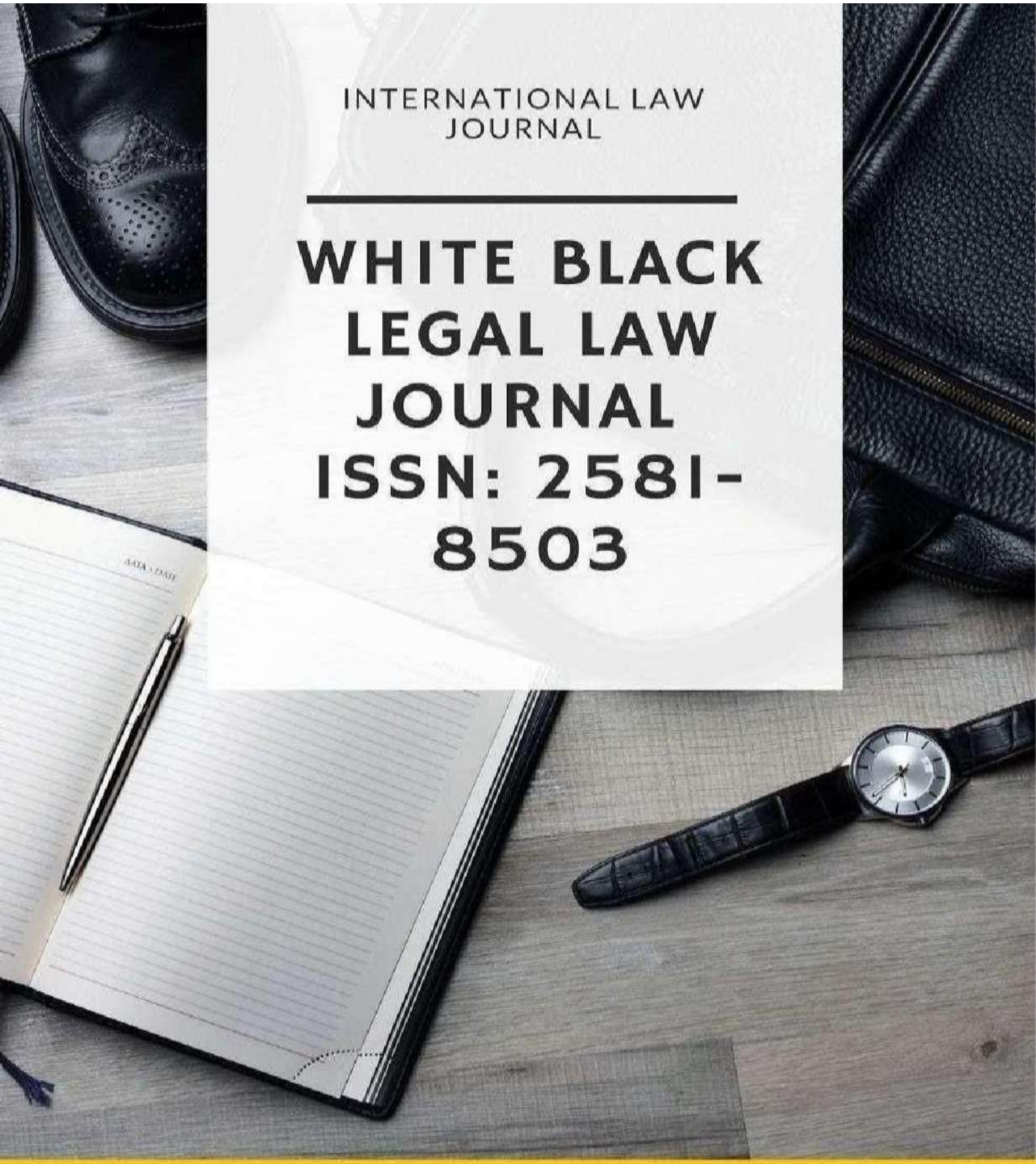

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ABOUT US

WHITE BLACK LEGAL is an open access, peer-reviewed and refereed journal providededicated to express views on topical legal issues, thereby generating a cross current of ideas on emerging matters. This platform shall also ignite the initiative and desire of young law students to contribute in the field of law. The erudite response of legal luminaries shall be solicited to enable readers to explore challenges that lie before law makers, lawyers and the society at large, in the event of the ever changing social, economic and technological scenario.

With this thought, we hereby present to you

GENDER GAP IN INTELLECTUAL PROPERTY: WOMEN'S PERSPECTIVES

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ABSTRACT:

Intellectual property rights support economic development, innovation, and creativity. We have seen practically how much IP has contributed to world trade and economic development. A paradigm change in technology and the digital sphere has occurred with the start of the fourth industrial revolution. The approaching era denotes the complete transition in IP, whereas this era represents the emergence of the omnipotence of the human intellectual potential. Both men and women have historically changed the world through their vision and work ethic. Nonetheless, there is still a huge gender gap in the world of intellectual creativity. History offers proof that preconceptions, bigotry, and discrimination against women have been widespread. Not because they are unable or useless, but rather because of the dominance of men and the pervasive stereotype. With the rise of civilization, women have improved their status and gained importance in all areas of life. The objective still has to be met because inequality is now pervasive at a much higher rate. "The early and fundamental waves of feminism set the way for demonstrating women's potential. Yet, this potential must now be translated into complete gender parity as we enter this modern period. This paper examines the problem of gender inequality in the domains of intellectual property development. Moreover, in this paper efforts have been made to assess the root causes of gender inequality and workable solutions through case studies.

Keywords: Intellectual Property, Gender Inequality, Economy, Global Growth, Women Empowerment, Women Empowerment strategies

1. INTRODUCTION

Intellectual property (IP) law is generally recognized as a means to celebrate and reward the contributions of creative individuals by giving them legal exclusivity over their creations for a period of time during which they may determine who may exploit their work possibly in return for a fee. Much of human progress depends on innovation. It depends on people coming up with a breakthrough idea to improve life. For much of modern history, and certainly in the early days of legal grants in IP, the formal roles from which IP might arise were closed to women. The creative occupations of artist, engineer, writer, scientist and musician were dominated by men, if not exclusive to men. At that time, social convention frowned on female activity in such professions. IP law, as it developed, followed such social prohibitions. For example, as noted by Professor Shelly Wright, copyright historically encompassed the "fine arts" such as sculpture, painting, literature and music fields that were male dominated if not exclusively masculine, with "crafts" such as needlework, knitting, quilting and other "domestic" fiber arts until relatively recently excluded from the canon of copyrightable subject matter.

Similarly, where women developed inventions or creative works outside formal professional settings, social or legal recognition of such work was considered taboo. In some cases, creative works by talented women were circulated anonymously or pseudonymously. This was the case, for example, with Clara Schumann, spouse of the celebrated Robert Schumann, and Fanny Mendelsohn, sister of the widely acclaimed composer Felix Mendelsohn. At that time, acquisition of patents or copyrights was viewed as improper for women. Careful historical reconstruction has revealed clues suggesting patents for inventions produced by female inventors were taken out in the name of a brother, father or husband. For example, when Sybilla Masters developed a way to process Indian corn in 1715 and her achievements were recorded in the patent document, the associated right was issued to her husband. At that time, the prevailing laws stated that women could not own property. There is a growing body of evidence of a gender gap in the use of intellectual property **(IP) systems around the world.** Underrepresentation of women within any area of IP could result in "lost Einsteins"[1] and a missed opportunity to enrich our culture and knowledge base and expand economic opportunity

[1] The key phrase in the research paper is "lost Einsteins." It's a reference to people who could "have had highly impactful innovations" if they had been able to pursue the opportunities they deserved, the authors write.

2. HISTORIC INEQUALITIES: WOMEN EXCLUDED FROM INTELLECTUAL PROPERTY LAW

In the nineteenth century, states started to arrange their laws governing intellectual property. The first industrial property rights (patents, trademarks) were issued at this period. Male preponderance is a defining characteristic of this time. In fact, the trades that could lead to industrial property rights were essentially reserved for men. Women found it challenging to pursue careers as engineers, scientists, musicians, or authors. The prohibitions were either societal or legal. Women's works were frequently disclosed under a false name. Whether they were novels, inventions, or newspaper cartoons. Additionally, a woman's acquisition of a patent or copyright was governed by marriage regime laws. Having a family name that belonged to her father or spouse prevented a lady from freely changing it. Similarly, she was unable to earn money from work without a man's consent.

The rights liberation movements of the 20th century helped shift society's perspective. Thankfully, women can now become authors or innovators. However, according to the World Intellectual Property Organisation (WIPO), "latent discrimination" still exists.

This research is based in part on statistical data, which shows that "women are conspicuously absent from all aspects of the patent system with regard to patent filings, where there is a significant gap between the number of women and men filing applications."The numbers are instructive. According to one statistic, "patent applications naming a female inventor represent only 4% of applications in German-speaking countries, 10% of applications in the United States." Women scientists and engineers are just half as likely as males to receive a patent for their work, according to WIPO.[2]

3. GENDER GAP IN IP: TRENDS AND DATA

The World Intellectual Property Organization (WIPO), in its recent analysis, shows that less than a third of all international patent applications filed in 2019 included women inventors. Under the premise of the international patent regime, patent applications are an important benchmark for measuring innovative activity in the global economy. The low representation of women in the

[2] Information available at : https://depot-de-marque.com/en/women-and-property-intellectual/

innovation ecosystem is of particular concern as it indicates that enormous potential is being left unharnessed and a huge range of talents is not being put at the disposal of humanity to help solve pressing social problems such as climate change, sustainable energy production, and consumption or food security and to increase competitiveness.[3]

Most of the fields associated with the IP are dominated by men. According to the United Nationsreport highlighting the participation of women in the Entertainment industry, only 7 percent ofthe world's film directors are female; similarly, only 20 percent of women are screenwriter.[4] This substantially highlights the underrepresentation of women in the copyright regime. Creative and artistic domains are also dominated by men.

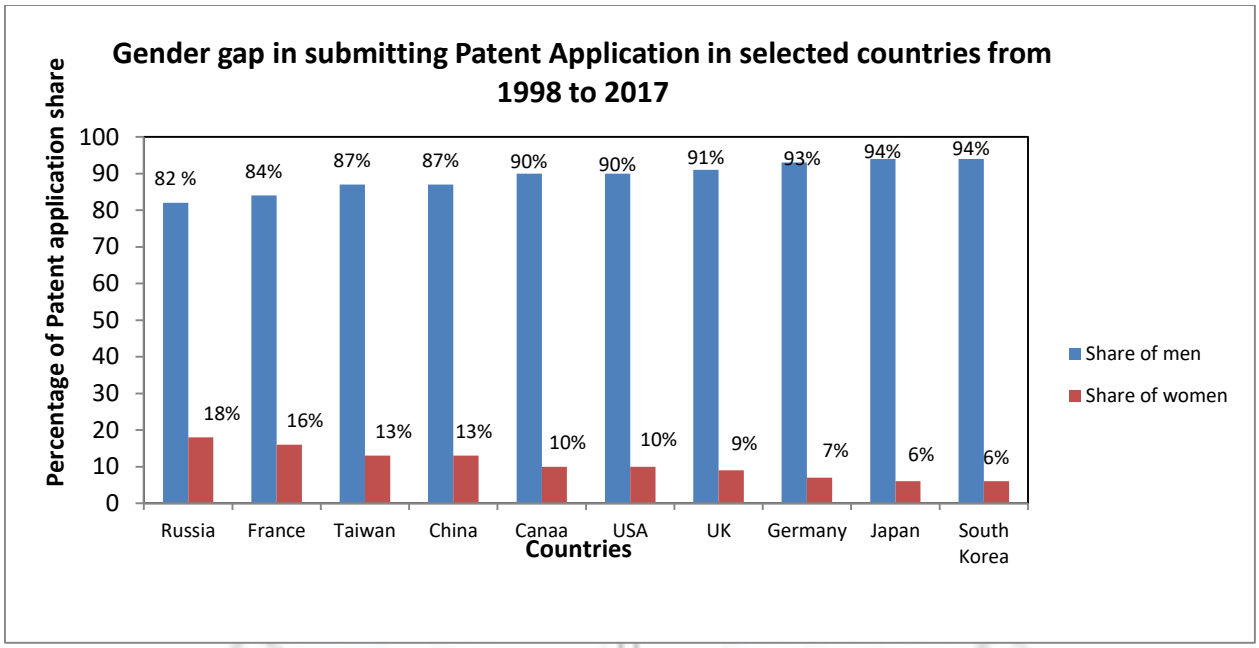
a) Gender Gap in patent

The harsh fact that fewer women than males are inventors, patent holders, patent agents, and attorneys, and that fewer women than men serve as patent examiners, litigators, and judges who oversee patent matters. Women file for patents less frequently, and when their applications are denied, they are 2.5% less likely to challenge their denial. Women's patents are more likely to have extra terms added to their claims that narrow the scope of their patents when applications are granted.

Generally speaking, limiting the scope of patent claims lowers the value of the linked patented innovations. Even when they are issued, female inventor patents perform badly. Less frequently are women's patents updated by their assignees (the patent owner

[3] *Gender equality and IP*, WIPO, available at : https://www.wipo.int/women-and-ip/en/news/2020/news_ 0001.html.
[4] *Power and decision making*, UN stats, available at : https://unstats.un.org/unsd/gender/chapter5/chapter5.html.

i) Gender gap in submitting Patent Application in selected countries

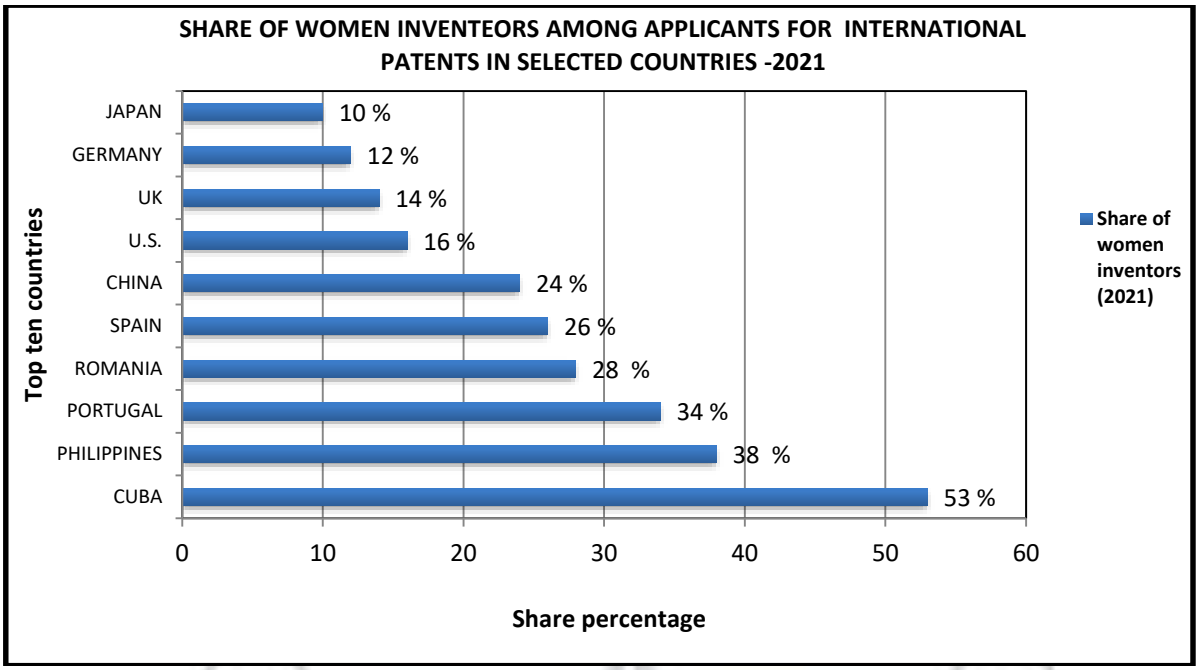


(Figure-1)

Figure 1 above amply demonstrates the significant gender discrepancy in patent application submission. Worldwide, women submit fewer patent applications than men.

ii) Top 10 countries with most numbers of Females inventors in 2021

According to data from the World Intellectual Property Organisation, the Philippines and Cuba had the greatest percentage of female inventors among those applying for international patents in 2021. In the entire world, just 17% of candidates were women. Figure 2 above shows that in 2021, more than half of all registered patent applicants in Cuba, which only seldom



(Figure-2) (Source -World Intellectual Property Organization)

supplies data to Wipo outperformed the global average , and the Philippines, where 38% of inventors were women .[5] However, there is still a gender difference, with women making up a far smaller percentage of inventors than males.

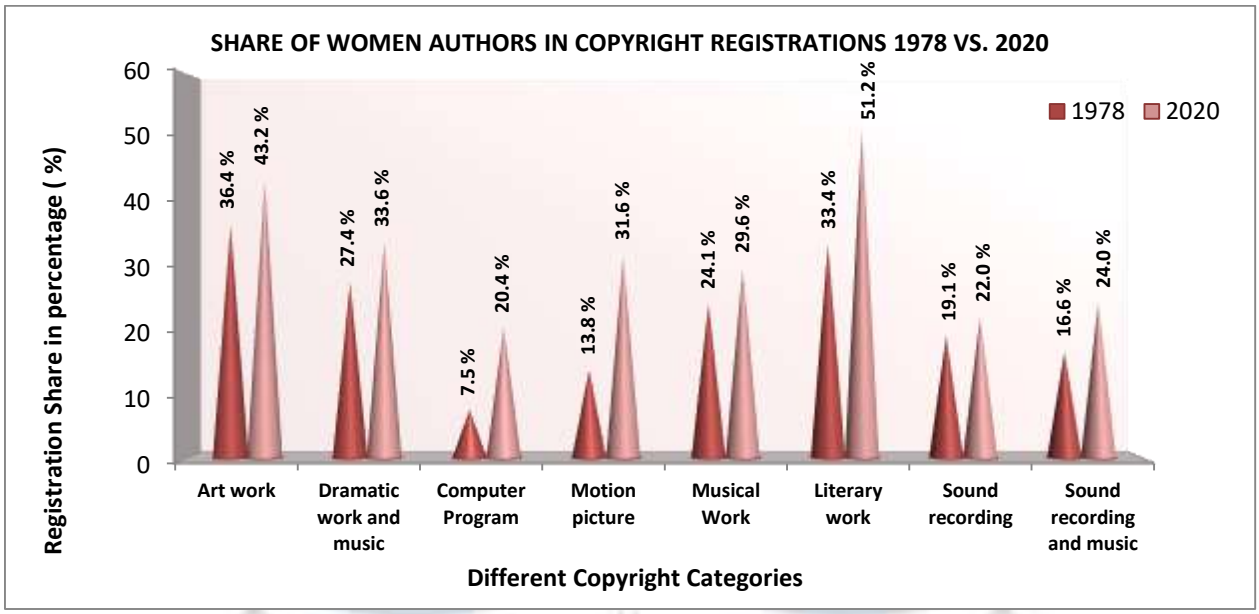
b) Gender gap in Copyright Registrations

In 1978, women represented only 27.9 percent of authors of registered works. By 2012, this number had risen to about 36 percent22 and, as of 2020, to 38.5 percent. This gain amounts to a 6.9 percent increase in the share of women authors identified in copyright registrations from 2012 to 2020.

Figure 3 below demonstrates the growth in the share of women authors across all registration categories. In 2020, women constituted 38.5 percent of all authors, and 41.9 percent of all works had *at least one* female author.[6]

[5]Information available at: https://www.copyright.gov/policy/women-in-copyright-system/Women-in-the-Copyright-System.pdf

[6] Information available at: https://www.copyright.gov/policy/women-in-copyright-system/Women-in-the-Copyright-System.pdf



(Figure-3)

Women were underrepresented in practically every category when it comes to author registrations in the year 1978, now the gap is narrowing and in 2021, there are now more female authors registration in every category of copyright.[7]

4. MAIN CAUSES OF GENDER DISPARITIES IN IP

The root causes of the underrepresentation of women in IP are innumerable. There lies widespread gender inequality across different sectors. The strategic assessment of the causes of inequality can be better attained by focusing on the other side of the world, that is, the under- developed regions of developing nations. A different part of the struggling world still lives in extreme poverty, unemployment, hunger, and dire living conditions. And these areas strongly reflect adversely on the gender issue. The United Nations Conference on Trade and Development (UNCTAD), in its Least Developed Countries (LDC) Report published in 2019, designates 47 countries as LDCs. These countries majorly belong to Africa, some in Asia and the Pacific, very few in Latin America, and similar in the Middle East. And predominantly, these countries rank very poor or from the bottom in the Gender Inequality Index (GII) of the United Nations Development Program (UNDP). This index measures gender disparity using three critical dimensions, which are: empowerment, labour market

[7] Ibid

participation, and reproductive health. Now, this significantly supplements our objective defining the causes of underrepresentation in IP, which can be highlighted by stating the critical aspects of it as follows:

a) Gender disparities in education

Gender disparities in education exist on a considerably large scale; today, around the world, 132 million girls are out of school. In countries affected by conflict or war, girls are more thantwice as likely to be out of school or any form of education than girls living in non-affected countries.[8] Only 25 percent of countries have achieved gender parity in upper secondary education[8]. Now this lack of secondary education among girls affects the involvement of females in fundamental institutions constituting the engineering, scientific, medical, political, economic, and technical subjects. This radically results in the backwardness of women in the innovation, creativity-led IP sector.

b) Gender-biassed laws

Even to this date, many countries advocate gender-biased laws discriminating against women. Gender-biassed laws radically undermine the position of women in any country. Societalcustoms can be challenged and overruled, but legalities and illegalities abridge individual dignity. It tends to suppress the voices, talents, and aspirations of countless females. And this subsequently deteriorates women's participation into the innovation, creativity and development.

According to the World Bank's Women, Business and the law 2020 report, only eight countriesin the world give women and men equal rights[9]. These countries include Belgium, Canada, Denmark, France, Iceland, Latvia, Luxembourg, and Sweden. The report measured gender- based discrimination in 182 countries. The index assessed eight indicators which measured legal differentiation between men and women in various spheres as they transition through differentstages of working life.

[8] According to the World Economic Forum's 2022 Global Gender Gap Index, India is ranked 135th out of 146 nations. With a ranking of 146 in the "health and survival" subindex, the nation performs the poorest globally. Metrics including the literacy rate and the enrollment rates in primary, secondary, and higher education are included in the report's sub-index. India comes in at number 107 out of 146, and its ranking has slightly declined from the previous year. India came in at number 114 out of 156 in 2021.

c) Gender Stereotype and Prejudices

Gender stereotype is predominantly witnessed in our societies. It a is generalized view or preconception about features or attributes, or the roles that are or ought to be possessed by, or exercised by women and men. Women are subject to various kinds of stereotypes, prejudices and dogmas and have been since time immemorial. A gender stereotype is menacing when it limits women's and men's capacity to develop their personal abilities, pursue their professionalcareers and make choices about their lives[10].

The pre-conceived opinion with respect to women and their duties has continuedly placed the high potential of women innovation in vacuum. Women have always been underestimated andcriticized in terms of their freedom and ambitions. With the evolution of time women have established their potential and marked their positions in every sphere of science, technology, innovation, business and arts yet these misconceptions persist.

d) Hindrances in the IP system

Potential users fail to make use of the IP system dues to multiple factors. The above posed causes are of general nature of women inequality. Exclusively dealing with the IP regime has its own factors and causes.

Addressing a predominant factor is that protecting a patent or a trademark can be very expensivein most parts of the world and is limited to big businesses. This leads to unaffordability. Also, the system includes too many complexities which is also a major predicament. There are no support systems to address the problems and grievances of the users. The services majorly focusonly on big businesses and other entities remain neglected.

Similarly, IP education is also a determining factor which considerably limits the number of participants. Most of the women owned business even though at an expanding phase fail to seek funding and such IP protection due to lack of knowledge and information. With the evidence and sufficient research, it is evaluated that there are women owned businesses in mostremote parts of the world which despite of abundance in potential lack several important resources which fail them.

5. BRIDGING THE GAP

The World Bank estimates that, globally, differences between men's and women's totalexpected lifetime earnings is $172.3 trillion, equivalent to twice the world gross domestic product (GDP)[11]. According to a study by the Institute for Women's Policy Research, women won't reach gender parity in the patenting regime in the United States until 2092. Without education about and exposure to innovation and patenting, many women inventors do not havebasic knowledge about the patenting process.[9] This is the data which we can collect from developed countries like the US but as we witnessed previously under-developed countries exhaustively remain in most critical spheres. There is lack of data on IP filings in other parts ofthe world and other sectors of IP such as copyrights.

Excessive work remains to be done in this area to recover the core aspects of gender disparity and the prevailing gaps. We lack considerable data on gender-based IP, a closer scrutiny and analysis can help develop strategies to study the IP regime globally. With existing studies, reports and data efficacious measures can be employed to mitigate the gender gap. This involvesmajor reforms to engage women into the shaping of future of the society. Achieving gender equality and the empowerment of all women and girls is one among the 17Sustainable Development Goals of the United Nations.[10]

6. WOMEN AS INVENTOR

i) Margaret A. Wilcox -The Car Heater

The first car heater was invented by Margaret A. Wilcox in 1893, which directed a system that could direct air from over the engines of the cars to warm the interiors[11]

ii) Dr. Shirley Jackson –subatomic particles

Theoretical physicist Dr. Shirley Jackson was the first black woman to receive a Ph.D. from the Massachusetts Institute of Technology in 1973. While working at Bell Laboratories, she conducted

[9] World Bank. 2022. *Women, Business and the Law 2022*. Washington, DC: World Bank. License: Creative Commons Attribution CC BY 3.0 IGO, Reports, Key Findings - Women, Businessand the Law - World Bank Group.

[10] Achieving Gender Equality and Empower all Women and Girls, Department of Economic and Social AffairsSustainable Development, United Nations, Information available at : https://sdgs.un.org/goals/goal5.

[11] Information available at : https://www.google.com/search?q=modern+female+inventors. In the fall of 1893, she applied for a patent for an invention that would help divers in many ways. This was an invention of the car heating system. The patent was registered on November 28, 1893,

breakthrough scientific research with subatomic particles. Her research enabled others to invent the portable fax, touch-tone telephone, solar cells, fibre optic cables, and the technology behind caller ID and call waiting.[12]

iii) Nancy Johnson –hand operated ice cream maker

In 1843, Nancy Johnson from Philadelphia became one of the most important people in history by patenting a design for a hand-operated ice cream maker, She created the first hand-cranked ice cream freezer. Her invention revolutionized the ice cream industry, making it easier and more efficient to produce ice cream on a large scale. This was a wooden ice cream freezing machine, which used a hand-cranked paddle to churn the ice cream mixture inside a wooden bucket. The ice cream mixture was placed inside the bucket, surrounded by a mixture of ice and salt.[13]

iv) Maria Telkes – The first 100% solar powered house

This Hungarian scientist is famous for creating the first thermoelectric power generator in 1947. With this technology and the principles of semiconductor thermoelectricity, Maria Telkes designed the first solar heating system for the Dover Sun House in Dover, Massachusetts, and the first thermoelectric refrigerator in 1953.[14]

v) Ann Tsukamoto – Stem cell isolation

In 1991, Ann Tsukamoto and her colleagues made a major medical breakthrough – they could identify and isolate stem cells. This discovery has been vital to medical advancements, including the development of bone marrow transplants to treat blood cancer.[15]

vi) Grace Hopper – Computer programming

In 1944, US born Grace Hopper and Howard Aiken designed Harvard's Mark I computer, a five-tonne, room-sized machine. Hopper invented the compiler that translated written language into

[12] Ibid

[13] Information available at: https://en.wikipedia.org/wiki/Nancy_Maria_Donaldson_Johnson. The invention was patented in 1843 and was the first of its kind, but Nancy sold it off cheaply. Johnson's impact on society is significant. Her invention transformed the ice cream industry, making it possible to produce and sell ice cream on a large scale. The invention also created new opportunities for entrepreneurs and small business owners, making it possible for them to start their own ice cream shops and businesses.

[14] Information available at:https://timeline.com/woman-solar-power-leader-f682bb7c6feb

[15]Information available at: https://novaxnetwork.com/ann-tsukamoto-the-woman-inventor-whose-invention-saved-many/

computer code and coined the terms “bug” and “debugging” when she had to remove moths from the device. Now, close your eyes, and try to think what the world would be like without the invention of programming.[16]

vii) Maria Beasley – The life raft

In 1882, US inventor Maria Beasely decided that people should stop dying at sea. People had been navigating the seas for millennia, but the lifeboats that existed at the time were not an effective product to help in the event of a SOS situation. Now, thanks to Maria, thousands of lives have been saved, including an estimated 706 from when the Titanic sank.[17]

viii) Stephanie Kwolek - invented Kevlar

Stephanie Louise Kwolek was a Polish-American chemist who is known for inventing Kevlar in 1965. Her career at the DuPont company spanned more than 40 years. She discovered the first of a family of synthetic fibers of exceptional strength and stiffness: poly-paraphenylene terephthalamide[18]

ix) Melitta Bentz- paper coffee filter

Amalie Auguste Melitta Bentz, born Amalie Auguste Melitta Liebscher, was a German entrepreneur who invented the paper coffee filter brewing system in 1908. She founded the namesake company Melitta, which still operates under family control.[19]

x) Josephine Cochrane

Josephine Garis Cochran was an American inventor who invented the first successful hand-powered dishwasher, which she designed and then constructed with the assistance of mechanic George Butters, who became one of her first employees

https://www.google.com/search?q=modern+female+inventors

[16] Hopper is best known for her trailblazing contributions to computer programming, software development, and the design and implementation of programming languages. A maverick and an innovator, she enjoyed long and influential careers in the U.S. Navy and the computer industry

[17] Information available at:https://www.afpm.org/newsroom/blog/women-who-made-future-possible

[18]Information available at: https://www.sciencehistory.org/historical-profile/stephanie-l-kwolek

[19] Information available at:https://www.dpma.de/english/our_office/publications/ingeniouswomen/ 110jahrekaffeefilter/ index.html

xi) Laser Cataract Surgery

In 1986 Patricia Bath invented a Laser Cataract Surgery that allows doctors to dissolve cataracts quickly and painlessly before applying new lenses to patients' eyes. This technology is used worldwide to prevent blindness due to cataracts.[20]

xii) Marie Van Brittan Brown -Home Security System

Marie Van Brittan Brown's home security system for closed-circuit television security, patented in 1969, was intended to help people ensure their own security, as police were slow to respond to calls for help in her New York City neighbourhood.[21]

xiii) Dr Grace Murray Hopper -Computer Software

Dr Grace Murray Hopper, a rear admiral in the US navy, was also a computer scientist who invented COBOL - the first user friendly business computer software program. Dr Grace Murray Hopper was also the first person to use to the term "bug" to describe a glitch in a computer system

7. IP RIGHTS CAN PLAY CRUCIAL ROLE IN EMPOWERING WOMEN

Despite significant efforts made for gender equality, women are still not treated equivalent to men under the law in many parts of the world. Starting from owning land and coming to obtaining legacy, women face a lot of disadvantages. However, an efficient system of **Intellectual Property** (IP) Protection can help lighten this discrepancy. **Intellectual Property Protection** can further protect the other rights of women as well. For instance, the countries with a systematic regime of **Copyright Protection** will, in general, have the highest-paid female artists and actresses too.[22]

[20]Information available at: https://www.indiatimes.com/trending/social-relevance/inventions-by-women-537522.html?picid=2093792

[21] Ibid

[22] The World Intellectual Property Organization (WIPO; encouraging the protection of IP throughout the world) celebrates April 26 as World IP Day every year to promote knowledge about various IP related matters like trademarks, copyrights, patents, etc., along with the crucial role they play in promoting innovations. This year, the theme of this day was, "*Powering change: Women in innovation and creativity*" for celebrating women and their role in shaping the future of the world economy.Information available at https://www.kashish world.com/blog/how-can-intellectual-property-rights-empower-women/

For economic growth and empowering women, protection of **Intellectual Property Rights** (IPR) is a valuable aspect. IP Rights not only restore financial incentives for women but also give them exclusive power over their unique creations. According to several reports and surveys conducted, nations with effective IP protection laws have better measures of gender equality. If used proficiently, IP Rights can lead to a significant advancement in the entrepreneurship by inspiring women who come up with innovative ideas and inventions. Therefore, IP systems must recognize and appreciate the creativity resulting from the indigenous and traditional knowledge of women across the globe.[23]

i) Women empowerment strategies for bridging gap in IP

There are number of ways in which women can be empowered in IP and can bridge the gap:

a) Education for girls

Education is the building block for any individual's success. It forms the fundamental step towards attaining gender parity. Any prospective vision, ambition and goal is incomplete without sound educational background. With few of the causes highlighted above it is conspicuous that girls are underrepresented and discriminated in education. To fully realize the goal of gender equality in education, lawmakers and stakeholders need to address several factors which deter the goal. Among the ways making better reach of education to girls are as follows:

- Free education for all and easy access to school
- Incentives to meritorious students through scholarships, aids etc.
- Ensuring quality education, with trained teachers
- Prevention from abuse, discrimination and violence

Various governmental schemes, efforts of International Organizations, NGO's and other bodies are trying to realize the goal and right of basic education for girls. Examples to this include projects of

[23] Ibid. Developing countries with weak IP regimes and high population exacerbate disparate living conditions for women. Moreover, they also tend to have higher levels of female unemployment, lower female education rates, and higher infant mortality rates. However, protecting IP can surely change this as the nation that protects IP Rights is also known for its terrific entrepreneurial environment for women. While developed nations usually have more grounded IP protection laws as compared to the developing nations, still they can make efforts to improve the IP protection for women. As per the Women's Institute for Policy Research, women have quintupled their portrayal among the patent holders since 1977. But, on the other hand, studies and reports have also suggested that women contribute only to 7.7% of primary inventors who own patents.

UNICEF an organ of United Nations which works across 190 countries to provide education to underprivileged girls to support their rights and basic educational requirements. Similarly, in the Indian context the government in India has also taken up initiatives such as the "Beti Padhao Beti Bachao" to provide education to girls from poor backgrounds and those in extreme poverty. Effective implementation and enforcement of such programs are inevitable towards achieving gender parity in education.

b) Investing in Human Capital of girls and women

Now investing in the human capital of girls and women can significantly contribute to the economy. In addition to investing in their education, health, and employment opportunities, empowering them can have a huge economic impact. So, prioritizing the needs and the requirements of women via legal, institutional, cultural reforms by the countries can be a significant step towards empowering women. Now Governments are increasingly using their resources and decision-making machinery to advance gender equality goals, even though the current speed and ambit of these schemes and initiativesis lagging from having a long-lasting impact. Examples of initiatives in the trade and commerce for women can been seen in the Indiancontext. Many states in India have taken initiatives to provide start-up policies exclusively for women to effectively engage women-owned business enterprises.[24]

c) Ensure that financial assets are in the hands of women

Women's economic engagement, ownership of productive assets, and control over those assets all has a positive impact on children's health, school attendance, and poverty alleviation. Generally speaking, women invest a greater percentage of their income in their families and communities. However, they require access to the complete spectrum of credit, banking, and financial services and facilities necessary to more fully develop their assets, their land, and their businesses.[25]

d) Encouraging women into IP

In order to harness the full potential of women in IP, the IPR expertise needs to be developed and

[24] Andaman and Nicobar provides monthly allowance of 20,000 INR per month to start-ups by women for a period of one year, similarly in Bihar start-ups owned by women get 5 percent additional grantother than the limit fixed under Start-up India initiative. These incentives significantly contribute to more women entrepreneurs to participate in business and the IP system.

[25] Information available at : https://www.oecd.org/dac/gender-development/investinginwomenandgirls.html.

increased in industry, academia, legal practitioners, IP users and civil society. Encouraging and supporting capacity building among Women Creators, Innovators, Entrepreneurs, Practitioners, Teachers and Trainers. The enhancement of multidisciplinary human and institutional capacity for policy development, teaching, training, research and skill building isa must. The expertise and quality will facilitate in increasing generation of IP assets and their utilization for development purposes. Following are 5 such methods which can develop and strengthen the IP regime for young female professionals, they are

- Training
- Courses
- Research
- IP education in curriculum
- Support systems

In order to engage small and medium women owned business into the IP system there should be certain reforms. The system must be easily accessible to the users with improvisation in the website enhancing easiness. The process of filings must be simplified with the mitigation of complexities, sufficient notifications, guidance and assistance must be provided.[26]

e) Analysing the potential of women

The bias which overwhelmingly persists undermining the credibility and capability of women in innovation and creativity is untrue. With all the existing challenges and hurdles the inspiring contributions made by women across the globe till date lies evident and landmark. Auxiliary inputs to this subject substantially reinvigorate the standing of women.

The preponderance of evidence reveals that women can vastly improve innovation efforts, but are often victims of indifference. The belittled approach rather than incentivisation towards women has been detrimental. As a matter of fact, throughout history, men have taken credit fordiscoveries and innovations that were actually achieved by women. Indeed, giving women a larger role in innovation

[26] Implementingsupport systems based with helplines to address user queries and grievances. These can be oneamong few practical improvements in the system which can effectively introduce and encouragemore women entrepreneurs to enter the IP regime.

would improvequality and performance.[27] Similarly, in the fields of arts and creation women are equally or rather more creative than men, it is the social difference which is responsible for gender disparity and not their abilities. Recently a study proved that female artists are more creative than men[17]. They are divergent thinkers, their treatise benefits from social interaction, they thrive in collaborative settings. Female artists are not only beyond capable, it is manifest that their potential exceeds than those of their male counterparts in multiple ways. Through the datathat supports these claims, researchers prove that bias and cultural context are serious hindrances.

8. IMPLICATION ON WORLD ECONOMY AND FUTURE OF WORLD IP

In 2015 The McKinsey Global Institute reported that $28 trillion could be added to global GDPby 2025 by advancing women's equality in the public, private and social sectors. Gender inequality is not only an acute social concern but also a perilous economic challenge. As womenaccount for half the world's working-age population and if they fail to achieve their full economic potential, the global economy will suffer.[28] It includes all the sectors and full participation of women. This also entails the crucial inclusion of IP intensive industries and the participation of women in the IP regime. As highlighted in the previous sections the implication of IP in the fourth industrial revolution is humongous and achieving gender parity can unlock new dimensions and also revive the global economy. Despite women comprising half of the world population only half of its potential is contributing to the global growth, there is nothinginfelicitous as such.

This is equivalently applicable to all the countries throughout, unleashing the potential of women which have long been belittled can boost economies. Among the poorest countries in the world for example Malawi, Uganda and Tanzania closing the gender gap only in the agricultural sector can add up to $100 million in Malawi, $68 million in Uganda and $105 million in Tanzania yearly to the national economy and lift close to a quarter of a million peopleout of poverty according to the World

[27] Greg Satel, Why We Need Women To Have Larger Role In Innovation, Inc., (Nov 17, 2018), Information available at : https://www.inc.com/greg-satell/why-we-need-women-to-have-a-larger-role-in-innovation.html.

[28] Jonathan Woetzel, Anu Madgavkar, Kweilin Elingrud, Eric Labaye, Sandrine Devillard, Eric Kutcher, James Manyika, Richard Dobbs, and Makala Krishnan, How advancing women's equality can add $12 trillion to globalgrowth, McKinsey & Company (Sept 1, 2015), Information available at : https://www.mckinsey.com/featured-insights/employment-and-growth/how-advancing-womens-equality-can-add-12-trillion-to-global-growth#.

Bank Report.[29] Now this report is particularly addressingthe gender gap in agricultural sector in one of the poorest countries defining the gravity of women's role. Comparatively it should be assessed with full participation of women in all the major sectors. Similarly, achieving gender equality in a developing country like India would have a larger economic impact there than in any other region in the world with $700 billions ofadded GDP in 2025.[30] So, it is the status quo in every region across the globe be it the Africa's,Middle East, Caribbean or Asia.

9. WOMEN IN ECONOMY IS WOMEN IN IP

Intellectual property could be called the Cinderella of the new economy. A drab but useful servant, consigned to the dusty and uneventful offices of corporate legal departments until the princes of globalization and technological innovation - revealing her true value - swept her to prominence and gave her an enticing new allure.[31]

IP is not irreconcilable with economic growth. It revolves around any trade, economic growth, industrial development. And likewise, is gender parity is for global growth.

10. CONCLUSION

Above discussion outlined the innate ingenuity of women and belittled approach in the mainstream IP regime. It's crucial that women participate in innovation and creativity in order to transform and develop the world economy. It is obvious that women have advanced through time and will need to close the gender gap based on reliable data and resources. Stereotypes, biases against particular groups of people, and other forms of discrimination must be eradicated from society. The remedies and solutions highlighted in the paper are the primary steps to address the issue with greater gravity.

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[29] The Cost of Gender Gap in Agricultural Productivity in Malawi, Tanzania and Uganda, UN Women, the United Nations Development Programme–United Nations Environment Programme Poverty-Environment Initiative (UNDP-UNEP PEI) Africa, and the World Bank. The collaboration was led by UN Women, Eastern and Southern Africa Regional Office (ESARO) (2015), http://documents1.worldbank.org/curated/en/847131467987832287/pdf/100234-WP-PUBLIC-Box393225B-The-Cost-of-the-Gender-Gap-in-Agricultural-Productivity-in-Malawi-Tanzania-and-Uganda.pdf.

[30] Jonathan Woetzel, Anu Madgavkar, Rajat Gupta, James Manyika, Kweilin Ellingrud, Shishir Gupta, and Mekala Krishnan, The power of parity: Advancing women's equality in India, McKinsey & Company (Nov 1, 2015), https://www.mckinsey.com/featured-insights/employment-and-growth/the-power-of-parity-advancing-womens-equality-in-india.

[31] Kamil Idris, Intellectual Property: a power tool for economic growth, World Intellectual Property Organization. https://www.wipo.int/edocs/pubdocs/en/intproperty/888/wipo_pub_888.pdf.

We have closely observed the potential and examples of remarkable women in entrepreneurship and the IP system. With the extensive engagement of women in all sectors of IP system will be helpful in eradicating the gender gap in the global economy. Only effective administration, policymaking, and reforms can lead to the advancement of women. In addition, it is time for women to realise their mission of removing and defeating all obstacles in their path and embracing the next revolution in the IP industry and global development.