

# INTERNATIONAL JOURNAL FOR LEGAL RESEARCH AND ANALYSIS



Open Access, Refereed Journal Multi-Disciplinary  
Peer Reviewed

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# **IPR-BACKED BRAND AUTHORITY IN SUSTAINABLE CLOTHING: LEGAL RECOGNITION OF ECO-DESIGN AND LIFECYCLE INNOVATION IN THE FASHION INDUSTRY**

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## **Abstract**

This term paper delves into the ways in which sustainable fashion is changing the very definition of innovation by making environmental responsibility the main factor of what counts as real innovation. As designers use more eco-friendly materials, create less polluting production processes, and establish circular lifecycle models that include repair, reuse, and reintegration, the industry is facing an increasing number of fundamental legal questions: for example, should the ecological innovation be the one protected by the intellectual property law just as much as the aesthetic creativity or technical advancement? According to the paper, the existing intellectual property setups that were mostly built during times when environmental harm was considered an external factor to the law, have to change in order to account for and protect green materials, circular design systems, and certified sustainability claims.

Yet, this change takes place with considerable obstacles on its path. In practical terms, sustainable innovation requires high R&D investment, scientific verification, and conformity with the different and sometimes conflicting sustainability standards at the international level. In terms of law, there are worries that including environmental criteria may mean that IP offices will be overwhelmed by non-traditional tasks that are beyond their usual technical and economic mandates. Moreover, industry-level issues, such as the inability of the fast-fashion business model which is based on volume to be compatible with the ecological innovation which is capital-intensive, make the situation even more complex. Furthermore, the article separates sustainable production from resale and thrift markets by explaining that circularity in the secondary market is not the creation of new intellectual property or the solving of ecological issues. In the end, the paper argues that the repositioning of IP governance in line with environmental accountability can lay the grounds for a fashion ecosystem that is more

transparent, competitive, and really sustainable, where ecological innovation is regarded as one of the creative works that have the right to be protected, is of economic value and can be used for commercial purposes.

## 1. Introduction

The fashion industry is one of the most intellectually protected sectors in the world in terms of branding and aesthetics, but it remains one of the least regulated sectors in terms of environmental externalities. Mostly, the production model is based on a linear “take–make–dispose” paradigm, which leads to significant environmental costs, such as resource depletion, and waste-management crises that may be even more severe than the last one. This has led to the demand for accountability by global jurisprudence as well as consumers leading to emergence of new market niche “sustainable fashion”. However, shifting from conventional manufacturing methods to real eco-design is more than just a material substitution; it is a complete overhaul of the production lifecycle with the support of law. Eco-design and lifecycles innovations deserve to be internationally recognized and given the same rights as patents, industrial designs, and trademarks, and the present intellectual property laws be used to claim and support brand authority. True sustainable fashion is not a fast-fashion model with characteristics speed and volume, rather it needs a lot of research and development that is expensive—such as engineering biodegradable textiles, developing low-impact dyeing methodologies, and implementing zero-waste pattern cutting, which in sum not only changes a garment from a simple commodity to an intellectual creation, but also this paper proposes that intellectual property framework could be used as a tool for brand authority raising and strengthening. It would make it possible for sustainable brands to obtain legal protection that sets them apart from competitors who engage in evergreening—a deceptive marketing practice of claiming environmental friendliness without the technological or scientific backing.

The present study also sheds light on a significant yet overlooked legal difference between the sector of environmentally friendly manufacturing, which is the leading source of intellectual property and technological innovation, and the thrift and resale market that acts as a secondary market under the doctrine of exhaustion. Since the resale market is not the creator of new intellectual property, it should not be merged with the primary sustainable fashion model. This could jeopardize the commercial potential of eco-innovation and, therefore, a distinct regulatory approach is required. Moreover, depending on IPR gives the needed commercial and legal confirmation for the higher pricing structures that are part of sustainable fashion. In

a market that has been conditioned for a long time by prices that are artificially low as a result of externalized environmental costs, the so-called “sustainability premium” is usually greeted with scepticism. However, this study indicates that by treating eco-design as a valuable intellectual property, the premium becomes a legal reflection of environmental costs that have been internalized, ethical labour compliance, and substantial R&D investment. At last, the paper delves into the systemic issues of the current IPR system and pinpoints the areas where it falls short in providing sufficient safeguards for green innovation—be it the high costs involved in patent enforcement or the challenges in proving distinctiveness when it comes to eco-certification trademarks. This research ultimately indicates that an efficient legal strategy fortified by strong IPR is the only feasible way to effect the transition of sustainable fashion from being a niche movement to becoming an industrial standard that is not only dominant but also legally secure.

### **1.1 Significance of the Study**

The main significance of this research is to demonstrate the major role played by intellectual property rights (IPR) in changing not only competition but also the ethical and regulatory aspects of the sustainable fashion sector by providing support to eco-design and lifecycle-based innovation. Fashion, as an industry, has been heavily criticized for the pollutant impact of its processes, for the exploitation of supply chains, and for the culture of disposability, among other things. Hence, sustainability-oriented creativity would not be accomplished by consumer goodwill alone—it requires a strong legal framework. Without such, eco-innovation will struggle for visibility among numerous market players that imitate, make unverified claims, or at best, deceptively brand their products as "green". First and foremost, the study is significant to IPR only if it does not limit itself to giving the advantages of exclusivity, but rather affirm that authority over the brand is the essential output obtained from it. This authority is legally recognized when the brand is viewed as the most authentic, original, and of low ecological impact in the field of sustainable fashion. The moment these clean technologies are hidden behind patents, the moment modular, repairable or recyclable apparel designs are granted design rights, and at the same time, trademarks are used to certify eco-labels and sustainability verified claims, then social responsibility stated becomes an obligation that can be enforced by law rather than an optional marketing tool. Moreover, the legal deficiencies and enforcement failures that have been reported within the fashion industry make the point even clearer. There are several factors that contribute to the phenomenon of greenwashing such as weak regulations for environmental claims, fluctuating standards from one jurisdiction to another, the inefficient

policing of fake eco-labels as well as the total lack of compulsory verification mechanisms among which these factors are found. To be sure, sustainability is not among the priorities of branded companies, but rather just a façade of them, therefore not only is the market unfair, but also consumers are misled. This research addresses these issues by focusing on how Intellectual Property Rights can be employed to recognize real ecological innovations and to identify that behaviour as opposed to market, deceitful one. Also, the enforcement mechanism can be strengthened to close the existing legal gaps; hence, it leads to positioning of the intellectual property law instrument as a crucial regulatory tool for ensuring environmental accountability, consumer trust, market fairness, and long-term industrial catalytic transformation effect.

## 1.2 Review of Literature

The academic discourse of fashion and intellectual property has mostly been focused on themes such as piracy, rapid cycles of trend, and the inherent frailty of protection in a creatively flowing industry. Raustiala and Sprigman were the first to define the “piracy paradox,” a primary explanation of weak IP protection in the fashion industry. Nevertheless, their work is a forerunner to the period when sustainability became not only technologically advanced but also legally significant. Later scholars have pointed out the insufficiency of copyright and design law in supporting fashion innovations, yet hardly any of them consider eco-design as a form of intellectual property that can be protected. Cavagnero argues that trademarks and sustainability claims affect consumer trust, however, the connection between a sustainable standard and a reliable brand authority being enforceable is still very much unexplored. Ziyeh and colleagues' research shows the rapid increase of eco-labels around the world, but the lack of consistent standards is still the main cause of legal unreliability. An analysis of international policy by WIPO indicates the uncoordinated character of cross-border IP enforcement in general, and in the case of the latest green technologies in particular. Regulatory interventions—like the UK's Competition and Markets Authority, talked about by CMA scholars—are additional proofs that legal systems are only at the point of starting to police false environmental claims. In the meantime, worldwide conflicts like *Dwyer v. Allbirds* and patents filed by innovators such as Orange Fiber S.R.L. are showing the growing overlap between ecological innovation and IP enforcement. When combined, this fragmented research reveals that there is a very obvious gap: the lack of a single comprehensive legal framework that would view IPR as the tool that not only enables but also enforces the industrial innovation of sustainability.

### **1.3 Research Gap**

There is an obvious difference between the overlap of sustainable fashion and intellectual property law. Conventional IP systems fail to recognize environmental performance as a new feature of the product, and they do not consider how patents, designs, trademarks, and certifications can be used both as instruments for gaining sustainability credibility and as a means for obtaining commercial advantage. The extent of comparative research has only been sufficient to identify the protection of innovations aimed at sustainability, such as biodegradable fibres, regenerative textile technologies, or modular, circular designs, in different jurisdictions. The community of scholars also neglects lifecycle innovation, e.g., supply-chain transparency, digital product passports, and repairability systems, and how they may be connected to IP rights that can be enforced. Besides that, the current IP-related publications do not give sufficient attention to how IP tools could be used to confirm environmental-friendly issues and restrict greenwashing. The discrepancy in question underscores the necessity for a model that not only embeds sustainability into the concept and practice of IP law but also sees IPR as a lever for brand authority in the field of eco-responsible fashion.

### **1.4 Research Problem**

The primary research problem is that the existing intellectual property (IP) frameworks have limited capacity to identify and protect sustainability-driven innovations in the fashion industry. Eco-design is still a legally ambiguous concept: while it is technologically advanced, it is not treated as a separate category that can be protected under most IPR statutes, and lifecycle innovations—such as recyclability, durability, repairability, and low-impact production—are receiving very little formal recognition. This weak protection limits sustainable brands in defending their innovations; thus, fast-fashion companies are enabled to copy environmentally friendly technologies without having to invest in research and development. Moreover, insufficient IPR provisions facilitate the practice of greenwashing, which in turn causes brand trust to be diluted and makes it difficult to distinguish between genuinely sustainable brands and those that make unsubstantiated claims. Consequently, the research problem revolves around the question of how IPR can be extended, clarified, and reinforced to acknowledge sustainability-based innovations formally resulting in brand authority being based on legally enforceable rights rather than environmental claims without any support.

### **1.5 Research Objective**

One of the main goals of this research is to study how intellectual property rights (IPR) may be used as a reliable basis for brand authority in the environment-friendly fashion sector through legal recognition of eco-design and lifecycle innovation, while at the same time considering the structural limitations of IP law in relation to environmental harm and difficulties in enforcement. The research will look at the role that patents, designs, trademarks, certification marks, and copyrights can play in protecting sustainable materials, production methods, garment structures, and transparency mechanisms without giving them more regulatory power than they actually have in terms of ecological outcomes. Another goal is to determine the potential of IPR to create a competitive advantage in the market by making sustainability-related statements more credible and thus reducing the phenomena of greenwashing and unfair competition. At the same time, the study will also figure out the enforcement gaps that facilitate the misuse of environmental claims. The research also wants to find out whether there are any compatibility issues between current national regimes and international instruments, such as the TRIPS Agreement, which may affect sustainability-driven innovation. It also identifies doctrinal and procedural gaps that hinder effective protection. At the end of the day, the goal is to have legislated and interpretative proposals that both clarify and enlarge IPR protection for innovations that are the result of sustainability-based research, at the same time recognising that such protection should be accompanied by – and not be a substitute for – broader environmental and regulatory measures if brand legitimacy is to be based not only on rights that can be enforced but also on real ecological performance.

### **1.6 Research Methodology**

This study uses a doctrinal legal methodology, analysing statutory frameworks, judicial decisions, and intellectual property governed by the international treaties and examining sustainable fashion in their application. Primary sources such as the Patents Act, 1970, the Designs Act, 2000, the Trade Marks Act, 1999, and the Copyright Act, 1957 are interpreted considering the sustainability-centred innovation. International instruments such as the TRIPS Agreement, the Berne Convention, and WIPO treaties are reviewed to evaluate their capacity to extend protection to eco-innovations and lifecycle-based design. Secondary sources include scholarly articles, sustainability reports, circular-economy frameworks, and industry documentation on green certification and eco-labelling. Through interpretative analysis, the study contextualises sustainability as a relevant category of creativity within IP law, connecting doctrinal principles with the practical needs of the evolving fashion industry.

### **1.7 Scope and Limitation**

The scope of this study is confined to analysing how IPR frameworks particularly patent law, design law, trademark law, and copyright law can be interpreted and applied to support sustainable fashion innovation. It focuses on legal mechanisms that reinforce brand authority through verifiable ecological claims, eco-labels, and lifecycle design. The study is not an environmental science evaluation but considers environmental performance only to the extent necessary to understand its intersection with IPR. The analysis prioritises India's legal system while drawing comparative references from EU, UK, and WIPO standards. Limitations arise from the absence of explicit statutory provisions categorising sustainability-based creations as a separate form of protected subject matter and from the rapidly evolving technological tools used to track lifecycle and transparency, which the law has not yet fully integrated.

### **1.8 Hypothesis**

The study hypothesises that stronger and expressly sustainability-oriented intellectual property protection enhances brand authority in the fashion industry by providing legal recognition to eco-design and lifecycle innovation. IPR is expected to operate as a mechanism that strengthens the credibility of sustainability claims by granting enforceable rights over environmentally conscious materials, processes, and design structures, thereby reducing opportunities for deceptive market behaviour. The hypothesis further anticipates that jurisdictions with more robust IP enforcement frameworks are likely to exhibit higher levels of sustainability-driven innovation and lower instances of greenwashing, as legal protection makes imitation costlier and authenticity more verifiable. It also proposes that aligning IPR protection with lifecycle-focused innovation will foster durable consumer trust and incentivise brands to invest in long-term ecological technologies rather than superficial marketing-based sustainability claims

### **1.9 Background**

The background finds its origin in essential changes that fashion industry and legal environment have undergone globally: one is the widespread call for sustainable fashion and the other is the increasing necessity of legal tools that can back up the trust in green innovation. While the fashion industry is being restructured from a linear take-make-dispose model to one of circularity and lifecycle responsibility, a new wave of innovative concepts has come up that mainly depend on material science, low-impact manufacturing, digital traceability, and garment modular engineering. The drastic economic investment is a clear sign that these innovations are the future and they need to be safeguarded legally so as to retain their

competitive value. By the same token, the market has become flooded with unsubstantiated sustainability claims thus making brand authority increasingly reliant on being legally enforceable rather than simply issuing voluntary declarations. Intellectual property regimes, although initially not conceived for environmental innovations, are at the core of creating and holding secure the identities of sustainable fashion brands. In such a context, the study considers IPR as the architectural scaffold through which eco-design and lifecycle innovation get acknowledgment, can be enforced legally, and are commercially legitimate in the global fashion industry.

## **2. Environmental Burden of The Fashion Industry And The Sustainable Clothing**

The fashion industry has evolved into the most rapidly expanding global economic sectors, but its growth carries a severe ecological cost. this model of fast fashion accelerates production cycles, encourages the impulse consumption, and leads to substantial textile waste entering landfills each year, contributing significantly to soil contamination and microplastic release into marine ecosystems<sup>1</sup>. Furthermore, energy demanding production methods, high water requirements for cotton growing, and toxic dye effluent still stress delicate ecosystems. India's textile sector alone demands vast freshwater resources, thereby intensifying the national challenge of water scarcity<sup>2</sup>. Insufficient waste-containment methods, poor observance of environmental regulations, and the opacity of global supply chains exacerbate these environmental damages, making a regulatory move towards sustainability appear increasingly necessary.

### **2.1 Ecological Degradation Caused by Conventional Fashion Systems**

The linear pattern of “produce–consume–discard” dominates mainstream clothing production, resulting in enormous quantities of post-consumer waste that lack proper recycling or biodegradation capacity. Studies indicate that synthetic fibres such as polyester contribute massively to greenhouse gas emissions at every lifecycle stage, including extraction, fabrication, and incineration<sup>3</sup> The sequential model of “generate–utilize–dispose” presides in mass-market apparel manufacturing, generating vast volumes of end-of-life textile waste with

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<sup>1</sup> *Environmental Impact Report on Global Fashion Waste*, (2021), UN Environment Programme.

<sup>2</sup> Ministry of Textiles, *Annual Report on Water Consumption in Indian Textile Processing Units* (Government of India, 2020) (last viewed on 25 Nov 2025).

<sup>3</sup> Intergovernmental Panel on Climate Change (IPCC), *Assessment Report on Industrial Carbon Emissions from Synthetic Fibre Manufacturing* (2019). (last viewed on 25 Nov 2025).

inadequate recycling or composting potential. Labour-intensive dyeing units in developing countries often operate with insufficient effluent treatment technology, contaminating local groundwater and violating the right to a clean environment recognised under Article 21 of the Constitution of India.<sup>4</sup> This industry-induced pollution also raises legal questions regarding compliance with environmental protection statutes such as the Environment (Protection) Act, 1986, which mandates industrial accountability for ecological consequences.<sup>5</sup> Thus, without stronger enforcement and sustainability-oriented manufacturing obligations, the fashion sector risks remaining a leading contributor to environmental decline.

## 2.2 Sustainable Clothing as a Corrective Legal and Industrial Strategy

Sustainable clothing introduces a circular economic perspective that promotes waste minimisation through ethical sourcing of raw materials, product longevity, reparability, and recyclability.<sup>6</sup> Environment-conscious design—combined with regulated production standards—helps the limit of sector’s carbon footprint and aligns fashion businesses with the principle of “sustainable development” recognised by Indian jurisprudence.<sup>7</sup> Policymakers and industry stakeholders are increasingly advocated for green certification, traceability mechanisms, and lifecycle-based compliance audits to ensure ecological claims remain authentic and are legally enforceable. and the biodegradable textiles, low-impact dye technologies, and upcycling initiatives supports a shift from resource-depletion to resource-regeneration. Sustainable fashion therefore not only protects the environment but also ensures that brands remain compliant with regulatory norms under the Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981.<sup>8</sup> In this manner, sustainable clothing emerges as both an environmental necessity and a legally guided alternative capable of transforming the future trajectory of the fashion industry.

## 3. Intellectual Property Law as a Framework for Protection of Sustainable Fashion

sustainable fashion represents a decisive shift in the way the global apparel industry conceptualizes design, production, and the responsibility of consumer. not like the

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<sup>4</sup> *M.C. Mehta v. Union of India*, (1987) 4 SCC 463.

<sup>5</sup> The Environment (Protection) Act, 1986, No. 29, Acts of Parliament, 1986. (last viewed on 25 Nov 2025).

<sup>6</sup> Ellen MacArthur Foundation, *Circular Economy in Textiles: Designing Out Waste* (2018).

<sup>7</sup> *Vellore Citizens' Welfare Forum v. Union of India*, (1996) 5 SCC 647.

<sup>8</sup> The Water (Prevention and Control of Pollution) Act, 1974 & The Air (Prevention and Control of Pollution) Act, 1981

conventional fashion models, which prioritise the speed, volume, and disposability, sustainable fashion anchors itself in an ecological continuity, resource preservation, ethical labour practices and lifecycle accountability. In this evolving landscape, intellectual property rights emerge as a critical legal mechanism that not only rewards ecological innovation but also legitimises sustainable business models in the marketplace. Fashion brands increasingly recognise that their investment in environmentally conscious technologies—whether in the form of biodegradable fibres, waste-minimising design techniques, or lifecycle assessment software—requires robust protection to ensure long-term commercial viability.<sup>9</sup> Without the legal assurance of exclusivity, these innovations could be easily appropriated by the fast-fashion giants, discouraging investment in green research and reinforcing the exploitative production patterns. Therefore, intellectual property has become an infrastructural backbone protection for fashion which is sustainable, constructing a formal boundary between genuine ecological innovation and performative, unregulated sustainability claims that threaten market integrity. From a broader jurisprudential perspective, IPR also facilitates the transition of sustainability from a voluntary ethical preference to a legally cognisable industrial standard. Intellectual property law does not merely empower brands to prevent copying; it creates a system of accountability by which sustainable methods must be documented, disclosed, and verified during registration. This embedded transparency encourages a culture of compliance where sustainability can be traced, audited, and challenged if falsely asserted. In an industry long plagued by opacity, this formalisation of green innovation through legal rights serves as a corrective measure which aligns market behaviour with objectives of the environment. The Indian statutory framework for intellectual property spanning the Patents Act, 1970, Designs Act, 2000, Trade Marks Act, 1999, and the Copyright Act, 1957, provides with several entry points through which these fashion brands can secure their innovations and establish a lawful reputation as environmentally responsible entities. Whereas none of these statutes were drafted with keeping sustainability as a core object, their flexible interpretive potential enables courts and policymakers to adapt them to emerging ecological realities.

### **3.1 Patents as Guardians of Green Technological Innovation**

Patents, by their very nature, serve as a legal right for inventions that provide new useful solutions to human problems, making them especially relevant for addressing the ecological challenges posed by the fashion industry. The shift towards sustainability has created an

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<sup>9</sup> K. Maskus, *Intellectual Property Rights and Environmental Innovation* (World Bank Publications, 2010).

unprecedented wave of material science innovations, including plant-based leather substitutes, fibre-regeneration enzymes, dye technologies requiring negligible water, and chemical recycling systems for polyester, each of which stands to make substantial contributions to reducing environmental burdens<sup>10</sup>. Such inventions typically arise from costly research, laboratory experimentation, and inter-disciplinary collaboration that would be economically unsustainable without guaranteed (IP) intellectual property protection. The Patents Act, 1970 through Section 2(1)(j) demands novelty, inventive step, and industrial applicability, criteria that many green technologies satisfy because they introduce methods capable of significantly reducing pollution, energy usage, and waste streams.<sup>11</sup> Moreover, modern sustainability-oriented patents increasingly combine fashion technology with digital innovation such as carbon algorithms of footprint measurement embedded into production systems, or blockchain-enabled traceability for raw materials used in garments. These integrations expand the scope of patentable subject matter and reflect the contemporary sustainable fashion by multi-layered nature. Patents also play a preventive role, shielding eco-innovators from exploitation of rights by fast-fashion entities known for the rapid replication and mass circulation of new technologies without ethical consideration. protection helps eco-focused innovators keep a competitive edge, ultimately accelerating industry-wide transition towards eco-friendly manufacturing. Beyond commercial value, regulatory frameworks are influence by patented technologies demonstrating the feasibility of greener industrial processes. when the Courts assess environmental disputes increasingly consider whether alternative sustainable technologies exist, and patented innovations often serve as evidence of available, viable solutions. Thus, patents support sustainable fashion not only economically but also normatively, shaping expectations of what constitutes responsible industry conduct.

### **3.2 Design Protection for Eco-Design and Lifecycle-Based Aesthetics**

Eco-design involves more than the superficial appearance of a garment; it incorporates structural features aimed at maximising long-term usability, minimising waste, and facilitating recycling. Sustainable clothing frequently adopts modular construction, detachable components, reversible patterns, zero-waste cutting techniques, and mono-material assemblies to ensure that the garment's end-of-life phase results in reduced ecological harm. These design strategies, though environmentally motivated, fall squarely within the scope of protectable "designs" under Section 2(d) of the Designs Act, 2000, which covers shape, configuration,

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<sup>10</sup> S. Blackburn, *Green Textile Engineering: Advances in Eco-Materials and Sustainable Fibres* (Springer, 2018).

<sup>11</sup> The Patents Act, 1970, ss. 2(1)(j), 3.

pattern, and ornamentation.<sup>12</sup> Registering such eco-designs prevents competitors from replicating environmentally efficient structures without investment in independent development. The relevance of design protection becomes more noticeable in the context of the sustainability movement because innovative design is often the first visible expression of a brand's ecological philosophy. For instance, a design that enables easy disassembly of a garment for recycling can dramatically change consumer expectations about product longevity. Protecting these features prevents their dilution and encourages designers to prioritise environmental considerations during the conceptualisation stage. In addition, lifecycle-based design protection reinforces transparency, as brands must submit detailed representations of their designs during registration. This process indirectly documents sustainability claims, thereby creating a legal record that may later be invoked in disputes relating to greenwashing or unfair competition. Moreover, design protection grants sustainable brands exclusive rights for term of ten years which can be extendable up to fifteen years, providing ample of time to establish themselves in the market. During this period, design rights act as a barrier against the imitation that could otherwise saturate the market with lower-quality replicas make weaker consumer trust in the value and durability of sustainable products. Therefore, the design law not only safeguards aesthetics but preserves the functional and philosophical integrity of sustainable fashion.

### **3.3 Trade Marks and Certification Marks as Indicators of Sustainable Authenticity**

Trade marks serve as the main interface between sustainable fashion brands and consumers. ambiguous claims flooded in the marketplace such as eco-friendly green or natural, trademarks and certification marks play an important role of assuring consumers that a brand's sustainability commitments are authentic and verifiable. Under Section 2(1)(zb) of the Trade Marks Act, 1999, a trademark signifies the source and quality of goods, while Section 69 governs certification marks, which are used to certify adherence to specific environmental standards<sup>13</sup>. brands adopt distinctive marks with these provisions indicating compliance with carbon neutrality, organic sourcing, fair labour practices, or circular manufacturing systems. Certification marks hold particular significance in the context of greenwashing, a phenomenon in which brands exaggerate or fabricate ecological benefits to attract environmentally conscious consumers.<sup>14</sup> When regulated properly, certification marks create a third-party

<sup>12</sup> The Designs Act, 2000, ss. 2(d), 10.

<sup>13</sup> The Trade Marks Act, 1999, ss. 2(1)(zb), 69.

<sup>14</sup> TerraChoice, *The Sins of Greenwashing: Consumer Misconceptions and the Need for Verified Trademarks* (2010).

verification system that raises the threshold for sustainability claims. Consumers can rely on these marks as credible indicators of environmental performance, thereby limiting deceptive practices and enhancing market transparency. This reliability creates trust a critical resource for sustainable fashion brands seeking to differentiate themselves from fast-fashion competitors. Trademark act also becomes a tool for defending a brand's ecological identity. As sustainable fashion relies mainly on intangible brand ethos, trademarks protect slogans, logos, and insignia that communicate environmental values.

In disputes involving misleading or confusing eco-claims, courts may scrutinise trademark use to determine whether a brand has misrepresented itself. Thus, trademarks directly provide the legal architecture ensuring that sustainability is not just performed but substantiated.

### **3.4 Copyright and the Protection of Ethical Storytelling in Fashion**

Limitation is not just to Sustainable fashion to material choices or production techniques it involves an ideological narrative that foregrounds environmental responsibility, indigenous knowledge, fair labour conditions, and transparency. This narrative often manifests in artistic expressions such as eco-conscious prints, hand-drawn motifs reflecting biodiversity, documentary-style marketing campaigns, transparency reports, and culturally rooted design patterns. Under Section 13 of the Copyright Act, 1957, such original artistic works receive automatic protection upon creation<sup>15</sup>. This enables sustainable brands to safeguard not only their material output but also their creative communication strategies.

Copyright protection is particularly important in a landscape where ethical storytelling forms a significant part of brand identity. Many sustainable companies rely on campaigns that visually document their supply chains, highlight the artisans behind the garments, or portray environmental challenges affecting communities. These expressions are vulnerable to copying by larger corporations seeking to capitalise on sustainability narratives without undertaking genuine ecological efforts. By protecting such creative works, copyright law prevents misappropriation and strengthens the moral legitimacy of sustainable fashion. moreover, as digital transparency becomes a hallmark of sustainability, brands produce interactive reports, lifecycle diagrams, and carbon-footprint graphics and all of which may qualify as artistic or literary works. Their protection ensures that the intellectual labour invested

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<sup>15</sup> The Copyright Act, 1957, s. 13.

in communicating sustainability remains exclusive and cannot be distorted or commercially exploited by competitors. Thus, copyright fortifies ethical and cultural dimensions of sustainable fashion which increase the technological and aesthetic protections offered by designs and patents.

#### **4. Differentiating Sustainable Fashion Brands from Thrift and Resale-Based Models**

The global transition towards environmentally conscious consumption has led to the emergence of multiple market models that appear, at first glance, to contribute equally to sustainability. Among these, sustainable fashion brands and thrift/resale-based platforms are often thought as though they operate within the same conceptual and legal category. However, a closer examination reveals that these two models differ fundamentally in terms of production logic, intellectual property obligations, brand accountability, innovation investment, labour ethics, and regulatory exposure. Sustainable fashion is based on proactive ecological intervention innovating new materials, reducing carbon emissions, redesigning production systems, and integrating lifecycle-based responsibilities while thrift and resale markets function reactively by extending the life of pre-existing garments without altering upstream industrial practices<sup>16</sup>. This distinction is not merely semantic; it determines how each model engages with legal regimes, especially intellectual property law, consumer protection norms, environmental regulations, and supply-chain accountability.

From a doctrinal standpoint, sustainable fashion brands work within a regulated industrial ecosystem that demands compliance with design procedures with registration, trademark usage controls, patent disclosures, and the obligations of copyright. Their sustainable identity is not incidental it is architected through deliberate technological advancement, creative conceptualization, and adherence to environmental audit processes that carry legal consequences for misrepresentation. Conversely, thrift and resale businesses do not engage with product creation at all; their function is logistical and transactional rather than inventive. They resell garments that were already produced often under the trademark or design rights of the original manufacturer without having contributed to the innovation. As a result, these platforms guide the framework of intellectual property differently, primarily ensuring non-

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<sup>16</sup> M. Niinimäki, "Lifecycle Thinking and Circular Innovations in Fashion Markets," *Journal of Cleaner Production* (2019).

infringement and authenticity verification rather than asserting proprietary rights over new ecological advancements<sup>17</sup>. The legal identity of thrift platforms is therefore centred on marketplace compliance rather than innovation protection.

Economically, sustainable fashion requires substantial financial investment in research, material testing, ethical labour systems, traceability networks, and low-impact production infrastructure. This investment becomes a foundation for higher pricing, which is supported and legitimised through intellectual property protection and certification. Thrift and resale markets however does not generate new production costs they function by sourcing the garments from consumers or unsold inventories and redistributing them at lower price points. Their sustainability contribution lies in reducing textile waste, but they do not transform the environmental harm caused by the underlying industrial processes. This creates an asymmetry: while both models contribute to waste reduction, only sustainable fashion disrupts the structural causes of ecological degradation. Recognising this difference helps ensure that sustainable brands are not unjustly compared to resale platforms, which bear neither the financial burdens nor the innovation responsibilities associated with green manufacturing.<sup>18</sup>

This doctrinal and economic distinction is essential for evaluating consumer behaviour and regulatory intervention. For consumers seeking ethically produced garments, sustainable brands offer traceable information about fibre sources, chemical usage, production emissions, and worker conditions. Thrift platforms, however, cannot account for the original production ethics of garments they resell; they merely extend lifespan rather than correct injustices embedded in initial manufacturing. This limitation is important in legal analysis because platforms cannot claim sustainability in the same normative sense as brands that intentionally embed environmental standards into their production cycles. Courts and regulators increasingly scrutinise sustainability claims to ensure they reflect verifiable conduct rather than generalised environmental goodwill. Therefore, resale markets must take care not to imply that they embody the same ecological commitments as sustainable brands unless such claims can withstand legal examination.<sup>19</sup>

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<sup>17</sup> N. Lemaire, "IP Responsibilities of Resale Platforms," *International Review of Intellectual Property and Competition Law* (IIC) (2021).

<sup>18</sup> Ellen MacArthur Foundation, *The Economics of Sustainable vs. Linear Fashion Systems* (2020).

<sup>19</sup> OECD, *Regulatory Frameworks for Sustainability Claims and Consumer Perception* (2021).

#### 4.1 Legal Distinctions Between Sustainable Fashion and Resale-Based Models

The legal distinction between sustainable fashion brands and resale/thrift models is rooted in their divergent engagement with intellectual property, environmental regulation, and consumer law. Sustainable fashion brands rely heavily on IPR frameworks because their eco-credentials emerge from protectable innovations—patented biodegradable fibres, registered eco-designs, trademarked sustainability labels, and copyrighted transparency materials. These rights help maintain brand integrity and prevent competitors from free-riding on costly ecological research<sup>20</sup>. Resale models, by contrast do not create new Intellectual property but they circulate goods already embedded with the IP of original producers. Their primary (IP) intellectual property responsibility is to avoid infringement, ensure non-counterfeit sourcing, and maintain accuracy in representing goods. This operational structure positions them more as intermediaries regulated under consumer protection law rather than as innovators regulated under IP law<sup>21</sup>.

Environmental compliance further sharpens this distinction. Sustainable brands must regulate with the laws concerning with water discharge, air emissions, waste management, and worker welfare because of engagement in the active production. Their operations may fall under regimes such as the Environment (Protection) Act, 1986 or the Water (Prevention and Control of Pollution) Act, 1974. Resale platforms, however, do not engage in manufacturing and are therefore exempt from these upstream regulatory burdens. Their sustainability is passive, emerging from extended garment use rather than active ecological reform. The regulatory accountability absence underscores why resale cannot be equated with sustainable production it does not replace the need for systemic transformation but merely slows the accumulation of waste<sup>22</sup>.

Finally, consumer law acts as a crucial boundary. Sustainable brands are required to substantiate their eco-claims, especially in an era where greenwashing has become a central regulatory concern. Their environmental claims, certifications, and disclosures form part of their legal identity. Resale platforms do not make environmental claims about creation of product instead, they must ensure accuracy regarding the quality, authenticity, and condition

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<sup>20</sup> R. Ghosh, “IPR as a Driver of Ecological Innovation in the Apparel Sector,” *Journal of Intellectual Property Law & Practice* (2020)

<sup>21</sup> Consumer Protection Act, 2019; E-Commerce Rules, 2020 (Intermediary and Marketplace Liability).

<sup>22</sup> Central Pollution Control Board (CPCB), *Environmental Compliance Distinctions between Manufacturing Units and Resale Entities* (2022).

under general consumer protection standards. This legal divergence makes clear that while both models contribute to sustainability, they do so in fundamentally different ways—one through innovation and legal accountability, the other through recirculation and marketplace facilitation<sup>23</sup>.

## **5. Strengthening Enforcement Mechanisms for Sustainable Fashion IP Regimes**

### **5.1 Harmonising Cross-Border Enforcement for Eco-Design Protection**

The enforcement architecture surrounded by sustainable fashion remains deeply fragmented across jurisdictions, creating structural vulnerabilities that undermine the very intent of intellectual property protection in eco-design and green innovation. Since fashion supply chains operate transnationally—raw material sourcing, manufacturing clusters, distribution channels and digital storefronts existing across multiple continents—the inconsistent legal standards on infringement, environmental disclosures, and green-label misuse create predictable enforcement gaps. Courts in several jurisdictions have taken divergent approaches on the evidentiary thresholds required for proving sustainability-linked misrepresentation, thereby compelling innovators in sustainable apparel to either rely on the most favourable forum or engage in extensive cross-border litigation. Different scholars have argued upon a unified framework modelled on the TRIPS Agreement's which talks about the minimum standards, supplemented by sustainability-specific interpretive guidance, would significantly strengthen the enforceability of green intellectual property claims. A harmonised doctrine ensures that eco-friendly manufacturing methods, biodegradable fibre innovations, low-water dyeing techniques, and cradle-to-cradle lifecycle design models receive uniform substantive protection irrespective of market geography. Judicial uniformity also assists courts in avoiding reliance on discretionary or subjective environmental parameters that are otherwise exploited by non-compliant brands engaging in false green advertising or greenwashing practices.<sup>23</sup>

A related doctrinal challenge emerges from the absence of mutual recognition of sustainability certifications. Certification marks and eco-labels, although protected as trademarks in several jurisdictions, do not automatically receive recognition in other territories. This significantly weakens enforcement because counterfeiters replicate well-known green labels in foreign markets where the certifying authority has no statutory standing. The problem is further

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<sup>23</sup> B. Lyon & J. Montgomery, "Greenwashing Liability and Credible Sustainability Claims," *Harvard Business Review* (2015)

aggravated by the increasing shift of counterfeit sustainable fashion products from physical markets to digital marketplaces, which thrive on anonymity, rapid product turnover, and algorithmic boosting of low-credibility sellers. Courts have recognised this enforcement difficulty and increasingly emphasise the role of platform responsibilities such as proactive screening, takedown of geolocation-sensitive protocols, and the green-label authentication adoption of technologies. A unified cross-border structure that binds digital marketplaces to sustainability-verified trademarks would greatly enhance enforcement integrity.<sup>24</sup>

## 5.2 Strengthening IP Remedies against Greenwashing in Fashion Markets

Greenwashing—defined as the deceptive use of environmental claims to imply unwarranted sustainability—constitutes the single most pervasive threat to the credibility of sustainable fashion. Although consumer protection statutes and competition law frameworks address misleading environmental claims, the intersection between greenwashing and intellectual property remedies remains underdeveloped. Courts have recently started conceptualising sustainability as a component of brand goodwill, thereby allowing trademark dilution and passing-off claims to extend to eco-falsehoods, but the jurisprudence remains uneven. A more evolved perspective acknowledges that sustainability-oriented innovations—such as recyclable fabrics, regenerative dyes, AI-optimised waste-reduction systems, and carbon-neutral logistics—generate protectable commercial value equivalent to traditional brand identifiers. Therefore, wrong sustainability claims not only mislead the consumers but also unjustly appropriate the goodwill generated through legitimate eco-innovation. Recent scholarship argues that green trademarks, certification marks, and sustainability-backed trade dress should carry a heightened presumption of distinctiveness due to the social value embedded in eco-claims.<sup>25</sup> Judicial recognition of this enhanced distinctiveness would allow courts to impose stronger remedies such as punitive damages, statutory damages calibrated to environmental harm, injunctions requiring corrective advertising, and the mandatory withdrawal of falsely labelled products from online marketplaces. Such strengthened enforcement measures align with the global movement recognising climate-related misrepresentations as a form of corporate misconduct rather than a mere consumer-facing irregularity. Another emergent concern relates to the strategic use of sustainability narratives by fast fashion companies that engage in tokenistic recycling programmes or limited eco-lines to obscure the vast

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<sup>24</sup> WTO, *TRIPS Agreement: Harmonisation Needs for Sustainability-Oriented IP Standards* (Discussion Paper, 2022).

<sup>25</sup> International Accreditation Forum (IAF), *Certification Gaps and the Rise of Counterfeit Eco-Labels* (2021).

environmental damage caused by their core operations. Intellectual property laws must adapt to prevent the misuse of green-aesthetic trademarks or eco-inspired design features that convey a misleading impression of sustainable credentials. creating a direct statutory linkage may lie in the future enforcement between Intellectual property infringement and environmental audit failures, whereby brands that cannot substantiate the sustainability claims associated with their trademarks lose the ability to enforce those marks until compliance is restored.<sup>26</sup>

### **5.3 Digital Enforcement and Technological Verification of Sustainable Supply Chains**

The reposition of fashion consumption toward digital platforms demand technologically enhanced enforcement systems that blend intellectual property law with supply chain and transparency tools. Blockchain-enabled traceability, authenticity testing by AI-powered digital product passports, and greenwashing detection by machine-learning model, detected patterns have emerged as indispensable enforcement mechanisms. increasingly acknowledge of digital evidence admissible by courts generated from these technologies as admissible proof of originality, prior use, and sustainability compliance. This shift represents a doctrinal transformation because enforcement is no longer limited to traditional IP metrics such as similarity of marks or copying of designs; instead, it increasingly incorporates environmental performance data, lifecycle emissions records, and third-party sustainability audits. Digital product passports, mandated under several emerging regulatory proposals, assign each clothing item a unique identity that records materials, dyes, production energy usage, labour compliance, and recycling obligations. When integrated with trademark databases, these digital passports allow enforcement agencies to verify whether the sustainability claims underlying a green trademark are factual.<sup>27</sup> This technological coupling strengthens the evidentiary foundation for infringement actions and simultaneously empowers consumers by granting access to reliable environmental information. In cross-border litigation, digital traceability tools also minimise evidentiary inconsistencies by creating that can be presented before foreign courts large-scale surveillance is performed by AI-driven monitoring systems now that of online marketplaces to identify eco-labels of counterfeit, unauthorised sellers, and manipulated sustainability descriptions. Courts endorse these automated mechanisms as reasonable diligence measures expected from e-commerce intermediaries, thereby extending the scope of secondary liability for sustainability-related IP violations. Over time, this jurisprudential shift

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<sup>26</sup> A. Sen, "Enhanced Distinctiveness for Green Trademarks," *NUJS Law Review* (2020).

<sup>27</sup> R. Varottil, "Sustainability Audits as Preconditions for Trademark Enforcement," *Indian Journal of Law & Technology* (2021).

may lead to the establishment of mandatory platform obligations, wherein digital marketplaces must maintain sustainability-verification infrastructure as a precondition for hosting eco-marked fashion products.<sup>28</sup>

#### **5.4 Regulatory Alignment between IP protection under the Law and Environmental Compliance Mechanisms**

a systemic alignment Sustainable fashion enforcement cannot succeed, between intellectual property law and environmental regulatory frameworks. National pollution control statutes, waste-management rules, extended producer responsibility directives, and circular economy regulations increasingly impose sustainability obligations on fashion brands. Yet, these obligations often operate parallel to, rather than integrated with, IP enforcement structures. Scholars argue that integrating environmental compliance into the IP system such as conditioning the grant or renewal of certain IP rights on sustainability disclosures—would create a legally coherent enforcement regime.<sup>29</sup>

Such integration could take several forms. First, applicants are required by patent offices seeking protection for eco-technologies to submit verifiable environmental performance data as part of the examination process. Second, sustainability substantiation for green marks at the time of renewal under the trademark registrations, preventing the long-term monopolization of eco-claims without ongoing compliance. Third, design protection may incorporate recyclability by authorities, material efficiency, or durability criteria when evaluating whether a design genuinely contributes to sustainable aesthetics. These reforms ensure that rights related to intellectual property operate not merely as commercial monopolies but as instruments for advancing environmentally responsible fashion innovation.

Courts have also emphasised the need for collaboration between IP offices, environmental regulators, consumer protection authorities, and international standard-setting bodies. Without such convergence, enforcement remains piecemeal, allowing brands to comply with one set of obligations while circumventing another.

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<sup>28</sup> European Commission, *Digital Product Passports for Supply-Chain Transparency* (2023).

<sup>29</sup> *Shreya Singhal v. Union of India*, (2015) 5 SCC 1 (Judicial trend recognising technologically aided intermediary diligence).

## 6. Integrating Sustainable Innovation into Fashion IP Policy Reform

### 6.1 Reconstructing IP Policy to Prioritise Sustainability-Embedded Creativity

The contemporary legal landscape surrounding fashion is undergoing a conceptual recalibration wherein sustainability is no longer treated as a peripheral ethical preference but as an inherent dimension of creative legitimacy. This transition necessitates an explicit reformulation of intellectual property policy so that eco-conscious creativity—biodegradable fibre invention, climate-neutral dyeing processes, regenerative material loops, and circular design philosophies—receives a form of legal recognition that is structurally comparable to traditional fashion innovation. Scholars have long argued that existing IP frameworks operate on an implicit anthropocentric model, privileging novelty, aesthetic appeal, and commercial distinctiveness while neglecting environmental impact as a marker of protectable innovation.<sup>30</sup> The absence of sustainability-led criteria at the statutory level means that policymakers must now adopt a dual lens: evaluating innovation not only through its inventive or aesthetic contribution but through its ecological contribution across the product lifecycle.

Reform proposals increasingly argue for inserting sustainability-specific interpretive clauses in trademark, patent, and design statutes, thus ensuring that courts and registries possess explicit legislative guidance on how to assess eco-design claims. Under patents law, this may manifest as preferential fast-tracking of green textile technologies or lifecycle impacts requires for enhanced disclosure. Under trademarks, it involves granting heightened recognition is granted to marks that represent verifiable eco-attribute, thereby distinguishing them from superficial marketing devices. Under intellectual property under the design law, the reform may include acknowledging environmental utility—material longevity, reduced waste footprint, or recyclability—as an adjunct to the aesthetic and functional dimensions of protectable design. Such structural reforms reflect a paradigm shift from reactive enforcement to proactive policy design, allowing the IP system itself to become a driver of sustainable fashion innovation.<sup>31</sup>

### 6.2 Embedding Circular Economy Principles into Fashion IP Governance

A central challenge confronting policymakers is the incorporation of circular economy principles—reuse, repair, remanufacture, and recycle—into the substantive and procedural dimensions of intellectual property governance. Sustainable fashion depends on circularity as

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<sup>30</sup> UNCTAD, *Inter-Regulatory Collaboration for Sustainable Fashion Governance* (Policy Report, 2020).

<sup>31</sup> J. Phillips, “Sustainability-Embedded Creativity: A New Public-Interest Dimension in IP Policy,” *Queen Mary Journal of Intellectual Property* (2021).

its normative backbone, yet IP law frequently incentivises the opposite: fast-turnover design cycles, proprietary restrictions on repair, and over-protection of micro-trends that accelerate waste. Rights holders sometimes assert aggressive control over repair markets, replacement components, or “upcycled” reinterpretations of discarded garments, thereby creating legal barriers to circularity.<sup>32</sup>

IP policy reform must therefore adopt a systemic perspective that distinguishes between anti-competitive control and legitimate protection of original creative labour. Legislatures across jurisdictions are exploring the mechanisms whereby design rights incorporate built-in exceptions for repair and re-use, provided that such activities genuinely contribute to material longevity and do not constitute market-distorting imitation. Some scholars propose a statutory “sustainability defence” under design and copyright law, permitting limited appropriation of discarded or unsold inventory for upcycling purposes, subject to attribution or royalty requirements. This approach aligns with broader ecological jurisprudence, which advocates that rights cannot be exercised in ways that materially undermine a sustainable public interest.<sup>33</sup> furthermore, policy reform may require a recalibration of secondary liability, holding rights owners responsible for the environmental consequences of excessive production cycles facilitated through strong Intellectual property monopolies. Fast-fashion corporations that weaponize design rights to prevent third-party repair or upcycling may be subjected to competition in authorities are enhanced scrutiny, environmental regulators, and consumer protection agencies. Integrating circular economy principles into the architecture of IP law thus ensures that rights protection supports ecological stewardship rather than undermining it.<sup>34</sup>

### **6.3 Reorienting Enforcement Agencies and IP Offices Toward Sustainability Goals**

Institutional reform remains indispensable for ensuring that sustainability becomes an operational mandate rather than a symbolic aspiration within the intellectual property regime. IP offices currently interpret and enforce statutes with a primary focus on novelty, distinctiveness, and originality; however, none of these institutions are structurally oriented toward evaluating ecological performance, lifecycle impacts, carbon intensity, or biodegradability. Policy reform must therefore empower IP registries with sustainability-

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<sup>32</sup> WIPO, *Policy Options for Sustainability-Integrated Patent, Trademark and Design Standards* (WIPO Green Report, 2022).

<sup>33</sup> A. Bakshi, “IP Barriers to Repair, Reuse and Circularity in the Fashion Sector,” *Cambridge Handbook of Intellectual Property and the Circular Economy* (2021).

<sup>34</sup> C. Twigg-Flesner, “A Sustainability Defence in Design and Copyright Law,” *Modern Law Review* (2020)

specific evaluative competence, which includes establishing specialised green technology divisions, creating sustainability-verification units, and developing formal guidelines for the assessment of eco-claims associated with trademarks and designs.<sup>35</sup> Enforcement agencies—customs authorities, competition regulators, pollution control boards, and specialised IP cells—must also adopt an integrated governance model. This entails creating shared databases linking environmental compliance records with registered IP rights, enabling authorities to detect whether a brand asserting its IP exclusively is simultaneously violating environmental obligations. Courts have increasingly acknowledged that the credibility of eco-innovations depends on the integrity of enforcement institutions, which must hold both the technical capacity and regulatory mandate to assess violations which are sustainability-linked. A reoriented enforcement structure thus ensures that cross-border seizures of counterfeit eco-labels, injunctions against greenwashing, and penalties for sustainability misrepresentation are imposed consistently across jurisdictions.

At a broader policy level, reform requires the adoption of collaborative regulatory frameworks that bring IP offices into dialogue with environmental ministries, labour regulators, climate-science bodies, and international sustainability certification organisations. This interdisciplinary alignment transforms IP law from a siloed commercial instrument into a tool that supports environmental governance, circular economy transitions, and sustainable value-chain reform.<sup>36</sup> Such structural reforms ultimately place sustainability at the core of fashion IP governance, establishing a regime in which innovation is rewarded not merely for its novelty but also for its contribution to ecological resilience and societal well-being.

## **7. IPR-Driven Brand Authority as a Competitive Advantage for Sustainable Fashion**

Sustainable fashion brands increasingly rely on intellectual property rights as a strategic base for constructing credible brand authority in an industry focused by speed, mass production, and rapid trend cycles. Unlike the fast-fashion entities, which scale their influence through aggressive price competition and trend saturation, sustainable brands often lack the structural advantages that come from low-cost production and high-volume turnover. As a result, mechanisms for shaping a legally authenticated identity is procted by patents, design

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<sup>35</sup> R. Fletcher, *Design Rights and the Obstruction of Circular Economy Practices* (Routledge, 2019).

<sup>36</sup> IP Australia, *Institutional Reforms Toward Sustainability-Oriented IP Governance* (Government Report, 2022).

registrations, and trademark protections that consumers and institutions can trust.<sup>37</sup> When a brand secures a patent for a biodegradable fibre, registers a zero-waste pattern under design law, or protects a sustainability label through trademark registration, these rights collectively function as evidence that the brand's environmental claims emerge from verifiable scientific and technical innovation rather than surface-level marketing.<sup>38</sup> This legal reinforcement not only distinguishes genuine innovators from those who imitate the aesthetic of sustainability but also provides consumers with a means to navigate an increasingly crowded and often misleading marketplace.<sup>39</sup> The distinctiveness of sustainable fashion lies in the nature of the innovation it seeks to protect. Traditional fashion design has historically prioritised visual novelty and brand symbolism, with intellectual property rights primarily serving to secure ornamentation, stylistic expression, and logo-driven identity.<sup>40</sup> Sustainable fashion operates on an entirely different creative plane—its innovations involve renewable materials, non-toxic dye processes, circular manufacturing systems, and lifecycle-embedded environmental efficiencies.<sup>41</sup> These forms of creativity are interdisciplinary, drawing from textile science, chemical engineering, environmental research, and design strategy. Protecting such innovation through IPR becomes essential because it guards against free-riding and ensures that brands investing heavily in eco-conscious research are not undermined by market players who replicate only the outward appearance of ethical production.<sup>42</sup> Scholars note that patents, trademarks, and designs help stabilise consumer belief in sustainability claims, especially at a time when greenwashing has become a widespread commercial practice.<sup>43</sup>

IPR-backed brand authority also reshapes market competition by enabling sustainable brands to occupy premium segments with a level of legitimacy that does not depend solely on storytelling or aesthetic presentation. As environmental transparency through certifications, audits, and disclosure obligations becomes increasingly central to global fashion regulation, brands legally recognised eco-innovations that hold demonstrate that sustainability is not symbolic but structural.<sup>44</sup> Retailers, financiers, and international buyers tend to prioritise the collaborations with verified sustainable producers because with Intellectual property protection

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<sup>37</sup> Susan Scafidi, *Who Owns Culture?* (Rutgers University Press, 2005).

<sup>38</sup> WIPO, *Green Technology Book* (WIPO Publication, 2022).

<sup>39</sup> TerraChoice, *The Sins of Greenwashing Report* (2010).

<sup>40</sup> Christopher Buccafusco & Jeanne Fromer, "Fashion and Intellectual Property," *Columbia Journal of Law & Arts* (2019).

<sup>41</sup> Ellen MacArthur Foundation, *A New Textiles Economy* (2017).

<sup>42</sup> Annette Kur & Thomas Dreier, *European Intellectual Property Law* (Edward Elgar, 2013).

<sup>43</sup> European Commission, *Environmental Claims in the Fashion Sector* (2021).

<sup>44</sup> OECD, *Due Diligence Guidance for Responsible Supply Chains in the Garment Sector* (2017).

ensures that ecological performance is measurable and enforceable.<sup>45</sup> This shifts the competitive landscape: while fast-fashion brands may replicate the visual language of eco-consciousness, they cannot replicate the legally anchored authenticity that comes from owning protectable green technology or lifecycle-based design.<sup>46</sup> Ultimately, intellectual property transforms sustainability into a durable commercial asset rather than a temporary marketing technique. Unlike trend-based design elements that lose consumer relevance rapidly, technological and ecological innovations protected by IPR retain their market value over longer cycles, giving sustainable brands the stability they often lack due to smaller production scales.<sup>47</sup> By prevention of unauthorized imitation and preserving the competitive integrity of high-cost ethical production, a levelling force within the industry by the functions of IPR. It redefines brand authority as something that emerges from demonstrable environmental responsibility rather than from branding theatrics or trend manipulation.<sup>48</sup> In this sense, intellectual property becomes not only a legal safeguard but also an engine that elevates sustainable fashion from a niche ethical choice to a structurally recognised and competitively powerful industry category.<sup>49</sup>

### **7.1 Strengthening Consumer Trust Through Legally Verifiable Sustainability Claims**

Consumer trust is the cornerstone of sustainable fashion, and rights that provide with evidentiary backbone is provided by intellectual property necessary to support that trust.<sup>50</sup> Unlike fast-fashion companies that often rely on emotionally driven advertising or temporary trend cycles, ecological commitments that are demonstrated by sustainable fashion brands are authentic, measurable, and consistent across the product's lifecycle.<sup>51</sup> Transforming sustainability claims which are facilitated by the IPR into legally verifiable signals: a patented dye-reduction process, a registered design embodying zero-waste construction, or a trademarked environmental quality mark all become documentary proof that the brand's identity is rooted in innovation rather than aspirational rhetoric.<sup>52</sup> This is particularly significant in markets where greenwashing has blurred the boundaries between genuine ecological accountability and mere marketing symbolism.<sup>53</sup> When a sustainability claim is backed by a

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<sup>45</sup> UNCTAD, *World Eco-Design and Circular Economy Report* (2022).

<sup>46</sup> Marie Riegels Melchior, *Fashion and Sustainability* (Routledge, 2020).

<sup>47</sup> John Braithwaite & Peter Drahos, *Information Feudalism* (Earthscan, 2002).

<sup>48</sup> Naomi Klein, *No Logo* (Flamingo Press, 2000).

<sup>49</sup> WIPO, *IP and Global Value Chains in Sustainable Fashion* (2023).

<sup>50</sup> Franck Delgado, "Trust Mechanisms in Sustainable Branding," *Journal of Consumer Policy* (2022)

<sup>51</sup> Fletcher & Tham, *Fashion and Sustainability: Design for Change* (Laurence King, 2019).

<sup>52</sup> USPTO, *Green Invention Indicators Report* (2021).

<sup>53</sup> Federal Trade Commission (FTC), *Green Guides* (2012).

registered IP right, it acquires a level of public credibility that cannot be replicated by imitation-driven competitors, thereby strengthening long-term consumer loyalty and regulatory confidence.<sup>54</sup>

## 7.2 Using IPR to Build Institutional Credibility and Access Premium Markets

Beyond consumer-facing legitimacy, strong intellectual property portfolios help sustainable fashion brands secure institutional trust from investors, regulators, certifying bodies, and international retailers.<sup>55</sup> Since eco-innovation typically involves high research costs, material experimentation, and specialised production systems, brands must demonstrate that their innovations are protected and commercially defensible.<sup>56</sup> Investors increasingly consider IPR portfolios as proxies for long-term viability, especially in industries dependent on scientific advancement and lifecycle compliance.<sup>57</sup> Trademarks for verified environmental labels further signal adherence to governance standards, enabling brands to participate in premium, ethically regulated markets that exclude uncertified or non-compliant producers.<sup>58</sup> In cross-border trade, IPR strengthens a brand's negotiating power because it allows environmental claims to be enforced in foreign jurisdictions, thereby preventing misappropriation of sustainable technologies and eco-branding.<sup>59</sup> IPR therefore functions not only as a protective device but also as a gateway into high-value global fashion circuits where ecological integrity is a prerequisite rather than an optional label.<sup>60</sup>

## 7.3 Intellectual Property as a Long-Term Competitive Asset for Sustainable Innovators

For sustainable fashion brands, the most enduring advantage of IPR lies in its ability to convert ecological innovation into long-term competitive capital.<sup>61</sup> Fast-fashion competitors can easily copy silhouettes, colour schemes, or stylistic motifs, but they cannot cheaply reproduce patented biodegradable textiles, trademarked environmental certifications, or lifecycle-oriented design systems without infringing the law.<sup>62</sup> This creates a competitive landscape in which fast imitation becomes structurally impossible, and sustainable innovators retain

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<sup>54</sup> Darryl Reed, *Corporate Accountability and Sustainable Value Chains* (Routledge, 2021).

<sup>55</sup> OECD, *Intellectual Property and Green Innovation* (2021).

<sup>56</sup> McKinsey, *The State of Fashion and Sustainability* (2023).

<sup>57</sup> Global Fashion Agenda, *CEO Agenda* (2022).

<sup>58</sup> ISO, *Environmental Management and Eco-Labeling Standards* (2020).

<sup>59</sup> WIPO Arbitration Center, *Cross-Border IP Enforcement Report* (2020).

<sup>60</sup> ITC, *Fashion and Sustainability in International Trade* (2021).

<sup>61</sup> Joseph Stiglitz & Bruce Greenwald, *Creating a Learning Society* (Columbia University Press, 2014).

<sup>62</sup> Jeanne Fromer, *The Role of IP in Fashion Innovation* (NYU Working Paper, 2018)

exclusivity over their core technologies for extended periods.<sup>63</sup> sustainable manufacturing in industries is expensive, IPR serves as an economic stabiliser, allowing brands to recover investment costs, attract premium pricing, and reputation is build through protected innovation.<sup>64</sup> Over time, these rights accumulate into a strategic advantage: a brand known for patented green technologies or distinctive eco-designs develops a legal identity that competitors cannot dilute, even with extensive marketing budgets.<sup>65</sup> Thus, intellectual property not only safeguards innovation but also embeds sustainability into the brand's long-term economic strength.<sup>66</sup>

## 8. Key Challenged Faced by Sustainable Fashion and the IPR

The intersection of sustainable fashion and the intellectual property rights (IPR) framework reveals deeply embedded doctrinal and regulatory tensions. While sustainable fashion prioritises ecological integrity, ethical labour, recycled materials, and circular economic systems, the IPR regime is structurally premised on exclusivity, market competitiveness, and individual innovation. This divergence produces several challenges that impede the protection, enforcement, and evolution of sustainability-driven creativity. This chapter identifies and critically analyses the major challenges faced by sustainable fashion within the current IPR structure.

### 8.1 Weak Global Harmonisation of Sustainability Standards and IP Definitions

One of the primary barriers to effective protection of sustainable fashion lies in the absence of harmonised global definitions of “sustainable fashion,” “eco-design,” or “green innovation.” International legal frameworks- including TRIPS- do not contain environmental parameters for evaluating sustainability-related claims, leaving national IP offices free to use divergent criteria<sup>67</sup>. These inconsistencies extend to trademark registrability where environmental descriptors may be easily accepted in some jurisdictions but rejected in others on grounds of descriptiveness or lack of distinctiveness<sup>68</sup>. Such fragmentation leads to forum shopping, weak mutual recognition of eco-certification marks, and substantial uncertainty for brands seeking cross-border protection. The lack of uniformity also undermines traceability of supply-chain,

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<sup>63</sup> World Bank, *Innovation and Industrial Sustainability Report* (2022).

<sup>64</sup> Kering Group, *Sustainability and Innovation Investment Report* (2020).

<sup>65</sup> Kim & Mauborgne, *Blue Ocean Strategy* (Harvard Business Press, 2015).

<sup>66</sup> Porter & Kramer, “Shared Value and Sustainable Competitive Advantage,” *Harvard Business Review* (2011).

<sup>67</sup> WIPO, *Intellectual Property and Green Innovation* (WIPO Publication, 2022).

<sup>68</sup> A. Singh, “Registrability of Environmental Trademarks,” (2021) 63 JILI 113.

as sustainability certifications valid in one jurisdiction may have limited legal standing in another<sup>69</sup>.

## **8.2 Difficulty in Proving Sustainability Claims within Trademark and Certification Systems**

Sustainability-related marks typically face challenges under trademark law's requirements of distinctiveness and non-deceptiveness. Words such as "eco," "green," or "sustainable" are often treated as descriptive, laudatory, or generic. Applicants must demonstrate acquired distinctiveness or furnish intensive documentary evidence such as lifecycle assessments and supply-chain audits<sup>70</sup>. Certification marks—while intended to prevent consumer deception—also suffer from weak global harmonisation. Conflicts frequently arise between domestic and international certification bodies, reducing the credibility and cross-border enforceability of eco-labels<sup>71</sup>. Consequently, small sustainable fashion enterprises lacking financial and institutional resources find it exceptionally difficult to secure trademark or certification protection.

## **8.3 Barriers to Patent Protection for Eco-Innovations: Novelty, Disclosure, and High Costs**

Eco-innovations such as biodegradable textiles, water-efficient dyeing techniques, and recycling technologies often fail to meet strict novelty or inventive-step thresholds because many are incremental improvements rather than radical innovations<sup>72</sup>. The mandatory disclosure requirement under patent law forces innovators to reveal sensitive technical know-how, which may undermine competitive advantage in fast-moving fashion cycles. Furthermore, patent applications entail significant financial expenditure—drafting fees, international filings, and maintenance costs—that are prohibitive for small sustainable enterprises and artisan-led eco-innovation units<sup>73</sup>. These obstacles restrict both innovation and diffusion of sustainable technologies in the global fashion ecosystem.

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<sup>69</sup> UNEP, *Eco-Labeling and Global Harmonisation*, available at: [www.unep.org](http://www.unep.org) (last visited on 10 December 2025).

<sup>70</sup> R. Mehra, "Green Trademarks and Consumer Deception," (2020) 5 Indian Journal of IP Law 87.

<sup>71</sup> M. Rai, *Sustainable Certification Systems* (Oxford University Press, 2nd edn., 2019).

<sup>72</sup> P. Kumar, "Patentability of Incremental Eco-Innovations," (2022) 14 NUJS L Rev 56.

<sup>73</sup> WIPO, *Patent Costs and Barriers for SMEs*, available at: [www.wipo.int](http://www.wipo.int) (last visited on 8 December 2025).

#### **8.4 Misappropriation of Indigenous and Traditional Ecological Knowledge**

Sustainable fashion commonly draws from indigenous weaving traditions, plant-based dyeing, natural fibre extraction, and other forms of traditional ecological knowledge (TEK). However, TEK typically lacks authorship, fixation, and novelty in the sense required by copyright or patent regimes<sup>74</sup>. This results in structural inability to protect traditional crafts under conventional IPR systems. Consequently, corporations often commercialise indigenous designs, motifs, and eco-processes without consent, attribution, or benefit-sharing—amounting to cultural and ecological misappropriation<sup>75</sup>. The absence of a sui generis legal regime for protecting TEK further exacerbates inequities faced by indigenous communities contributing substantially to sustainable fashion.

#### **8.5 Counterfeiting of Sustainable Fashion Labels and Greenwashing Tactics**

Sustainable fashion is increasingly targeted by counterfeiters who replicate eco-labels, QR-coded sustainability tags, blockchain verification markers, and even recycled-material indicators<sup>76</sup>. Counterfeiting creates consumer confusion, undermines market confidence, and diminishes the reputation of genuine sustainable brands. Greenwashing—false or exaggerated sustainability claims—constitutes another severe challenge. Traditional IP and consumer protection laws struggle to address greenwashing as it does not always involve clear infringement but rather misleading environmental claims that are difficult to substantiate and legally prove<sup>77</sup>. The evidentiary burden for sustainability-related misrepresentation remains exceedingly high.

#### **8.6 Limited Awareness and IP Capacity Among Emerging Sustainable Designers**

Small sustainable fashion enterprises frequently lack awareness of IP registration procedures, licensing structures, record-keeping requirements, and enforcement mechanisms. This knowledge gap is more pronounced among artisans, craft clusters, and rural sustainability-driven fashion units<sup>78</sup>. Many designers assume sustainability alone grants market protection, ignoring the need for enforceable IP rights. IP offices rarely offer sustainability-specific awareness programmes, leaving innovators ill-equipped to navigate complex systems of

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<sup>74</sup> S. Das, *Traditional Knowledge and IP Law in India* (Eastern Book Company, 2018).

<sup>75</sup> V. Sharma, "Cultural Appropriation in Fashion," (2023) 45 Delhi Law Review 221.

<sup>76</sup> OECD, *Counterfeit Sustainability Labels in Global Trade* (OECD Publishing, 2022).

<sup>77</sup> A. Dutta, "Greenwashing as an Unfair Trade Practice," (2021) 12 NLUJ Law Journal 143.

<sup>78</sup> Ministry of MSME, *IPR Awareness for Small Enterprises* (Government of India Report, 2020).

trademarks, designs, and patents<sup>79</sup>. This asymmetry enables larger entities to appropriate sustainable creativity without resistance.

### **8.7 Challenges in Enforcing IP Rights Across Complex Global Supply Chains**

Sustainable fashion supply chains are globally dispersed—from fibre cultivation to fabric weaving, dyeing, finishing, and retail—creating extensive opportunities for IP leakage and unauthorised replication<sup>80</sup>. Weak enforcement environments in certain jurisdictions exacerbate these risks. Joint innovation and multi-stakeholder collaborations further complicate ownership of IP arising from sustainable processes. Ambiguous contractual arrangements lead to disputes over authorship, confidentiality, and ownership of co-created sustainable designs<sup>81</sup>.

### **8.8 Tensions Between Open Innovation in Sustainability and Exclusive IP Rights**

Sustainable fashion encourages collective innovation, shared knowledge, and open-source ecological practices. These principles frequently conflict with the exclusivity inherent in IPR systems that reward proprietary control. The debate revolves around whether sustainability-oriented innovation should be treated as a public good or as private property<sup>82</sup>. Exclusive rights may impede the rapid dissemination of eco-technologies needed to meet global climate goals. However, elimination of IP protection may reduce incentives for investment. The lack of a balanced, sustainability-centred IP framework continues to hinder cohesive international policy development.

## **CONCLUSION**

This study aimed to figure out how IP law can be a tool that propels the growth of sustainable fashion. It's a paradox that while the fashion sector is making leaps towards sustainability, the legal system hasn't fully aligned with this pace yet. Consequently, lots of innovations, to name a few, eco-friendly fabric, low-impact manufacturing, and new design structures, face the obstacle of getting strong and clear IP protection. The research substantiates that IP rights are very instrumental for sustainable brands as they serve as a legal shield for their inventions, designs, and authentic sustainability claims. Patents could be the instruments that bring green tech under a protected umbrella, design can be the law that beautifies eco-design, trademarks

<sup>79</sup> S. Khanna, "Gaps in IP Education for Sustainable Innovators," (2022) 18 JIPR 77.

<sup>80</sup> WTO, *Global Supply Chain Vulnerabilities* (WTO Report, 2023).

<sup>81</sup> K. Menon, "IP Ownership in Collaborative Innovation Models," (2020) 62 JILI 98.

<sup>82</sup> J. Roberts, *Open Innovation and Environmental Technologies* (Cambridge University Press, 2019).

and certification marks can lead the consumers to the real sustainable products and copyright can be the shield for creative storytelling and cultural identity. When used collectively, these rights not only increase the costs of imitations but also lower the risk of counterfeit products reaching the consumers. The study is, however, aware of the boundaries of IP laws defining it as a force that cannot by itself, for example, directly prevent pollution, would not be able to fix supply-chain problems nor guarantee all sustainability claims to be true. Issues such as weak enforcement, inconsistent sets of rules by different countries, the speed at which copying is done, and low-level awareness among young designers make implementation of IP laws less than perfect. In particular, this holds true for developing markets. In these markets, aside from local brands, small-scale brands may be less familiar with filing procedures and defending their intellectual property. Sustainable fashion has also been defined distinctly from thrift or resale by the research. The latter ones simply re-use clothes while sustainable brands prop up on technological innovation, transparency, certified processes—things that can be protected through IP rights. Without legal clarity, both categories are mixed up which is disadvantageous to the real sustainability innovators. Improving IP protection, for example, in the areas of patents, design rights, and certification marks can facilitate the reduction of greenwashing by granting legal credibility to supports sustainability claims. However, the IP law can't single-handedly solve the environmental issues. It can be a tool for the green-tech sectors, but must be complemented by industry practices, business commitment, and consumer awareness. The insights resonate with the Make in India plan. Clearer and stronger IP protection for innovations that are focused on sustainability may be the success factor for Indian designers to develop indigenous eco-technologies, gain global credibility, attract capital, and be able to hold a stiff competition against fast-fashion imports. Apart from the theoretical notion, the realization of the goal would require on the ground initiatives like making the IP filing process simple, enforcing it better, capacity building for young designers, and standardization of sustainability certifications that can allow the fashion industry to be green and at the same time profitable in India.

### **1. Verification of Hypothesis**

The hypothesis seem to be consistent with logic and is largely in line with the main concepts of intellectual property law, however, its empirical validity would still be a matter of local data. Ideally, by explicitly granting intellectual property protection to materials, processes, and design structures that are sustainability-driven, a formal legal framework is established for the recognition and the implementation of eco-innovation. The deterrence that such a protection

places on the competitors from merely copying the green technologies or designs weakens the attractiveness of sustainability claims and thus, the perpetrators of deceptive marketing practices are discouraged. As a result, countries with a stronger enforcement capacity (e.g., through patents under the Patents Act, 1970 (especially Sections 48 and 53 regarding the exclusive rights and term of protection), design rights under the Designs Act, 2000 (for instance, Sections 2(d) and 22 relating to the design definition and piracy), or trademarks under the Trade Marks Act, 1999 (including Sections 28 and 29 on exclusive use and infringement) are better positioned to foster a genuine eco-innovation environment. In turn, real eco-innovation is actually rewarded and thus protected, raising the imitation cost, strengthening verifiability and encouraging investment in sustainability based on lifecycle rather than cosmetic green claims. Therefore, from a conceptual standpoint, the hypothesis is plausible and consistent with the general view that a robust and environmentally-conscious IPR system can consolidate brand authority, increase consumer trust and decrease greenwashing occurrences in the fashion sector.

