

Sharda Law Review

ISSN: 2583-2476

A double-blind, biannual, peer-reviewed journal

VOLUME 4, ISSUE 1 (JUNE 2026)

PUBLISHED BY:

Sharda School of Law, Sharda University, Greater Noida, Uttar Pradesh

journal.law@sharda.ac.in

ISSN: 2583-2476

FOREWORD MESSAGE

Law has emerged as one of the most promising career choices in recent years. With a large number of students opting for law as their career with a defined vision, Sharda School of Law, Sharda University, is providing a great opportunity to students through its 5-year integrated UG programs, B.A. LL.B. and B.B.A. LL.B. SUSOL also offers LL.M. and Ph.D. programs that focus on quality research in the field of law.

Sharda Law Review, under the flagship of Sharda School of Law, Sharda University, is a bi-annual, peer-reviewed journal that has consistently published work on various contemporary legal issues covering both national and international domains. Sharda Law Review strives to offer a platform to academicians, practitioners, and scholars for their thoughtful contributions to academic discourse, while simultaneously building analytical and editorial skills.

Sharda Law Review offers a robust platform for scholarly engagement, with its thorough peer-review process upholding the quality and relevance of every contribution to the legal field.

The present issue comprises articles and research papers on numerous contemporary legal issues, emerging trends, and innovative legal ideas, all of which foster critical thinking and intellectual discourse in the field of law.

Prof. (Dr.) Rhishikesh Dave
Dean, Sharda School of Law
Chief-Editor, Sharda Law Review

ISSN: 2583-2476

ABOUT SHARDA LAW REVIEW

Sharda Law Review [SLR] is a double-blind biannual online peer-reviewed journal published by the Sharda School of Law, Sharda University, Greater Noida. The Journal consists of editorial advisors of the highest repute legal luminaries and dignitaries. The first edition of the journal was published in August 2021 and now this is the fourth edition of publication.

In the contemporary world of the knowledge society, understanding the legal dimensions of an individual's life constitutes the major crux and thrust of social science research. Against this backdrop, the Sharda Law Review (SLR) stands to serve as a mirror to all these conflicting currents of law and society. It publishes research writings, book reviews and case-comments in the socio-legal field that seek to explain different aspects of individual in relation to their society, polity, economy, culture, and psychological well-being.

The aim of Sharda Law Review is to avail platform to intellectuals and academicians for expression of their original ideas and creations whether in the form of Research Papers, Articles, Case Comments or Book Reviews. The journal is published twice in a year during the 6th and 12th month of every calendar year.

SUBMISSION GUIDELINES

- Submissions are accepted only in the English language.
- All articles/papers must be accompanied by an abstract not exceeding 300–500 words. Case Comments and Book Reviews do not need to be accompanied by abstracts.
- The abstract must expressly include the originality and usefulness of the idea that the author wishes to put forth and must categorically mention the specific contribution of the article beyond the existing available literature.
- Co-authorship (of up to three authors) is permitted for all articles.
- The body of the manuscript should be in Times New Roman, Font Size 12, and 1.5-line spacing.
- The paper references should be in APA format.
- There must not be footnoting, only endnote/references.
- Content taken from online sources must be referred with the title/caption of the literature along with the name/s of authors following the APA style referencing of online-data base literature.
- The first page should be of Abstract wherein below the title of the paper, author/s name should be mentioned along with their institutional affiliation.
- At the end of the Abstract, there must be keywords.

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Kindly send your manuscript in MS Word (.docx) without any formatting like bordering and page numbering etc. to the email: journal.law@sharda.ac.in. The subject of the email should be "Submission for SLR Volume No…..Issue No…". The submissions can be sent anytime as SLR accepts manuscripts on a rolling basis. Manuscripts received after the submission deadline shall be considered for publication in the next edition/issues of the journal.

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FROM THE EDITOR-IN-CHIEF



Prof. (Dr.) Rhishikesh Dave
Editor-in-Chief
Sharda Law Review

As we present another volume of our esteemed law journal, I am pleased to introduce this issue as a constellation of intellectually stimulating and thought-provoking articles that address pressing legal challenges. Sharda Law Review is a bi-annual, peer-reviewed journal committed to publishing high-quality research and analysis on contemporary legal issues. In a constantly evolving legal environment, the journal serves as a platform for academicians, practitioners, and researchers to engage in meaningful intellectual discourse and promote scholarly exchange.

This issue explores several of the most urgent legal matters of our time. It features insightful articles on topics such as personality rights, the protection of whistleblowers, gender justice, cybercrime and data privacy, and the legal dimensions of artificial intelligence, among others. Our contributors comprising esteemed academicians, legal practitioners, and research Scholars bring their expertise and fresh perspectives to these complex issues.

I extend my heartfelt gratitude to all the contributors for their thoughtful and original insights. I am equally thankful to our reviewers and editorial team, whose dedication and perseverance through the demanding editorial process have made this publication possible.

Finally, I deeply appreciate the trust and support of our readers, who continue to engage with and uphold the journal's mission. I hope you find the content in this issue informative, engaging, and intellectually enriching.

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ISSN: 2583-2476

SHARDA LAW REVIEW

[ISSN 2583-2476]

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International Perspectives on Environment Social and Governance concerning Business Sustainability

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Abstract

With increasing pressures from climate, social and ethical challenges, Environmental, Social and Governance (ESG) has become a key framework for evaluating businesses in terms of their sustainability and long-term value creation. ESG believes that ESG can be integrated into business strategy and investment decisions, which started with the 2004 UN Principles for Responsible Investment. The viewpoints differ markedly on an international level: Europe has tougher standards with regulations such as the Corporate Sustainability Reporting Directive (CSRD), the US has put greater emphasis on the materiality of financial aspects, and emerging markets are calling for a harmonious blend of growth and sustainability. The objective of disclosures harmonization using Global Standards like IFRS S1/S2 of ISSB. ESG brings benefits to risk management, stakeholder trust and innovation, and helps pave the way for sustainable business models. But there remain certain issues like lack of consistency in data, green washing and regulatory fragmentation. This analysis outlines international views on the importance of creating resilient, responsible businesses focused on ESG, and indicates how ESG can be approached through common frameworks on a global scale, contributing to the UN Sustainable Development Goals and planetary boundaries.

Keywords: ESG, Business Sustainability, International Frameworks, Corporate Responsibility, Sustainable Development, Global Regulation

1. Introduction

The core concept of this module is the sustainability of business, known as Business Sustainability, but in the context of the United Nations Sustainable Development Goals.The essence of this module is business sustainability also referred to as Corporate Responsibility in an international framework of Sustainable Development Goals and Global Regulation. This shift in corporate practice towards incorporating environmental, social and governance (ESG) principles into business operations is another paradigm shift of how companies across the world are dealing with sustainability. While ESG has a financial component to assess impacts, it also offers a structured approach to evaluate corporate impacts and risks beyond financial impacts to include other potential areas of value creation and impacts that are most reflective of long-term business resilience. Advocating for ESG since the release of the UN report "Who Cares Wins" in 2004, today in every part of the world, ESG are influencing flows of investment of more than trillions of dollars and shaping the regulatory environment across continents.

ESG focuses on climate action, resource efficiency, protecting biodiversity and control of pollution in an environmental context. In efforts to shift towards a low-carbon economy, businesses must strive to decarbonise supply chains and implement a circular economy approach, and increasingly must publish climate-related risks within the frameworks of the Task Force on Climate-related Financial Disclosures (TCFD). In Europe the European Union has established a high standard via the EU Taxonomy for Sustainable Activities and the CSRD, which requires detailed and specific reporting on the environmental impact of large companies and listed SMEs. Whereas U.S. history has been more proclivity towards

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voluntary or market-based solutions, SEC climate disclosure requirements indicate a shift towards more convergence. Asia, Africa and Latin America are countries that experience unprecedented growth rates as they become industrialized, which leads to explosive emissions, but also offers the scope for emissions to be leapt using Green Technology in significant ways. Asian economies with the highest emissions in the world adopt ESG requirements to align national development-to greenhouse gas emission reduction initiatives, including China's carbon neutrality commitments.

2. Regional Variations in ESG Implementation and Regulation

Social aspects of ESG extend beyond labour practices, human rights, diversity and inclusion, community engagement, and data privacy. Complications are increased on a global scale, as may have happened with forced labor, differing wages etc. With regards to the ESG agenda, European requirements emphasize value chain due diligence while the US sees the discussion from a shareholder return perspective with a focus on social license to operate. ESG is also related to poverty alleviation and gender equality issues and therefore to the UN Sustainable Development Goals (SDGs) in developing regions. Multinational companies need to find a way to understand and respect cultural differences; in some places in Southeast Asia there are different ideas about the level of workers' protection that constitutes a good social performance than there are in Scandinavia. Social metrics have become an increasing part of what investors are wired for: They can connect them to lower reputational risks and to higher employee retention; with a word of caution, some investors also expect companies to work toward positive social impact.

Governance is the political and financial oversight of the Board, executive levels of compensation paid to the Board, anti-corruption measures, transparency and ethical leadership of the Board and its members. An account of effective E and S performance through strong governance underpins this. There are significant differences across the world – in the Nordic countries transparency is fundamental, but in emerging markets, some fight a corruption perception that is a major investor obstacle. Sustainable Global Goals Governance Initiatives e.g., Global Compact and Principles for Responsible Investment (PRI) drive governance good practice throughout the world.

3. Key International Frameworks and Standards for ESG Reporting

There are similarities and differences from a regional viewpoint. European countries are the most stringent with their rules and the most widely promoted, above 90% of institutional investors adopting ESG. This is the double materiality approach of the CSRD and European Sustainability Reporting Standards (ESRS) that accounts for both the financial and the broader societal/environmental consequences. This is in contrast to the US where adoption is lagging (about 30-40% in some studies), where political competition plays a role and where a primary driver is the financial materiality through SASB standards (now incorporated into ISSB). The Asia

market is growing quickly as a region, with a focus on Japan and Singapore; with a combination of regulatory efforts and market-driven enticements, the implementation varies significantly across different contexts and geographies.

These gaps are made up for by international instruments. IFRS S1 and S2 are both published by the International Sustainability Standards Board (ISSB) and serve as a world-first requirement for sustainability disclosures tailored to investors' needs and interoperability with respective regional requirements. Global Reporting Initiative (GRI) provides a wide-ranging approach to providing guidance to stakeholders, while Sustainability Accounting Standards Board (SASB) provides an approach that is specific to an industry. Multinational companies also face fewer fragmentation issues as the EU's CSRD and UK Sustainability Reporting Standards continually make reference to ISSB.

ESG touches on business sustainability in a variety of ways. Many studies found that there is a positive empirical relationship between ESG performance and risk management, low capital costs, innovative development and higher long-term financial returns. Organizations that consistently outperform their ESG metrics are likely to benefit from times of crisis, whether it's a disruptions in supply or a regulatory

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change. For example, energy and utilities firms around the world exhibit how ESG indices impact valuation and can impact strategy, especially environmental factors. ESG focused talent, customers and capital will flow in as investing in "green" will become more transparent through sustainability reporting. It creates efficiencies within the business that are likely to lead to profitability, such as a saving in energy or waste.

However, there are still many issues to overcome. Low correlation scores and data quality and data comparability challenges abound throughout the field and the different methodologies used by various rating agencies. Sustainability claims that are made to the extent that they are distorted or overstated lead to a loss of trust. Harmonization lowers regulatory costs as it decreases the number of fragmented regulators. Resource limitations and other competing development opportunities in emerging markets can put ESG on the side lines, while international finance and investor requirements of standards push it along. Critics say ESG doesn't just get the way of business, or might be imposing Western values, which calls for adaptations in culturally-diverse areas.

The future course includes more harmonization through ISSB and/or some technological enablers, such as AI, to collect and ensure data. Placing ESG at the heart of the business beyond compliance is likely to put them at the forefront of the shift towards a low-carbon, equitable economy. Wherever the true impacts of ESG lie in the journey towards genuine sustainable development will rely on International cooperation, capacity building in the Global South, and measurable outcomes. With climate and social pressures growing, ESG moves beyond a "side FFT," to become a key driver of competitive advantage and planetary stewardship forcing companies all over the world to fundamentally rethink their approach to value creation in a globally connected world.

4. Impacts of ESG on Business Sustainability and Performance

Environmental, Social and Governance (ESG) integration's effects on the sustainability and productivity of business are monumental, complex and now, in global markets, clearly supported by empirical data. Incorporating ESG principles into business strategies moves beyond simple financial measurements and highlights how well any company can improve its long-term sustainability, efficiency, and value for stakeholders. More than 2,000 studies have been subjected to a number of meta-analyses, all of which have found that superior ESG returns are generally associated with positive financial returns, approximately 60-90% of this research finding a neutral to positive link with profitability, firm value and risk reduction.

ESG supports the decarbonization of policies and portfolios, optimization of their resources and management of climate risk, providing tangible environmental benefits. Companies that implement these practices and sustainable disclosures are also likely to experience reduced energy expenses, fewer regulatory fines and penalties and the ability to secure green financing. Superior environmental performance in high-emission sectors is associated with clean technologies' innovation, thus increasing the competitive advantage of firms and companies. For example, businesses with strong climate policies are more climate resilient in being able to continue with their supply chain during climate change or climate policy changes.

Social factors contribute to the improvement of qualities of human and reputation capital. Excellent labor relations, diversity, equity, and inclusion (DEI) and community relations practices strengthen attracting and retaining employees and their productivity. Work teams with high social

scores often have lower turnover costs and greater levels of innovation because they have diverse teams that minimizes the risk of losing skilled new hires. Worldwide, socially responsible brands are rewarded with premium pricing, brand loyalty, and increased markets, due to consumer desire and investor interest. Beyond reducing the reputational and legal risk arising from human rights abuses, supply chain due diligence, such as CSDDD in Europe, helps to reduce risks throughout the supply chain.

Governance continues to lie at the heart of everything that links between E/S performance and accountability. Agency costs are lowered and investor confidence is increases through good board oversight,

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clear reporting, anti-corruption approaches and transparent executive pay. Research has pointed out that the scores for governance tend to provide the strongest positive association with Return on Assets (ROA) and Return on Equity (ROE) – good governance structures can help companies make better strategic decisions, deal with crises well and so on.

In terms of numbers, ESG leaders typically have a lower cost of capital and better valuations (Tobin's Q), as well as better stock returns, especially in the renewable energy and tech industries. This is evidenced by the performance of the way panel data have been gathered in Asia and Europe in the recent past, which show that proactively investing in ESG can help moderate risk in volatile markets and support sustainable growth through innovation and stakeholder engagement. But there are context differences in impacts: benefits are larger where markets are regulated in Europe and for non-state owned firms; short term costs (compliance, reporting) can cause problems for smaller firms or emerging market players.

ESG is a change in the fundamental direction of sustainability, where it was simply a cost center becomes a value driver. It supports, facilitates and drives the integrated reporting along the UN SDG's, raise access to ESG-driven capital (trillions in AUM), and supports creation in the face of scarcity. The companies that demonstrate their excellence in ESG also leverage opportunities with the green transition and tangible benefits arise in congruence with their good social reputation and long-term financial results. These positive impacts are expected to further strengthen as data quality is further enhanced and standards harmonised through ISSB, making ESG a touchstone of competitiveness and sustainable enterprises, worldwide.

5. Concluding Remarks

Overall, global perspectives on ESG emphasize its growing importance in promoting the sustainability of companies in the face of various regulatory, cultural and economic environments. Although prescriptive double-materiality approaches take the lead in Europe with CSRD and EU Taxonomy, the United States lauds its financial materiality driven lenses and shows a noticeable wait-and-see attitude regarding ESG, and emerging markets try to strike a balance between growth, development, and investment attraction. This diversity, although difficult to handle, enhances adaptability and increasing universality of the framework, such as through the implementation of ISSB standards.

ESG has become more than just an investment investor tool—it's a strategic imperative. It is clear that it has a very positive impact on Risk Management, Innovation, Stakeholder Management and Financial Outcome. As an integral part of value creation (rather than compliance), companies become more resilient, have lower capital costs and better reputation. However, ongoing issues affect data quality, green washing potential, policy stringency, and expense in the geographies, each of which requires pragmatic ways to solve. Critics rightly point to the danger of imposition of a one size fits all Western set of standards, preaching the contextual relevance over performative reporting and identifiable results.

ESG curve heads up and down strategically shaped by the interplay of geopolitical dynamics and harmonization. AI, satellite surveillance, and blockchain are all poised to enhance transparency and assurance, minimizing reporting and maximizing data quality for AI technologies. International cooperation will be crucial to facilitate the development of capacity in the south, including equitable support for the UN Sustainable Development Goals and just transitions, in ways where ESG can make a difference. With these, there is a growing appreciation of sustainability as a competitiveness and economic viability that must be simplified, as is expected with the EU omnibus adjustments.

So the question is: Is the future of ESG a future of real impact? It's time for businesses around the world to go beyond the prescription of 'box-ticking' and embed sustainability in their corporate DNA to align their incentives, culture and allocation of capital with planetary boundaries and

social equity. Investors, regulators, civil society all have a role to play in improving metrics, fighting misinformation and encouraging innovation. Multinational businesses can seize opportunities to drive the low-carbon economy, inclusive growth

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strategies and ethical governance through this intricate terrain.

ESG is not only about reporting, it's a re-imagining of what it means to be a business in the 21st century. In an increasingly challenging climate, changing societal expectations and both domestic and global governance pressures are increasing, and international best practices and local adaptation will become more successful. The course of the journey surely calls for a well nuanced ambition challenging yet pliable criteria and norms, competing but cooperative interactions, and a shared drive for open and responsible governance. Overall, by recognizing current gaps and leveraging trends, ESG can realize its potential as a catalyst to enable resilient, responsible and regenerative business models that are beneficial to shareholders and society, more broadly. Progress made by the international community in this area will have a profound impact on sustainable development for decades to come.

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Artificial Intelligence in Forensic Science: Pathways towards Speedy Justice

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Abstract

AI applications offer the promise of faster, more precise evidence analysis, enhanced accuracy, and faster investigations, making strides towards timely justice in forensic science. AI is complementing or replacing traditional forensic techniques, including DNA profiling, fingerprint and facial recognition, digital forensics, ballistics, and crime scene reconstruction, which are sometimes time-consuming and prone to human errors. Machine learning algorithms can analyze terabytes of data in minutes, recognize trends that would be unnoticeable to any human and forecast future outcomes with high accuracy. The shift has a tremendous potential to lower case backlogs, prevent wrongful convictions, and improve conviction rates in criminal justice systems around the world. Issues such as data bias, data privacy, ethical issues, and legal admissibility issues still pose great challenges. This paper delves into the role of AI in forensic science, its effect on the timely administration of justice and the equilibrium path forward that must be followed to truly benefit from the technology's potential in a responsible manner.

Keywords: Artificial Intelligence, Forensic Science, Speedy Justice, Machine Learning, Digital Forensics, Criminal Investigation

1. Introduction

The application of artificial intelligence in forensic science is a revolution in contemporary criminal justice and introduces new possibilities of eliminating delays in the investigations. Manually examining samples for the purposes of determining facts during legal investigations is time consuming, subjective and labor intensive, and has historically been the default choice by forensic scientists. There are numerous instances of backlog during DNA analysis, fingerprint matching and digital evidence processing which makes trial or trials prolong, undertrials detained

for extended period and victims deprived of justice. However, AI technologies are now starting to make the transformation to being great enablers that offer speed, accuracy, and scalability, helping to slash investigation time and keep or improve reliability.

AI incorporates into forensic science in a variety of areas. Machine learning algorithms are also used in DNA forensics to quickly process complex DNA sequences to enable matching to vast databases, including the prediction of physical characteristics such as facial elements, eye color and ancestry from bloodstains and such. In the context of automated fingerprint identification systems (AFIS), deep learning models have shown great potential in terms of fingerprint matching accuracy; they process a large number of prints in few seconds unlike traditional methods. Convolutional neural networks drive the facial recognition technology to help identify suspects with poor quality CCTV footage or help to reconstruct a face from skeletal remains. AI tools are highly effective in digital forensics applications because they can process the vast amounts of information that can be stored on a smartphone, computer and cloud storage and uncover patterns and detect disappearance of files, as well as trace cybercrimes in an impressive way.

Similarly, ballistics and toolmark analysis has improved greatly. Compared to human image recognition, AI can

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accurately and reliably match striations on bullets and cartridge cases at a much smaller level. By leveraging 3D scanning and AI, other crime scene reconstruction capabilities such as virtual walk-through, bloodstain analysis, and trajectory modeling can be accomplished in a fraction of the time. Predictive analytics also aids in investigative approaches by forecasting crime patterns, optimizing investigative resources, and ranking leads based on historical data. AI aids in identifying substances using spectroscopy data in toxicology and drug analysis. These developments all help to ensure "speedy justice" that reduces the "from crime to court" timeline.

2. AI Technologies and Their Forensic Applications

The effects on the justice delivery are large. In many, if not most, judicial systems, especially in a populous nation such as India, a large number of pending cases cause a delay in the forensic process. In the DNA processing, weeks of manual work could be replaced by hours of automatic work done by AI. Weeks of DNA processing work could be replaced by hours of automated work

done by AI, which will allow forensic experts to invest their time in complex cases. AI-powered forensics has been shown to help achieve a higher level of accuracy in certain applications that varies over 95%. Research says that AI forensics can reduce the chances of human error or wrong conviction with over 95% in some cases. Improved forensic reporting helps to expedite the filing of charge sheets, grant of bail and trials, among others, in line with the constitutional goals for availing speedy justice. Furthermore, AI can review past evidence through new algorithms and solve cases, providing closure for families of cold case victims.

While this is the case, there are some obstacles that need to be overcome to fully realize the potential benefits of AI. Bias and data quality are important issues: AI models that have been trained on biased datasets can result in discriminatory predictions or facial recognition in the name of predictive policing. To make certain that evidence generated by AI is admissible in court, it is necessary to ensure it is reliable, transparent, and explainable—also known as "XAI" (Explainable AI). For any business dealing with sensitive biometric or personal data, privacy and data protection concerns are paramount, and this requires strong cybersecurity measures and adherence to regulations such as GDPR or data protection laws in the respective country. Likewise, smaller labs struggle with high implementation expenses, and a limited supply of skilled workforce with both forensics and AI expertise.

3. Enhancing Efficiency and Accuracy for Speedy Justice

Ethical issues are the most important. There is the risk of over-reliance on AI, potentially reducing the need for human judgement and accountability. All of these issues of algorithmic transparency and the capacity to create deepfakes for tampering with evidence, as well as the question of whether certain models are "black boxes," are ones that must be examined carefully. There is a need for the evolution of the regulatory frameworks which provide standards for validation and certification of the forensic AI tools, as well as covering audits. Collaboration between countries is an absolute necessity for establishing common standards, such as those in the proposals made by the INTERPOL and/or the European Network of Forensic Science Institutes.

The future direction of adoption trajectories includes smart investments in research and research and development, public-private partnerships, and capacity building. The combination of human

and AI is the best approach as it is a hybrid. Connecting to the blockchain can provide evidence chain of custody and proof of tamper. For smaller agencies, cloud-based, online forensic platforms can make it available to everyone. Improvements in generative AI, quantum computing for complicated simulations, and multi-modal AI (with image, biometric and text data) will continue to drive progress.

It is essential that policy shifts need to be focused on governments and judicial entities recognizing AI forensic reports as legal evidence and provide strict validation procedures. Educating judges, lawyers and investigators on the benefits, limitations and power of AI is essential to its productive use. Small-scale

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experiments in areas of high crime volume can prove value and help to generate confidence. In the end, AI's role in forensic science goes beyond mere replacement of human resolution and judgment, serving instead as an invaluable supplement on the road to truth and justice.

Intelligent use of such technologies could transform criminal justice processes all over the world from inefficient, slow and overloaded processes to evidence-based, efficient ones. It's in this combination of efficiency and fairness, transparency, and human rights that the promise of speedy justice is possible. As AI progresses, its responsible incorporation into forensic sciences will significantly influence the development of justice delivery systems around the world, adding a new layer of efficacy, responsiveness, and equity.

4. Challenges, Ethical Issues and Regulatory Frameworks

However, the implementation of AI in forensics is not without its challenges, ethical considerations, and regulatory hurdles, all of which must be navigated to guarantee its ethical and responsible use in aiding criminal investigations and achieving timely justice. The quality and representativeness of the training sets are among the main technical issues. There are also instances where AI systems are known to have biases that are found in the training data used, resulting in increased levels of error for people of certain ethnicities in facial recognition, or inaccuracies in DNA phenotyping predictions. This may also lead to discriminatory effects, false arrests or misidentification and thus erode trust in the Justice system. Further, numerous AI tools operate as a "black box," meaning that the output won't show "how it came to that," which is crucial for

judicial admissibility in many forum states including the US under Daubert and elsewhere and will help avoid being ruled inadmissible.

Smart phones, internet of things (IoT) devices, and cloud storage are producing increasingly large amounts of data giving digital forensics new challenges. In addition to helping businesses analyse the data faster, AI increases the difficulty of ensuring data integrity, maintaining a credible chain of custody. Other risks include cyber vulnerabilities, as attackers might be able to tweak inputs to AI systems and even introduce "deep fake" evidence to either a high-stakes case or into everyday disputes. The issue is further compounded by the need for resources, with many forensic labs, especially those in developing countries, lacking the facilities, funding, and expertise to deploy and operate cutting-edge AI tools.

Ethical issues are also of a paramount importance. The implications of the use of biometric data are both significant and far-reaching in terms of privacy concerns, given the possibility of mass surveillance that may intrude on the privacy of individuals and have the potential to overstep their use for police investigation. Where things go wrong is when AI-provided evidence helps in wrongful convictions, who-then-is-responsible discussions come up—developer, forensic expert or the police? While AI can be a valuable ally to forensic experts, its overuse could strip away the skill of interpretation from human practitioners, and remove the human element to the heart of justice. The risks of "automation bias" – where judges and investigators are tempted to rely on the outputs of AI without adequate information analysis – are merited.

The regulatory framework is still sub-optimal, and does not keep up with advancements in technology. There is almost no specific legislation in place in few countries to regulate the validation, certification and the use of AI forensic tools in courtrooms. Some forensic uses are considered high-risk and are covered by strict transparency and conformity assessment requirements as set out by the European Union's AI Act. In comparison, many jurisdictions have outdated evidence laws, or voluntary guidance. Useful guides are International standards (such as of INTERPOL and ENFSI) which are not binding.

Solutions to these problems can be achieved via thorough planning and development of regulatory frameworks within the project. They should contain necessary validation processes, explainable

AI requirements, periodic bias audits and so on and other independent oversight systems. Good clarity needs to be in place with regards to data governance, consents and retention periods. Implementation may be aided by capacity-building programs and through public/private partnerships with the aim of

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maintaining ethical standards. Because the goal of AI-driven fast justice cannot be realized in the absence of solid governance, it could lead to new kinds of injustice and undermine the effectiveness and credibility of forensic evidence in the judiciary.

5. Conclusion, Future Prospects and Strategic Pathways Forward

Artificial Intelligence is a revolutionizing tool in forensic investigations that can help expedite investigations, improve accuracy, and provide swift justice. AI can tackle many aspects of potential delay in the criminal justice system, such as processing huge sets of evidence quickly, spotting patterns that might otherwise go unnoticed and automatically handling tedious tasks. But, leveraging this potential calls for great care and consideration in both technical, ethical and regulatory issues.

AI has a bright future into the forensics. Further growth will come from advances in explainable AI (XAI), multi-modal learning and quantum-enhanced computing, that will even raise the reliability and speed of the AI. The potential of generative AI to transform crime scene reconstruction and event simulation, or using real-time AI to analyze CCTV footage, drone videos and sensor data to enable quicker crime responses, has never been more exciting. Capable of integration with blockchain technology, providing tamper-proof evidence management and reinforcing evidence chain. Predictive Forensics using big data analytics could change the paradigm in law enforcement and move from a reactive to proactive approach, thus preventing crimes before they can even happen.

The worlds of chemical detection, voice biometrics and behavioral analysis, for example, are drawing into the realm of emerging applications for AI-powered sensors, which will add to the forensic toolbox. When 5G/6G network and edge computing continue to evolve, on-site rapid analysis will be possible in a much shorter time frame and turnaround time will be cut from weeks to minutes. Businesses will rely on AI to develop innovative e-commerce products, including the ability to analyze customer data and predict future product needs.AI's integration with other technologies, such as CRISPR-based advanced DNA tools and augmented reality presentations in courtrooms, will result in more credible and convincing presentation of evidence based on AI.

Balanced and human-centred implementation of strategic pathways forward should be considered. Governments and Judiciary bodies need to dedicate resources to roll-out national AI forensic strategies that emphasise the investment process in infrastructure development, uniformisation of validation techniques and extensive training for forensic scientists, lawyers, and judges. On a technological level, it is important to create AI Forensic Centers of Excellence and cooperation and exchange with the international community on platforms such as INTERPOL for the harmonization of standards and the sharing of good practice.

The principle should be a hybrid model – AI efficiency and human focus and judgment. Judge- made rules for admissibility must be transparent, testable (quantifiable) and provide disclosure of the errors rates of AI technologies used. Ethical considerations should be integrated as concepts into ethical frameworks, such as principles of fairness, accountability, transparency and privacy by design. It is essential to carry out public engagement and awareness-raising activities to inspire trust in AI-assisted justice in society.

The technological transfer to developing countries also should be supported to curb a divide in access to justice delivery in the world, which would address issues of equity in policymaking. High volume crime areas can benefit from pilot programs to generate empirical evidence of effectiveness, while making incremental improvements. Successful results can only be achieved by on-going financing, research and development and legislators who are flexible enough to adjust as technology advances.

AI in forensics should be a tool used to promote justice and truth—trust not a means to abandon it. If properly applied, can effectively mitigate case backlog, limit errors, safeguard the innocent and present a timely closure to the impact. The path towards faster justice is going to be through "responsible innovation", using the abilities of AI and protecting essential rights and the integrity of the justice system. The next ten

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years will see whether this technological revolution is the catalyst for alternative ways of producing a more effective, faster and just global criminal justice system.

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ISSN: 2583-2476

Exploring Wearable Healthcare and Global Legal Provisions in Digital Nexa

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Abstract

The steady improvement of industry technology and electronics has changes the way people in the world are treated. The healthcare sector is being significantly changed by wearable health care technology, which keeps patients in constant checkup, preventive healthcare care and customized medicine. Wearables are generating huge amounts of real-time health information all the way from smartwatches and fitbits to high tech biosensors and implantable health gadgets. These technologies present significant potential to positively impact patients and reduce costs to the healthcare system, but also introduce complex legal, ethical and regulatory issues. The aim of this paper is to discuss the development, usage and effects of healthcare wearable devices in the digital sphere. Discusses, in critical fashion, the existing global legal and regulatory landscape related to data security/privacy, medical device regulation and clearance, and cross-border data flows. Special focus on key regulations include GDPR (EU), HIPAA (USA), DPDPA (India) and new laws in Asia and Africa. The study identifies several current legal issues regarding the ownership of data, consent, data liability, and ethics related to the use of health data. Lastly it recommends harmonised global standards in the rapidly-changing landscape of wearables in healthcare, between innovation and consumer safety.

Keywords: Wearable Healthcare, Digital Health, Data Privacy, Medical Device Regulation, Global Legal Frameworks

1. Introduction

Wearable healthcare technologies are changing the way health care is monitored, by allowing the continuous recording of various physiological parameters in real time, regardless of the clinical setting. These devices are designed to be compatible with a range of technologies that make up the digital world, including IoT, mobile applications and cloud systems, designed to facilitate a healthy

mobile lifestyle; remote patient monitoring, management of chronic diseases and preventive care. On the health side, they can gather biometric data ranging from heart rate to glucose levels, activity, and much more; from smartwatches and patches to specific wearables for the elderly or those to warn of a possible seizure attack.

Legal frameworks are at the forefront of speedy uptake at global level. Under the GDPR (EU version), health and biometric data classification in the EU as sensitive brings with it explicit consent and strong protections and data minimization requirements. In the United States, the good old HIPAA only relates significantly to covered entities and business associates working with protected health information (PHI); a lot of consumer wearables are targeted to federal and state privacy firms, therefore security and information exchange in data sales are concerns. The models are adopted in other areas, focusing on interoperability standards, cybersecurity and the ethical use of AI. The discussions around these highlight the importance of the need for compliance-by-design and strike a balance between innovation and not compromising on privacy, equity, and patient trust, which helps to facilitate the deployment of digital health which is scalable and responsible around the world.

2. Technological Foundations and Key Innovations

Miniaturization, flexible electronics, biosensors and connectivity are the key technologies of wearable

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healthcare. From simple fitness tracking tools to advanced multimodal platforms, innovations have advanced and adapted from using biophysical and biochemical signals to track them in real-time. The use of advanced materials such as stretchable polymers, hydrogels and nanocomposites that are biocompatible, comfortable, and durable to body movements are enabling factors. Seamless data flow for actionable insights with integration, low-power processors, and combination of cloud / edge Intelligence.

New innovations highlight the importance of being non-invasive and wearable for extended periods of time with a predictive element. Sweat-based sensing, ECG, and SpO2 are now amongst the multi-analyte capabilities of devices and hybrid implants and wearables are coming together. Power and accuracy problems are solved with energy harvesting, battery-free designs and AI technology-based processing. As a result, they enable enterprise-grade telehealth, senior care, and

clinical workflow solutions in Digital Nexa environments to help shift the healthcare paradigm from reactive to proactive. The innovations that are still in the future are bioresorbabelectronics and closed-loop systems, for automated interventions, that significantly decrease hospital visits, increase the chances of success in return to wellness, and enable customized wellness experiences worldwide.

2.1. Sensor Technologies and Biometric Monitoring

Are Sensor technologies the pillar of wearable healthcare devices with regard to continuous and accurate biometric monitoring? Sensors used in modern devices include electrochemical, optical, mechanical and impedance sensors of various types, which have been used for monitoring vital signs, including heart rate, blood pressure, blood glucose, oxygen saturation, temperature, respiration and activity. flexible and epidermal sensors (such as patches and arrays of microneedles) fit against skin for non-invasive analysis of sweat or interstitial fluids; sensors measure biomarkers such as cortisol, lactate and electrolytes.

Improvements in the technologies of nanomaterials and microfabrication improve sensitivity, specificity, and stability and reduce the motion artefact. Variants include those that can be implanted or ingestion that provide more accurate and deeper data in relation to chronic conditions. Good biocompatibility means that it is used for a long period of time without irritating. In actual use, they are used to run applications ranging from diabetes management – such as a Dexcom or FreeStyle Libre sensor for managing diabetes – to cardiac monitoring and post-surgical recovery. Calculation, energy consumption, and data noise are the challenges, which can be solved by hybrid multimodal sensing. These technologies are aimed at allowing preventive and personalized care, based on converting raw physiological information into real-time health intelligence.

2.2. AI and Machine Learning in Wearable Analytics

The data that can be derived from so many raw data points from AI and machine learning is changing the game in wearable analytics. Multimodal signals will be handled by algorithms to detect and recognize patterns, to detect anomalies in the signal, to create predictive models (glucose fluctuation, arrhythmia detection, predicting seizures, identification of early disease

markers with high accuracy etc). They have capabilities such as deep learning that decimate noise and variability as a result of motion or environment and capabilities at the edge that allow real- time, on-device processing for privacy and low latency.

Personalized models can customize their approach to each of their bases, enabling proactive actions like alerts for stress, falls, or deteriorations. AI is coupled to Cloud solutions for population- level analysis & clinical decision support – as in platforms such as Digital Nexa. Challenges are interpretability, preventing bias and regulatory approval for medical applications. Next steps consist of federated learning to address privacy concerns for training and hybrid bio-inspired systems. In the era of the connected and intelligent wearable, artificial intelligence transforms them into tools that go beyond mere tracking to fostering better health outcomes and management of chronic conditions.

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2.3. Data Transmission, Interoperability, and Edge Computing

The ability to send and receive data reliably and in real time, and the ability to process data on the edge of the network is key to getting wearable healthcare to scale. They communicate securely and at low power to smartphones, gateways, or clouds either via Bluetooth Low Energy (BLE), Wi-Fi or cellular networks.

Edge computing allows for processing data in real-time at the device level on wearables or devices close to the wearer, which can lower latency, bandwidth use and privacy threats as a result of non- transmission of raw data. It can help with real-time analytics and send alerts instantly and handle heavy workloads offloading them to the cloud. Data security issues in transit are mitigated by such security features as encryption and blockchain: With Digital Nexa solutions, these features provide users with solutions that enable reliable remote monitoring operations complying with all applicable HIPAA/GDPR requirements. Standardization gaps and limitation in energy resources are some of the challenges inspiring innovations in battery-free systems and systems based on 5/6G. They form strong ties with each other, enabling the formation of powerful, integrated digital health systems for ongoing support.

3. Global Legal and Regulatory Frameworks

Wearable health devices in Digital Nexa will be intertwined with global laws, regulations, and standards concerning medical devices, data protection, and consumer protection. In the European Union, the Medical Device Regulation (MDR 2017/745) classifies wearables according to risks and their purpose, whereas the GDPR has specific requirements regarding privacy of biometric data and special categories of data which include health data, and which need explicit consent, data minimization and robust security. The following AI Act additionally controls high-risk AI applications on wearables.

The FDA regulates devices that make medical claims in the United States, and classify products, issue a 510(k) clearance, or rely on enforcement discretion for low-risk wellness devices; and HIPAA applies primarily to covered entities with Protected Health Information (PHI). Consumer wearables are typically regulated by the FTC, state privacy laws (such as the CCPA/CPRA), and governed by federal and state data/privacy laws. Other jurisdictions, like the NMPA and PIPL in China, Health Canada in Canada and emerging safety regulatory regimes in Asia-Pacific, are focused on similar risk-based considerations and data localization. Working on harmonisation at international level is part of the IMDRF's aims to decrease fragmentation. Compliance-by-design whether it is cybersecurity, Interoperability (standards adherence including FHIR), or ethical AI is the key enabler to allow Digital Nexa platforms to be deployed on a global scale while simultaneously promoting innovation and protecting patient rights and the general public health.

4. Critical Challenges in Legal Provisions

A key issue with legal frameworks for wearable healthcare devices lies in the speed at which technology is developing, ahead of regulatory change. Ambiguities in classification between jurisdictions created by devices addressing the intersection between wellness, monitoring and diagnosis. Today, there are concerns about privacy laws which are currently inadequately prepared for the continuous collection of biometric data; their use for secondary purposes and the complexity in de-identifying them. The enforcement process is incomplete because of limited resources and multi-border operations within Digital Nexa ecosystems.

Issues involve compliance challenges due to non-uniform international standards, potential drawbacks of data security and confidentiality in cyber communications, and tensions over responsibilities for AI-generated results. An increasing number of consumer wearables are not subject to rigorous medical device evaluation, thus influencing the safety and efficacy concerns regarding their application in making clinical decisions. The lack of equity is a contributing factor to the lack of access, and ethical concerns about informed consent and data monetization continue. This demands adaptive and risk-based regulations, and greater cooperation between global stakeholders, improved guidance for software as a medical device (SaMD) and increased cooperation between the public and private sectors to ensure the effective protection of public health while allowing for innovation.

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4.1. Data Ownership, Consent, and Privacy Concerns

The main challenges in the field of wearable healthcare is data ownership, data consent and privacy concerns. In many cases, users believe they own their data, but service providers like device manufacturers do not inform users that the service provider has such ownership, thus allowing the aggregation, anonymization and commercialization of biometric data. Thus there are conflicting interpretations regarding control and repayment.

Consent mechanisms are often hard to understand, complex, fatiguing, or bundled into a long privacy policy, which makes it hard to achieve true informed and granular consent, particularly for ongoing multimodal data flows. GDPR mandates consent of healthcare provider, and HIPAA is only applicable to direct-to-consumer devices. The threats to privacy are risks associated with data breach, exposure to 3rd parties (insurers, advertisers) and re-identification based on rich data sets. These concerns pose a threat to adoption and trust in Digital Nexa ecosystems. Solutions include robust data ownership models that favor the users, dynamic consent tools, privacy-by-design architectures, transparent data flows, and user-centric rights (right to access/right to delete/right to be forgotten/right to portability) are important to consider in facilitating user empowerment while supporting responsible innovation.

4.2. Cross-Border Data Flow and Jurisdictional Issues

Differences between datasets result in major international conflicts through privacy regimes in new wearable health-based information technologies. Collecting of information in one nation can lead to transfer of the same data in another nation that has a less secure system of protection, making compliance difficult under GDPR's set of 'adequacy' decisions, Standard Contractual Clauses (SCCs), or Transfer Impact Assessments. Other restrictions come from China's PIPL and data localization regulations, among others.

The fragmentation increases the expenses in Digital Nexa global platforms, slows the insights for research or remote monitoring and carries a non-compliance risk. The localization requirements for health data are linked to concerns about data sovereignty, which can impact telemedicine and global cooperation. Conflicting obligations (such as U.S. discovery requests are in conflict with GDPR blocking laws and statutes) and enforcement deficits are challenges. Strategies to mitigate include strong contractual protection, encryption, federated learning, edge computing to reduce transmission, and promoting uniform standards. To harness the global potential of wearable technologies, future frameworks should enable secure and lawful flows respect international priorities.

4.3. Ethical Dilemmas and Digital Divide

The ethical challenges that arise with wearable health care devices include autonomy, beneficence, justice, and non-maleficence. However, if privacy is not respected, continuous monitoring can lead to new issues of confidentiality, carrying psychological effects such as anxiety due to health- related data or less human interaction in caregiving. AI analytics that rely on algorithms might result in the outcomes being skewed towards marginalised groups, in which case they may be misinformed predictions.

Inequities are reinforced by the digital divide: geographic, age, racial, and socioeconomic disparities to devices and high-quality Internet connections, and lack of digital literacy, can deepen health disparities. Low-income, rural, and vulnerable groups (such as elderly) may not be able to access services such as remote monitoring. The adoption of inclusive design, equitable access

programs, transparent algorithms, participatory governance are all aspects of ethical deployment in Digital Nexa initiatives. Solving these issues demands innovation and equity: making wearables more useful than demeaning human dignity and global healthcare equity.

4.4. Regulatory Gaps and Enforcement Challenges

Weaker regulation and enforcement pose challenges to safe and effective use of wearable health care. The pace of innovation in areas such as AI, implantables and multimodal sensors is faster than the speed of regulatory guidance, MDRs and other frameworks are

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adapted; this lack of alignment creates classification uncertainties, lack of clinical validation and questions around post- marketing surveillance. There is minimal regulation on the operation of consumer devices which perform in gray areas even though health related.

The lack of resources, the technical difficulty of the regulators, supply chains and challenges regarding the tracking of data practices hamper enforcement. Responding in time to cybersecurity incidents and data misuse is often difficult. Also in Digital Nexa contexts, there are risks with a lack of interoperability standard and the absence of liability about AI decisions.

5. Conclusion and Future Scope

The wearable medical technology (WHT) in Digital Nexa frameworks unlocks unprecedented possibilities for personalized, proactive, and accessible healthcare, impacting chronic condition management, preventive patient health, and patient monitoring in a global manner. But leveraging this potential requires balancing technological innovation with strong privacy, equity and security legal, ethical, and regulatory measures.

Moving forward, the goal is to further develop interoperable, AI-powered ecosystems powered by bioresorbable implantables and smart patches, helped by evolving regulations, like the EU AI Act and revised FDA pathways. Empowering user-centric data governance, international standards and inclusive design will help mitigate the digital divide. In new initiatives involving federated learning to gain privacy-preserving analytics, blockchain for secure sharing, or closed-loop systems that integrate the entire lifecycle, there is a promise for higher autonomy and results.

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ISSN: 2583-2476

Global Concerns on Climate Justice Fostering SDG 13

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Abstract

Climate justice acknowledges the moral aspects of climate change and places special emphasis on who is affected the least by the emission of GHGs suffers the most effects from the climate change. SDG 13 (Climate Action) will only be achieved by taking urgent action to fight climate change and its effects, including 'mitigation', adaptation' and support for the most vulnerable countries. A rise in sea levels, extreme weather and biodiversity loss will create a threat to existence for the Least Developed Countries (LDCs), Small Island Developing States (SIDS) and the marginalized community while the developed countries have cultural and historical responsibility. With progress made to climate and disaster finance, the Loss and Damage Fund and NDCs, yet, there is still significant lack of finance, technology transfer, and ambition. This analysis explores how to build into the implementation of SDG 13, to enhance the promotion of equitable transition, reparative mechanisms and inclusive governance to achieve a sustainable and fair future based on human rights and planetary limits.

Keywords: Climate Justice, SDG 13, Climate Action, Loss and Damage, Equity, Vulnerable Nations

1. Introduction

Climate justice has become one of the key global issues that have been brought up in the context of Sustainable Development Goal 13 (SDG 13) which calls for urgent action to fight climate change and its effects. Climate justice acknowledges that the least developed, least responsible and predominantly low-income people, the indigenous people, women, youth and future generations, bear the greatest impact of climate change, whereas high emitting states, in particular the industrialized ones, should be held accountable for their actions. The concept reflects the

commitments of historical responsibility, intergenerational equity and human rights, and makes climate change not only an environmental but a moral and equity issue as well. SDG 13 includes increasing the resilience of the physical environment to climate hazards, making climate actions a priority in policies, scaling up education and capacity development, providing new and additional financing for climate action, particularly for LDCs and SIDS.

Many of the inequities of today can be traced back to industrialization. The regions with large portions of climate vulnerability are impacted by more severe climate change impacts, and the developed countries have the most cumulative emissions from the Industrial Revolution. Sea-level rise is a threat to the existence of Small Island Developing States and exacerbated dry conditions for sub-Saharan Africa and heatwave events for South Asia negatively affect food security, health and livelihoods. Half the world's population are now in the climate "danger zone" and some say those in danger zone locations are at up to 15 times greater risk of death due to climate impacts. Losses associated with natural disasters have dramatically increased - leading to crises of millions becoming impoverished and internal migration of more than 200 million is anticipated by 2050.

2. Conceptual Foundations of Climate Justice and SDG 13

International express has tried to tackle these inequalities. The Paris Agreement put in place the framework for NDCs, and at COP 27, the Warsaw International Mechanism and the Loss and Damage

ISSN: 2583-2476

Fund are adding further progress steps to recognizing irrepairable damages resulting from climate change outside the scope of mitigation and adaptation. The fund is designed to provide financial assistance for losses due to climate change, but the effectiveness in operationalizing this is lagging and funding is under-provision and less than needed. Issues of the lack of easily accessible finance for adaptation, and the need to double the amount of funding—currently the global annual level of financial flows is nowhere near sufficient to meet the $100 billion per year target (double money promised, but not matched or exceeded in disbursement, additionality).

The dialogue and intersection of climate justice with other SDGs is strong. It strengthens SDG 1 (No Poverty), SDG 2 (Zero Hunger), SDG 5 (Gender Equality) and SDG 10 (Reduced Inequalities): helps address overall inequalities and heightened vulnerability of women and marginalised groups as a result of limited social roles and resources. The four Rs of feminist

climate justice approaches are justice, recognition, redistribution and reparation. Education and awareness (Target 13.3) are increasingly important for strengthening local and indigenous knowledge systems and progress in global SDG 13 is still weak with emissions remain rising, and adaptation investments remaining sorely lacking in the most vulnerable countries.

3. Historical Responsibility, Equity, and Global Disparities

The ambition gap in NDCs, not enough technology transfer and resistance in high emitting countries are significant issues on the global agenda. With voluntary governance under the Paris Agreement, there is tension between the need for action and national sovereignty, as powerful actors can delay action as long as they want to. Responsibility issues arise in developing countries as priorities of immediate needs for development (poverty alleviation and infrastructure) emerges in front of climate action — does it make sense to spend limited resources on mitigation at the expense of immediate development needs? This is often reflected in requests for responsibility and support mechanisms that either funds are given to sustain lives instead of loans or that loans are not required so that it doesn't result in them being stuck in a debt trap.

Loss and damage exemplifies the injustice gap. Irreversible harms are exemplified in events such as in Pakistan, where floods have decimated the country, and the islands in the Pacific that have been filled by the ocean, and the droughts in Africa. The amount of funding and speed of disbursement are still inadequate despite the decisions taken by COP. With two massive issues that continue to plague the world – the reliance on fossil fuels, and the high consumption levels of the rich world – justice is still far away, critics say. Climate lawsuits are growing - taking human rights claims as leverage to demand more action and youth and indigenous groups seek change at a systemic level.

4. Key International Mechanisms and Policy Responses

Trusted and cooperative relationships between people and communities are key to achieving ambition for SDG13 so fostering climate justice is a precursor to such action. Green jobs can be an outcome of equitable transitional approaches; resilience can be strengthened by adaptation at the local level (CLD); nature-based solutions to safeguard biodiversity can also be integrated into

equitable transition strategies. Effective and legitimate policies are enabled by inclusive governance, which focuses on the voices of the global south, women and indigenous voices. The technological innovations, open sharing of data and LDCs with capacity-building are important enablers.

Challenges prevail: data are inconsistent, greenwashing, geopolitical issues, and short-term economic benefits are obstacles. The transition towards the 1.5°C pathway needs to be accelerated this decade, but current pathways have the potential to overheat the climate and with negative consequences on vulnerable people. In fact, financing continues to be a sticking point, at NCQG with new quantified targets on climate financing still being discussed.

The ways to go make for larger scale cooperation on the global stage. This encompasses delivery of finance commitments via innovative instruments (such as

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international transport carbon taxes, debt-for-green swaps), and speeding up climate transition through renewable energy deployment, as well as ensuring justice in all climate policies. These synergies can be realized across SDGs and should be tackled in a comprehensive manner, rooted in frameworks such as the UNFCCC. Climate justice is by no means a side issue, but an integral element of SDG 13. The global community can, and should, make use of climate action as a means to a more equitable and stronger world that leaves nobody behind—by directly countering inequity. This will need political commitment, unity, and a new global economic system focused on planetary health and the dignity of human beings.

5. Impacts on Vulnerable Communities and Developing Nations

Those living in vulnerable communities and developing countries are at greatest risk from climate change, which is an example of injustice, and is directly affecting SDG13 and all of sustainable development. LDCs, SIDS and low coastal areas, although responsible for less than 10% of the cumulative emissions, are the ones most affected by these effects which will be the most sensitive and immediate impacts. Climate hazards cost these countries significant human and economic loss as they are not prepared for the impacts of climate hazards due to a lack of financial, technological and institutional resources.

In countries like the Maldives, Tuvalu and Kiribati, sea level rise poses a grave danger to the nations and means that relocation, in some cases, and cultural erasure in others will have to be considered. Increasing climate change phenomena such as extreme cyclone, rainfall, drought and heat wave have grown in frequency and severity. The critical situation experienced in Pakistan in 2022 due to natural weathering of floods has had a devastating impact on more than 33 million people, inflicted billions of dollars worth of damages to the infrastructure, and pushed millions back into poverty. Africa's sub-Saharan region has seen a host of severe droughts, leading many to claim that a new trend is emerging with tens of millions of people becoming food insecure, and conflicts over dwindling resources rising. The people most affected are the smallholder farmers, indigenous people, women and children. Lack of access to credit facilities, land, and involvement in decision making processes puts women at greater risk, as they are a major part of agricultural workforce in developing regions.

Consequences for health are just as terrible. Disaster effects such as vector-borne diseases (e.g. Malaria, Dengue) extend their reach and excess deaths due to hot temperatures is thousands annually. Wildfires in urban areas and climate impacts of air pollution adds to respiratory conditions. In developing countries, the economic impact of climate disasters can be 10 percentage points or more of GDP, meaning resources are channeled to make up for economic losses instead of spending them on education, healthcare and infrastructure. Without action, the World Bank thinks climate change will add another 100 million people to the extreme poverty list by 2030. Climate migration is also increasing both within and across countries, reaching more than 200 million climate migrants by 2050, and causing a potential stress on urban and social systems.

Even starting in developing countries, systemic barriers exist to the effectiveness of response. Low fiscal space for adaptation investments due to debt pressures and high economic fragility as a result of depending on climate-sensitive sectors such as agriculture and tourism. Loss and Damage— impacts which are not reversible, like loss of biodiversity, coral reefs bleaching, permanent loss of lands, etc.—are beyond the capacity of adaptation, but lack of international support. The fund for Loss and Damage has been launched but disbursements have been delayed; and in some estimates, funding pledges are far less than the annual needs are projected to be more than $400 billion.

This impacts lead to inequalities that can be sustained. There are groups within a country who are knowledge holders but may not be included in a country's policy processes such as indigenous people, people in informal settlements and ethnic minorities. This is a justice deficit as the people of the Global North, who are historical emitters, still make a profit from the past industrialisation while the people of the Global South end up having a lot of very small bills to pay. This

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would involve taking these differential vulnerabilities into account as well as scaling up grant-based financing, technology transfer and capacity development in today's context of promoting climate justice under SDG 13. In the absence of sensitive consideration of these facts, SDG 13 could just be lip service. If these facts are not taken into account, SDG 13 fails to close the gap between the rich and the poor countries, but rather adds to the gap.

6. Conclusion and Pathways Forward for Climate Justice

Climate justice is not only a moral imperative but it is also a vital requirement to take SDG 13 to success. The global concerns are expose a profound elements that shows historical emissions, inequities in adaptative capacities and in the international solidarity. The Paris Agreement, Loss and Damage mechanisms and the increasing ambition of the NDCs are good news, but there is still a significant disparity between promises and implementation. Vulnerable communities face disproportionate impacts and developing countries are under increased stress - and at risk of failing to achieve SDG 13 - as well as the rest of the 2030 Agenda.

Current commitments to change require approachable thinking based on equity and accountability, as well as cooperation and partnership. The first step is for developed countries to honour and increase their commitments on climate finance and provide predictable funding that does not come out of their domestic budgets in the form of development aid but in grant. New approaches like debt-for-climate swaps, international aircraft and shipping taxes, and fossil fuel profit taxes could serve as a huge source of resources. The scale of the needs of vulnerable countries needs to be captured by the prophetic Collective Quantified Goal (NCQG) on climate finance.

Second, it is crucial that second decarbonization in high emitting regions is to be enhanced by deep investment support for just transitions in the Global South. This involves technology transfer, open-source exchange of renewable energy solutions and capacity building, which is context-

sensitive and culturally-grounded. Poor policies will be inclusive and effective if they can be integrated into all NDCs and national adaptation plans, through climate justice.

Thirdly, there is a need to improve global governance. You can increase ambition through the UNFCCC process by being more inclusive (giving more voice to LDCs and SIDS), more transparent (providing transparent reporting to increase accountability) and more litigious (as necessary to drive ambition). To foster inter-generational solidarity, education, awareness and youth's participation (SDG 13.3) needs to be emphasized.

Fourthly, synergies between SDGs must be tapped. Developing climate action to support poverty reduction, gender equality and environmental benefits of biodiversity protection has multiplier effects. Nature-based solutions, community-based approaches to adaptation, and circular economy models are cost-effective solutions that civil society can implement.

Last but not least, companies, civil society and sub-national governments need to be increasingly involved. The state can be complemented by good corporate accountability, fossil fuel divestment, and supporting regenerative practices. Resilience infrastructure through public-private partnerships in areas of vulnerability will be key.

To achieve climate justice it is necessary to move beyond a charitable mindset towards a reparative mindset based on the rights of people. Translating the equity principle into mitigation, adaptation and loss and damage responses, trust will be key to creating the collective ambition. For the next 10 years, it's a make-or-break time. With commitments to take measurable action recognizing common, but differentiated, responsibilities the process of SDG 13 Combating climate action can be a driving force toward a more sustainable and resilient world without poverty. Otherwise, there is the possibility of climate breakdown, exacerbated geopolitical tensions and unwavering human development.

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ISSN: 2583-2476

Double Vulnerability and Denied Justice: A Socio-legal Study of Crimes against Women with Disabilities in India

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Abstract

The exclusion of women with disabilities in India is, by itself, a question of discrimination that comes about because of the intersectionalities of oppression based on gender and disability. In spite of several acts and other legislative instruments put in place with the intention of protecting the rights of women with disabilities, accessing justice still emerges as an important problem. Considering this scenario, the objective of this paper is to explore the types and levels of crimes committed against women with disabilities, to analyze the extent to which the law addresses this particular problem, and to point out some obstacles to the delivery of justice in such cases. The methodological approach to be employed in researching this area is doctrinal research, which basically entails the analysis of legal literature, including legislations, case laws, policies, and various human rights standards.

Keywords: Women with Disabilities; Gender-Based Violence; Access to Justice; Disability Rights; Intersectionality

1. Introduction

A disability refers to a complicated concept and can be defined as a situation where there are one or several types of impairments, such as those which affect individuals physically, mentally, intellectually and/or sensory impairments and which make individuals inactive participants in their surroundings due to barriers created by the environment and society (Tinta et al., 2020). Women with disabilities have proven to be one of the disadvantaged categories in society as they face discrimination not only for their disability but also because of their gender. This creates the situation of multiple vulnerabilities in these women whereby they experience social isolation and dependency, as well as poor access to education and healthcare facilities (Arenas et al., 2023). In such a manner, women with disabilities are more likely to be victims of violence and exploitation as compared to other categories.

Such an issue may be seen as a very serious human rights violation. As per the Census Report of India in 2011, there are around 26.8 million persons with disabilities in India, of which 11.9 million are women (Saikia et al., 2011). Besides, studies conducted by UNFPA have found out that women and girls with disabilities can be up to ten times more likely to face violence than women without disabilities. It happens owing to the reason that such women are subjected to physical, sexual, psychological, or economic forms of violence by either their own families or their partners or caregivers or even institutions (Meyer et al., 2022). However, a large number of instances of such abuse remain undisclosed for many reasons, such as stigma, dependence, difficulty in communicating, and so forth.

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In this regard, the importance of researching the problem of crimes against women with disabilities should be analyzed in terms of law and sociology. First, the constitution of India stipulates that the rights of all citizens to live an honorable life and be respected are equal. Second, according to the Act of Rights of Persons with Disabilities of 2016, some specifics of dealing with people with disabilities exist. Nevertheless, there is still much room for improvement when it comes to offering assistance to victims of violence among women with disabilities. The main objectives of the study are as follows: analyzing crimes against women with disabilities; evaluating the effectiveness of

legislative measures taken to address the above-mentioned problem; identifying obstacles in addressing women with disabilities' justice needs; offering solutions to the problem.

2. Violence Against Women with Disabilities

The disabled women belong to the group of being doubly vulnerable since they face discrimination because they are part of the class of being women, as well as being disabled. While in one case, they face discrimination as a result of being members of the class of being women, in another case, discrimination occurs due to their disabilities (Devkota et al., 2019). Being women means that they become victims of patriarchy and violence. Nevertheless, being also part of the class of disabled individuals means that at times, they may be faced with problems such as social isolation, dependence, lack of communication skills, as well as exclusion from health care, education, and employment.

Major Forms of Violence

Physical violence	Sexual abuse	Domestic violence	Emotional exploitation	Economic violence	Institutional violence

Figure 1: Major Forms of Violence against Women with Disabilities

There are various types of violence experienced by the disabled women, including physical, sexual, domestic, emotion, economic, and institutional violence. Physical violence entails physical assault and neglect carried out against disabled women by their care givers. Sexual violence includes rape, sexual assault, and sexual abuse (Campo-Tena et al., 2025). Domestically, violence is carried out within a family setup whereby the woman is abused and mistreated in terms of the dependent relationship. Emotional violence occurs through threatening the victim. Economic violence is carried out when the woman is denied access to property or funding; otherwise, if she is abused under the process of disability funding (Hueker et al., 2023). Institutional violence is done to disabled women either in medical institutions, disabled institutions, schools, or any other place where they are degraded. Because of their dependency on other people, they become

immobile and incapable of communicating their problem or reporting about it; therefore, the probability of sexual assaults on women and girls with disabilities becomes higher (Amborski et al., 2022). Moreover, as some stereotypes dictate, those persons who face similar problems tend to be weak and incapable of acting and being considered seriously by anybody else, which makes them even more exposed to sexual abuse. As it was revealed during the research, there was a higher probability of becoming victims of sexual violence for women and girls with intellectual, psychological and mental disabilities because they were incapable of defending themselves.

3. Indian Legal Framework for Protection

The Constitution of India can be regarded as the basic framework, ensuring the protection of the rights of disabled women. According to the provisions of Article 14 of the Indian Constitution, all individuals will enjoy equality before the law and equal protection of law. Thus, it would be incumbent upon the State to make sure that disabled women are given equal status and their rights are protected in the same manner as those of any other individual. It is through Article 15 that the Constitution prohibits discrimination on grounds of gender. It empowers the state to implement programs in favor of backward and minority classes, especially people with disability and women. According to Article 21 of the Indian Constitution, the right to life includes the right to life with dignity. Article 39A requires the state to take care that individuals get justice without regard to their economic and social circumstances.

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The Rights of Persons with Disabilities Act, 2016 (RPwD Act), which provides protection to the rights of persons with disabilities in India. According to Section 7 of this act, it becomes the responsibility of the appropriate governments to ensure proper protection of persons with disabilities from abuse, violence, exploitation, and neglect. Section 10 of this act guarantees the reproductive rights of persons with disabilities by making illegal all kinds of medical procedures that can render persons with disabilities infertile without their free and informed consent. As per Section 12 of the same act, there is a legal obligation to provide access to judicial remedies to persons with disabilities. In addition to this, some acts that can be considered violations of the rights of women with disabilities are criminal offences under this act. According to Section 92(b),

an act of assaulting or using force on a woman with disabilities with the motive of dishonouring her and outraging her modesty is a crime.

The provision under Section 63 of Bharatiya Nyaya Sanhita (BNS), 2023 is made for strengthening laws that relate to the safety of women who have any disabilities regarding any sexual offenses on them. The section explains rape and states about various instances of lack of consent to sexual intercourse, validity of the consent, and circumstances in which the person cannot give any consent to the crime. Thus, when the consideration is given to the rape offenses committed on women with some disabilities such as intellectual, psychosocial, and mental disabilities, it can be stated that this provision plays an extremely important role. As per the Section 64 of the Act, rape becomes a cognizable offense by stating about punishments for rape offense. As per the Section, rape of any woman who has been physically and mentally impaired is considered as aggravated rape, and punishment for the same would include rigorous imprisonment from ten years up to life along with a fine.

The Bharatiya Nagarik Suraksha Sanhita (BNSS), 2023 in the substantive laws brings out significance in the procedural safeguards since the procedural safeguards have been designed in such a way that they make the law victim-centered, particularly those who suffer from disability as women. Under section 179 of the Act, it is stated that women and persons with disabilities are not supposed to appear in the police stations for interrogation; rather, they may appear where they feel convenient. The procedural safeguard pertaining to the recording of statements/confessions of the suspect under a magistrate is covered under Section 183, which recommends video recording for the sake of its credibility. The procedural safeguard covering the medical examination of rape victims is mentioned under section 184. The procedural safeguards provided in the BNSS, 2023, not only cover investigation and trial procedures, but also much more than that. For instance, under section 395, the court has the power to give compensation to the victims. Under Section 396, the responsibility of states is to provide victim compensation schemes.

Further measures have been undertaken to ensure safety of the women with disabilities in the form of different schemes, laws, and policies. Under the National Policy for Persons with Disabilities, 2006, provisions are made for ensuring protection of disabled women from abuse, exploitation,

rehabilitation, and equal opportunities (Bigler et al., 2025). Various measures have been provided under the Criminal Law (Amendment) Act, 2013, in terms of giving opportunity to speak from their preferred places, speaking through video recordings, and taking help from special educators/interpreters. Furthermore, Protection of Women from Domestic Violence Act, 2005 can be used for legal action against cases of domestic violence. Apart from the above Acts, several schemes including Nirbhaya Fund, Sakhi Scheme, and assistance under NALSA have benefited several disabled women.

The process of justice delivery system in India has played an important role in helping disabled women who have been subjected to violent acts and sexual assault. In the case of "Patan Jamal Vali v. State of Andhra Pradesh, AIR 2021 SC 2190", it has been said that their evidence cannot be considered irrelevant just because they are physically handicapped and apart from that, in the particular case, even caste, gender, and discrimination of physically handicapped persons have also been taken into consideration. Moreover, there is one more judgement in which it has been said that the consent of mentally disordered women could never be treated as consent for having sexual

ISSN: 2583-2476

intercourse with someone and as such the perpetrator was charged for sexually assaulting them in the case of "Tulsidas Kanolkar v. State of Goa, AIR 2004 SC 978". Apart from the above- discussed two cases, there are many other judgments made by the Indian High Courts in favour of the PwDs women victims of sexual assault.

4. Barriers to Accessing Justice

However, despite the presence of the constitutional laws and legislative measures, there are quite a number of hurdles that these women will face in accessing the process of justice. The hurdles range depending on the stages, such as reporting, investigating, judging, and rehabilitating these cases. As a result of this, this leads to most of these women being denied justice.

Dependence on family members Underreporting of Crimes Fear of stigma

Police stations and Courts Accessibility Challenges Legal aid services Key obstruction to accessing justice Communication barriers Investigative and Procedural Difficulties Lack of trained personnel

Stereotypes Social and Institutional Bias Credibility concerns

Figure 2: Key obstruction to accessing justice

The potential barriers that can hinder the process of addressing the problems discussed above may include the inability to get hold of the reports on the criminal acts conducted against the disabled females. The fact is that, in the majority of the situations, the victims have total dependence on the help of their close relatives and assistants (Wieberneit et al., 2024). In certain situations, the culprits themselves can be the helpers of the victims, which makes it extremely difficult for the latter to do anything against them since they would deprive themselves of their help.

Moreover, there are many practical and procedural problems that prevent the disabled women from accessing justice. There is no attempt made to facilitate disabled people through ramps, lifts, portable structures, and communicating aids in case of people having any physical impairment in the police stations and courts (Anthony Jnr et al., 2025). This will lead to various obstacles faced by the disabled women while filing their complaints and taking part in the proceedings. Furthermore, the legal support system is insufficient because it does not take into consideration the needs of the disabled women. The legal aid facilities are not providing services like sign language interpreters, reading materials, special equipment, and attorneys for the disabled women.

Some difficulties may arise in connection with the investigation and prosecution of crimes committed against women with disabilities. First of all, it may be rather difficult to investigate the

crime due to some difficulties in communication with the victim as she might have some hearing impairments or other mental problems (Burch, 2024). Secondly, one of the challenges that may take place is the fact that the number of personnel involved in criminal cases of such type is not enough as there are few police officers, healthcare workers, prosecutors, and judges that know how to handle the situation properly (Davies et al., 2020). In addition, the representatives of the government lack the needed experience as they do not know how to work with these victims and conduct proper interviews. Stereotyped attitudes towards persons with disabilities make their trials unfair as they are viewed as unreliable witnesses with no sense of law.

5. Findings and Suggestions

From the research findings, it can be seen that there is already an established legal and policy framework in India that seeks to provide for the protection of disabled women. This framework comprises the constitution of India, the RPwD Act, 2016, the BNS, 2023, and BNSS, 2023. However, the challenge arises from the fact that even though the policies are meant to offer this protection, they have not been effectively implemented. Furthermore, there is also a lack of awareness among the public.

Recommendations - Disability-sensitive policing - Accessible complaint mechanisms - Specialized victim support services - Judicial and police training - Strengthened legal aid

Figure 3: Pivotal Recommendations

The formulation of a strategy that will incorporate people living with disabilities becomes necessary. The

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need arises to train the police officers on how to conduct themselves in a manner that is disability sensitive. The training will help the police officers to address violence that is directed at disabled women. The complaint lodges should incorporate an online process of

submission along with translation into sign language of complaints. It will also become necessary to formulate a program that will provide legal, medical, and social help. The provision of legal, medical, and social help can include counseling, rehabilitation centers, safe houses for disabled women, and medical help. Judges, lawyers, police, and doctors should be educated about the law and application of law concerning disability issues. Finally, improved legal services become necessary.

6. Conclusion

The plight of disabled women is that of dual discrimination due to discrimination related to gender and disability. Due to this dual discrimination, they are vulnerable to violence. Although India has put forth a comprehensive legislation framework with the help of its constitution, the RPwD Act, 2016, the BNS, 2023, and the BNSS, 2023, still some legal and institutional hurdles exist while they seek justice. In order to make an ideal system of justice for their rights-based access, the criteria of good legislation, accessibility to victims, and good enforcement must exist. Future research may look into disabled women in India.

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ISSN: 2583-2476

Legal Frameworks and Challenges in Addressing Dowry Death: An Analysis

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Abstract

This study examines the structural changes of marital cruelty and dowry prohibition laws, specifically focusing on the reverse onus probandi under Section 118 of the BSA after the recodification of new criminal laws. This will be done through the application of current data from the National Crime Records Bureau (NCRB) from the years 2022-2024, along with forensic examinations of two highly publicized cases: the famous 2026 case of Gour Acharjee and the controversial Twisha Sharma murder case of 2026. The paper provides the procedural, investigative, and forensic examination obstacles that lead to lower conviction rates. It suggests/recommends systemic policy for legal protections of the accused in false cases and successful criminal prosecutions in genuine cases.

Keywords: Dowry Death, Marital Cruelty, Matrimonial Death

1. Introduction and the Socio-Legal Origin of Anti-Dowry Jurisprudence

Historically, the institution of marriage in India has operated as a sacrosanct cum socio-religious alliance, the traditional practice of Varadakshina or Stridhan initially considered as a voluntary gift to secure a bride's financial security and autonomy in her marital home, this perception is changed in modern consumerist society. A symbolic gesture like stridhan is changed to a sort of extortion like dowry. "Dowry is not a gift, custom or "family prestige". It is a kind of market place where marriage loses its meaning and soul. The concept of stree-dhan does not justify the modern practice of dowry. It traditionally meant assets, jewellery, property or gifts voluntarily given to a daughter for her financial autonomy, under her sole ownership and control. It was meant to empower the woman, not enrich the husband's family." (Puri, Practice of dowry violates women, diminishes men. It has no place in Bharat , 2026)

For decades, people's mindset protected marital homes from state intervention treating it as private family matters which resulted into domestic abuse and dowry deaths. Initially dowry Prohibition, 1961 proved to be inadequate and inefficient because of its various loopholes like narrow definitions, the element of corruption and no proper efficient and independent machinery to enforce the act. The high increase in cases of bride burnings and unnatural deaths of married women provoked legislative action which resulted in the Criminal Law (Amendment) Acts, 1983 and 1986. Significant substantive and procedural alterations were brought in and Section 304B (Dowry death) and section 498A (Cruelty by husband or relatives) were inserted in the IPC, 1860 with corresponding rules of evidence. (KUMAR, 2025)

2. Indian Penal Code to Bharatiya Nyaya Sanhita Recodification

Section 304B of the IPC addresses the crime of dowry death. This provision is included in Section 80 of the BNS. Section 80 outlines specific criteria: when a woman dies an unnatural death due to burns or bodily injury within seven years of her marriage, and it is shown that the death resulted from torture or harassment by her husband or his family for dowry shortly before her death, that death will be classified as

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a "dowry death." The crime is still cognizable, non-bailable, and the minimum sentence is seven years.

2.1. Marital Cruelty and Structural Change

One of the BNS' major structural changes is the separation of the offense of domestic cruelty from its definition. In the legacy code, the penal sanction and the definition of "cruelty" were contained in one complex clause in Section 498A of the IPC. Under the BNS this is broken down into two separate sections:

§ Section 85: Husband or the relative of the husband of a woman, subjects to cruelty to woman shall be punished with imprisonment upto three years and can also be fined. § Section 86: Provides the definition of "cruelty" for the purposes of Section 85.

As per the Supreme Court's ruling on 20th February 2025, dowry demand is not considered a prerequisite condition necessary to prove the charge of cruelty against any woman in India. The

Court highlighted that even a case of physical/mental harassment which does not involve any dowry demand can be considered as cruelty to prove the same.

3. Section 118 of the BSA and the Reverse Burden of Proof

The mandatory rule of presumption of law is outlined in Section 118 of the BSA which states that if the prosecution proves that a married woman has met a natural death within seven years of her marriage and she was subjected to cruelty in relation to dowry immediately before her death, then it will be presumed that such an unnatural death of the woman was caused by the accused. The use of the word "shall" indicate that the presumption created is mandatory. This rule is different from the discretionary rule of presumption of law in Section 117 of the BSA, former Section 113A of the IEA. Having successfully proved the primary facts, namely the unnatural death taking place within seven years of marriage, coupled with cruelty close to the time of death, all the burden of proof rests with the defendant. The defendant does not have to prove his or her case beyond all reasonable doubt. The level of proof required here is "the preponderance of probability. The burden is upon the accused to show that either death was due to natural causes or an accident or had nothing to do with dowry demands.

4. Data Realities and Criminal Justice System

Despite all these stringent laws, there is still a large loophole between lodging dowry related cases and resolving them through a court trial. According to NCRB statistics, a confusing pattern is witnessed whereby the number of registered dowry deaths may not be increasing but the investigation of such cases has been slow and has led to a high rate of acquittals.

Below is the table which mentions the data of case registration, investigations, and judicial outcomes for the period of 2022 – 2024.

Statistical Metric (NCRB Data) Calendar Year Calendar Year Calendar Year 2022 2023 2024 Registered Dowry Death Cases (BNS Sec. 80 / IPC Sec. 304B) 6,450 6,156 5,737

Statistical Metric (NCRB Data) Calendar Year Calendar Year Calendar Year 2022 2023 2024 Dowry Prohibition Act, 1961 Cases Registered 13,479 15,489 12,343 Investigations Pending Police Resolution (Year-End) 3,231 2,887 2,765 Completed Judicial Trials (Dowry Death) ~6,500 ~6,500 4,043 Judicial Conviction Rate 33.4% 35.8% 46.2% Judicial Acquittal Rate 60.0% 60.4% 50.1% Cases Discharged / Compromised without Trial ~6.6% ~3.8% 3.7%

(Matta, Dowry Deaths Decline, But Thousands Still Die Each Year, 2026)

Above data analysis reflects systemic issues in the Indian criminal justice system:

4.1. Investigative Delays

One of the major reasons behind the lower conviction rate is the delay in police investigation. Of the around 7,000 cases of dowry deaths every year (including those pending from the past years), around 4,500 get charge-sheeted, whereas the rest 30 percent are pending and have been delayed in police investigation. (Next Ias, 2025)

4.2. Judicial Pendency and Hostile Witnesses

The problem of delay within the judiciary has also been highlighted here. More than 90% of dowry murder

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cases have been found pending within the courts on an annual basis. Lack of a proper fast- track system for handling women's offenses adds to this problem of delay.

In case of ongoing trials, the lack of effective witness protection measures leads to many family members and neighbors becoming hostile either due to family pressures, settlement arrangements, or social threats. Convictions rate improved from 33.4% in 2022 to 46.2% in 2024, still more than half of all the trials resulted in acquittal. (Ias Score, 2025)

4.3. Regional Variation and Sociological Factors

Dowry deaths occur predominantly in certain areas. The states of Uttar Pradesh and Bihar have the highest number of cases. They together make up more than fifty percent of all dowry deaths in India. In 2024, there were 2,038 and 1,078 dowry deaths reported in Uttar Pradesh, and Bihar respectively. The sociological reason behind this large incidence are high levels of patriarchy, hypergamy marriages, and the use of marriage as a means of social mobility. (Matta, 2026)

5. Forensic Gaps in Matrimonial Death Investigations

It becomes quite important to have good forensic evidence in order to obtain a conviction for suspected cases of dowry death trials. The reason being that such murders happen within domestic premises without any witnesses. Therefore, only scientific proof will help in proving the cause of death and dismissing any claim of accident and suicide. Nevertheless, there is a lack of forensic resources available within India, which may affect the case adversely.

5.1. Distinguishing Hanging from Strangulation

Where a hanging case involving a female member is reported from her conjugal home, the main forensic issue here is to ascertain whether it was a suicidal hanging or a murder committed by strangulation followed by a suspension after death. Ligature Marks, Deep Neck Structures, and Defensive Injuries should be medically scrutinized for the determination of murder because forensic examination plays an important role in the decision made by Courts. (Rakshitha Sudheer, Forensic Gaps in Dowry Death Investigations in India, 2026)

5.2. Delays in Toxicological and Viscera Analysis

It is important that samples of viscera be preserved and examined as soon as possible for the identification of toxins in cases of poisoning, however, due to a large number of samples piled up in the backlog of the state forensic science laboratories, toxicological reports can be delayed for several months or even years. Such a delay will result in discrepancies in the forensic procedure, which can be used by defense lawyers to raise reasonable doubts about their clients' guilt.

The same problem arises in cases of burns, because in order to identify whether or not the victim set the fire himself/herself, the police investigator and/or the forensic medical officer should have been able to analyze the pattern of burn, conduct tests on clothes for chemical accelerants, and preserve samples of skin. (Rakshitha Sudheer, Forensic Gaps in Dowry Death Investigations in India, 2026)

6. Case Study of the Twisha Sharma Investigation (2026)

Twisha Sharma, an actor, had married to advocate Samarth Singh, the son of a retired district judge named Giribala Singh, in December 2025. After six months of their marriage, Twisha was found dead in mysterious circumstances at the house of her in-laws in Katara Hills, Bhopal.

6.1. The Conflict Between Suicide and Homicide Theories

The accused family insisted on the fact that it was a case of suicide by hanging with no motive for any form of harassment in regard to dowry, Twisha's family denied it and accused the former of physical and mental torture and demand for dowry. In support of their arguments, they presented many evidences:

§ Medical Evidence: According to the preliminary postmortem done at AIIMS Bhopal, hanging was the main reason for the death and there were also many marks left behind on her body before death from antemortem and blunt force trauma. § Electronic and Circumstantial Evidence: The emotional stress and anxiety that were experienced by Twisha were indicated through her distressing message which read, "I am trapped bro. Bas tu mat phasna." (Twisha

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Sharma case in Supreme Court: Suspicious death, dowry allegations, CBI probe - what happened so far, 2026)

6.2. High Court Intervention and Independent Forensic Review

As the accused family had considerable influence in the legal system, the family of Twisha pushed for a second post-mortem and a separate investigation to counter any possible favoritism of local institutions. Considering the unique situation at hand and taking into account the trust of the people, the High Court of Madhya Pradesh issued a warrant for a second post-mortem. In order to

provide transparency and to avoid any possible influence of the locals, the court asked a four- member team from AIIMS Delhi to conduct a second autopsy through video recording. (J, 2026)

7. Safeguards Against Misuse and Judicial Equilibrium

Though strict laws have been made to curb the social evil of dowry through the legislature, the courts need to ensure that these laws are not used by some people to cause injustice. It has been found that for more than two decades now, there have been instances where the Supreme Court of India had apprehensions about the misuse of provisions such as Section 498A of the Indian Penal Code (now Sections 85 and 86 of the BNS, 2023) in cases where these are used to file baseless complaints, thereby arresting the husband as well as his relatives.

To prevent such arbitrary actions and to protect the personal liberty of the individuals, the Supreme Court in Arnesh Kumar v. State of Bihar (2014) gave a landmark judgment. With this decision the concept of automatic arrests in cases under section 498A IPC has been laid to rest. The principles laid down in Arnesh Kumar are now formally codified under Section 35 of the BNSS (formerly Section 41 of CrPC). (Pradhan, 2024)

There are several judicial procedural remedies against malicious prosecutions:

a. Quashing of FIRs (Section 528, BNSS / Section 482, CrPC): The vague and false cases can be quashed by the inherent power of High Courts. b. Anticipatory Bail (Section 482, BNSS / Section 438, CrPC): There is a reluctance from courts to grant pre-arrest bail for offenses classified under serious categories such as dowry death (Section 80 BNS) as provided under BNSS. However, High Courts could be persuaded to grant anticipatory bail under Section 482 of the BNSS if the accused is able to demonstrate an alibi, insufficient proximity to the harassment, and/or evident malice in the prosecution.

Each unnatural death of a married woman within seven years of marriage should involve a standardized autopsy by a board of forensic medical experts, not general practitioners. There has to be mandatory videography and an independent oversight body to prevent local bias or tampering, particularly when you have a high-profile defendant. State governments also need to

ensure that regional laboratories have the capacity to conduct toxicological and viscera analysis within a strict legally mandated timeframe.

Police should be required to have mandatory specialized training in crime scene preservation and investigation protocols that are gender sensitive and chargesheets in suspected dowry deaths should be filed within a tight 60-days. (Rakshitha Sudheer, March-April 2026)

To bypass the problem of delays and backlogs in the judiciary, domestic violence and dowry- related cases should be solved by dedicated fast-track courts in addition to that effective witness protection schemes should be implemented to testify families and neighbors without any kind of fear.

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ISSN: 2583-2476

Menstrual Leave and Workplace Equality in India: A Legal Analysis

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Abstract

Menstrual health is increasingly recognized as a critical element of human dignity and equality nowadays. Menstrual leave remains precariously positioned within India's constitutional and legislative framework. The Hon'ble Supreme Court in Dr. Jaya Thakur v. Government of India has acknowledged menstrual health as part of the right to life and dignity under Article 21, however, its subsequent decision to refrain from adopting and implementing a nationwide menstrual leave policy has resulted in various constitutional and policy debates. This paper examines the constitutional protection of menstrual health and whether mere assumptions and fears of hiring discrimination are a sufficient basis for denial of such protection. The paper adopts a doctrinal and comparative method, through the analysis of constitutional provisions, judicial precedents, medical evidence, state-level initiatives and international practices. According to the combined view of Articles 21, 15(3), and 42, menstrual leave is a form of humane working conditions and substantive equality. This study also examines the effect of menstrual disorders on productivity and participation in the workforce, which ultimately impacts economic inclusion. This paper proposes and suggests a right oriented legislative architecture model which effectively combines paid leave, social security and the anti-discrimination measures. The suggestions are based on the models adopted by Japan and Spain. It concludes that a well-designed national policy is required to fulfill the constitutional promise of dignity, equality and gender-just employment.

Keywords: Menstrual leave, Menstrual health, Article 21, Dignity, Medical evidence, Substantive equality, Social security, ESIC

1. Introduction

"No person can live without the means of living, that is, the means of livelihood" (Olga Tellis v. Bombay Municipal Corporation, 1985). Likewise, Article 21 of the Constitution of India has been described as the "procedural Magna Carta protective of life and liberty" by Justice V.R. Krishna Iyer. The constitutional foundation of menstrual health rights in India can be traced to the Supreme Court's transformative interpretation of Article 21. Beginning with Maneka Gandhi v. Union of India (1978), the Court expanded the meaning of the right to life and personal liberty beyond mere physical existence. This jurisprudence was further developed in Francis Coralie Mullin v. Administrator, Union Territory of Delhi (1981), wherein the Court recognized the right to live with human dignity as an integral component of Article 21, and subsequently in the celebrated judgment of , Justice K.S. Puttaswamy (Retd.) v. Union of India (2017), which affirmed privacy, bodily integrity, and personal autonomy as fundamental constitutional values. Building upon these constitutional principles, the latest development in this constitutional trajectory emerged in Dr. Jaya Thakur v. Government of India & Ors. (2026) acknowledged menstrual health and hygiene as intrinsic to the rights to dignity, bodily autonomy, and equality guaranteed under Article 21 of the Constitution of India. This decision marks a significant milestone in the constitutional discourse on

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gender justice and reproductive health. The progressive expansion of Article 21 through these judicial pronouncements provides a strong constitutional basis for examining whether menstrual leave should be recognized as a necessary measure to secure substantive equality, human dignity, and humane working conditions for menstruating individuals. Does the Supreme Court's concern about possible hiring discrimination justify denying a fundamental right that the same Court has affirmed elsewhere? Why is there no national policy on menstrual leave in India, home to over 336 million menstruating people (Bhandari, 2025), while progressive states experiment and corporations initiate action? Whether constitutional recognition of menstrual health as part of right to life under Article 21 have any meaningful extension to the workplace as well? These questions reveal a significant gap in existing literature on menstrual leave. Existing

Literature has largely taken a descriptive approach and very few attempts have been made to systematize jurisprudence and consider the realities of India's pluralist workforce.

For centuries, menstruation has been looked down upon by societies like India through the prism of stigma, taboo, and silence but is not just a biological occurrence. It is a lived experience which connects with notions of dignity, equality, and the right to work. National legal provisions fall short of offering any sort of systemic response to the persistent pain and exhaustion of millions of Indian women due to conditions such as endometriosis and polycystic ovarian syndrome (PCOS) (Bhaghamma & Ramesh, 2023). Legal interventions at the state level and policies of private organizations help a negligible minority of workers. The recent rulings of the Supreme Court where one recognized menstrual health under Article 21, while the other rejected menstrual leave, highlight what appears as a doctrinal inconsistency which should be analysed. The paper will first explore the constitutional framework including domestic legislative actions, and then move on to medical and economic issues, comparative experiences, and ultimately, integrated suggestions for improvement. Specifically, the paper will examine the experiences of countries like Japan and Spain, where a menstrual leave model has been implemented in different ways to determine its applicability to the Indian constitutional and socio-economic environment.

Moreover, there is a detailed study of the regulatory models in Japan and Spain because they offer divergent systems. This is so since Japan is included because it offers some of the earliest statutory entitlement models. This will help understand why unpaid leave models cannot be used to counter workplace stigma. On the other hand, Spain is chosen because it offers the most recent financing model. It shows how public social security system funded by the government can help counter the risks of discriminatory hiring practices.

2. Constitutional Framework

The constitutional basis for the provision of menstrual leave is derived through the reading of Article 21, 15(3), and 42 of the Constitution of India. An expansive reading of Article 21 of the Constitution of India indicates that the right to life guarantees dignity, good health, and human working conditions. In this regard, the Court made it clear that the protection of health of workers and ensuring humane working conditions is an essential element of leading a life of dignity

(Bandhua Mukti Morcha v. Union of India, 1984). The same proposition was reiterated in Consumer Education & Research Centre v. Union of India (1995), where the court stated that right to health and hygiene in the workplace is an intrinsic part of the right to life. These precedents hold great significance in the case of menstruation, particularly in relation to those who suffer from pain during their menstrual cycle.

Article 15(3) goes on to enable the State to take specific steps in respect of women, and hence becomes a means to achieve equality not just in form but substance. It has been held by the Supreme Court that such measures are taken by way of ensuring effective participation of women in all walks of life (Government of Andhra Pradesh v. P.B. Vijayakumar, 1995). Menstrual leave is thus a legally permissible step for accommodating the biological reality of ensuring equality in the workplace. Again, Article 42 lays down the duty of the State to ensure just and humane conditions of work and maternity relief. Although Directive Principles cannot be enforced as

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Fundamental Rights can, they have to be interpreted in consonance with the latter (Unnikrishnan, J.P. v. State of Andhra Pradesh, 1993).

2.1. The 2026 Doctrinal Contradiction

This trend notwithstanding, however, a significant doctrinal inconsistency developed in early 2026. In the landmark judgment pronounced on 5 January 2026 in the case of Dr. Jaya Thakur v. Government of India (2026), the Supreme Court expressly held that the rights to life, dignity, and bodily autonomy guaranteed under Article 21 necessarily included access to menstrual health and hygiene. However, on 13 March 2026, the Supreme Court rejected the Public Interest Litigation filed by Shailendra Mani Tripathi seeking to impose an all-India statutory requirement of menstrual leave. It noted that the imposition of such a leave policy would have negative consequences on employers who may refrain from employing women owing to such requirements, resulting in the perpetuation of gender stereotypes (Shailendra Mani Tripathi v. Union of India, 2026). While this inconsistency appears at first sight to constitute a serious contradiction in the interpretation of the Constitution of India, it can be reconciled through a proper balancing of interests. This would entail the introduction of legislation which protects both the right to menstrual health as well as prevents discrimination against the employee.

A consequentialist approach was followed by the Court on the basis that compulsory menstrual leave could lead to statistical discrimination in employment practices. While fears of employer discrimination arise out of factual considerations, they raise a constitutional dilemma in that very rarely has the Supreme Court recognized an infringement of a fundamental right just because its implementation could lead the regulated party to indulge in discriminatory practices. From the perspective of constitutional law, the way to address a situation of discrimination is through regulation of the discriminating act itself, not deprivation of the beneficiaries of substantive rights. By applying the logic followed by the Bench in March 2026, even the maternity benefit would come under question, which has never happened before in India.

2.2. State-Level Initiatives and Policy Design

Importantly, there is no inherent contradiction between menstrual health becoming a consideration in the case of Dr. Jaya Thakur and the issues raised in March 2026 Bench. Employer discrimination can be mitigated in policy design without necessarily taking away the entitlement itself. State policy developments represent a progressive but disjointed effort to strike this balance. While Bihar became the first state in 1992 to implement a two-day monthly contingency leave scheme for women employees in the government sector, Kerala in 2023 went a step further and provided for menstrual leave and attendance relaxation provisions for university students, followed by Odisha, which introduced a more expansive scheme in 2024 applicable both to public and private sectors. In Karnataka, a two-pronged approach was followed in 2025 in order to provide for a one day of paid menstrual leave per month in a few sectors through self-declaration methods (DLA Piper GENIE, 2025; LiveLaw, 2025).

2.3. The Codification Gap and Federal Vulnerabilities

Nevertheless, the modern framework still suffers from institutional weaknesses. The policy of Karnataka state, along with the policies of other states, depends mainly on executive notifications and not on statutory legislation. Executive orders can be put into force quickly, but they do not carry any of the permanence and binding nature of statutory legislation. Absent legislative sanction, employers can get away with non-compliance with little fear of legal repercussions, and the policy is open to revocation by the next government.

This is an issue that has been exacerbated by the constitutional framework of India. In the light of Article 246 read with the Seventh Schedule, issues related to labor and services are included under the Concurrent List, and both Parliament and State Legislatures have powers to legislate on employment conditions. Therefore, the only way that lasting protection in the work environment can be ensured is through legislation. On the national scale, bills such as the Menstruation Benefit Bill, 2018 and the Right to Menstrual Hygiene and Paid Leave Bill, 2019 could not garner any legislative momentum. Moreover, even

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corporate policies from companies like Zomato and Swiggy work simply as voluntary welfare programs that benefit only a small proportion of the formal workforce. In essence, menstrual leave in India is a constitutional paradox where the issue is not the lack of constitutional recognition but the absence of a legislative scheme that can help convert constitutional provisions into workplace protections.

3. Medical Foundations, Economic Costs and the Domestic Regulatory Landscape

Menstrual disorders are not only concerns for personal suffering but significant clinical concerns with definite impacts on work attendance, labour efficiency, and occupational health. The key medical cause of workplace disturbance is dysmenorrhea, also called painful menstruation, which is divided into two major clinical types. Primary dysmenorrhea refers to recurrent and spasmodic pain in the lower abdomen without any signs of gross pelvic disease, caused mainly by uterine spasms because of prostaglandins. On the other hand, secondary dysmenorrhea develops due to gynaecological diseases such as endometriosis, adenomyosis, polycystic ovary syndrome (PCOS), and uterine fibroids. According to epidemiological statistics, these disorders are prevalent in the domestic scenario, with studies in India showing that 50% to 87.8% of reproductive-age females suffer from dysmenorrhea (Bhaghamma & Ramesh, 2023). In addition to local physical pain, this disorder can manifest itself with several systemic complications, including fatigue, nausea, migraine, and poor cognitive focus.

The empirical data illustrates the considerable economic and business burden of the lack of proper management of the menstrual health problem, thus changing the discussion of it from the question of employees' well-being into that of economic efficiency. According to the pioneering and large study conducted in the Netherlands, with over 32,000 participants, there was an estimated

productivity loss due to the symptoms of menstruation accounting to 33% on average throughout about 23 days per year, which corresponds to the loss of almost nine working days per each participant per year (Schoep et al., 2019). Another study conducted in Canada found out that 51% of the surveyed felt themselves limited in their ability to perform everyday activities during their periods, while 17% had to skip going to classes or work (Howe et al., 2023). The aforementioned facts clearly prove that the economic burden that the presenteeism, that is attendance at work of employees seriously impaired due to pain, poses is much heavier than that of having a predictable entitlement for leave.

Consequences for macroeconomic outcomes of insufficient menstrual support become a structural constraint for India's growth path. Although India's Female Labor Force Participation Rate (FLFPR) has made a significant upward move increasing from 23.3% in 2017-18 to 41.7% in 2023-24 (Ministry of Labour and Employment, 2025), problems of menstrual health still prevent many women from joining the labor market too early. Long-range forecasts of the International Monetary Fund highlight the high value of this situation since overcoming the gender gap in labour force participation can bring India's GDP an extra USD 700 billion (International Monetary Fund, 2015). Nevertheless, potential becomes wasted at an early stage in the pipeline of talent. According to the Economic Survey 2025, about 23 million girls leave schools because of a poor WASH infrastructure and insufficient menstrual support during their first menstruation period (Drishti IAS, 2026). This fact reveals that menstrual health is the matter which should be addressed from a life-cycle perspective since educational failures become a reason for further human capital accumulation restriction and employment challenges.

The issue with implementation of a successful menstrual health framework lies in the inherent duality of India's labour market, where only a tiny fraction of the organized workforce can avail itself of voluntarily adopted company policies from firms such as Zomato and Swiggy, while around 97% of all female labour is employed in the informal sector. The enormous scope of this labour sector is demonstrated through eSHRAM online portal, which has reported that more than 16 crore (160 million) women workers have been registered in India until August 2025 (Ministry of Labour and Employment, 2025). Unlike regular employees who are subject to the invisible danger of

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statistical discrimination or discriminatory hiring practices, women working in the

informal sector are faced with the very real danger of being deprived of wages, dangerous conditions of work, and the threat of summary dismissal from employment should they absent themselves from their workplace for any reason. The disparity between these two groups highlights the primary limitation of modern-day discussions on the topic. A statutory regime that draws inspiration purely from the formal structures of corporate workplaces is doomed to exclude the bulk of the female labour force.

4. Comparative Analysis: Japan and Spain

4.1. Japan: The Entitlement Model

Japan's Article 68 of the Labour Standards Act, 1947, states that employers have to authority to require women to work during "extreme difficulty" which is caused during their menstruation cycle. The legal entitlement exists in the workplace but still the uptake has remained relatively low. The main reason for the same is noted as the leave is largely unpaid; with only about 30 per cent of companies offered salary protection as of 2020 (Nishikitani et al., 2017; TokyoDev, 2025). The stigma prevalent in the culture and society further discourages the women employers from claiming it.

Thus, it can be ascertained that although Japan's self-declaration model largely demonstrates the value of flexible and accessible menstrual leave, yet its largely unpaid nature decreases its effectiveness and benefits (Nishikitani et al., 2017).

4.2. Spain: The Financing Innovation

Spain's Ley Organica 1/2023 was effective from June 2023 onwards. It introduced paid menstrual leave which would be financed through the public social security system at 75 per cent of salary, with no direct cost to employers (Lockton Global Benefits, 2023). In order to address the concerns raised by the Hon'ble Supreme Court in March 2026 about hiring discrimination, routing the extended leave costs through the Employees' State Insurance Corporation (ESIC) would help significantly. If women will not impose extra costs on individual employers, then automatically the discrimination risk would diminish.

The drawback of the Spain model is its certification requirements which may create access barriers for workers who have limited access to medical care (Days for Girls International, 2024).

Table 1: Comparative Framework — India, Japan, Spain

Parameter	India — Karnataka (2023)	Japan	Spain
National Level	2025 (Labour standard Act, 1947)		
Legal Basis	No central statute; dismissed 2026	State Cabinet Order, Dept of Labour & Employment, 1947	Article 68, Ley Orgánica 1/2023 Labour Standards Act, (Reproductive & Sexual Health Law)
Duration per Month	Not fixed nationally	1 day paid (12 days/year)	No maximum; 3 days; up to 5 days; employer decides
Pay	No national rule	Paid (full salary via default; ~30% social security; voluntarily Required	Unpaid by employers pay employer cost Proof Not applicable
Self-declaration	Generally, not mandatory — a key barrier to access		
Coverage	Bihar (govt employees); Kerala (university students); garment units Odisha (2024)	All public + private sectors including IT, MNCs, informal sector	All formal employed female women including part-time; excludes
Uptake Rate	Low; data Too recent; 1,559 eligible claims Jun 2023– Apr 2024	Low; ~30% of insufficient data unavailable	Very low; workers used it in 21- as of 2020 million total workforce

Parameter	India — Karnataka (2023)	Japan	Spain
National Level	2025 (Labour standard Act, 1947)		
Transplantability — India	High: voluntary, adaptable; covers all sectors	Moderate: entitlement model is not suitable for it	Partial: ESIC- to financing model is self-certified, 42 but unpaid certification barrier aspect weakens India Key Gap
No national Medical certificate guarantee;	Challenged in HC; barrier	No pay law; suppresses	unorganised

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enforcement stigma prevents claims despite sector excluded mechanism use strong legislation unclear

Source: Adapted from DLA Piper (2025), Lockton Global Benefits (2023), Days for Girls International (2024), and Manorama Yearbook (2026)

5. Conclusion and Suggestions

The constitutional recognition of menstrual health under Article 21 provides a strong and foundational basis for workplace protections. The challenge does not lie in constitutional legitimacy but largely in legislative design. A national menstrual leave framework, to be efficient and successful, should include these three features: First, the basic paid leave should be available through self-declaration. Second, the extended leave for medically diagnosed conditions may be financed through social-security mechanisms such as ESIC in order to reduce employer costs. Third, strong anti-discrimination protections must ensure that menstrual leave does not affect hiring, promotion or retention decisions. In the end, it can be concluded ultimately that such a framework would advance dignity and substantive equality while addressing the legitimate implementation concerns. Fourth, extend social security coverage through eSHRAM registration to ensure informal workers access paid leave through ESIC, not employer funds.

Any viable national menstrual leave framework must address the stark reality that 97% of India's female workforce is concentrated in the informal economy. Current voluntary corporate policies structurally exclude this vast demographic, as unorganized workers face immediate wage loss and job insecurity rather than formal hiring biases. To bridge this gap, a national statutory framework must leverage the eSHRAM portal, which already registers over 160 million unorganized women workers. By linking eSHRAM registration directly to the Employees' State Insurance Corporation (ESIC), the state can extend compensated menstrual leave to daily wage, domestic, and gig workers. This integration ensures the financial burden is absorbed by social security rather than precarious informal employers, transforming menstrual leave from an elite corporate privilege into an accessible universal right.

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ISSN: 2583-2476

Promoter-centric Governance and Board Decisional Independence in Indian Companies: A Critical Analysis

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Abstract

The law on the governance of functioning of companies in India firmly positions the Board of Directors (BoD) at the center of corporate decision-making, but in practice most of the Indian companies are characterised by the concentrated ownership and dominance of the promoters especially over appointment of directors, strategic decisions, and managerial policy. Hence, there exists persistent gap between formal legal framework and actual functioning of the corporate bodies. This results in vital governance concern regarding decisional independence of the board. In response, the legal framework has emphasised the importance of independent directors, enhanced committee oversight and imposed greater disclosure obligations. Nonetheless, these changes do not fully reflect the practicalities of promoter control within companies. Therefore, this paper analyses the existing laws in India that provides the necessary safeguard for the decisional independence of corporate boards in those companies where promoters exercise decisive control over capital, appointment of directors, information flow and strategic direction of the company. Firstly, it explains the meaning and scope of promoter driven governance in Indian companies and the implications on the board independence. Secondly, it examines the role of board committees, disclosures, and governance processes along with its contemporary relevancy and effectiveness for reinforcing board independence. Thirdly, it analyses the statutory framework governing independent directors and board functioning in India. Finally, the paper critically analyses the effectiveness of existing legal framework for governance of companies in India to safeguard the board independence in substance rather than merely in form.

Keywords: Board Independence, Promoter-Centric Governance, Corporate Governance, Independent Director, Board

1. Introduction

The company law in India treats the Board of Directors (BoD) as the locus of corporate decision-making. (Rakshit, 2019) However, the majority of corporate decisions in India is dictated by concentration of ownership and the exercise of control by promoters and not by a free and fair decision-making processes through an independent board. Therefore, there is a disparity between the legal architecture and corporate practice wherein the statutory mandates of board primacy and due process are set against a backdrop of governance in which the board is nothing more than an accommodative mechanism where shareholders, through their controlling stakes, sets the terms and parameters of decisions by the board in advance. (Kumar, 2014)Therefore, issues of decisional independence are less about the legal mechanism regarding technical compliance, and rather it is an issue of corporate governance in its broader dimensions including accountability, neutrality of fiduciary duties, and protection of minority rights. (Patel, 2019)In this regard, there have been number of significant responses by lawmakers and regulators in recent years. They have widened the scope of institutional functions of independent directors, required specific committee formation, enhanced reporting responsibilities and implemented mechanisms for conflict management. These reforms reflect the development of governance commitments to enhancing the monitoring role of

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board and strives to ensure effective corporate governance in promoter- dominated companies.

Nevertheless, rules cannot adequately bridge the gap between the existence of and actualisation of independence. Promoter control operates through appointment processes, control over information, composition of board committees, professional incentives to the directors, and career risks of directors. These structural routes are often unaffected by formal regulations and may lead to the meaningless prima facie appearance rather than the reality of independence. As a result, the statutory provisions must be construed and evaluated on the basis of its effectiveness to ensure board independence by assessing the interplay between nomination processes, information flow, tenure constraints and institutional practices on the one hand and statutory rules on the other.

Therefore, this paper analyses the existing laws in India that provides the necessary safeguard for the decisional independence of corporate boards in those companies where promoters exercise decisive control over capital, appointment of directors, information flow and strategic direction of the company. It evaluates the extent to which legal independence of boards corresponds to meaningful decision-making power in concentrated ownership structures. It explains the meaning and scope of promoter driven governance in Indian companies and the implications on the board independence. Further, it examines the role of board committees, disclosures, and governance processes along with its contemporary relevancy and effectiveness for reinforcing board independence. It also analyses the statutory framework governing independent directors and board functioning in India. It aims to analyse the control over appointments, dependence on reappointment, information asymmetry, committee functioning, role of shareholder voting, and the board culture. Finally, the paper critically analyses the effectiveness of existing legal framework for governance of companies in India to safeguard the board independence in substance rather than merely in form.

2. Promoter-Centric Governance in India

The features of the Indian corporate world that can be observed from various studies on corporate governance and ownership structure is the prevalent tendency towards high concentration of ownership, presence of family ownership and continuation of promoters in leadership and ownership position. In contrast to regimes which develop a system around distributed ownership structures, in India, the situation in which promoters or groups of promoters continue to maintain majority voting powers, holds top management positions, controls board representation, and sets the long-run vision of the company is relatively common. This ownership pattern is neither accidental nor legally irrelevant. It supplies stability, entrepreneurial vision, and a long investment horizon in many firms, but it also creates structural conditions in which board supervision can become dependent rather than independent. (Varottil, 2017)Therefore, the promoter-centric governance should not be misunderstood solely in its negative sense. It describes a governance arrangement in which control rights and managerial influence are concentrated around the promoter bloc, often with substantial overlap between ownership, family authority, and executive command. The legal concern arises because the board, which is expected to act for the company

as a whole, may become functionally aligned with those who control appointment and continuation in office. Once that happens, the capacity of the board to test assumptions, challenge related-party arrangements, supervise management, or record dissent may weaken even without any obvious statutory breach.

This is a structural reality that had already entered the regulatory thinking even before the framework we have now had come to form. The consultative exercise of the Securities and Exchange Board of India (SEBI) accepted that Indian corporate governance framework needs to respond to the uniqueness of shareholding pattern of Indian listed companies, and that merely borrowing from overseas would not be enough. (SEBI, Consultation Paper on Aspects Relating to Secretarial Compliance Report, Appointment of Auditors and Related Party Transactions of a Listed Entity, 2025) It accepted that directors appointed and removed through majority decision making will be acting under

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the influence of controlling shareholders. The perspective continues to be relevant today. The idea of promoter-centricity is not about concentrated shareholding, it is about the legal and institutional implication of that concentration on decision-making in companies, the difficulty of the minority, and the freedom of the board.

3. Securities Exchange Board of India on Board Independence

While the independence to the board is provided a statutory form by the company law, (Section 179 of the Companies Act, 2013) it is given operational depth by SEBI in the context of the listed company. SEBI regulates the composition of the board, board meetings, composition of the board committees, disclosures, reporting of governance aspects and oversight of subsidiaries. (SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015) It has always been the primary regulation governing the various board committees such as audit committee, nomination and remuneration committee, and others acting as internal board controls. (Regulation 17 of the SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015) The SEBI governance regime is significant because listed companies raise funds from the investing public and are thus more prone to minority protection issues in promoter-led companies. The market rationale underlying the SEBI governance regime is to be found in the fact that it requires periodical compliance reporting, oversight by various committees, disclosure of shareholding

patterns, treatment of subsidiaries, announcement of voting results and certifications of governance. (Chapter IV of the SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015) It considers the board as not just an internal organ of the company, but as a market assurance mechanism.

The regulatory mechanism also shows an evolving concern with substantive board functioning with the proposed mechanism by SEBI such as direct conversations among independent directors, one-on-one meetings with auditors, explicit recording of dissent in minutes, advance board agendas, ongoing board training, and board evaluation systems. These ideas are significant because it deals directly with decisional independence rather than only on numerical composition of the board. It seeks to improve the conditions under which a judgment may be formed by the board. In promoter-centric companies, such focus is especially important because governance failure often arises not from absence of rules but from the design of process, timing, information, and influence. The recent amendments to the framework, (SEBI (Listing Obligations and Disclosure Requirements) (Fifth Amendment) Regulations, 2025) indicate that SEBI continues to refine board governance in listed entities. The established fact through continuation of this approach is that corporate governance is dynamic in nature rather than a static settlement. Hence, such continuous amendments demonstrate that there is a need which demands constant changes as the challenge of promoter control had not vanished. Therefore, the persistence of amendment is itself evidence that formal structure alone does not settle the issue of board independence.

4. Board Decisional Independence

The decisional independence of the board is a more pervasive and practical concept than merely board independence. The independence of the board is simply an inquiry as to whether directors are free from all of the defined, substantive impediments of being a non-executive, having a material financial interest, and meeting the disqualifications. (Varottil, 2017) However, the decisional independence probes more deeply as to whether, as an entity, the board is capable of being supplied with relevant information, debating issues freely and without fear, declining control when necessary, and coming to decisions based on the interests of the company rather than those of the promoters. (Jhunjhunwala, 2024)This distinction is vital since statutory framework may

establish a visually independent board and still fall short in ensuring an independently functioning board. While the appointment of independent directors, formation of various committees, setting formal meeting agendas and the publication of governance information may establish a cosmetic compliance framework, true decisional independence requires understanding how power works within the corporation. The promoters can still influence the

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nomination process, set the agenda, dominate the management, dictate information flows and control prospects of re-appointment, even when a board is formally composed of non-executives with no vested interests in the company.

The idea also embraces the normative function of board. In light of the same, SEBI also ensured that the board is able to provide strategic direction, oversee the management, be accountable to the company and the shareholders, and also record dissent if needed and allow independent directors required access to management in a substantial manner. Such requirements transcend mere formalised oversight and assume a board that is capable of analytical thinking with an appropriate degree of institutional disconnect. Therefore, the decisional independence is not an add-on to the governance system; rather it is the prerequisite for the governance system to function in an efficient manner. It is also helpful from the Indian perspective to think in broader terms as the legal text tends to focus solely on the independent director as the agent of neutral oversight. The task remains crucial, but the real issue in terms of governance structures and functioning, are multiple and include audit committees, nomination and remuneration committees, risk management structures, minority sensitive voting, disclosure requirements, subsidiary supervision, board evaluation process, etc., that would enable the board to reach independent decisions. Hence, a strict statutory interpretation on eligibility criteria for an independent director would ignore the institutional mechanism by which power is converted to influence.

5. Independent Directors in Promoter-Centric Governance

The legal mechanism for appointment of independent directors represents the most significant contradiction in the governing regime. Independent directors were introduced to check concentrated power, but still their appointment is normally subject to the approval of majority shareholder. This structural dependence occurs at all stages of a career of the director. It starts from

the initial nomination process as control lies with the promoter. (Musunuru, 2026) Further, it occurs at the time of general meeting approval as minority shareholders are often unorganised, and it also occurs with reappointment and a director who shows even the slight tendency of an independent mind is unlikely to be nominated again. Therefore, judiciousness is replaced by an anticipatory desire to remain in service since conditions of service are clearly dependent on the acceptance of the majority shareholders.

The ideas about solutions in regulatory approach have traditionally explored various mechanisms. In addition, SEBI mentioned the need for enhanced minority participation and discussed models of foreign jurisdictions, such as a dual approval process for appointment of independent directors on boards of controlled entities. (Kashyap & Prasad, 2025) It mentions the possibility of a small shareholders' director, and deliberated a professional and transparent process of appointment ought to be undertaken. At the same time, it recognised the practical difficulty of introducing these reforms in India, particularly the fear that a new voting method would lead to strategic misuse or disorder. As a result, the legal framework has largely continued to operate through a structure where the controlling group plays a key role in the selection of those tasked with policing it. It is this unresolved tension that most clearly explains why decisional independence of the board cannot be equated simply with competence of the director. Therefore, if appointment processes are not analysed with other factors such as director tenure, committee assignment, access to information and culture of appraisal, the legal framework may be establishing an institution of independence, but it is already under an obligation to someone as from day one.

Further, the independent director is required to bring independence of thought and judgment to the board, critically appraise the performance of the company and its management, ensure integrity and transparency, protect the interests of stakeholders, and be convinced that the controls and systems of risk management are sound. This conception is normatively desirable and functionally imperative for enabling the board to claim that it represents the company and not the controller. However, the image of the independent director tends to be stronger than the practical organisational support available for fulfilling the duties and requirements.

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Independent directors are usually part-time board players. They are outside the daily management and operational flows of the company. They are dependent on the information they receive from managers. They usually

come on board when a particular strategic course has already taken shape. In promoter driven firms, these limitations may render the concept of independence more of an ideal rather than a functional reality.

Further, the approach of SEBI on corporate governance indicated the importance of direct communication between independent directors, individual communication with auditors, and facilitative role of management. (SEBI, Consultation Paper on Aspects Relating to Secretarial Compliance Report, Appointment of Auditors and Related Party Transactions of a Listed Entity, 2025) These ideas specifies that the law itself recognises the fragile nature of the position of independent directors. Their independence is not just a result of lack of a pecuniary link, it rests upon an ecosystem of process, information, and respect from the institutions. It poses a difficulty in terms of jurisprudence too, when independent directors are assessed in terms of duty, diligence, and oversight, after an instance of corporate governance breakdown, while the law struggles to analyse the structural conditions in which they were required to perform their duties. Therefore, any analysis of independent directors must avoid portraying them as sovereign watchmen. Although, the position remains vital, but its functionality is limited by the structure of power relations within the company.

In this regard, the judiciary has recognised that independent directors are not supposed to be full- time managers, and their liability will be determined based on their actual role rather than just their title as a director. In Sunil Bharti Mittal v. Central Bureau of Investigation ((2015) 4 SCC 609), the Court held observed that simply being on the Board of Directors should not cast criminal liability; there ought to be a clear material against the directors to infer participation in the act of wrongdoing. This decision is very critical as it supports the independent director, by asserting that presence on the Board is not sufficient ground for automatically attributing liability. This judgement is important for independent directors, because it confirms that mere membership on the board does not create automatic responsibility. It also reflects the practical limits of their position in promoter-driven companies, where they are outside daily management and often depend on information supplied by the controlling group. Further, in Tata Consultancy Services Ltd. v. Cyrus Investments Pvt. Ltd. ((2021) 9 SCC 449), the Court reaffirmed that majority shareholders are entitled to control the company, subject to the limits imposed by the principles of

justice and by the articles of the company. It is significant for independent directors because it shows the system within which they are expected to work and act independently; however, they are appointed and reappointed within a structure dominated by the promoter or controlling shareholder. Therefore, it shows that the legal mechanism recognises the independent role of independent directors, but they still need to function in a structure which offers significant limitations on true independence due to the presence of a controlling promoter group.

6. Related-Party Transactions and Promoter Control

The problem of promoter centered governance is undeniable in related-party transactions. (Galani & Rehn, Related Party Transactions: Empowering Boards and Minority Shareholders to Prevent Abuses, 2010) The promoters continue to control management and have substantial influence over the board; therefore, the risk is not merely that the promoter is engaging in self-dealing by taking an advantage of the influence over the functioning of the company. The underlying problem is more threatening, because opportunities, assets, contracts, guarantees, or decisions, might be designed to work in favour of the network of the controller. (Rasheed P.C., Mallikarjunappa, & Thomachan, 2019) Therefore, Indian corporate governance framework heavily emphasises disclosure, review, and approval procedures for the transactions which potentially attracts conflict. The policy discourse requirement of SEBI on minority protection, specifically highlighted related- party transactions as a critical governance issue. It is understandable because the ultimate test for the board often comes not when routine decisions are being made, but when decisions are required in the context of transactions involving

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the promoter group, directly or indirectly. In such cases, the ability of the board to take decisions independently of the promoters defines whether the interest of the company can be separated from the interest of the promoters. (Galani & Rehn, Related Party Transactions: Empowering Boards and Minority Shareholders to Prevent Abuses, 2010)

This function of separation is expectedly performed by independent directors and the audit committee. However, their ability to discharge this function is subject to dependence on appointment, information disparity and the practical difficulties of being in a position of direct confrontation with the controller who exercises voting power over the company. The law may

prescribe approval percentages or disclosure requirements, but it cannot fully eradicate the influence of a controller whose economic position role within the company is extremely crucial. Therefore, the law governing related party transactions in a company, is both representative of and symbolic of the duality that characterises the Indian corporate governance system. It identifies a problem associated with ownership concentration; however, ownership concentration itself may be integral to the very institutions which are required to address the problem. Therefore, the board is being tasked to enforce promoter power, while functioning within a system partly constituted by that power.

7. Minority Protection and Shareholders' Democracy

The structure of corporate governance in a promoter-driven company always strains against a simplistic majority rule concept of shareholders' democracy. Formal shareholder approval is more an instrument for legitimising pre-determined choices when promoters have controlling voting rights, rather than genuine minority shareholder protection. This explains why the SEBI emphasised the participation of minority in the selection of independent directors, and dwelled upon international attempts at dual majority or majority of the minority structures. The concerns were not merely theoretical; it is a genuine one when an ordinary majority vote is in fact an effective control by the majority owner. Simultaneously, practical considerations are also significant element as complete handing over of appointment of director to fragmented minorities may result in strategic challenges arising from potential collusion among contesting factions, or instable board constitution. Therefore, although the SEBI examined the possibility of reorganising voting design, but it did not adopt the radical restructuring of voting rights. Indeed, minority rights have typically been protected by Indian legal framework through disclosures, independent committees, approvals of interested transactions, transparent voting, and small shareholder representation in specific situations.

This approach reflects a pragmatic arrangement. It tries to make board decision-making more sensitive, but not subordinate to controllers. It aims to mitigate the negative consequences of control without destroying the promoter model which prevails in Indian corporate structure. However, as long as the legal framework of appointment and voting power is vulnerable to

manipulation of controller, board decision-making depends on the voluntary discretion of controllers rather than absolute constraints imposed by law. Further, devices for minority protection may mitigate the extent of the abuse; they cannot fully compensate for a board i.e., legally equipped to make choices without worrying about the implications with regard to controller sentiment. This does not render promoter driven companies illegal or inappropriate per se, rather many such promoter driven companies perform quite well. The problem lies in the effectiveness of board independence, in its capacity as controller qualifier. In addition, the legal limitations on such aspects are insufficient; therefore, corporate governance becomes more in the nature of a statement of intent rather than a check.

Several judgments in India have reiterated that corporate democracy is not merely a question of mechanical rule of majority, and that it can be oppressive where the control is concentrated in the hands of promoters. In Needle Industries (India) Ltd. v. Needle Industries Newey (India) Holding Ltd. ((1981) 3 SCC 333), the Court held that not every act of the majority is oppressive, but also made it clear that minority interests cannot be ignored when control is used unfairly. Further, in Dale and Carrington

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Investment (P) Ltd. v. P.K. Prathapan ((2005) 1 SCC 212), the Court held that where share allotment has been affected for a hidden motive with a view to acquire control it will be invalid and that a wrong doer cannot derive benefit out of his own wrong. The same balance appears in M.S.D.C. Radharamanan v. M.S.D. Chandrasekara Raja ((2007) 138 Comp Cas 897 (Mad)), wherein oppression has been looked into from a question of conduct, unfairness and abuse of authority, rather than mere numerical control. In V.S. Krishnan v. Westfort Hi-Tech Hospital Ltd. ((2008) 3 SCC 363), the Court held that the unfairness must be oppressive from the legal point of view, however it reaffirms minority grievance must be weighed against good faith and fair play. Most importantly, in Tata Consultancy Services Ltd. v. Cyrus Investments Pvt. Ltd. ((2021) 9 SCC 449), the Court reaffirmed that minority shareholders do not have an automatic right to board representation, and that shareholder democracy does not by itself create a right to control the management of the company.

This judicial approach in India shows that shareholder democracy is a real and recognised principle. However, it also shows that the limits of this principle become most visible in promoter- driven companies, where control is concentrated in the hands of a dominant shareholder or group.

In such companies, the formal process of voting does not always mean genuine participation of the minority. Often, majority approval only gives legal form to decisions already shaped by the controller. For this reason, Indian law has tried to protect minority shareholders through disclosure requirements, independent directors, special approvals for interested transactions, transparent voting processes, and limited representation of small shareholders. Therefore, the Supreme Court of India has also repeatedly intervened where majority power was used unfairly, while at the same time accepting that majority control remains the basic structure of company management. This shows that shareholder democracy in India is not imaginary, but it operates within a promoter centric corporate system. The real problem is not the existence of majority rule itself, but the risk that, in promoter-driven companies, majority rule may be used to weaken minority interests and reduce board independence.

8. Conclusion

The promoter-centric governance is a defining feature of Indian corporate sector, not an exception. Therefore, the assessment of board independence in India needs to consider the prevailing reality of ownership concentration, and the continuing control of promoters over the appointment, management, access to information and directions on policies. In a vast majority of Indian firms, the promoters do not only remain an external influencer. They also constitute the central organisational authority in the company, thereby dictating, board composition, decision making processes, and overall corporate governance approach. As a consequence of this reality, the legal process has reacted with a complex and elaborate statutory framework for establishing a good corporate governance regime. The law has undeniably improved corporate governance practices by bringing to force institutionalisation of independent directors, board committees, disclosure standards, fiduciary duties, and process-oriented checks. It was driven by a conscious intent to move away from purely informal controls to establishing internal checks on insiders' control, for improved corporate accountability, transparency and investor protection.

However, the fundamental question is whether these instruments in reality ensure boardroom decisional independence. While the formal structures of independence have been built, the reality of the use of independent judgment in the context of a promoter-dominated companies, continues

to depend upon circumstances like the terms of their appointment and re-nomination, their ability to get information, board culture, and the fact of shareholding control. It may be legally prescribed that a director must have an independent mind, but the institutional environment may not always allow or foster it. A director may be legally independent of the promoter but be structurally dependent on the willingness of the promoter to keep him on the board.

Further, a board is supposed to contain a qualitative restraint on the power of the promoter, still most of the conditions for its own governance are determined

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by the power of the promoter it is meant to control. Independent directors are expected to challenge, scrutinise and contain management still they are appointed by a process in which the decision of the promoter remains paramount. They are expected to have independent thoughts but are reliant on management for access to information, cooperation and continued employment. They are expected to serve stakeholders still they are in a situation in which subordination to the power of promoter may lead to better career prospects than strong, independent decision-making. This does not imply that an independent director can never work, but that independence cannot be taken for granted purely from the legal definition of a position.

Therefore, the current legal framework is substantial but functionally incomplete. It has improved the level of Indian corporate governance far beyond the prior paradigm of complete insider dominance and has enhanced board awareness of duties, process, and accountability. However, it still struggles to ensure that formal independence translates into autonomous board judgment within promoter-centric companies. The law has improved governance, but it has not eliminated the structural conflicts between independence and concentrated control. Hence, the board decisional independence in India remains a contested achievement rather than an accomplished fact.

More than this, the fundamental issue is about acknowledging that it is not merely a matter of who sits on the board but also of whether they can act as a board. This demands more than just appointment rules. It demands meaningful information, an appropriate institutional culture, immunity from retribution, and structures which do not make board independence dependent on the generosity of the promoters. Therefore, until these conditions are fully secured, the legal

mechanism will continue to express a robust commitment towards board independence; however, achieving it only incompletely and insufficiently in practice.

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ISSN: 2583-2476

A Critical Appraisal of Airport Infrastructure and Public Private Partnerships in India

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Abstract

Public-Private Partnerships have become an important tool to deal with infrastructure shortages especially in capital-intensive markets like airport development. This paper reviews critically the conceptual framework, structural qualities, and functional dynamics of PPPs with particular attention to their application in the Indian airport industry. It examines the basic reason behind PPPs such as transfer of risk, value to money as well as showing the complexities involved in financing, structuring contracts and managing projects over time. The analysis also compares various PPP to Build-Operate-Transfer and Design-Build-Finance-Operate-Transfer and looks at the use of the models in greenfield and brownfield airport development in India. The article highlights major obstacles that reduce the efficiency of PPPs, such as regulatory uncertainty, tariff ambiguity, land acquisition obstacles and poor institutional capacity among authorities. It also discusses how PPP arrangements are changing, specifically that they tend to blur into joint venture forms, thus weakening the desired distribution of risks and responsibilities. By examining the trends in the sector and project designs, the paper concludes that even though PPPs have enabled infrastructure growth and enhanced service delivery, the results of their efforts are unequally distributed among projects and contexts. The research highlights the necessity of a more sensitive and context-specific approach to the implementation of PPP, where the institutional preparedness, the nature of the project, and the market conditions are closely coordinated. It emphasizes that long-term sustainability of airport PPPs is conditional on reaching the balance between commercial sustainability and social responsibility and making sure that the development of infrastructure is both cost-effective and socially accountable.

Keywords: Public-Private Partnerships, Regulatory Framework, Concession Law, Public Infrastructure Governance, Airport Sector Regulation

1. Introduction

Public private partnerships (P3) are a special type of interfaces between private and public sector in terms of undertakings and are designed to build infrastructure of public service. The term public private partnerships refer to various types of cooperation's between public sectors and private businesses which aims to ensure construction, funding, renovation, maintenance or management of infrastructure or provide any service.

The Council in Europe authorised a range of measures as part of Initiative for Growth which were aimed at boosting investments in the infrastructure sector of European transport networks and in innovation, development and research, as well as at providing services in the public interest. The United Nations, however, was happy about this move and stated that PPP is "innovative methods used by the public sector to contract with the private sector who bring their capital, their ability to deliver projects on time and to budget, while the public sector retains the responsibility to provide these services to the public in a way that benefits the public and delivers economic development and an improvement in the quality of life." The UN Millennium Declaration (pledging a partnership for the world) and the United Nations Millennium Development Goals (MDGs) prepared a blue print towards reducing the gap between the poorest countries and developed countries.

The key benefit of introducing the private sector to the mix of providing services to the general public is that the public sector does not have to use its capital to pay for the provision of public services; other potential

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benefits include quality, innovation, efficiency of management, effectiveness etc. that may stem from the private sector. For this reason, the public sector has got value for money in providing these public services and that the process of privatisation has enabled the state to manage the asset better, strategizing the public finances. A concept that ensures effectiveness and efficiency of the product and process of the public service that compares the cost of input against the output value, qualitative and quantitative judgement of the way in which resources are utilised and managed.

The eroding belief in the public sector's ability to act as organizer and owner of assets in the sphere of public services has led to attempts to tackle the general dissatisfaction with conventional public

procurement procedures. They have often not achieved value for money outcomes, and the most typical criticisms have been aimed at the adversarial contractual relationship between buyer and supplier during the procurement through competitive tendering process, the transfer of risk and ultimately the lack of contractual performance, resulting in project delays and cost overruns.

PPPs are unique in comparison to the conventional public procurement, it is a shift in ethos of public sector management. A key element is private sector partner (PSP) financing and delivery of infrastructure projects or public services, involving PSP in a variety of stages in the project development process such as design, implementation, construction, operation and maintenance etc. For this reason, PPP schemes tend to be long-term contracts, so that the public sector can afford them and private sector can make a profit from the investment.

The second is the risk sharing attribute of the relationship between the public and private parties; the private party(s) is expected to assume a large share of the risk. The risk assessment in PPPs is thus quite different from that in traditional public contracts. These risks include construction or project risk (related to design faults, cost overrun and delays); financial risk (related to the fluctuation of interest and exchange rates); residual value risk (related to the market value of the assets in the future); performance risk (related to the availability of the assets and quality of service); and demand risk (related to the persistence of the demand for the service).

Political risks are also substantial and these include external and internal risks which are affected by the government. With the host state, external political risks can be mitigated, hedged or insured against, such as currency convertibility issues, war, sanctions and political instability. The internal political risks, on the other hand, are typically not insurable risks (such as taxes, inflation, terrorism, industrial unrest etc.) and can have a significant impact on the risk allocation in PPP arrangements.

One of the next important areas of PPPs is the manner in which they are funded. It is also a specialised form of financing which differs from traditional public finance as well as corporate finance. PPP loans have been viewed as off balance sheet borrowing and so do not directly impact on public sector borrowing requirements or measures of state indebtedness. This opens up possibilities for other forms of financing for governments.

Risk transfer from the public sector to the private sector is one of the aims of PPPs. Where private sector involvement and/or capital has been provided, there is value for money and benefits, but the risk transfer mechanisms are essential. While one may believe that the maturity of financial market could influence the cost of capital of the PPP projects, the cost of capital is not much dependent on the sources of finance but is more dependent on the risk of the project. In very developed financial markets, the risk allocation between the public and the private sector may be (more or less) equal; in less developed markets, the risk allocation mechanisms can play a crucial role in the outcome of a project.

The public sector can spread the risk among the taxpayers and the private sector relies on financial markets to spread and absorb the risk. The real issue is that the lower interest rate of borrowing from the public sector, due to the lesser default risk, is not necessarily the end of the story—PPPs should only be used if the benefits of using them, based on the difference in efficiency, justify the increased cost of borrowing in the financial market.

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2. The Evolving Model of PPPs

PPPs are cooperation arrangements between the public sector entity and private sector entity for the provision of infrastructure services and/or public services. These involve sharing duties and responsibilities as well as costs, risks and returns, between and amongst the parties, and they are expressed in very specific terms, in a web of agreements and covenants. There are various stakeholders, project sponsors, investors, operators, insurers and suppliers, contractors, subcontractors etc. involved in these projects.

The most important contractual instrument of PPP projects is concession. Describes in detail the proposed legal, financial and operational structure of the project, interdependence of the key players and introduces the key parameters like quality of service, tariff structures, length of concession, possible return of the project. The majority of the PPP projects are set up under models such as Build-Operate-Transfer (BOT), Build-Own-Operate-Transfer (BOOT), Build-Own- Operate (BOO) or any other combination that is appropriate for a particular project.

The risk for project planning and structuring, tariff determination, regulatory approvals, land acquisition and political contingencies are generally borne by governments. The government players do not assume the risks arising out of demand, revenue generation, financing, operations and general commercial issues that are borne by the private sector players. Under concession contracts, governments can also be held liable to pay the private sector, if their decisions negatively affect the demand or revenues, e.g. due to construction of competing infrastructure. Risk is a crucial component in project success and trust for the project stakeholders is developed by identifying, transferring and managing it.

Financial viability and sustainability of PPP projects is contingent on some key parameters such as capital costs, levels of demand, tariff structures (often predetermined) and the length of the concession period. There could be a tariff at which demand is large enough to pay for the project over a reasonable concession period. But the potential financial viability may not exist where the capital costs are high and cannot be recovered in such a short time. In such cases, some compensation mechanisms may be brought up (e.g. concession period extension), but concession periods that are too long can have a negative effect on the attractiveness of the concession for investors and lenders. Concessions are usually of 20-22 years duration and longer ones are considered as exceptions.

Some projects are going to fall short of the private investor's or the lender's expected rate of return when operating in an environment of private investors and lenders who operate with an expectation of return. In this kind of gap, the mechanism of viability gap funding is to provide capital grants to ensure there is some reasonable rate of return, and to improve the bankability of the project.

3. Measuring the Transfer of Risk in Public Private Partnerships

A set of general, broad-based criteria has been created which considers the extent of risk and its distribution in PPPs. As a corollary to the separation of ownership and operation of a PPP's assets, a general principle is developed to evaluate and transfer the risk. On the basis of this, two types of PPP contracts can be distinguished: Separable PPP contracts, where there is a clear demarcation between asset ownership and the provision of public services and non-separable PPP contracts,

where the private sector partner retains ownership of an asset needed for the provision of the service.

In the case of non-separable PPP contracts the key principle of risk assessment is the sharing of risk of demand, and the risk of residual value, between public sector and private operator. Demand risk is an operational risk, and is the most significant and common factor and is borne by the public sector (i.e. payments to the private operator are not dependent on the future demand for the service). An ownership risk of a residual value should be handed over to the public sector at a reduced value of the residual value. This is because the difference between the charges for the services or in the revenue structure of the project is taken into account by the private operator. As a result of this, any difference between the anticipated and actual monetary gain (or loss) is ultimately moved to the public sector. There are also qualitative indicators,

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which although not easily quantifiable, may be considered and the final decision made as a result of an overall assessment of all of the relevant indicators, such as: extent of public sector control on the design and operation of assets and governmental guarantees of private liabilities.

In separable PPP contracts, risk assessment and transfer is based on three key elements: construction risk, availability risk and demand risk. Construction risk involves issues with delivery delays, quality, cost overruns, technical issues and adverse external impacts. In any case, in terms of flow of public sector payments, it results in the bulk of the construction risk being shifted to the public sector. Availability risk, as the name suggests, is the risk that the private partner will be able to deliver agreed level and quality of service and payments risk is the risk that the public sector also bears. Demand risk is related to factors like economic cycles, market trends, competition and technological change which are related to the continuing demand for the service. Demand risk can occur in the public sector when there is no connection between public sector payments and demand. But, these changes in demand which result from the changes in government policies are not included in this evaluation.

Eurostat has provided guidance on classification of PPP assets based on risk transfer and in Europe, the private party is deemed to bear the bulk of the risks if the private party bears the bulk of the construction risk and either the availability (performance) risk or the demand risk. For long-term

contracts where the private party is mainly providing services to the public sector and is responsible for constructing an asset. Moreover, Eurostat proposes that such PPP assets should not be included in the public sector balance sheet, but should be treated as non-governmental assets, if the risk of constructing the asset is borne by the private partner, and the risk of availability or the demand is borne by the private partner.

4. Risk-Prone Projects

Certain projects, like those of high demand highways, have been more easily constructed in Greenfield situations over the years and other sectors have been more difficult to structure and put into practice through such construction. There are lots of time and expertise needed to identify and optimally allocate the various kinds of risks.

The complexity is further increased in the case of infrastructure projects in urban areas where risks are multifaceted, dynamic and hard to quantify. Some of these uncertainties vary over time in projects like urban mass transit systems, water supply systems and sewerage systems, resulting in increased costs and increased exposure to risk.

A problem or delay on these projects can include key enabling activities like land acquisition, rights of way, numerous regulatory approvals etc., that can add a lot of risk into the project, and hence push the risk premium up by investors. Other issues are relocation of existing utilities (electric, water pipelines, sewerage systems etc), working in congested urban environments and other added costs and complexities.

In big cities, there are more than one agency working concurrently and this necessitates the agencies to be coordinated to implement the project successfully. Land acquisition and right-of- way problems, especially in densely populated areas, are usually long and controversial. The costs of preliminary and preparatory work can be a significant portion of the project costs. Considering the costs of unauthorised constructions and rehabilitation of the affected population, the financial burden of the government is very high.

Such issues could cause governments to take a fresh look at the appropriateness of PPP schemes for some projects. The first step of the projects is particularly important and depends on the

commitment, effectiveness and initiative of public bodies. At this stage, don't delay as it could lead to a lack of private sector confidence and may force project participants to withdraw too soon.

5. Greenfield Airports

The PPP mode of the green field airports has structurally developed over time. Kochi is the first airport of the country to be built as a green field airport with the philosophy of "participation of the individuals". It was a case study on the way through which PPP was to be implemented in a proper way in

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the Indian airport industry. Cochin International Airports Ltd, run by the Government of Kerala, financial institutions, airport service providers and foreign countries are all stakeholders of the airport.

The scope of work mostly focused on construction and design, operation and maintenance of the airports during the concession period and expansion of the airports where necessary. With substandard operation the airports are forced to be redefined. Besides this there are other possibilities for the extension of the concession period as well for which there may be a request by the concessionaire. The concession fee is calculated in per cent of the gross revenue from public authority.

Another scenario that the models can be applied to is where the airport has been operating and either the management or the capacity is limited, and are likely to experience an increased demand and infrastructural needs. In terms of government funding, including funding from outside the government, PPP model is selected, because it is an opportunity to include the necessary infrastructure investment (a new terminal in the airport or an additional runway). The PPP and concession contracts can be generalized and might include financing, development and operations and maintenance services. This difference in the Contracts can be explained as follows in the context of green field development of Airport:

6. Build Operate Transfer (BOT)

The concessionaire invests and manages for a given duration of time in the facility following which the ownership is reinstated to the public sector. For the concessionaire, there could be a high risk of operation and risk of investment for him in this type of contract. The policy is controlled by the

government which is the ultimate owner. Thus, it can assign the risks to the relevant individuals and deploy it to get rid of any incompetency. It is a common model, which is followed in the development of airports in Turkey.

If necessary, a special purpose vehicle (SPV) may need to be developed as a model for implementation and operation of this project. It can be set up as joint venture company in a large number of companies of the private sector and government. It can provide capital grants or any other financial incentives to a BOT project, in order to provide for government equity participation.

7. Build own transfer Restructure/ Design Build Finance Operate Transfer (DBFOT)

The airport is constructed, owned and operated by the private sector and the airport is sold to the concessionaire. DBFOT is another setup of this model. Since the same party constructs and renders services, and only receives payment on the success delivery of services at a stipulated standard, then they have nor much room to compromise the quality of the services. It also prevents the risks of cost overruns during design and construction stage or the choice of inefficient technology since the future income of the operator is tied to the cost control. The key benefits of the public sector are in discharging burdening costs of design and construction, and in the transfer of some risks to the private sector and the guaranteeing of improved project design, construction and operation. Some of these are the concession structure in the airport of Bangalore and Hyderabad

Usually, a PPP contract within the airport sector may expand over 30 years and may extend even further in an instance where there is an increased capital expenditure demand. Longer contracts could be corresponding to the long-run character of capital expenditures and motivation to the effective utilization of funds, whole lifecycle cost and sound management of assets.

The Cochin International Airport located in the state of Kerala was the first green field airport constructed in India on the basis of the public- private partnership system. This was followed by the completion of two additional airports that comprise airport at Hyderabad and Bengaluru. Moreover, two airports have won on PPP i.e., at Mopa and Navi Mumbai airports. The PPP characteristics of these airports have been addressed below to derive lessons that may be observed when taking into account appropriate frameworks of the airport projects in the country in future.

8. Key Investments, Policy Developments, and Growth Initiatives in India's Aviation Sector

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India's aviation industry has seen record levels of investment and growth over the last ten years, both in the public and private sectors, progressive policy changes, expanding infrastructure and technological advancements, and has been subjected to increased regulatory scrutiny. The industry has progressed from being a driver for passenger transport to an aviation sector that involves airport infrastructure, aircraft maintenance, aircraft manufacturing, regional connectivity, digital transformation and global partnerships. All these are indicative of the Government of India's long- term aspiration to turn India into a global aviation hub and also promote economic development, job creation and regional development.

The gradual growth of Maintenance, Repair and Overhaul (MRO) and aerospace manufacturing capacities in India is one of the important developments. Indian airlines traditionally depended on a large extent on foreign MRO facilities resulting in high maintenance costs, longer aircraft down time and significant foreign exchange outflow. Recent investments show a strategic transition to local capability development. The Hyderabad-based ₹ 1,300 crore aircraft engine MRO facility is one of the biggest investments in the Indian aviation MRO sector, and is likely to cater to LEAP engines operated by various airlines around the world. In the same way, the Magellan-Aequs partnership in setting up an MRO facility in Belagavi facilitates the transfer of technology, indigenous manufacturing and specialized maintenance services to support the manufacturing ecosystem in India. All of this is accompanied by the terrific growth of India's aerospace supply value, which has risen from around ₹ 2,147 crore every year in 2015 to nearly ₹ 17,178 crore in 2025. This growth is eight-fold which is a clear sign of India's growing participation in the world aerospace manufacturing networks and also the success of 'Make in India' in bringing in world aerospace companies and value addition.

Facilitating this transformation has been equally important is policy liberalisation. Overall, the aviation industry has received total Foreign Direct Investment (FDI) of about ₹ 45,913 crore from April 2000 to June 2025, reflecting consistent investor interest in India's booming aviation sector. Liberal FDI regime is in place for scheduled and non-scheduled air transport services and foreign

investors are allowed to invest up to 49% using the automatic route, while investment in excess of 49% would require the approval of the government. On the other hand, Non-Resident Indians (NRIs) can invest 100% of the investment under the automatic route. This policy has led to a huge influx of capital, facilitated strategic partnerships with foreign companies, facilitated technology transfer and ultimately boosted India's competitiveness.

The airport infrastructure has become the backbone of India's aviation growth plan. The Government has taken a two-pronged initiative, one – development of existing airports and another – development of new greenfield airports to ensure that the growing demand for passengers is fulfilled. Two secondary international airports are being built at Navi Mumbai and Noida, to decongest Mumbai and Delhi airports, enhance operational efficiency and boost regional connectivity. At the same time, the construction of Terminal 3 at Indira Gandhi International Airport will boost the airport's capacity to handle nearly 20 million passengers annually to around 30 million passengers per year, due to the increasing demand for air travel. The private sector has also been more active, for instance, Adani Airports has pledged almost US$7 billion for expansion and modernization of airports. In addition to these private investments, Airports Authority of India (AAI) has proposed capital expenditure of around ₹ 98,000 crore in the next five years with a special focus on infrastructure development of around ₹ 25,000 crore during 2022–27. The Government is also dedicated to investing almost US$1.83 billion in air navigation services and airport infrastructure through 2026. Together these investments are intended to bring about a major increase in the number of airports in India and to increase the airport's passenger handling capacity and further serve India's long-term goal of deploying around 220 operational airports throughout the country.

Regional connectivity continues to be a priority policy with the UDAN (Ude Desh ka Aam Nagrik) Scheme. The scheme was originally started to promote cheap air transport and provide links to poorly serviced areas,

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but has now been extended to cover water aerodromes and seaplane services, thus, widening the spectrum of regional air connectivity. The plan to establish seaplane services in eight areas in Andhra Pradesh is an innovative approach to connect remote and coastal locations where construction of conventional airports may not be economically viable. In addition, the Government's vision of turning the North-Eastern region into a logistics and aviation hub which

involves developing sixteen airports illustrates the importance of aviation for regional integration, tourism, trade and balanced economic development. All of these initiatives contribute to a decrease in geographical disparities and an increase in accessibility throughout the country.

At the same time, Indian airlines have seen a growth in their operations and international integration. The decision to join the International Air Transport Association (IATA) and its commitment to operating around 115 aircraft carrying almost 500 daily flights indicates Air India Express's efforts to align with international standards and best practices. The commencement of Air Kerala from Kannur is another sign of regional carriers getting into India's domestic aviation market, which will increase the level of competition and provide more options for passengers. The launch of new routes, such as the daily flights from Mangaluru to Delhi, enhances connectivity within the country, and the Air India's Codeshare agreement with Kenya Airways (KQ) extends its reach to Africa, offering better connectivity between India and the continent. These advancements are crucial for improving the efficiency of the network and strengthening India's role in the international aviation ecosystem.

Technological innovation is also now an integral part of the Indian aviation vision. Sarala Aviation's Shunya air taxi is an indigenous development and India's entry into the new sector - Urban Air Mobility. The proposed design of an aircraft capable of holding 6 passengers and is able to run at about 250 kilometres per hour is a reflection of the need of sustainable and advanced mobility solutions. In Andhra Pradesh, the plan for a "Drone City" with an investment of around ₹ 100 crore, indicates that the government is keen on supporting the research, manufacturing, testing, and commercialization of unmanned aerial systems. Such efforts reflect a growing trend in India's aviation policy that is moving beyond traditional modes of transport to embrace future technologies with the potential to revolutionize urban mobility and logistics.

Aviation regulation and safety standards have also been strengthened, giving a huge boost to the aviation sectoral development. The Directorate General of Civil Aviation granting India's first safety clearance to AISATS under the Civil Aviation Requirements (CAR), which meets the International Civil Aviation Organization (ICAO) standards, shows India's dedication to improving operational safety, compliance with regulations and international standards. Good

regulation boosts passenger safety and fosters investor confidence and aviation industry cooperation with other countries.

Another key trend is towards using Public-Private Partnership (PPP) and privatisation for airport development and management. The addition of twenty-five airports in the National Monetization Pipeline reflects the Government's approach of using private capital, expertise and efficiency to modernize airports. The effectiveness of this model is reflected by a growing number of airports under the PPP model: from 5 in 2014 to 24 in 2024. There has been an increased level of private sector involvement, which has facilitated the development of infrastructure, the quality of passenger services, operational efficiency and decreased the fiscal burden on the Government while ensuring long-term growth.

The aviation ecosystem has further been bolstered by the large scale industrial investments. The JSW Group has planned to spend around ₹ 16,000 crore on integrated infrastructure development, such as the upgradation of Durgapur Airport, for instance, which shows that there is more and more overlap between industrial development and aviation infrastructure. These investments not only support regional economic development but also enhance transport connectivity, which is crucial for supporting industrial development and ensuring logistics efficiency. The overall picture of the industry is also very encouraging as the industry is expected to get an investment of almost ₹ 35,000 crore in coming years. The investments are expected to

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benefit the modernization of the airports, fleet expansion of airlines, aerospace manufacturing, technological development and passenger services.

Wings India 2024 is also seen as a sign of India's rising stature in the international aviation world as it has been organised as Asia's largest civil aviation event. The event highlighted the potential of the country in investment, technology and policies and marked the launch of UDAN 5.3, underlining the Government's investment in regional connectivity and accessibility of aviation. These international platforms help in collaboration between governments, airlines, manufacturers, investors and technology providers and make India a major aviation hub of the world.

The policy actions and investment trends in the last few years prove that the aviation industry is experiencing a holistic transformation of the structure of the aviation industry through the

simultaneous development of all the five pillars of the aviation industry: Infrastructure, Manufacturing, Regulation, Technology, Regional connectivity, and Private sector participation. Over the last few years, the aviation sector has witnessed the amalgamation of liberal investment policies, massive capital investment, technological advancements, and institutional reforms, building a robust aviation ecosystem that can sustain economic growth, increase India's competitiveness, create job opportunities, and play a major role in the nation's long-term aviation goals.

The privatisation project of Chhatrapati Shivaji International Airport (Mumbai) is one of the few early and successful brown field PPP projects in India's aviation industry. The airport is managed under the Build-Own-Operate-Transfer (BOOT) model, where the private operator would take charge of the modernization and running of the airport and at the end of the concession period it will be transferred to the public authority. This concession agreement is special because the revenue sharing is 38.7% of MIAL's gross revenue. Here is a model that shows the Government has been able to balance participation of the private sector with its own financial interests. Mumbai Airport has also been modernised significantly after the privatisation, with redeveloped terminals, improved passenger facilities, improved operational efficiency and increased commercial facilities, and the use of advanced technologies for airport management. The project has been regularly referenced as an example of how private sector involvement can revitalise old airport facilities to create world-class aviation centres and provide the Government with a lot of money.

A comparable model has been followed for the Indira Gandhi International Airport (Delhi) which is being managed by Delhi International Airport Limited (DIAL) under the Brownfield BOOT. Delhi Airport has the highest revenue-sharing commitment amongst the airport concessions, with the concessionaire having to pay the Airports Authority of India 45.99% gross revenue. This is an exceptionally high percentage, which is due to the commercial success of India's busiest airport and the Government's goal of making sure that privatisation brings in significant public money. The Delhi Airport modernization has made it one of the world's leading international airports, with the construction of Terminal 3, the expansion of the airport's passenger handling capacity, the introduction of cutting-edge baggage handling systems, and various digital passenger amenities, while also implementing internationally recognised sustainability measures. Delhi Airport proves

that if designed well, PPP can result in an increase in the quality of service, private investment and a considerable stream of income for the Government.

Mumbai and Delhi have just been discussed, and Rajiv Gandhi International Airport, Hyderabad, is a successful greenfield PPP project that was developed using the BOOT model. The project was not to modernise an existing airport, but to build a new, international airport using private investment. According to the concession agreement, the concessionaire, GMR Hyderabad International Airport Limited (GHIAL), must pay concession fees of 4% of its gross revenue to Airports Authority of India. The relative lesser revenue sharing percentage is in consideration to the higher capital investment and higher financial risks involved in the greenfield airport development. Since then, Hyderabad Airport has become one of the most efficient airports in India for its modern infrastructure, cargo handling, and passenger services and operational excellence. The

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project provides a good example of how the PPP model can be used to create a completely new aviation infrastructure while also guaranteeing the Government's financial involvement in the project in the form of concessions.

The greenfield Airport Kempegowda International Airport, Bengaluru is a success story. Similarly, the airport has been operated under concession by Bengaluru International Airport Limited (BIAL) under BOOT (Build, Operate, Own and Transfer) model and the concession contract stipulates 4% gross revenue to be shared with the Airports Authority of India. The concession fee is relatively low, allowing concessionaires enough financial leeway to pay back large capital expenditure they have made in developing new airport facilities and thus to attract private investment. From the time of its inception, Bengaluru Airport has emerged as one of the fastest-growing airports of India, especially for business travel, information technology industries and international connectivity. The greenfield PPP approach has proved to be sustainable with the continuous expansion of terminals, cargo facilities and aviation support infrastructure managed by the private sector.

Cochin International Airport (CIAL) is the unique type of model under the privatization of airport in India. Cochin Airport has a Build-Own-Operate (BOO) model whereas other major PPP airports are under BOOT (Build-Operate-Transfer) model. Under this scheme, the airport is to be owned

and operated by Cochin International Airport Limited without transferring the airport at the end of a concession period. The Government's financial returns are in the form of dividends equivalent to its 26% equity stake in the company, instead of a Revenue Sharing model. It is a shareholder model that differentiates CIAL from other Indian PPP airports and is an alternate method of PPP. CIAL is one of the most innovative infrastructure projects in India and has been recognized globally as the first airport to run entirely on solar power, and the airport remains profitable and efficient. The airport is an example of how equity-based PPP models can deliver sustainable financial returns for the Government and incentivize efficient private sector management.

A comparative evaluation of these airport projects shows that there are substantial variations in the transfer of financial risks, investments to be made and how the revenue will be divided depending on the type of the project. The construction risks in brownfield airports like Mumbai and Delhi are lower since the infrastructure is already in place, and, therefore, the Government has negotiated a much bigger revenue-sharing percentage of 38.7% and 45.99% of gross revenue, respectively. In contrast, greenfield airports like Hyderabad and Bengaluru have high upfront capital costs, longer gestation periods and the associated commercial risks – and hence the concession fee is comparatively lower at 4% of gross revenue. The Cochin International Airport has for the first time broken away from the convention of concession to adopt an equity participation model, wherein Government returns are based on dividend distribution and not on contractual revenue sharing. These variations show the flexibility of India's PPP framework to tailor concession structures to the nature of the project, risks and investment, and commercial viability.

Overall, these Airport Privatization models illustrate the shift from direct government ownership to a more collaborative approach to building aviation infrastructure in India, with the involvement of private partners. They have facilitated the mobilisation of huge private investment, speedy airports modernisation, standardisation of airport operations, better quality of service, better passenger experience and at the same time, provide the Government with continuous monetary benefits through revenue sharing, concession fees or equity dividends. The success of these projects has now spurred further airport privatisation efforts under the National Monetisation Pipeline and made PPPs the model of choice for the future airport infrastructure developments in India.

9. Brownfield Airports

An operation, management and development agreement is utilised for the modernisation and operation of major airports. The OMDA set out contractual terms to the PPP structure. The concession period provides for extension in the event of a request by the concessionaires. The concessionaires are to pay

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an upfront fee and an annual premium to the public authority based on projected revenue.

Recently, several airports were put out to bids by the public authority. The concession period for these airport is long-term without any extension in some cases. This privatisation process reflects a change in the PPP landscape in the airport sector as the bid parameter has changed from a traditional revenue share arrangement to a payable fee per passenger. The airports have been awarded to winning bidders and concession agreements are under way.

10. Quoted fee per passenger by winning bidder

Public-Private Partnership (P3) models have become increasingly a staple in the process of privatisation of Indian airports, which are increasingly being undertaken through transparent and competitive bidding processes to ensure efficient allocation of public assets and maximisation of value for the Government. The per-passenger fee model, in which the private concessionaires bid for the amount they are willing to pay to Airports Authority of India (AAI) for every domestic passenger handled at the airport, is one of the most important elements in recent privatization efforts. This is different from traditional revenue-sharing schemes used in previous PPP schemes, because it provides the Government with a certain and quantifiable revenue flow that is directly related to passenger volumes. Airports with higher passenger volumes thus provide higher positive financial returns to the public authority and also incentivise private operators to provide efficient services and boost passenger volumes.

If you are looking for the highest amount quoted among the airports allotted under this scheme, Sardar Vallabhbhai Patel International Airport, Ahmedabad quoted the highest amount of ₹ 177 per domestic passenger. The fact that the winning bidder has offered maximum payment per passenger points toward high commercial confidence of the future traffic growth in Ahmedabad,

growing industrial base, increasing business travel, and a strategic geographical location. Ahmedabad is one of the fastest-growing metropolitan areas in western India, and its economy has grown, while tourism has increased and connectivity has improved, making it an interesting area for investment for private airport players. The high bid also reflects the concessionaire's belief that the revenue it will generate from the aviation business, retail operations, commercial concessions, cargo handling and real estate development would easily cover the chunky concession fees it has to pay the Airports Authority of India.

The airport, which plays a crucial role in the northern part of the Indian region, attracted significant investor interest in Rajasthan's growing tourism industry as it secured the second largest quoted rate of ₹ 174 per domestic passenger at the Jaipur International Airport. Jaipur is a key gateway for the tourists from both within the country and abroad who go to the historical and cultural places in the state. The city has also been seeing a fast urbanisation, a growth in commercial activities, and better regional connectivity along with tourism. The high per-passenger bid indicates a confidence in continued passenger demand to bolster tourism, business travel and growing airline operations. It also reflects the commitment of private operators in making massive concession commitments with an eye on future commercial opportunities emanating from the modernization of the airport and the improvement of the services offered to passengers.

Likewise, the quoted fee at Chaudhary Charan Singh International Airport, Lucknow, was Rs.171 per domestic passenger which is almost similar to that of Jaipur. Lucknow, with its fast-growing infrastructure, government and administration activities, educational institutions, healthcare infrastructure and industrial investments, has become one of the fastest growing urban centres in northern India. The relatively high bid reflects investor confidence in the city's economic prospects, and thus its air passenger traffic growth, over the longer term. The concessionaires' financial offer reflects the fact that the concessionaires believe that during the concession period the airport will become much more profitable through the implementation of the modernization works, the improvements in the services offered to passengers and the commercial activities.

As the main international airport of the state of Kerala, the Trivandrum International Airport bagged a quoted fee of ₹ 168 per domestic passenger. It serves a large number of domestic

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passengers, and also serves a large number of international passengers, especially the expatriate community in the Middle East. Passenger demand in Kerala is fairly constant all year round due to its dynamic tourism sector, high literacy rates and robust service sector as well as international migration. The relatively high concession bid reflects the private company's optimism on the continuity of volumes in the airport business, driven by tourism, international connections and commercial development.

The Lokpriya Gopinath Bordoloi International Airport at Guwahati has been quoted a fare of ₹160 per domestic passenger, stressing its growing importance as the gateway to the North-East region of India. Guwahati is not only the hub of Assam but also acts as a connecting link between several neighbouring states where alternate transportation systems are much less developed. The government's plans to enhance connectivity, promote tourism and ease trade, along with the integration of the North-East states with the rest of the country, is likely to bring about passenger traffic growth on a regular basis. This will be a significant fee per passenger, and it's a testament to the concessionaire's belief in the long-term commercial viability of the area, even though there are fewer passengers than in metropolitan airports.

Mangalore International Airport had the lowest quoted fee of ₹115 per domestic passenger among the airports that were privatized through this round. The quoted amount is not necessarily an indication of the lower commercial viability as significantly lower offers were received for the other airports. Rather, it is an indicator of variations in passenger traffic, market features, traffic forecasts, operating costs and investments needed. Mangalore is the main hub of coastal Karnataka and provides all the commercial, educational, industrial and tourism-related activities in the region. The financial assumptions that are a key element to concession bids are naturally impacted by the comparatively smaller catchment area and lower passenger traffic. The lower per-passenger fee is therefore a realistic reflection on the expected revenue potential a business could generate from it, and not a lack of investor interest.

A comparative analysis of the per-passenger fees quoted by them gives insightful information about the behaviour of the investors and the commercial value of the airport assets. As the bids are comparatively limited, ranging from ₹115 to ₹177 per domestic passenger, it shows that private

operators took into account several economic aspects such as passenger growth, economic development in the region, tourism, business activity, airline connectivity, the efficiency of the airport, commercial real estate and the ability to generate non-aeronautical revenue over the long term. In general, airports in fast-growing metropolitan areas or popular tourist destinations received more competitive offers, as investors are more likely to see high passenger volumes and potential to diversify revenue streams.

The per-passenger fee model is a major shift in the privatization regime of airports in India. This is an alternative to the traditional revenue-sharing mechanism where the Airports Authority of India gets a fixed percentage of gross revenue, which is not directly measurable and opaque in nature as it depends upon revenue generated from various activities. Meanwhile, it encourages private concessionaires to make their airports more efficient, more attractive to passengers, more enticing to new airlines, and larger, because the more passengers their airports serve, the more profitable their operations will be. This, in turn, means more passengers for both the Government and private operators, thus establishing a dynamic which incentivises sustainable growth of the airport.

The combined concession fees quoted across the board reveal the high level of investor confidence in the future growth prospects in the Indian aviation industry. Concessionaires' readiness to pay significant amounts per passenger is a sign of the high expectations for ongoing growth in domestic air travel, urbanisation, higher disposable incomes and government backing for airport infrastructure and economic development. The per-passenger concession agreement thus not only guarantees clear privatization and predictable public revenue, but also reinforces the overall goal of building modern, efficient and internationally competitive airport infrastructure as a result of effective Public-Private Partnerships.

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11. Model Concession Agreements

The MCAs have been launched with an intent to invest in the infrastructure sector. They played a key role in the restructuring of concession agreements for greenfield and brownfield airports.

For greenfield airports the scope of work for the MCA is:

§ Building and running of airport and Business exploitation of designated areas § Hotels, convention centers and airport-related businesses on the city-side of the airport § Commitment on the part of concessionaire to the subsequent expansion of terminal building. § Inclusion of a master plan including land use and development restrictions § For brownfield airports, the following scope of works is included in the MCA: § Operation and Management of specified areas, Terminal Building, Car Parking and Cargo Complex including commercial exploitation of the areas § Urban development including hotels, convention centers and airport related businesses

To ensure expenditure of concessionaire in relation to operation, management and development from revenue generated, which is the responsibility of concessionaire.

The MCA involves key performance indicators, related to aeronautical assets, terminal building, cargo terminal etc. It provides for penalties in case of failure of performance levels especially in terms of user services. It also includes a "passenger charter" that must be published and implemented in favor of the users and for accountability purposes by the concessionaire.

12. Important Issues in Airport PPPs

The growth of low cost carriers can help in the low cost and provide more route services, which will enhance the growth of passenger and freight traffic. The need to drive down the costs is driven by the desire of LCCs to be in a position to charge low fares. In terms of selection of hub therefore, LCCs need to identify airports where they are likely to experience a good annual increase in the number of passengers and also airports that have consistent airport expenses. The airport thus has every interest in making sure charges are maintainable and as competitive to LCCs as possible and consequently, make them more competitive in terms of their intensity of traffic.

Traffic can be balanced as the aviation market is close to saturation. An airport that is being flown at larger capacity can make a proposal to increase the capacity or build an airport in close proximity to the existing one. With this in mind, a greenfield airport is a very important factor in tackling the demand of passengers and airlines. In this scenario, the traffic volumes can be expected to recover relatively soon as the new airport will be able to cater to the unserved airport capacity.

Other small countries, such as Singapore and UAE, have successfully kept the heavy traffic, since they have been able to establish themselves as aviation centres. Therefore, an airport capable of becoming a crossroad of aerial passages and facilitating the easy exchange of the passengers between the two routes can experience a heavy traffic. This will enable higher revenue to be earned on in-transit passenger spend at an airport.

Increase in population may give rise to growth in the number of air travellers. Areas that have higher migrant population also experience good growth of air traffic. The other way in which economic growth (in terms of rising disposable incomes) can lead to an increase in air traffic is the growth of the economy.

The demand of air transportation is very strong in the island states or countries which are somehow distant to great cities or the major business centres or destinations which cannot be easily reached by other means of transport. In such regions with better connectivity there is an opportunity to increase the traffic volume in the air.

The common obstacles in the organization of the airport PPP need to be known. The elements that have an impact on the structure of a concession are:

An ideal tariff structure should be developed based on the consideration that long term revenue collection of operations is the key to reviving investments. Flexible structure of tariffs (can be reset if traffic level or inflation is not appropriate) or pre-determined tariff structure (may be based on the maximum yield in the passenger or on a constant fee) is a factor that determines whether the airport project can be implemented or not. A clear articulation of the way

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and the foundation of tariff calculation is important as it is the concern of the investors and the developers in the airport industry.

The basic rationale for any decision on an investment in an airport project is that, in the longer term, the airport traffic will be such that the airport will have the necessary revenue. When this fails to materialise, then operating the airport may be rendered unprofitable. When there is a sudden drop in traffic, traffic risk protection will make sure that investors don't lose out.

An airport operator's income needs to be commensurate with the expenses. Nevertheless, inflation may greatly impact on earnings when it is not well embodied in the tariff structure. So the need is that at the time of preparation of the concession, there must be adequate clarity between the methodology of indexation and the number of times it can be revised by the regulator.

The fluctuations of a foreign exchange should be shielded against in order to persuade the foreign construction companies to make bids. There needs to be appropriate safeguards in the agreement of concession to address this risk, to ensure greater participation.

The most important part of termination is the basis of calculation of the amount of termination that is usually assumed to be a cost that is agreed during the design phase of the project. The most important pre-requisite to the fair termination transaction is the fair evaluation of the real project cost. During price discovery of the project, there may be escalation, which may cause an increase in prices of the materials or even inflation.

13. Rajiv Gandhi International airport, Hyderabad

The airport is situated in Shamshabad in proximity of about 24 kilometers to the south of the city of Hyderabad and is constructed to hold 12 million passengers annually and it has a single terminal building, cargo terminal and two runways. The airport had more than 18 million passengers in FY'2018. In 2018, the airport has embarked on capacity expansion projects, to increase the passenger traffic capacity in the airport to 30 million passengers annually. The development of the airport is on a rapid pace as it can be observed that the development began even three years prior to the planned staged development.

In December 2004, Ministry of Civil Aviation entered into a concession agreement with a consortium led by GMR Infrastructure Limited (GMR) on the basis of build, own, operate and transfer model. The SPV of the airport was the GMR Hyderabad International Airport Limited responsible for the design, financing, construction, operation, maintenance and management of the airport. The key points of concession contract of this airport are:

§ Ownership structure: According to the shareholder's agreement between the date of the concession agreement, 26% of the issued and paid up share capital of the SPV was held by

the state promoters, Airports Authority of India and the Government of Andhra Pradesh and the remaining 74% by the consortium which was headed by GMR. § Concession period: 30 years (with the possibility of further years being added) § Concession fee: Concessionaire has to pay concession fee of 4% of the gross revenue annually.

The concession agreement had been signed based on a master plan which had been prepared for the development of the airport prior to the concession agreement. It was decided that the ultimate of the airport as regards passenger handling would be 40 million passengers per year. The concession agreement, states that the concessionaire is to review the master plan after every 5 years. The concessionaire is also responsible for further development of the airport.

Tariff Determination: If the Airport provides aeronautical services, determination of tariffs are based on the Airports Economic Regulatory Authority of India guidelines published in 2011 based on the single model approach. In this model, the 100% of the total non-aeronautical revenues is deductible from the total revenue requirement of the airport. The charges on aeronautical service however were adjusted at the rates of the Airports Authority of India in the year 2001 at the signing of concession agreement.

14. Kempegowda International, Bengaluru

In May 2008, the Kempegowda International Airport was opened, making it the third green field airport in

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India to be built under Public Private Partnership (P3) arrangement. The airport consists of one terminal, which can serve 20 million passengers a year, international and domestic. KIA has also been experiencing a similar high growth of traffic as Hyderabad airport.

§ Concession model: Build, Own, Operate and Transfer § Ownership structure: 74% of equity of the concession was owned by a consortium of Siemens, Zurich Airport and Larsen and Toubro at the time of signing of the agreement with the balance 26% being owned by the Airports Authority of India and the Government of Karnataka equally. § Concession period: 30 years (has option of extension of a 30-year period)

§ Concession Fee – 4% of gross revenue paid by concessionaire on an annual basis. § Tariff determination: As in Hyderabad airport the concessionaire has to pay AAI tariff which has been in force since 2001. Later it is handed over to Airports Economic Authority of India for regulation. § Guarantee of high-quality and comfortable service at Manohar International Airport, Goa. § Concession contract of the airport was signed in 2016. Almost 1,500 acre of land was purchased to construct the airport. It started construction in November of 2016 and was operational in 2023

Some of the key features of concession agreement to this airport are:

§ On a basis, build, own, operate and transfer model. § Ownership: GMR holds 100% of equity of the project. § Concession term: 40 years (with a 20 years' extension term) § Concession fee: The concessionaire will be liable to pay 36.99% of the Gross revenue annually to the Government of India as concession fee. § Expansion covenants: Airport will be built out in phases. Concession schedule agreement offers expansion triggers and capacity of design.

Phasing Traffic Design Capacity (Million Passengers Per Annum) Trigger for phasing

Phasing Traffic Design Capacity (Million Passengers Per Annum) Trigger for phasing
Phase I 4.4 -
Phase II 5.8 80% of Phase I capacity
Phase III 9.4 80% of Phase II capacity
Phase IV 13.1 80% of Phase III capacity

§ Tariff determination: Tariff determination related to aeronautical services provided by the airport was undertaken in as per the hybrid-till model as per the National Civil Aviation Policy 2016. Under this model, 30% of non-aeronautical revenues is subtracted in the calculation of the aggregate revenue requirement for the airport.

15. Navi Mumbai Airport

In January 2018, the concession agreement of the airport has been signed. The cost of the airport project is conceived at about 16,000 crores. As the second Mumbai airport, it is anticipated that the traffic at MIAL will be relieved. The projected traffic is 10 million passengers per annum during the start of operation period to 60 million passengers per annum in 2030.

PPP model – build, own, operate and transfer basis.

§ Ownership: 74% of concessionaire is owned by a consortium that included of GVK, Airports Company South Africa and Bidvest and remianing is owned by City and Industrial Development Corporation of Maharashtra Ltd. § Concession period 30 years (and has an extension period of 10 years) § Concession fee is an annual payment by the concessionaire, 12.6% of the gross revenue. § Expansion covenants: The airport will be developed in phases whereby the initial phase will be of at least 10 million passengers handling capacity and 260,000 tonnes capacity to handle cargo. The concessionaire will also be the representative of the triggers of expansion related to the traffic in the master plan. § Tariff determination: Airport's tariff for aeronautical services provided has been determined as per the hybrid-till model, under the National Civil Aviation Policy 2016. In this model 30% of non-aeronautical revenues are discounted during the "aggregate requirement of revenues" calculations in the airport. § Definition of gross revenue was further consolidated in concession agreement through handling major points of dispute like: a. The insurance proceeds that come about as a result of loss of revenue or disruption of the business is covered under

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administration and general expenses. b. Money received on behalf of the Authority and debited by the concessionaire to the Authority is not to be debited as an expense. c. The amount of such refunded deposit to the corresponding sub-licensee or any other person as may be approved by the Authority for a particular concession year (other than

deposits made in previous on the premiums paid to the Authority) would not be considered as expenses. d. It is made clear that gross revenue will be computed on an annual basis, on the accounting year in accordance with the Indian Generally Accepted Accounting Principles. It avoids legal issues, has a good reference point for unexpected income and expenditure and the principles are rendered. e. The decision of authority is conclusive in case of ambiguity, discrepancy and dispute.

16. Projects recommended by the Public Private Partnership Appraisal Committee (PPPAC)

Public Private Partnership Appraisal Committee (PPPAC) has played crucial part in institutionalisation of Public-Private Partnerships (PPPs) in Indian airport sector. The PPPAC is the highest inter-ministerial forum under the Government of India for examining, scrutinising and recommending infrastructure projects proposed under PPP framework prior to their approval by the competent authority. The Committee reviews commercial and financial viability, risk allocation, concession contracts, procurement process and legal aspects of proposed projects for transparency, good value for money and public interest protection. The PPPAC's approval process has given investors greater confidence in the viability of airport privatisation projects by ensuring that these are thoroughly assessed before they are implemented in terms of technical, financial and legal aspects.

The 85th meeting of the PPPAC on 11 December 2018 proved to be one of the most important milestones in airport privatization in India as the Committee recommended six major airport privatization proposals for the final nod of approval. These projects were concerned to the operation, management and development of Airports Authority of India (AAI) owned airports under Public-Private Partnership (P3) model. The projects were of Ahmedabad, Gujarat Airport, Jaipur Airport, Rajasthan, Lucknow Airport, Uttar Pradesh, Guwahati Airport, Assam, Mangaluru Airport, Karnataka and Trivandrum Airport, Kerala. As a combined entity, these airports constituted one of the largest privatization packages in the airport sector in India and constituted a significant step towards increasing private sector participation in airport infrastructure.

The Jaipur International Airport project was estimated to have the maximum concessionaire investment of ₹ 1,838 crore among these projects. The scale of the investment indicated the pivotal role of the airport as a gateway for tourism in the state of Rajasthan, where the tourism sector is growing rapidly and domestic and international air traffic is rising. The investment was planned to support the modernization of the airport infrastructure, the increase of the capacity to handle passengers, the improvement of the efficiency of the operations and the improvement of the commercial facilities. This approval of the major investment indicates the Government's confidence on the use of private funding to develop airports with good long-term commercial potential.

The proposal was on Sardar Vallabhbhai Patel International Airport, Ahmedabad, which was the second largest project under the six airports under consideration at the 85th PPPAC meeting with estimated concessionaire investment of ₹ 1,704 crore. The burgeoning industrial economy, growing business landscape, enhanced international connectivity and rising passenger traffic in Ahmedabad justified the huge amount of proposed investments. The project aimed to modernize the airport infrastructure, enhance passenger facilities, increase the efficiency of airport operations, and boost the airport's role as a key aviation hub in western India. The high investment also represented the confidence of the private sector on the long-term growth potential of the region.

The Lucknow Airport privatization plan was approved by PPPAC with an estimated project investment of ₹ 1,673 crore. Lucknow is the capital of Uttar Pradesh and one of the fastest growing cities in the north of India, with a high rate of economic growth and urbanisation, and the growing number of air passengers has created a huge demand for air navigation services at the airport. The project was to

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invest in upgrading airport infrastructure, increasing passenger facilities, enhancing operational capabilities, and supporting future airport traffic growth. The approval highlights the Government's acknowledgment of the airport's significance in boosting the connectivity and development of the region of northern India.

The Guwahati Airport project was proposed to be finalized with an investment of ₹ 1,507 crore by the concessionaires. Guwahati Airport is the key gateway to North-Eastern region of India and an important link for regional connectivity, tourism, trade and economic integration. The investment

plan was consistent with the Government's vision on the aviation infrastructure in the North-East for inclusive regional development. It is hoped that the new airport infrastructure will make the airport more accessible, boost tourism, ease the transportation of goods and bring more private investment to the region.

The project cost for Mangaluru Airport was estimated at ₹ 1,482 crore, and was also another major airport privatisation project approved at the same meeting. It is an important aviation hub for the coastal regions of Karnataka and facilitates the commercial activities and educational institutions, industrial development and tourism in the region of Mangaluru. The planned investment was aimed at upgrading the airport's facilities, enhancing passenger comfort, and boosting regional air connectivity. While it was a relatively lower investment than Ahmedabad, Jaipur and Lucknow, the project nonetheless demonstrated significant private-sector interest in investing in airport infrastructure in emerging regional markets.

Trivandrum International Airport was among the six airports discussed at the 85th meeting of PPPAC, and also had the lowest estimated concessionaire investment of ₹ 813 crore. Though the airport does not have a significant number of investments, it plays a substantial strategic role as it serves a considerable number of international flights, mostly for expatriates from the Middle East and because of its significance in the tourism sector in Kerala. The project emphasized efficiency and effectiveness in the long-term management of the airport, upgrades to its infrastructure, and enhancements to its passenger and commercial facilities. The relative lower investment need mainly accounts for the difference in airport size, infrastructure needs, and future expansion requirements and not for a less strategic value.

What is key in these six projects is that all had been sponsored by the Airports Authority of India and all of them belonged to the Airports Sector, highlighting the Government's plan of handing over the operations of airports to experienced private sector concessionaires, while ensuring that the strategic aviation asset remains under public control. The estimated investments considered by the PPPAC were the capital expenditure proposed by concessionaires during the concession period for modernization, expansion and operation and maintenance of airport infrastructure. The total investment in the six projects was estimated at around ₹ 9,017 crore, a testament to the magnitude

of private investment that can be leveraged using the PPP mechanism in just one round of airport privatisation.

Before these mega privatization schemes, the PPPAC has also discussed proposals in connection with operation and maintenance of certain areas at Jaipur and Ahmedabad Airports during its 80th meeting on 28 October 2016. These projects were different from the large-scale concession deals that were granted in 2018, because they would just involve specific functions of operation and maintenance in existing airport facilities. As mentioned above these projects mainly involved outsourcing selected services at airports and not major investments in airport infrastructure, the project cost was thus considered zero. However, PPPAC granted final approval, suggesting the Government's cautious strategy of introducing private sector participation in the airport sector through outsourcing of some of the airport functions to finally move towards airport privatisation.

It is interesting to note that, even earlier, the Committee at the 14th meeting on 30 April 2008, gave in-principle approval for the city-side development of the airports in Udaipur, Rajasthan and Amritsar, Punjab, respectively. These proposals were mainly concerned with non-aeronautical commercial activities such as retail facility, hotels, business centre, hospitality facility and other commercial development in the land

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surrounding the operational airport. Like the operation and maintenance proposals under consideration in 2016, these projects were not a part of the capital cost appraisal process and, therefore, the project cost was recorded as nil. But the in-principle approval by the PPPAC set the policy tone for moving beyond conventional activities of aviation operations to airport related commercial development as the private sector's share of non- aeronautical revenues has become increasingly important in making airports financially sustainable.

Comparative analysis of the PPPAC recommendations shows how the policy of Indian airport privatization has evolved over the years. Efforts were initially made in 2008 to focus on commercial city-side projects, which was used to trial the opportunity for private involvement in some limited airport related activities. The approvals for 2016 extended the scope to also include the ability for private operators to perform operation and maintenance of certain airport facilities. The important policy change to PPP in subsequent years was the shift to comprehensive concession

contracts where the operator, manager, developer, and moderniser of major airports can be private, with significant private investment, for the long term, as was decided during the 85th PPPAC meeting in 2018. This sequence has been a result of a well-timed policy evolution, allowing the Government to gradually increase the share of the private sector without losing a proper grip over the regulatory and public ownership aspects.

The recommendations by the Public Private Partnership Appraisal Committee reflects the maturity of institutional framework of PPP in the aviation sector of India. By conducting thorough feasibility studies, securing investments, negotiating concession agreements, and considering the public interest, the Committee has helped mobilise substantial private sector funding for the modernization of airports while making sure that these projects are transparent, accountable, and have efficient risk management. The projects approved by PPPAC have significantly helped in the expansion of airport facilities, better passenger services, optimization of airport operations, and bolstering India's aviation industry. More significantly, the Committee's systematic approval has ensured a good governance system which will continue to facilitate the successful implementation of airport PPPs in the country.

17. Conclusion & Recommendations

The public-private partnerships are a new paradigm shift in the management and provision of infrastructure, especially in the fields where capital intensity and technological advancement and long gestation times are making government funding less and less feasible like in the airport development sector. The research shows how PPPs have effectively facilitated mobilisation of the private investment, managerial efficiency and innovation in facilitating the modernisation and growth of the infrastructure assets. The initiatives of PPP in the Indian airport industry have played a large role in enhancing passenger handling capacity, standards of operations, and quality service delivery, and the country is now in a position to address the increasing demand of air traffic services. The success of the PPPs is not automatic and homogeneous; it is heavily reliant on the strength of the institutional systems, the accuracy of the contractual agreements and, most importantly, the proper distribution and management of risks.

The research highlights how the concept of risk transfer which has been touted as the main reason behind the existence of PPPs is not always practical. Regulatory uncertainty, ambiguous tariffs and inconsistent policies undermine investor confidence and can either result in too much risk acceptance by the state or risk premiums which render projects economically non-viable. The problem of time wastage can be explained by the fact that project risks are compounded by structural problems, long land acquisition and complicated approval procedures, and lack of coordination between various governmental bodies. The diffuseness of the PPPs and the joint ventures, particularly, when the governments build equity interests or over-exposure to the exchange of financial flows, further undermines the incentive system that is supposed to fuel efficiency in the private sector.

The research emphasizes the inapplicability of PPPs to every type of infrastructure projects. Although the relatively simple models, high demand projects will

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likely perform well under PPP models, extremely complicated or capital intensive projects, or risky projects, will not be able to meet the financial closure or operational success criteria in these models. Under these circumstances, the search of PPPs can be associated with unfavourable results, such as renegotiations, time wastage and even project termination. Thus, it is not only the adoption of the PPPs that may be a success but the design, selective application and constant monitoring of these policies. PPPs should be regarded as a course of action, not as a policy, and their main goal should be to provide the people with value, financial efficiency and sustainable development of infrastructure.

In order to deal with the challenges that have been identified and increase the effectiveness of the PPP frameworks, the approach that is geared towards reforms is needed. To begin with, the legal and regulatory environment should be tightened. This involves instituting clear, stable and transparent policies on determination of tariffs, revenue sharing policies as well as dispute resolutions. The regulatory bodies need to operate in an autonomous, efficient and predictive way to minimize uncertainties that discourage private investment especially by foreign stakeholders. An efficient and time constrained approval system would further minimize delays and enhance viability of the project.

Institutional capacity building in the public sector is much needed. PPP projects demand expertise in special fields such as financial modelling, contract management, risk assessment, and coordinating the stakeholders, those skills that most government departments and the urban local authorities do not have. The proper design, negotiation and monitoring of PPP contracts by the public authorities can be improved greatly by setting up special cells on PPP, investing in training programmes, and the involvement of technical and legal experts.

The risk allocation frameworks should also be polished so that the risks are given to the party that can most appropriately handle them. This would demand an acute sense of the various types of risks- construction, demand, financial, regulatory and political along with the creation of contractual mechanisms that explicitly spell out the duties and contract mitigation processes. A high risk of the public sector would nullify the objective of PPPs, whereas a high risk-sharing with the private players can lead to the high cost of participation or subordination. This suggests that there is the need to have a balanced approach so as to get the real value of money.

More contractual arrangements should be standardized and be more transparent by use of model concession agreements which are consistently used and periodically updated. Such contracts ought to include definite terms, standards of performance, penalties and dispute solving measures in order to reduce conflicts and ambiguities. Meanwhile, it must maintain flexibility to support the needs of projects without undermining the main principles of accountability and efficiency.

Land acquisition, environmental clearances and rehabilitation of the affected population are critical areas that need to be dealt with using clear-cut policy frameworks that are time-bound and integrated. Acknowledging the cost of rehabilitation as part and parcel of the project financing and considering the fair and transparent processes can decrease social resistance and delay of the project. There is also a need to have better inter-agency coordination especially in the urban infrastructure projects where there are more than two authorities involved.

There is need to have a more selective and evidence based approach to PPP adoption. The governments ought to carry out stringent feasibility tests on the projects they can implement under PPP with the aim of determining the projects that have an opportunity to generate revenue, risks that can be mitigated and projects that will have high utility by the people. Other models, like a

public procurement model or a hybrid financing model, might be more suitable to highly complex or socially sensitive projects. It should also be instantiated that continuous monitoring and evaluation of the results of PPP be done to hold accountable as well as to learn a lesson in future projects. Together, these measures would allow developing a stronger, more transparent, and efficient ecosystem of PPP, which would be able to sustain the continually rising infrastructure needs of India and protect the interests of citizens.

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ISSN: 2583-2476

A Constitutional Critique of Section 3(c)(ii) of the Digital Personal Data Protection Act, 2023 (DPDP Act)

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Abstract

India has made significant advancement in establishing an inclusive framework on personal data protection through enacting the DPDP Act. The said Act under section 3(c)(ii) excludes scope of personal data which is publicly available by any person under legal obligation to disclose such information. Though this exclusion seems to facilitate public access, administrative efficiency and transparency to legally disclosed information its extensiveness result into serious constitutional concerns. Present article examines the application of proportionality doctrine established under K.S. Puttaswamy v. Union of India (2017) to the Section 3(c)(ii) through the lens of recognition of privacy as a fundamental right under Article 21 of the constitution. While applying the four- pronged test of legality, legitimate aim, necessity, and proportionality author argues that the said provision fails the proportionality and necessity standards. The exemption enables profiling harms and enables aggregation by permitting use of unrestricted secondary publicly available personal data. It also neglects contextual integrity leading towards ignorance of sensitivity-based distinctions. Author proposes that there is a need for amendment or narrow interpretation of Section 3(c)(ii). So that it aligns with global data protection principles and constitutional privacy guarantees.

Keywords: Data Protection, Privacy, Article 21, DPDP Act

1. Introduction

The Supreme Court of India in Justice K.S. Puttaswamy (Retd.) v. Union of India (2017) has recognised the privacy as a fundamental right under Article 21 of the Constitution. As privacy is intrinsic to the personal liberty and right to life guaranteed under Article 21. Court also established constitutional standards i.e. legality, legitimate state purpose, necessity, and proportionality must be satisfied by any State action restricting privacy [1]. This verdict since then become the

foundation for evaluating any State action affecting informational privacy and affecting personal autonomy. The increasing development of technology and its usage in commercial transactions governance and social interactions are resulting into the collection and processing of personal data. Such a personal data/ information has now gained the valuable administrative and economic resources for government and private companies. The personal information is intensified due to profiling, discrimination, identity theft, surveillance followed by misuse [2]. To overcome from issues like these and to balance legitimate business and state interests with individual privacy rights, DPDP Act establishes rights and obligations on processing of digital personal data. Though DPDP Act is major data governance milestone, some of the provisions have raised concern of constitutional privacy principle and one among them is Section 3(c)(ii). The said section exempts such personal data which is made publicly available due to legal obligation. As a result, due to legally mandated disclosure once personal data falls under public domain, the subsequent processing of that data does not fall under the protection of said Act.

At first glance, the rationale behind the exemption appears reasonable. Numerous legal frameworks require the publication of personal information to advance transparency, accountability, public participation, and administrative efficiency [3]. Corporate law mandates disclosures concerning company directors and key managerial personnel [4]. Property registration laws make ownership information publicly accessible. Court judgments and legal

ISSN: 2583-2476

proceedings often contain personal details that become part of public records. Government gazettes and regulatory filings similarly involve mandatory disclosures intended to facilitate public oversight and institutional accountability. This exemption appears reasonable rationale as various legal frameworks require publication of personal information. Such as accountability, transparency administrative efficiency and public participation. For example, directors and key managerial person's information as regulatory filling mandates under company under company law 2013, property ownership under property law, personal details mentioned under legal proceedings and court verdicts etc. From governance perspective, restriction on further use of personal information available under public domain could impede access to public records and lead to the compliance burden [5]. Thus, to overcome from unnecessary restrictions on usage of information which is publicly available through lawful means. However, constitutional issues lie in the breadth of the exemption and not in the objective of facilitating access to public information. As section 3(c)(ii)

removes all protection given under DPDP Act to the public information which is disclosed under legal obligations for specific purpose and in a manner, it is subsequently processed for unknown purpose. This approach raises violation of fundamental right to privacy under constitution, as individual privacy interest is continuously present in the publicly available information [6]. The notion of publicly disclosed personal information extinguishes all privacy rights is not accepted under contemporary privacy scholarship. Rather it highlights as a matter of contextual control over information flows. Legally mandatory disclosure of personal information for specific purpose need not necessarily be used for unrestricted use in all other context. This is against the principle of contextual integrity which recognises that information disclosed by individual maintain legitimate expectations of usage of such information in one setting may be used in another [7]. Section 3(c)(ii) poses acute challenge in the digital age. As technology is rapidly advancing which is capturing all fragmented record/ information that are available publicly. This data is then further process and monetized at unprecedented scales. Such innocuous public information is processed to derive highly details insights by automated profiling enable organizations with the help of data analytics and Artificial intelligence [8]. This result into far reaching privacy implications of secondary processing of publicly available date beyond its original disclosure purpose. This impact which is emerging out Section 3(c)(ii) exemption is examine through the lens of constitutional framework established in Puttaswamy case. This case establishes the doctrine of proportionality which require careful balance of competition interests apart from existence of a lawful object. Rather than exposing individual rights to disproportionate burdens State measure on privacy should deploy necessary means to achieve their objectives. Author argues that Section 3(c)(ii) lack's purpose limitations. As it fails to categories data on permits aggregation, sensitivity and profiling without safeguards leading its scope to the ambiguity.

Author suggests that data protection framework must be based on transparency objectives principle rather than excluding public domain information from regulatory oversight. Author proposes that constitutional interpretation of Puttaswamy case should be followed under present DPDP Act framework. Which says that continue protection against misuse should be there while preserving legitimate uses of public information. So that any limitation on privacy must satisfy the legitimate aim followed by legality supported by four-pronged proportionality framework.

2. Legal analysis of proportionality framework

Under the pretense of proportionality, the Supreme Court has a lengthy history of using a lesser threshold of scrutiny. In the last ten years has the Court's jurisprudence adopted the structural proportionality test, starting with Modern Dental College and Research Centre v. State of Madhya Pradesh ("Modern Dental College") [9]. However, the Court has often returned to its previous tendencies in an effort to create an organized proportionality jurisprudence. It has often failed to define and administer this exam consistently and clearly. The Court failed to provide a clear proportionality framework in decisions such as Modern Dental College and Puttaswamy I. It tried to do so in Puttaswamy II, but the test's third i.e. necessity and fourth i.e. balance limbs were irreconcilably incompatible, making the standard

ISSN: 2583-2476

unusable. As a result, this composition has never been used again. Additionally, the Court did not apply the test strictly in judgments such as Puttaswamy II and Vivek Narayan Sinha v. Union of India [10]. In several subsequent instances, it completely ignored proportionality. According to some studies, the disruptive effect of proportionality is limited by the Court's approach of integrating proportionality into the established framework for rights review. The Court has established a proportionality criterion in a number of instances, and it generally adheres to the conventional proportionality test. This is particularly evident in situations such as Vivek Narayan Sinha and Akshay N Patel v. Reserve Bank of India [11]. The conventional interpretation is somewhat supported by Justice Chandrachud's dissent in Puttaswamy II, Anuradha Bhasin v. Union of India, and Internet and Mobile Association of India v. Reserve Bank of India. The four-step version that is most often mentioned in proportionality literature is the standard proportionality test. It was first postulated by Robert Alexy and developed in Germany. The four components of this test are proportionality stricto sensu (balance), necessity, appropriateness, and legitimate goal [12]. A proportionality threshold with a fifth prong—adequate procedural guarantees—has been suggested by a number of rulings, including Gujarat Mazdoor Sabha v. State of Gujarat and Ramesh Chandra Sharma v. State of Uttar Pradesh, building on Justice Chandrachud's majority decision in Puttaswamy I. Additionally, Justice Chandurkar's single-judge judgment in the Bombay High Court's Division Bench split result in Kunal Kamra v. Union of India acknowledged this fifth aspect, and Justice Patel's tying-breaker decision supported it. Author critiqued this five-pronged approach, contending that the test's current limbs—necessity and balance in particular—can sufficiently capture the protection of procedural guarantees [13].

Author relies on traditional proportionality framework for present constitutional analysis of Section 3(c)(ii) of the DPDPA. On the latter two phases of the test—necessity and proportionality stricto sensu—since Author think the provision would probably meet the first two prongs, partly because of the comparatively low amount of scrutiny at those levels.

3. Necessity

the Court must determine whether less restricted methods will accomplish the state's goals to a comparable degree [14]. There are two possible alternatives: (i) a more restrictive form of the state measure, that may be supported by safeguards, or (ii) unique measurements that deviate from the state's methods. Present research looks at these options in reverse order starting with unique measure. Author contends that publicly available data could be categorized based on the legitimate usage" criterion under the DPDPA or "deemed consent" under the Draft Digital Personal Data Protection Bill 2022. This provide alternative legal frameworks to deal with personal data regardless of obtaining clear consent, rather than being excluded from the Act's scope under Section 3(c)(ii). This strategy would still allow state and non-state actors to handle publicly accessible data as a lawful use, which is consistent with the goal of said Section. With the exception of notice and permission, it would guarantee that such processing is still covered by all Act provisions. In addition to allowing lawful processing, this clause would impose at least some limitations to prevent certain illicit processing. Even though the DPDPA has serious shortcomings as a data protection law, implementing Section 3(c)(ii) under the Act's governing structure would nevertheless be a major boost over the state's current unrestricted discretion. This change is also required since, in many situations, it may not be possible to get specific agreement for the processing of data after it is made publicly available. Due to the digital divide and low levels of digital literacy in India, this will exacerbate the already developing problem of consent fatigue and further endanger the exercise of meaningful consent. Because permission isn't always practicable, essential, or even desirable, data protection systems across the globe acknowledge other legal bases for data processing. This strategy is supported by a comparative analysis of various jurisdictions. Publicly accessible data is acknowledged as an alternative legal basis to process personal data in Canada, Singapore, South Africa, New Zealand, Kenya, China, and Brazil [15]. This permits processing without the need for express permission. In the EU, UK, South Africa, Kenya, and

Bahrain, it operates similarly for sensitive data [16]. The second strategy is based on Indian privacy

ISSN: 2583-2476

jurisprudence and entails crafting a tightly restricted version of the state's legislation. The Supreme Court carefully interpreted a surveillance clause in People's Union for Civil Liberties v. Union of India (PUCL) by include protections against communications interceptions. Similar to this, Puttaswamy I and Puttaswamy II placed a strong focus on data security measures. In the later instance, the Supreme Court declared a clause to be unconstitutional since it did not provide for judicial review of the state's use of Aadhaar data to serve other legal reasons. Additionally, it narrowly limited a provision by shortening the metadata storage retention time. Furthermore, the need for procedural protections was acknowledged as the fifth pillar of the proportionality test in judgments such as Ramesh Chandra Sharma v. State of Uttar Pradesh and Gujarat Mazdoor Sabha v. State of Gujarat [17]. In this instance, Section 3(c)(ii) presents a discrepancy: publicly available data is exempt from the Act's requirements, but non-publicly accessible data is. The clause would need to include protections in order to address this. The author does, however, warn against judges trying to save said Section by judicially adding data protection standards. The purpose of the legislation, which explicitly excludes publicly accessible data from such protections, would be violated if this were done. This kind of judicial involvement would go beyond the proper confines of judicial scrutiny and amount to changing the law. The Supreme Court said in Minerva Mills Limited v. Union of India that the reading down concept cannot be used or used against the legislature's express purpose. By making Section 3(c)(ii) a lawful use requirement, this unequal handling of publicly available and non-public data would be remedied. Reading said Section down and restricting its applicability is another possible method to modify it. To make advantage of situations in which the processing complies with reasonable standards and is unlikely to potentially violate anyone's rights. This would allay the worry expressed in introduction part of the article that the clause permits further processing, which is inconsistent with the data principal's reasonable expectations and may result in rights-based damages like data breaches. Although this is a valid alternative measure, below further discussion will show why it is unworkable in the subsequent step (proportionality stricto sensu).

4. Proportionality stricto sensu/balancing

The Court's task at this point is to decide whether the infringement with the right is warranted, taking into account the protection obtained for the opposing right or interest. To do this, the two factors must be balanced against one another. An infringement may still be overturned if it is shown to be unreasonable, even if it has cleared previous review phases. For this reason, proportionality is sometimes a stricter standard of assessment than rigorous scrutiny. We first look at the detrimental effects of Section 3(c)(ii) 101 on the right to privacy before proving that, considering the provision's restricted ability to further the state's justifiable goal, this detrimental effect amounts to a disproportionate limitation. The clause gives data fiduciaries complete authority to treat public data without any restrictions or protections as it does not apply to material that is publicly accessible. There is a potential consequence of this unconstrained processing. The Supreme Court has stressed that limitations on the right to privacy must be specifically designed and supported by significant protections in instances like Puttaswamy I, Puttaswamy II, and PUCL. The majority in Puttaswamy II supported important data protection principles, such as purpose limitation, information storage limits, data differentiation, data minimization, substantive and procedural fairness, transparency, and data security, after considering a number of cases from the Court of Justice of the European Union and the European Court of Human Rights [18]. However, there is no limited tailoring since the DPDPA's Section 3(c)(ii) creates a wide exemption for data that is available to the public. In contrast, publicly accessible data in Canada is restricted to a comprehensive list as opposed to the broad breadth permitted under the DPDP Act. Safeguards including purpose constraints, storage restrictions, and organizational and technological safeguards to prevent processing of data from going beyond the reasonable expectations imposed by data principals are absent from this section. Consequently, it violates the notion of informational self-determination, that was acknowledged in Puttaswamy I and Puttaswamy II as a fundamental component of privacy. The constitutional argument against Section 3(c)(ii) is strengthened by the provision's sweeping exemption design. The connection between the right

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and its limitations is reversed by a broad exception. In Puttaswamy II, for example, Justice Sikri noted that in the context of the Indian government's attempt to connect Aadhaar to bank accounts under the pretence of preventing money laundering or black money, there is no justification for a broader provision that targets every citizen as suspicious. In a similar vein, Justice Chandrachud said in his dissent

that it is unnecessary to reiterate that a whole community cannot be seen through the prism of crime or assumed to be embezzling large quantities of money via assistance programs. Additionally, the Luxembourg Court, the Strasbourg Court, the German Federal Constitutional Court, the Supreme Court of Cyprus, and US courts have ruled that general limitations in privacy- related matters are unconstitutional [19]. We place this exception in the larger context of the political economy of the digital age before looking at the potential negative effects of the uncontrolled collecting and processing of publicly accessible data. All aspects of our life are now mediated by information and communication technology. In Puttaswamy I, Justice Chandrachud said a data set is pervasive and all-pervasive. This phenomenon is consistent with the quick development of more affordable computer power, which allows algorithms to analyze "big data" and extract intricate insights into everyday life. Data is becoming a valuable resource that powers business models based on targeted advertising and behavioral profiling. In Puttaswamy I, Justice Chandrachud characterized the modern period as one of pervasive dataveillance, in which information technology is used to systematically monitor persons' communications and behaviors. The need to gather enormous volumes of data in order to create more complex models has increased due to AI's rapid development. This exception runs the danger of being abused as AI developers are randomly grabbing data collected from the Internet to train their models. Author contends that121's Section 3(c)(ii) is flawed because it ignores this more comprehensive development in political economics. Large amounts of personal data are now in public domains, and this clause may enable businesses to collect, import, and scrape large amounts of data both legally and criminally under the pretense that it is public. On social media sites like Facebook, Instagram, X (previously Twitter), TikTok, and LinkedIn, a large percentage of the world's population posts information, sometimes with default public settings or readily available to the broader public. With the expanding platformization of many industries, including as gaming, transportation, health, energy, banking, and information production, this tendency is only becoming stronger. Furthermore, using these platforms is not really choice since many of them have developed into necessary entry points for engagement in the digital era. Kevin D. Haggerty and Richard V. Ericson contend that modern forms of control and surveillance function by offering users of the Internet and its online services a variety of advantages and pleasures in exchange for complete enrolment through the submission of enormous amounts of personal data [20]. Certain

information acquired by cookies, especially third-party, persistently marketing cookies—for example, when your data is sold to intermediaries—may even come under publicly accessible data. Large volumes of data about your location, interests, and online activities may be included in these cookies. As of May 2026, 42% cookies are used by websites, while persistent cookies account for 61.8% [21]. However, an ambiguous chain of command and difficulties with data exchange and access make the problem more complicated. Crucially, this exception has wide-ranging downstream effects. Data may be used, reused, and repurposed without the knowledge or agreement of the data subject once it is considered publicly accessible. This might result in unexpected and possibly dangerous uses of personal data, such as discriminatory hiring or financial services practices or targeted exploitation in political campaigns. Critical information about people, such as their political views, gender identity, or health state, may be revealed via the collection and examination of apparently innocuous public data. Both Justice Chandrachud in Puttaswamy I and the majority in Puttaswamy II specifically cautioned against this kind of aggregation. They emphasized that while private information silos may not seem like much, their combination can create a personal image of an individual that includes details of their private life that they would like to keep secret. In addition to posing serious privacy concerns, this runs the potential of encouraging discriminatory behaviors that uphold preexisting prejudices and social injustices. As a result,

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Section 3(c)(ii) ignores the important implications for privacy of data aggregation and analysis as well as the evolving nature of information privacy in the digital era. This clause encourages excessive data collecting by giving data fiduciaries wide discretion in processing public personal data, which might have detrimental effects on individual privacy and autonomy.

5. Conclusion & Suggestions

In summary, the author examined how the clause gives data fiduciaries complete power to handle public data without any restrictions or protections, much less significant ones. The concept of information self-determination is violated by this wide discretion since it allows processing that goes beyond the data principal's reasonable expectations. Furthermore, in addition to violating the right to privacy of information, this unrestrained processing may have unintended consequences that create issues with other rights, such non-discrimination. On the other hand, the state's goal

was to facilitate the processing of publicly accessible data, which could have been accomplished to a similar degree by establishing a provision as a legitimate based use—an alternate legal basis for processing personal data, as the article explained in the discussion of the article above. The possibility of the damages outlined above would be decreased if the clause were characterized as a legitimate use since it would subsequently be subject to all DPDP Act regulations, with the exception of notice and permission. In addition to turning the provision into a valid justification for processing personal data, the report also covered other acceptable possible alternatives. One of these options was to read the clause narrowly, limiting it to situations in which the processing is in line with fair standards and does not present dangers linked to rights. Nevertheless, the author contended that the clause continued to be incompatible with constitutional principles even under such a limited construction. The limited version lacked crucial protections to avoid privacy-related problems since it continued to exclude the utilization of publicly available personal data from the Act's duties. Retention limits, basic forms of purpose limitation, particular constraints on the processing of children's data, and the rights of data principals, such as the right to correction and grievance redressal, were some of these protections. According to the authors, processing any kind of personal data required adherence to these data protection guidelines and precautions. As a result, analysis came to the conclusion that Section 3(c)(ii) was unlawful in and of itself, not only in certain situations. The basic inconsistency of the clause itself with constitutional principles was the problem, in addition to its potential for abuse. The author contends that either eliminating Section 3(c)(ii) or making it a valid use basis are the only constitutional remedies.

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ISSN: 2583-2476

Uses and Abuses of Copyright in Digital Competitive Markets

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Abstract

The rising consciousness that scientific modernization could lead to prosperity convinced numerous administrations and businesses to make extraordinary efforts to endorse invention and Intellectual Property Rights. Intellectual Property Law themes intellectual belongings to the proprietor's private control. Competition Law alternatively, pursues to circumvent market blockades and benefit consumers by warranting that a diversity of providers of services, goods, and technologies may efficiently compete alongside each other. The interplay between these two extents of law poses exclusively problematic challenges to policymakers, particularly in a country like India, which has little or no practice in the solicitation of Competition Law and policies. The antitrust practices, recognized under Competition law, where intellectual property is involved is tremendously increasing in present digital age. This paper particularly lay emphases on the misuse of copyright as a part of intellectual property and its impact on competition in the market. The right to hold copyright over one's own creation is now being misused by the copyright holder as witnessed in different scenarios. The paper pursues to recapitulate the development of copyright law and law against its abuse effecting competition in the U.S. and how far has it been recognized and interpreted by the Indian courts.

Keywords: Antitrust, copyright misuse, copyright infringement, anti-competitive agreements

1. Introduction

Competition Law and Intellectual Property Law apparently appear to have differing intentions, purposes, motives, goals and ends. Whereas, Competition law functions towards enabling the market progression by curbing anti-competitive practices in the market (Malik, 2016), while, IPRs confer exclusive monopoly to the administrator (M & Babu, 2013). Yet, both are anticipated

towards endorsing innovation, consumer welfare and efficient allocation of resources. In the sprouting technology determined society, the recent skirmish between the domain of IPRs and competition law relates to the exercise of rights in IPR affecting competition law (Bharadwaj et al., 2018). Hence, in the light of the above complexities and glitches the study intends to discuss the wide-ranging principles and laws related to Intellectual Property Right and Competition law. The application, operation of IPRs and Competition Laws in dissimilar jurisdictions and an attempt to simplify the coinciding domain of intellectual property and Competition Law is being conveyed in this research paper.

There are several instances witnessed in the past where misuse of copyright has led to increase in antitrust practices. (Raju & Bhattacharya, 2021) The study examines the practice of competition law jurisdictions on copyright- connected markets in U.S. and India. The growing consciousness, that, technological improvement could lead to fortune swayed many governments and industries to make extraordinary efforts to promote innovation and IPRs. The observation, that, IPRs and competition law routinely appear to be at loggerheads, is predicated on the dichotomy of the underlying pro-competitive and anticompetitive repercussion. Resolving discrepancies at the interface of intellectual property (IP) and competition law, especially, in markets driven by high-technology industries have become a frightening task, for, officials and courts across several jurisdictions. How the issue of misuse of copyright has been dealt

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with by the foreign as well as Indian court when it leads to anti-competitive practices is the prime focus of this research paper.

There are instances when provisions of competition law are attracted when proprietor of copyright exercises copyrights, especially, when the exercise has an adversarial consequence which amounts to abuse of dominant position of the proprietor. But the court in different jurisdiction acknowledges the issue in different manner, they have differing opinion while laying down rule in this specific issue and interprets the law differently, therefore this paper tries to critically analyse the differing views of the Judges in India on the law as compared to U.S. pronouncements. There are legislative remedies as well as precedents which favours the right of copyright holder in the circumstances where he stands as disadvantageous position due to unfair competition or anti-competitive practices in the market. The paper specifically deals with the scenario where the antitrust practice of the copyright holder fans the unfair competition in the market.

Before digging deep, the foremost requirement is to understand the relation between and application of competition law over copyright law and whether the copyright matters subject to competition law.

2. Integration of Copyright and Competition Laws

Intellectual Property Rights (IPRs) craft a transitory right in support of the IPR owner to create an embargo upon others from exhausting that IPR. The epoch of exclusiveness licenses the IPR owner to exploit the worth that is apportioned to the IPR and is comprehended as a reward/encouragement for the determination capitalised by the originator in crafting the IPR. Consequently, the IPR for all intents and purposes awards a monopoly right to the owner of such IPR for a determined epoch of time.

Competition law, alternatively, is anxious with precluding anti-competitive demeanour, whether effectuated as a consequence of synchronized or individual act. Intrinsic in this relationship amid IPRs and competition law is the necessity to make sure, that, not only is the IPR not subject to misuse (either in the form of unwarranted pricing, denial to license, anti-competitive tying, et cetera) but then again also to validate that the antitrust administration is not domineering and upholds the incentives for potential originators to modernize and craft intellectual property(Correa, 2007). In spite of everything, that is what pushes cost-effective development and by extension, a knowledge founded economy.

Nevertheless, once an IPR has been established, the owner of such IPR has the unqualified choice to choose the most in effect approach to capitalize on it. Should the IPR owner straight away capitalize the IPR? Or would it be more advantageous to the IPR owner to publicize the IPR and make it extensively accessible by licensing it to others? The choice of the IPR owner is a commercial choice and would be depending upon whether the IPR owner collects a net surplus through licensing with reference to the unconventional of misusing the IPR itself. It is completely reasonable that the IPR owner may pick out to emphasis on product design and contract out the manufacturing to other entities through licensing.

The emphasis of this study is to scrutinize the management of such licensing arrangements in the Indian competition administration. Licensing arrangements as such, as we shall see, can take numerous avatars. Yet, in its furthermost simpler avatar, licensing agreements are ordinarily straight up covenants covered under Section 3 (4) of the Competition Act, 2002 (hereinafter as "the Act"), that makes available for an enterprise functioning in the growing market (licensor) accrediting its IPR to a different enterprise in a processing market (licensee). It is probable that the Licensing agreement is joined in amid entities functioning at the equivalent level of the production chain, for the commitments of such covenant the parties will be professed to be perpendicularly associated. Additionally in maximum circumstances, the licensor of an IP rights come about to be a dominant competitor in the outlined pertinent market place and, therefore, the competition valuation for a probable infringement of Section 4 of the Act owing to misuse of such dominant locus too desires to be finished (Drexl, 2013).

The facet of whether the purported behaviour in the licensing arrangement is scrutinised as virtuously a Horizontal check or a vertical arrangement or as an

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instance of misuse of dominant position gains significance, provided the dissimilarity in the assessment standard applied to numerous activities examinable under the Act.

The conclusive standard for evaluating the agreements acquiescent to the examination of the Act, is then having an Appreciable Adverse Effect on Competition ('AAEC') in India. (Raju, 2014) Whereas agreements tumbling under Sec. 3 (3) of the Act, which, deals with horizontal agreements together with cartels, are supposed to be having an Appreciable Adverse Effect in India ('AAEC'), vertical agreements set forth u/s 3 (4) of the Act are verified under a canon of reason scrutiny, that is, AAEC in India prerequisites to be ascertained so as to be in violation of the provisions of the Act (Singh, 2011). Moreover, Sec. 3 (5) (i) of the Act precisely gives for an exception for arrangement falling u/s 3 (3) or 3 (4) of the Act, in case of imposition of rational limitations for guarding intellectual property rights deliberated under innumerable statutes (the Act, 2002, Section 5). Furthermore, the demeanour tumbling under Section 4 of the Act, for probable abuse of dominant position, is correspondingly examined on the yardstick of reasonability. Hence, however the explicit indemnity given under Section 3 (5) of the Act does not unambiguously relates to

Section 4 circumstances, subliminally such scrutiny is essential to the reasonability test carried out for competition valuation of like circumstances.

3. Misuse of Copyright Defense

In the recent past there are copyright infringement cases where the defendant has successfully raised the defense of misuse of copyright by the copyright holder. (Raju, 2015) This has led to creation of imbalances between the privileges of the copyright holder and the interest of society. Once the defense has been established, which can be done collaterally by the defendant without proving the actual harm, the copyright holder loses his privileges.

3.1. Position in the United States

Misuse defense is first established under patent infringement suit in U.S. Supreme Court in the case of Morton Salt Co. v. G.S. Suppiger Co., 1942, wherein, the U.S. Supreme Court denied relief to the plaintiff as he misused his own patent, the defendant need not prove any actual harm caused to him. The copyright misuse defense was first endorsed in U.S. much later in 1990 in the case of Lasercomb America,inc v. Reynolds, 1990, whereby the circuit court upheld the misuse of copyright leading to increase of anti-competitive licensing practices and denied any recovery to lasercomb. Court opined that similar defense as that of patent misuse should be made available in copyright infringement suits.

Over the years, the issue of misuse is found increasingly in computer software licensing cases. Where the court is of view that although it is apparent that the plaintiff has used its exclusive right to control the competition in the market yet the defense of misuse can be made available only "when the defendant comes with clean hands" (Atari Games Corp. v Nintendo of America, Inc., 1992). The plaintiff in computer software licensing practices is generally seen to adopt "tying practice" which in turn result in restraint of trade. An instance of such practice is where the plaintiff put condition before licensing its software that it has to be used along with the plaintiff's hardware only was held to be the misuse (Alcatel USA Inc v. DGI Tech., 1999).

The court is experiencing influx in number of misuse cases however the legislations still lack a strong, independent theory to adjudge such cases. Many researchers also criticize the application

of antitrust law to copyright matters as hindering the creativity or innovation in some circumstances (Ramsey, 1994).

3.2. Position in India

As far as the availability of defense of abuse/misuse of copyright is concerned it is not established defense in India. Despite following U.S. legislation as Model law to form various provisions in India, the doctrine of unclean hands is not well-recognised and court is of the opinion that misuse does not constitute a valid defense against the copyright infringement in India. In 2014 this decision is pronounced by Delhi High Court in the case of Tekla Corporation v Survo Ghosh, 2011 (OECD, 2019). The court clearly stated that the defendant could only avail defense provided under

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section 52 of the Copyright Act, 1957 and adding more defense would amount to judicial delays while enforcing copyright in India. The court also expressed that this equitable remedy is barred by doctrine of clean hands as the defendant has committed the act of infringement which is statutory violation and law shall prevail over equity in case of conflict. If the misuse is upheld then "tantamount to allowing a person to unilaterally decide that the owner has lost the copyright for the reason of misuse thereof and to thereby usurp the rights otherwise exclusively vested in the owner". Also, there cannot be 'negative equality' which means that "wrong done to plaintiff cannot be set-off by a wrong done by the plaintiff."

It would be suggestive to say that the court in this case may have misinterpreted the doctrine of misuse as the objective of the misuse is to contend that if the defendant is successfully able to prove the misuse by the plaintiff, then the copyright is revoked meaning the copyright did not subsist the whole time so there could be no infringement. Also, there is no express bar to apply equity principle in the copyright law of India. Therefore, accepting and applying copyright misuse would grant a more balanced Intellectual property regime in India (Yu, 2008).

4. Conclusion

In tote, an equilibrium needs to be struck amid active competition implementation and up keeping of copyrights accorded under the Copyright Act, 1957. Although the IP rights are essential for fostering productivity and progress in a marketplace, their prospective to lead to anti-competitive

consequences cannot be excluded. As apparent from the numerous cases deliberated in the study, CCI has embraced a precise restrained approach while dealing with circumstances where Copyright issues were tangled, so as not to chill with the vibrant incentives of entities to invent.

The Courts in India have by this time acknowledged the jurisdiction of CCI to adjudicate and resolve matters comprising Copyright issues. Furthermore, however Section 3 (5) of the Competition Act, 2002, unambiguously prescribes for an exception to IPR from the operation of Section 3 of the Act, such an immunity is not a straightjacket one and it too comes with riders. Any IPR proprietor, in an attempt to defend his rights, cannot enforce any condition and/or restraint, for such restraint has to pass the scrutiny under Section 3 (5) of the Act, to avail the immunity provided thereunder. Additionally, the immunity under Section 3 (5) (i) of the Act is restricted to the anti-competitive arrangement tumbling under Section 3 of the Act and as such, do not unambiguously apply to misapplication of dominant locus under Section 4 of the Act. Though, specified that the scrutiny under Section 4 of the Act essentially encompasses a rational examination, non-applicability of Section 3 (5) (i) to Section appears to be a sole technical issue.

The struggle between the industry and business is healthy for the customers to get merchandises at rational price and of best value. Devoid of competition in the marketplace there will be monopoly and in such an anticompetitive marketplace consumer prosperity is last thing in a creator or manufacturer cognizance. The eventual intention for him will be intensification of revenue. The MRTP Act, 1969 was legislated to control the exercise of monopolistic business nonetheless the purpose for which the MRTP Act was legislated were not accomplished so there was a necessity for comprehensive overhauling of the Act. Therefore, the Competition Act, 2002, came into might in mandate to keep a check on the anticompetitive undertakings which were not kept in older Act. IPR, which are anticompetitive in nature, incline to generate right for the originator and can solely be used by him and no one else. The rights given to an IP proprietor is also accredited in the Competition Act, 2002, but then again, it also inclines to generate skirmishes as the IPR are monopolistic in nature while the Competition Act controls anticompetitive undertakings. In the Competition Act, 2002 IP owner can confine any person from overstepping his rights and he can also enforce any rational conditions in mandate to defend any of his rights available to him under several Intellectual Property laws.

The Chapter also recapitulates and highlight the origin and application of copyright misuse doctrine in the U.S. where the IP laws are so strong and cohesive and if such a jurisdiction can allow the doctrine to be imbibed in its policy, then Indian jurisprudence also

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needs to take a turn. This will contribute to making a more egalitarian legal policy.

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