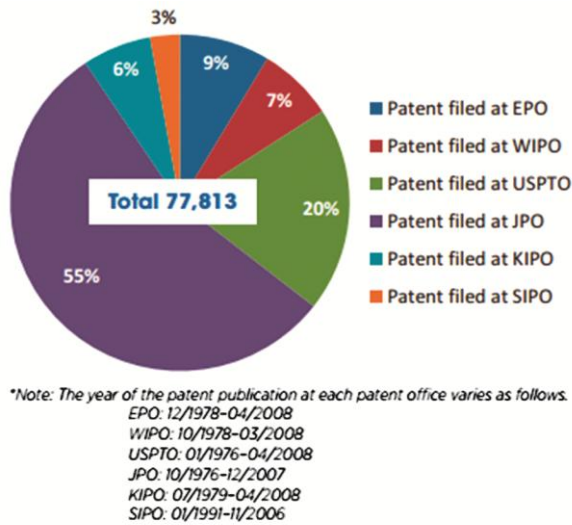


Fig. 5 — Patent filings and contributions made in by different member countries of Europe



Source: WIPO database³⁴

Fig. 6 — Dominance of China in PCT filings at WIPO

Patent applications from Germany were down 3%, those from Japan by 1.1%, while strong increases came from China (+9.9%) and South Korea (+9.2%).

The overall number of European patent applications²³ across all countries filed in 2020 remained stable, decreasing by 0.7% compared with the previous year. The EPO received 180,250 patent applications in total, which was slightly below the record level attained in 2019 (181,532).

The U.S. nonetheless remained the largest country of origin for European patent applications in 2020, accounting for almost a quarter of the total. After the

U.S., Germany, Japan, China and France were the top filing countries in 2020. U.S. firms stayed in the lead in several key technology rankings, including medical technology (accounting for 38.6% of all patent applications at the EPO), computer technology (36.8% share), pharmaceuticals (39.1%), and biotechnology (31.4%).

“Despite the drop in European patent applications coming from the U.S. in 2020, American companies and inventors continued to drive innovation in a wide range of key technologies, including health care and digital,” said EPO President António Campinos. “Demand for patent protection in Europe remained high overall, but we see fluctuations across technology sectors and economic regions. While there is still uncertainty about the development of patenting activities in the months and years to come, we know that it is research and science, backed by a solid intellectual property system that will foster innovation as the motor of recovery for a healthier world.”

Canada

The COVID-19 Response Emergency Act, Bill C-13 was passed on 25 March 2020²³ which there public health emergency if declared by the federal ministry of health, then the Commissioner of Patents may allow the Canadian state to produce, sell and use a patented invention. Hence the preexisting compulsory licensing provisions, the federal proposes to issue the licensee without damage to the rights of owners and the ability of the product to be supplied. The patentee

there by may be payable with a compensatory grant which the federal government feels accurate for the product based on the economic value of the permit. The non transferable license will be issued by the government In case of national emergency until September 2020 after which there will not be any patent granted.

Australia

There were no proper reports of any issue of change in patent laws in Australia. The recent reports on the Crown use of patents by the Minister of industry Brendan O’Connor which stated the repurpose of manufacturing process and also show a clear address on the shortage of essential good depleted for supply due to supply chains.

China

The Patent applications from China²⁴ in Europe were upgraded to 9.9% in 2020. There was huge rise in the growth rate among the key market players by the ten leading patent filing industries even as declared by the European Patent Office (EPO) in March. Though the Chinese government has not implemented any emergency regulations, the existing compulsory licensing provisions under Chapter VI (Patent Law) have not been invoked. The top three technology fields with the most patent applications from China (Fig. 7) were digital communication, which accounted for 26.5 percent of all patent applications contributed by computer technology, as well as electrical machinery, apparatus and energy. The China's legislature, the Standing Committee of the National People's Congress has passed the fourth amendment to the Patent Law of the People's Republic of China on October 17 2020 with force on June 1 2021 as new Patent Law that facilitates international cooperation

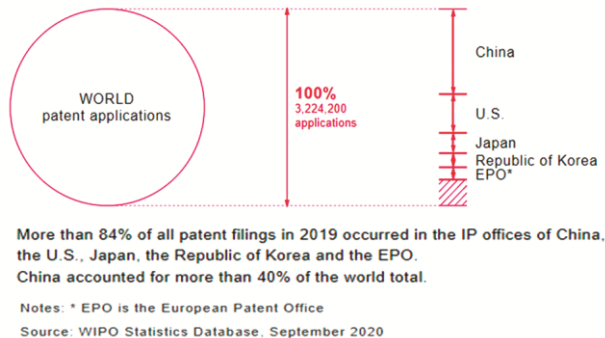


Fig. 7 — Patent filings globally- China in the lead during 2019³⁴

and coordination, and better prepares China to access to the Hague Agreement.

Few amendments in the articles include

Article 2 of the new Patent Law stipulates that "A design means any new design of the overall or partial shape, the pattern, or their combination, or the combination of the color with shape or pattern, of a product, which creates an aesthetic feeling and is fit for industrial application

Article 42 of the new Patent Law stipulates that "The term of the patent for design shall be fifteen years, counted from the date of filing. "Facilitates call for lengthening the term of the design patent.

Article 29 of the new Patent Law stipulates that where – within six months from the date on which any applicant filed an application for a patent for a design for the first time in China – he or she files with the patent administration department under the State Council for an application of a patent for the same subject matter, he or she may enjoy the right of priority.

Japan

The Patents filed from South Korea posted comparably stronger growth, up 9.2 percent, according to the EPO Patent Index 2020. The increase contrasts with lower patent application numbers from most other leading technology regions like the U.S. firms filed 4.1 percent fewer applications last year than that of 2019, while Europe's patents were down 1.3 percent, and those from Japan decreased by 1.1 percent.

Other Countries and Flux in Filing Patents in 10 Years by WIPO

Beyond the top 10, other countries (Fig. 8) that saw strong growth include Saudi Arabia (956 applications, +73.2%), Malaysia (255 applications, +26.2%), Chile (262 applications, +17.0%), Singapore (1,278 applications, +14.9%) and Brazil (697 applications, +8.4%). Longer term trends point to the globalization

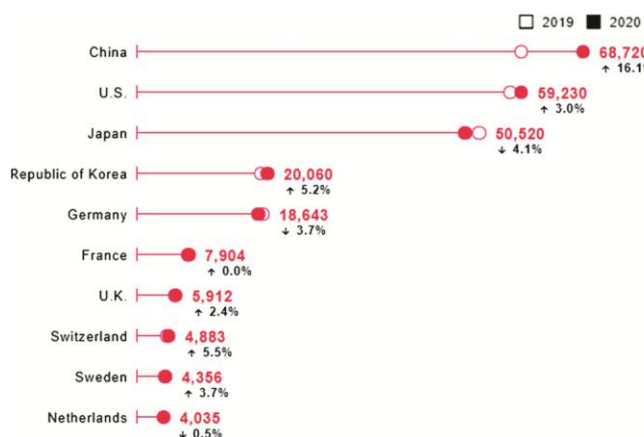


Fig. 8 — Patent filings globally- China in the lead during 2019³⁴

Table 5 — Data exclusivity of patent filed by different countries

S. no	Patent filings	Data
1	National Phase entries	675200±4.3 %
2	PCT filed by 125 countries	275900±4 %
3	PCT national phase entries in worldwide non-resident patent application filings	56.7-0.2%
4	Women PCT inventors	16.5+0.8%

Source: *Wipo.org.in*

Fig. 9 — Patent filings for the top 10 offices³⁴

of innovation, with Asia accounting for 53.7% percent of all PCT filing activity, versus 35.7% 10 years ago.

Data Exclusivity

The World Intellectual Property Organization (WIPO)¹⁴ is the global forum for intellectual property policy, services, information and cooperation. A specialized agency of the United Nations, WIPO assists its 193 member states in developing a balanced international IP legal framework to meet society's evolving needs. It provides business services for obtaining IP rights in multiple countries and resolving disputes. It delivers capacity-building programs to help developing countries benefit from using IP.

Facts and Figures

In 2019, China's IP office received 1.4 million patent applications (Table 5).²⁸ It was followed (Fig. 8) by the offices of the US, Japan, the Republic of Korea and the European Patent Office. The top 10 offices accounted for 92% of the world total in 2019. Around 275,900 PCT international applications were filed in 2020, up 4% on 2019 despite the global pandemic, maintaining an upward trend since 2010. Applicants from China filed the most PCT applications. The US, Japan, the Republic of Korea and Germany completed the list of the top five

origins. The top 10 countries (Fig. 9) accounted for 88.5% of total applications in 2020.

Patent filings²⁹⁻³³ worldwide declined (Fig. 9) by 3% in 2019 – the first decline since 2009. Trademark and industrial designs filing activity grew by 5.9% and 1.3%, respectively. Patent filings around the world exceeded 3.2 million, trademark filing activity totaled 15.2 million and industrial design filing activity amounted to 1.4 million. Applications for utility models – a special form of patent right - grew by 9.1% to reach 2.3 million applications. There is rise in emerging trends of IPR like Data exclusivity, orphan drug exclusivity, Standard Essential Patents etc with India being lagging at this issue. There is lot of need to substantiate the legal issues pertaining to IPR rights in India.

Conclusion

The national emergency raised globally could deliberately induce changes in the patent filings and also in the laws and regulations related to the PCT national phase entries. There was much impact on the waiver of compulsory license and a compensatory benefit to the patentee. The PCT filings were raised during 2019 to 2020 with major contribution by china and followed the US and other Euroasian countries. The modifications in laws and the amendments in the patent acts by various countries enabled wide acceptance of manufacturing, production and import liabilities of the product before the expiry of the patent. The patent player was china followed by US and Japan and then by other countries. India raised the production concern but failed to show the patent execution. The waivers proposed by many countries could not address but proven to be fault and misguided. The Covid 19 pandemic poses serious concerns in issues of patent and its filings which are still to be addressed and find a new route to be proven effective for public entities.

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