

Evolving Boundaries: Copyright Protection for Cinematography in the Digital Era

Tvisha G, Geethapriya S

Law students,
School of Law

Satra deemed to be University, Thanjavur, India

tvishakrishna@gmail.com , geethapriya2003s@gmail.com

Abstract - Through digital avenues, the creative sphere of the cinematographic has been reshaped. The availability of films or visual works on online platforms has extended their reach to a larger audience; however, at the same time, the spread of these ideas has also raised the issue of copyright infringement due to unauthorized reproduction, piracy, and unregulated streaming. Such a duality poses a significant issue of how copyright laws can legally protect creators' rights, and yet allow reasonable access to the public. This paper aims to analyse the crossroads of these aspects by focusing on whether Indian copyright laws can cope with technological advancements and be efficient enough to deal with the changes of the digital era and the consequent faced challenges, especially those of visual cinematography. The first core aspects of the study are the characteristics of legal systems and judiciary views in India and other countries that seek to safeguard not only the ethical but the financial rights of the filmmakers, as well as second, the technological enforcement efforts, for instance, digital rights management, watermarking, and content tracking systems, are the ones that go hand in hand with the traditional law. The research of various aspects of law and technology enforcement and their impact on the user and the legal aspects shows that the balanced framework with proper creative incentives and at the same time, public accessibility is the one that should prevail. This paper summarizes the discussion with the proposed measures of the law reform interwoven with the flexible technology that enables a sustainable ecosystem of the visual cinematography in the digital era.

I. Introduction

Cinematography is an art and a skill related to photography of motion pictures, which are collectively called videos or movies. Although it captures the moving images, visually, it also stores the moving images. Visual Cinematography focuses on the visual element of motion pictures like moving images, the lighting, framing, angles, and recorded sequence etc.

The Copyright Act, 1957, says that a "cinematograph film" is a single visual recording work, and it also includes sound recording if it is accompanying such a visual recording along with a few changes in the use of words, the expression 'cinematograph' shall be interpreted as comprising any work created by any method similar to cinematography including video films.

Summarily, we can say that all the moving images recording which, as per the Copyright Law, are treated as "cinematograph films" and are protected under the "Cinematograph Films"

Every single motion picture is the collective term 'visual cinematography' has been used to describe. The 'digital era' or 'Information Age' denotes the period after the advent of digital technology. This concept has become the centre piece for all communication, creative work and even trade practices. The relation of intellectual property to digital era and visual cinematography has been changed due to the fact that the digital era has made the process of creation, production, and distribution easier. Moreover, the period of covid has also led to the rise of OTT platforms. Since most people are using this, it can also be said that the digital era has helped people consume these contents online.

For example, movie clips and sometimes movies released through black websites and channels in platforms, has increased the access and availability of cinemas online.

The digital platform proliferation has made film or visual works more accessible but at the same time has exposed them to piracy, unauthorized distribution, and other challenges such as authorship.

This paper claims that copyright protection is still necessary, however, the rise of new technologies and platforms call for a review of the traditional frameworks that are designed to protect both the creators and consumers.

II. Historical Evolution of Copyright Protection in Cinematography

India's copyright history deeply interconnects with the progress of the creative sectors, notably film. As the twentieth century saw cinematography taking the lead as the primary mode of cultural expression, the Indian copyright legislation has extended its scope, that not only addresses the peculiarities of the newly discovered patents challenge but also steady the first step in recognizing the protection entitled to the category of cinematographic works. This part maps out from the days of colonial era legal enactments to

the 21st century digital world, putting emphasis on the heightened awareness of the rights of people creating cinematographic works as indicated by the numerous acts and laws protecting their works.

Colonial Origins: The Indian Copyright Act, 1914:

The Indian Copyright Act, 1914 was initially based on the UK Copyright Act, 1911. It was the first legal framework in the country for copyright protection. The new law mainly focused on the protection of creative works such as literature, drama, music, and arts. At the time, the art of motion pictures was still developing and the Act did not mention films explicitly. Therefore, movies were seen as "dramatic" or "artistic" works indirectly, which posed the problem of vague rights and less protection for filmmakers.

Post-Independence Reform: The Copyright Act, 1957:

After the 1914 version of the law, the Copyright Act, 1957, was passed, a piece of legislation that was more comprehensive and still forms the basis of Indian copyright law today. The most remarkable feature of this paper was the addition of a definition of "cinematograph films" as a new class of works in Section 13(1)(b) of the Copyright Act, 1957. Cinematograph film was defined in Section 2(f) as "any work of visual recording and includes a sound recording accompanying such visual recording." Section 17(b) specified that the producer of a cinematograph film would be the first owner of copyright, if there was no written agreement to the contrary. Such a revision from colonial times was very important as it directly ensured that film producers got legal recognition and protection.

Amendments and Expanding Protection:

There are several changes to the law since 1957 which have been made to clarify various issues in cinematography. Some of these are:

1983 Amendment: Improved the mechanisms for the enforcement and further explained the rights in cinematograph films.

1994 Amendment: Brought in a number of rights that include performers' rights, rental rights, and also solved some issues related to the home video formats (VHS, CDs).

2012 Amendment: The digital era amendment that had the greatest impact:

Granted the underlying rights authors (screenplay writers, lyricists, composers) the corresponding rights. Enhanced the security of the works against digital piracy. Introduced statutory licensing for broadcasting that was very important for film music and OTT distribution. Extended the rights of performers to be consistent with the WIPO Copyright Treaty (1996).

Judicial Recognition and Expansion:

The impact of the judicial decisions on the extended protection beyond the copyright holders is substantial. Supreme Court in *R.G. Anand v. Deluxe Films* (1978), has stressed that the idea is free but the expression in the form of a film is protected by copyright. This ruling became a major reference in differentiating between the use of the idea as a source of inspiration and the violation of copyright by illegal duplication.

Much later, in the era of the internet, a similar case dealing with online infringement, namely *Super Cassettes Industries Ltd. v. Myspace Inc.* (2011), has come where the decision established the responsibility of digital platforms for the security of cinematographic works. The verdicts were a sign of the judiciary's readiness to adjust to the technological progress. Shift from Theatres to Digital Platforms:

At the beginning, copyright in cinematograph films was mainly concerned with the public exhibition in theatres. However, television, home video (VHS, DVDs) and finally OTT platforms (Netflix, Amazon Prime, Disney + Hotstar) have progressively extended the distribution channels. Each change brought new piracy and unauthorized reproduction risks, that made legislator and judges compelled to take measures adapting to the new situation.

Consequently, apart from the increased accessibility, the Copyright Act enforcement gaps in cross-border piracy and unlicensed streaming have also been accentuated.

This historical development of copyright in Indian cinematography traces a gradual shift from the rudimentary recognition of 1957 to complicated, technology-driven regulation of the 21st century. Despite consistent evolution of laws to accommodate new media forms, the advent of digital platforms tilt the balance towards a dynamic and continuously changing field of copyright in cinematography.

III. Legal Framework of Copyright Protection in India

Copyright is governed by the Copyright Act 1957 in India. There have been several amendments in this Act to adapt to technological and creative advancements. The Act deals with ownership, scope, duration and enforcement of the rights in literary, dramatic, musical and cinematographic work. The legal framework must ensure to provide a balance between rewarding creators and safeguarding public interest.

Statutory basis of Copyright in Cinematography:

Section 13(1)(b), Section 2(f), Section 17(b), Section 14(d), Section 26, Section 63 are certain important statutory provisions that help to explain the set expectations from the Copyright Act 1957.

Section 2(f)- Cinematograph film means any work of visual recording and includes a sound recording accompanying such visual recording and cinematograph shall be construed as including any work produced by any process analogous to cinematography including video films.

Cinematograph film is framed as "any work of visual recording and includes a sound recording accompanying such visual recording." This all-encompassing description allows for the protection of video and the sound made to be in sync, which is very important in the era of multimedia integration.

Section 13(1)(b)- Works in which Copyright subsists: Subject to the provisions of this section and the other provisions of this Act, copyright shall subsist throughout India in the following classes of works, that is to say – (b) cinematography films.

This Act recognises Cinematography films as a distinct category of work. This is to ensure that films have separate copyright protection.

The Act specifically identifies cinematograph films as a separate class of works. Through such an arrangement, films, by the very nature of the literary or musical works they reproduce, are given an individual copyright.

Section 14(d)- Meaning of Copyright: in the case of a cinematograph film, (i) to make a copy the film, including (A) a photograph of any image forming part thereof or (B) storing of it in any medium by electronic or other means, (ii) to sell or give on commercial rent or offer for sale or for such rental, any copy of the film, (iii) to communication the film to the public. This provision deals with

the rights given to the owner of the film. These exclusive rights include, making copies of the film, selling or giving copies of the film on commercial rent, communicating the film to the public that is advertising the film and making the general public aware that such a film is being made through any medium including broadcasting and on OTT platforms as well.

Section 17(b)- First owner of Copyright: subject to any provisions of clause (a), in the case of a photograph taken, or painting or portrait drawn, or an engraving or a cinematograph film made, for valuable consideration at the instance of any person, such person shall, in the absence of any agreement to the contrary, be the first owner of the copyright therein. Generally, the producer of a cinematograph film is the first owner of copyright, unless there is a contrary agreement. This clause recognizes the major contribution of producers, at the same time, it leaves provision for the contractual agreements with directors, actors, and other contributors.

Section 26- Term of copyright in a cinematograph film- In the case of a cinematograph film, copyright shall subsist until, (60 years) from the beginning of the calendar year next following the year in which the film is published.

This provision deals with the duration of the copyright for a cinematograph film that subsists for 60 years from the year following the date of its publication.

Section 63- Offence of infringement of copyright or other right conferred by this Act: Any person who knowingly infringes or abets the infringement of – (a) the copyright in a work (b) any other right conferred by this Act.

Amendments shaping the framework:



1983 amendment – There were penalties introduced for infringement/ piracy issues 1994 amendment – With the rise in usage of computers and rentals, rental rights relevant to video formats were introduced

1999 amendment – TRIPS agreement was incorporated in Indian Law strengthening enforcement

2012 amendment – Developments in technological aspects incorporated in the act, the amendments were recognising the rights of the creators, the rights of the people viewing the cinematograph film/ photograph or content, involved the use of OTT and digital platforms, introduced performers rights (section 38 and 38A). It also brought in the WIPO Copyright Treaty and WIPO Performances and Phonograms Treaty.

IV. Judicial Interpretation

In cases such as **R.G.Anand V deluxe Films 1978**, **Indian Performing Right Society V Eastern India Motion Pictures 1977**, **Super Cassettes Industries Ltd. V Myspace Inc. 2011**, **Yash Raj Films Pvt. Ltd. V Sri Sai Ganesh Productions 2013** the issues of copyright have been addressed.

In R.G Anand V Deluxe Films 1978, the Supreme Court decided that copyright is maintained for the expression of an idea and not the idea itself. Several times this concept has been referred to in conflicts with films.

In Indian Performing Right Society V Eastern India Motion Pictures 1977, it confirmed that the makers of the film are the ones that have the copyright of the film as the first point unless a different arrangement has been made.

In Super Cassettes Industries Ltd. V Myspace Inc. 2011, it emphasized the responsibility of internet platforms in stopping the illegal uploading of audio-visual works.

In Yash Raj Films Pvt. Ltd. V Sri Sai Ganesh Productions 2013, it backed up the commitment to the rights of the movie industry against the considerable reproduction of content.

Enforcement Mechanisms:

Civil Remedies - To prevent the illegal exhibition or distribution of a film, injunctions may be granted. Compensation or an accounting of profits may be sought. The delivery of the violative copies for destruction.

Criminal Remedies (Section 63) - Jail term (minimum 6 months to maximum 3 years) and compensation varied between ₹50,000 and ₹2,00,000.

Border Measures - The Customs Act authorizes the officials to confiscate the pirated copies that are brought into India, which is an essential protection against piracy across.

Emerging Challenges in Digital Era:

Enforcement, even with a strong framework, is still difficult in the digital era.

OTT platforms - Although they open up legitimate access to content, these platforms are still highly pirated.

Cross-border piracy – Illegal streaming sites that are out of the control of Indian authorities operate in such a way that it becomes difficult to enforce the law.

Fair use – Trying to find an equilibrium between the users' rights (parody, commentary) and those of film owners.

Such problems are the main reasons why Indian copyright laws must always be flexible.

International Treaties and Its compliance with Indian Laws:

India has signed major international agreements such as the Berne Convention 1886, the TRIPS Agreement 1995, WIPO Treaties 1996.

Berne Convention (1886) – Guarantees the security of Indian movies in foreign countries.

TRIPS Agreement (1995) – Requires the setting up of strong enforcement mechanisms. WIPO Treaties (1996) – Modifies copyright to suit the digital environment.

Through the harmonization of its local law with its international commitments, India extends the protection of its thriving film sector worldwide, at the same time giving the foreign works the necessary safety measures.

Therefore, it is said that India's local laws on intellectual property rights are reflections of a careful and fair mix that ensures the possibility both of protecting the investors' interests and recognizing the rights of creative workers, as well as satisfying the public interest. By its colonial past to the changes in 2012 and further ahead, copyright legislation has always been reshaping to secure the rights of those who create films as intricate culture-borne products. In spite of that, the pace of technology has been so fast, especially after the digital era, that even now, the legislators and judges have to keep on thinking new ways to ensure the fundamental goals of copyright: to be creative, to have access to the works, and to be fair.

V. International copyright in Cinematography

India's local laws regarding intellectual property rights are indicative of a well-balanced and fair mixture that allows the possibility not only to protect the investors' interests but also to acknowledge the rights of the creative ones and, additionally, to meet the public interest. Through its colonial past to the changes in 2012 and beyond, copyright law has always been transforming to protect the rights of the creators of films as the most complicated cultureborne products. Nevertheless, the technology development has been very rapid, in particular, after the digital era, that even today the lawmakers and the judges have to come up with new methods to maintain the basic aims of copyright: to create, to have the access of the works, and to be equitable.

In contrast to the copyright laws within the country, copyright is not a piece of rights that it automatically crosses borders. The protection of a film, which is copyrighted in India, is not recognized in other countries unless the legal system of that particular country recognizes it.

The international agreements establish a unified system by guaranteeing

- (i) National Treatment – The return for a foreign author is the same as for a local one, i.e., the same protection rights are given.
- (ii) Minimum Standards – At the very least, fundamental rights and duration of protection are ensured.
- (iii) Reciprocity – The protection in one country depends on the similar protection in another.

This system allows films to travel worldwide without the fear of legal issues for their makers.

Berne Convention for the Protection of Literary and Artistic work 1886:

The Berne Convention is the fundamental base for the protection of copyrights internationally, and India is one of its members.

Article 14bis (amended in the 1967 Stockholm Act) specifically recognizes the motion picture sector. It empowers the filmmaker as the owner of the film making rights, except it is stated otherwise by national laws or by an agreement.

Firstly, the law recognises films as "works of literature and arts," thus extending the protection given to other categories to them.

Secondly, it enacts the principle of automatic protection – non-registered films can still be protected in foreign countries.

As a result of Berne, Indian movies are safeguarded in over 180 member countries, which is very important for Bollywood, Tollywood, and art-house films having fans abroad.

Rome Convention 1961 and Neighbouring Rights:

As the Rome Convention complements the Berne Convention by safeguarding the rights of performers, producers of phonograms, and broadcasting organizations. Besides, the Rome Convention is also relevant to the field of cinematography since movies are means of performance and sound recording. Provides performers with a legal basis to prevent their performances from being broadcasted or recorded without authorization. Deepens the safeguarding of audiovisual works' soundtracks and dubbing rights, which are a source of piracy intervention, hence, the diminution of the economic value of the works.

TRIPS Agreement 1995:

The Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement, under the WTO administration, is a milestone in the incorporation of copyright into international trade law. It mandates member states (including India) to only implement the Berne Convention standards for copyright, with the exception of moral rights. It offers various strong enforcement measures such as border controls and dispute settlement through the use of WTO mechanisms. Such measures help to safeguard cinematographic works in international trade, thus enabling the release of films without the fear of piracy. TRIPS compliance in the Indian film industry acts as a firewall for movies like RRR or Pataa against piracy in other WTO member countries, thereby making it easier for Indian films to be exported and distributed.

WIPO Internet Treaties 1996:

The WIPO Copyright Treaty (WCT) and the WIPO Performances and Phonograms Treaty (WPPT) are group referred as Internet Treaties. Open the doors for new digital age challenges, mainly dealing with online distribution and streaming. Give the first acknowledgment to the creators and performers of works in the electronic environment. Support the implementation of DRM (Digital Rights Management)¹ and TPMs (Technological Protection Measures) - the two main sets of technologies that allow the operation of streaming platforms such as Netflix, Hotstar, or Amazon Prime. Impose an obligation of security against circumvention of encryption, watermarking, or access control implemented. Such agreements are the basic safeguards in the protection of cinematographic works, which are distributed through the OTT platform.

International Jurisprudence and Enforcement:

Though treaties outline the framework, the court's understanding and application of rights differ. *Hollywood v. Global Piracy*: Through the DMCA, US courts have employed very powerful measures to stop torrent websites that distribute movies produced in foreign countries.

Indian Films Abroad: Indian movie makers usually use legally binding international treaties in foreign courts (such as UK or US), to prevent illegal showing of their films.

Jurisdictional Challenges: Hijacking of ships in uncooperative waters is an age-old story but now piracy websites are in non-cooperative jurisdictions where enforcement of treaties is very limited, hence the need for stronger global collaboration.

Limitations of International Regime:

Even after creating various treaties, there are certain issues that arise.

Territoriality – The implementation of control is still dependent on the laws and courts of each country.

¹ Copyright Protection through Digital Rights Management in India: A Non-Essential Imposition [pp 224-237]

Digital Piracy – Agreements such as WCT merely set out the general principles and do not have the power to stop the quick progress of technologies like streaming, VPNs, or AI-generated copies.

Divergent Standards – Different countries have different opinions on moral rights, fair use, and the severity of criminal penalties, which results in varied protection of copyright. Access vs. Protection – If restrictions become too rigorous, user access may be limited, thereby giving rise to the issue of finding a fair balance.

India's Role in the International System:

The Republic of India has signed the Berne Convention, the TRIPS Agreement, and the

WIPO Treaties, in line with an effort to align its national legislation with the Copyright Amendment Act 2012.

Prevents the smuggling of foreign movies into India and guarantees the export of Indian films abroad.

Acknowledges the rights of performers and provides the implementation of the anti-piracy measures that have been verified in the digital sphere.

However, the position of enforcement against cross-border piracy (for example, temporarily hijacking the distribution of i.e. Hindi and South Indian films from servers located in

Singapore or Dubai and then illegally streaming these movies) is still quite problematic.

International copyright safeguards for movies are based on a complicated yet linked network of agreements and conventions, starting from Berne to WIPO. Individually, they set minimum standards for the protection of films as copyright and trade across different legal systems. Nevertheless, the advent of online channels and transnational piracy networks, has exposed the boundaries of current agreements. As a consequence, the Indian film industry, which is going global at a very fast pace, would require not only the strengthening of international collaboration but also treaty modernization to deal with the digital issues to ensure the creation of a just and viable community of creators, distributors, and audiences scattered all over the planet.

VI. Challenges of the Digital Era in protecting Copyright in Cinematography

Digital has changed every step of a movie's life from the idea, to sharing, to consumption. While this is a great technology for the masses as it provides easier access to films and audiovisuals, it is a nightmare for big studios as they can hardly control the distribution. Besides, filmmakers have to face problems that never existed before such as copyright violations, piracy, and difficulties in law enforcement.

Back then, unauthorized copies of films were in the form of physical media such as CDs or DVDs, while nowadays the digital world makes it possible to copy and distribute films without borders and at the same time. These issues deep down are doubting the economic and moral rights of producers and artists, respectively, thus a deeper investigation of these issues is needed.

These are certain challenges in the Digital Era:

1. Online Piracy and Unauthorised Distribution²:

Piracy is still the most significant problem that the digital world faces. Recently, the advent of torrent sites, peer-to-peer networks, and illegal streaming services has made it so that movies are being leaked online right after their release, sometimes even within an hour. Leaks before release: A lot of movies get leaked before their theatrical or OTT release, which leads to a big financial loss. Downloading via torrents: Websites such as TamilRockers have become very famous in India for the frequent uploading of pirated copies of newly released movies.

Free illegal watching: The content of mirror sites and Telegram channels are now unauthorized and are being distributed much faster than the agencies that enforce can react. As per the industry's approximations, the Indian film industry is losing thousands of crores every year due to piracy, which is an indication of how big the problem is.

2. OTT Platforms and Licensing Conflicts:

OTT (Over-The-Top) platforms like Netflix, Amazon Prime, Hotstar, and JioCinema have radically changed the way we consume media. Nevertheless, these platforms are accompanied by various issues:

Complex licensing: A movie can only be streamed in a specific country for which it is licensed while it can be blocked in another due to territorial rights. To circumvent such limitations, users employing VPNs are doing so, which is a gray area in terms of legality.

Revenue disputes: The producers and the streaming platforms are always at loggerheads over the price of the rights, especially in the case of regional movies. Exclusivity conflicts: Limitations imposed by contracts on filmmakers' rights to release their works on other platforms have raised concerns about the creation of monopolies in the market.

Henceforth, even though OTT leads to greater accessibility, it has disarrayed the legal framework governing rights management.

3. User generated content and fair use issues:

The internet era has made it impossible to distinguish between the use and the creation of products. A user of YouTube, Instagram, or TikTok might create a remix, a parody, or an adaptation of the cinematographic work.

Memes and mashups: Short clips from movies are made popular with the help of their humorous or critical-edited versions which are widely distributed.

Fan edits and reviews: While some may be categorized as "fair dealing" exceptions for criticism or review (Sec. 52, Copyright Act), the rest are considered to be copyright infringement.

Music-video reuse: The background score and songs of the movies are used in reels and shorts without giving consent to the original creators.

² Satish Kumar Mishra et al., *Indian Film Industry and Copyright Piracy issues in India: A Growing Concern august 2023 IJIRT VOL 10 Issue 3 ISSN: 2349-6002*

The conflict between the rights of filmmakers and the freedom of expression of the users has been a debate for a long time now.

4. Jurisdictional and Cross-Border Issues:

One of the greatest challenges digital piracy is that it goes beyond national borders. Just picturing a pirated copy that is uploaded on a server in Singapore, one can see how the file may be made available in India in the next minute without the local authorities being able to enforce their laws.

Limitations based on territories: Indian copyright law in itself cannot directly impose restrictions on foreign entities unless there are applicable treaties.

Challenges in extradition: Offenders who are situated in foreign locations may take advantage of the insufficient cooperation mechanisms to escape liability.

Different standards: Countries differ in defining infringement and exceptions, thus resulting in legal ambiguity.

Taking the US as an example, a parody video that is deemed "fair use" might be considered a copyright violation in India.

5. Technological evasion of protection measures:

Despite producers using Digital Rights Management (DRM), watermarks, and encryption, pirates always find ways to get around them.

Screen recording: Those who use screen recording capture the encrypted streaming content to cut off encryption.

Decryption tools: Technically skilled hackers usually manage to decrypt DRM protection only a few days after the product launch.

Camcorder piracy: Although in-theatre recording has been limited by technology, it is still the root of most of the first leaks.

The constant "arms race" between copyright holders and illegal duplicators is what goes on behind the scene and leads

to the incidence of enforcement costs. 6. Enforcement Gaps and Practical Barriers:

Despite changes to laws and court actions, enforcement is still not strong.

Slow process in Legal cases: Copyright disputes in India typically take a long time before reaching the final stage, which lowers the preventive effect.

Lack of Knowledge: Local artists are frequently unversed with the legal rights granted to them and they may lack the instruments to carry out the rights.

Only after-the-event mentality: The film piracy authorities just shut down the sites where the film has been released illegally, hence they cannot prevent losses that have already happened.

Not sacrificing the central problem – the difference between the law as it is written and the law as it is enforced.

7. Over restriction and Consumer Access Issues:

The negative side of harsh protection measures is that the content may be overrestricted. In addition, excessive DRM or aggressive takedowns may cause consumers to lose access to products that are perfectly legal to use. Videos subscription that cost too expensive leads many viewers to piracy as the only alternative. Geo-blocking allows access to content to be limited, even if the users are willing to pay for it. Educational/research needs: Stringent enforcement can remove fair dealing exceptions, thus limiting academic freedom. Therefore, it is still very necessary that a balance between rights and access be set in the age of the internet.

Copyright disputes in the digital age have drastically changed the way filmmakers have to deal with these challenges, such as piracy, over-the-top conflicts, and artificial intelligence disruptions. Despite a strong base of the Indian copyright law, which is also in line with global agreements, the implementation of the law is still feeling the pressure of the borderless digital technologies. More significantly, the spotlight should be on providing not only tough measures but also cheaper and more convenient legal alternatives for users. A comprehensive approach incorporating strict laws, technological implementation, international collaboration, and consumer-friendly access gives the only viable solution for safeguarding cinematography in a digital era.

VII. Technology and Copyright Enforcement

The advent of the digital era has opened new and unimaginable windows for filmmakers to export their works beyond geographical borders to different platforms. Concurrent with this, the new means of piracy and infringement that the law in many countries is not still able to fight pose a big challenge to the creators. In order to solve the problem, it is quite necessary that technology tools be adopted to help in copyright enforcement. These means, going from digital rights management to blockchain tracing, by precluding, finding and lessening the on the net rights violations, are helping the law to do the job.

Digital rights enforcement:

DRM is broadly connected with technology tools that are aimed to regulate access and use of copyrighted materials. Such platforms for streaming as Netflix, Amazon Prime, and Disney+ Hotstar are entirely dependent on DRM systems.

Encryption: The content is encrypted while it is being sent, hence, it is only accessible to those subscribers who are authorized.

Access control: The rights of the users are limited in terms of downloading, copying, or sharing movies.

Device binding: DRM is the technology that makes sure that the content is only available on registered devices, thus, it restricts the devices that are not authorized from getting the content.

Even though DRM is the main tool for achieving the goals of enforcement, it is still regarded as a very strict system by a majority of users oftentimes. As an example, users are not allowed to create a personal backup copy of the media or use it on more than one

device as they wish. Hence, DRM is a technology that, on the one hand, ensures protection of intellectual property, and, on the other hand, gives users rights.³Watermarking and Fingerprint:

Watermarking

Watermarking is one of the ways to embed invisible codes into movies, identifying the owner of the rights. Forensic watermarking, even when pirated copies are distributed online, enables the authorities to locate the source of leaks.

Example: In India, the film industry implements forensic watermarks to find out which cinema copy was recorded with a camera for piracy.

Digital Fingerprinting

Fingerprinting generates one of a kind signatures of the audiovisual material. Later, these signatures are checked against huge databases to find any that have been uploaded without authorization.

An example of this is the YouTube Content ID system. It is a worldwide system that automatically scans billions of videos to prevent or allow the monetization of the authorized ones.

Moreover, the transcription industry and television channels have also resorted to the technology of fingerprinting for avoiding illegal re-broadcastings.

Content Tracking Systems:

The massive proliferation of user-generated content has made the need for automated content tracking practically mandatory. To find the pirated content, digital crawlers are used to scan the social networks, the streaming platforms, and the torrent networks. After identifying the locations where the content has been infringed, the owners of the rights can send the removal requests that are legal under the likes of India's Information Technology Act, 2000, and globally recognized systems such as the DMCA (US). Just to illustrate, monitoring of these kinds was very intense for Indian movies Baahubali and Pataanjali right after their release and this quickly led to the elimination of the unauthorized copies that had been uploaded.

Block-chain and Smart contracts:

Over time technologies, for example, the blockchain are being more and more considered as the possible means to the problem of copyright enforcement. One of the features of the blockchain is the immutability of the records: the artist or the author of any creative work can be given a "hash" on the blockchain, that is a guarantee of an unalterable record of the proprietary rights. Smart contracts: Just as a film can be downloaded or a stream made, so an automated royalty payment system can be triggered, hence, a minimum of disputes between the producers and different platforms. Tracking at a global level: Transparent ledgers allow the tracing of unauthorized uses of a work of art or intellectual property even in another jurisdiction. On the face of it, blockchain still has shortcomings but it can make rights management more straightforward and less wasteful of resources.

Limitations of Technological Enforcements:

While technology has made a lot of progress in the area of copyright protection, there are still a few issues that remain.

Circumvention - Hackers come up with new methods to get around the DRM and watermarking.

Cost - Content ID-like advanced systems call for large investments which are usually out of reach for small creators.

Accessibility issues - The use of DRM or takedowns to a large extent may result in restrictions of certain types of legitimate uses, e.g., educational, research, or archival. Global enforcement gap - Piracy sites that happen to be located in areas that are not cooperative with the law are always a step ahead of the technological monitoring.

If this is the case, then technology by itself would not be enough to overcome this problem totally. It should be complemented by solid legislation and international collaboration to be efficient.

The use of technology to enforce the law is one of the main features of the modern systems that protect the copyrights in cinematography. The entire range of these protection tools, from digital rights management and watermarking to blockchain and artificially intelligent tracking, are the means that the creators and the producers have at their disposal to keep their works safe in the era of the fastest digital distribution. Still, they cannot guarantee absolute security. The interplay of invention and breach of rights goes on, and technology must be continually renewed to keep its effectiveness. At the end of the day, the coupling of firm legal structures, timely technological resources, and user rights that are equitably balanced will be the cornerstone in maintaining a thriving visual cinematography community in the digital era.

VIII. Case Studies and Judicial Precedents

R.G.Anand V Deluxe Films 1978:

Facts: A dramatist claimed that a movie was adapted from his play without his consent.

Decision: The highest court in the land decided that creativity is not covered by the copyright law only the specific expression of that particular creative work.

Importance: This landmark decision is still the ground base for differentiating legal use of the same idea and violation of film copyright law.

Tips Industries V Wynk Music 2019:

Facts: Tips was accused of violation of the copyright by the music-streaming app Wynk, which was alleged to have used soundtracks without authorization.

Decision: The court confirmed the copyright holder's sole rights and underlined the need for a proper license for internet-based services.

Importance: This is a story about the difficulties of the tech-savvy age, surprisingly about over-the-top and streaming services.

Red Chillies Entertainment V Hathway Cable 2016;

Facts: The film *Dilwale* was allegedly made available illegally through cable networks.

Holding: The court granted injunctions against unauthorized exhibition.

Relevance: Shows how courts respond to piracy through injunctions and enforcement measures.

Film sources in the law provide examples of repeated judicial efforts to conserve the financial and ethical interests of filmmakers, while these courts were also facing the questions of new technology and public access. The judges in India have always sided with

³ Michiel van der Veen et al., *Forensic Watermarking in Digital Rights Management*.

the producers, whereas the courts worldwide have been trying to find new ways to hold the intermediaries responsible for copyright infringements. These instances, taken together, point out that copyright in cinematography is a dynamic characteristic, being an adaptation to technological progress and therefore necessitating changes in the legal system.

IX. Balance between creators rights and public rights

Balancing creators' rights with public access to the content is a delicate matter that requires careful consideration and a nuanced approach:

Reasonable Limitations: Copyright law should create exceptions for educational, commentary, and transformative use without significantly lowering the creators' incentives.

Affordable Licensing Models: Programs such as mandatory licensing and public broadcasting exemptions allow more people to access the works while the rights holders get paid.

Technology as a Mediator: DRM and watermarking keep the content safe from the creators' side, whereas piracy prevention by making it easier for the users with simultaneous global releases and streaming at fair prices has become the trend.

Judicial Moderation: Courts, through concepts like the "idea-expression dichotomy" and fair dealing, are in between excessive protection and free access, thus acting as moderators.

The relationship between safeguarding the rights of creators and giving the public access is not a fixed point of harmony, but a constant interaction that is influenced by the law, technology, and social demand. A copyright regime that is viable and supportive of the film industry has to be one that actively guarantees the inflow of capital and the engagement of creative minds while at the same time facilitating the availability of artistic works to the entire society.

X. Recommendations and Amendments required

Legislative reforms in India:

Explicit Recognition of Digital Works Ones: Modify the Copyright Act, 1957 to define digitally distributed works such as OTT content⁴, short-form videos, and AI-assisted works, in the context of cinematograph films.

More Powerful Anti-Piracy Measures: Raise the extent of responsibility for those (for example, websites and platforms) who are allowed to carry out intermediaries operations and facilitate unauthorized streaming or downloading without knowledge.

Balancing Public Interests:

Broaden fair dealing exceptions: Increase the range of allowable uses for education, research, and transformative use of movies with reference to global fair use norms.

Compulsory licensing models: Develop schemes for public institutions, radio and TV stations, and online learning platforms to obtain works at a lower rate with the creators being paid.

Affordable distribution: Facilitate the release of a work in different formats including digital at a low price thus enabling consumers to buy the products legally rather than engaging in various piracies.

Encouraging International Cooperation:

Cross-border enforcement: Sign bilateral and multilateral agreements to deal with piracy of copyrighted materials that are hosted on foreign servers.

AI Governance Harmonization: Take part in international discussions under the supervision of WIPO and UNESCO for the purpose of achieving uniform regulations for AI-generated works and making sure creators from India receive fair treatment.

Learning from global models: Tailor the Indian adaptation of the U.S. fair use and EU threestep test with the help of flexible standards to match the realities of India, thereby maintaining a fair mix of both rights and accessibility.

Promoting awareness and capacity building:

Creator education: Training filmmakers and online creators can be a good method to educate the creators about the copyright registration, licensing, and enforcement.

Public awareness: Consumer behavior can be changed by campaigns that bring out the injustices of piracy and the advantages of using legal platforms.

Judicial training: Provide the new trends in technology, AI, and digital copyright issues to judges and legal professionals by means of legal training programs.

XI. Conclusion

Cinematography has always been beyond the scope of mere entertainment; it is an artistic expression, a cultural manifestation, and an economic activity. The digital age has revolutionized the entire process of how visual works are coming in, flowing, and being taken in. To name one of the remarkable pros of this digital era, it has opened the door for everyone to get the same level of access. For example, independent filmmakers and online creators can target global audiences using OTT platforms, YouTube, and social networks. As a drawback, the digital age has made it possible to have massive copyright infringement of films by piracy and unauthorized streaming.

Cinematographic works in India are juridically supported by the copyright law based on the Copyright Act of 1957, which confers to the author of the work exclusively both the economic and the moral rights. But as the case studies and court decisions indicate, conventional legal systems frequently do not suffice when countering cross-border digital piracy, technological advancements like the socio-economic prerequisite of public access to culture. While courts have been using broad interpretations of copyright law to overcome these gaps, difficulties in enforcement and the number of online infringements still have a great impact on this.

⁴ Digital Copyright Laws for Over-The-Top (OTT) Platforms: Comparative Analysis of India and the United States Volume 28, Special Issue 2, 2025

Underlying international agreements like the Berne Convention, WIPO Copyright Treaty, and TRIPS chart the common denominators for various national regulations, but even they are more reactive than adaptive. Comparatively, the U.S. and EU have implemented different copyright control systems with a more flexible approach (e.g., fair use, three-step test), and although India is still relying on limited fair dealing exceptions, the majority of the country is reforming.

To sum up, the digital era is one that is characterized by the strong imperative to change the current copyright system, which is very much biased towards the creators, to a balanced one that keeps the incentives of the creatives while allowing better accessibility, cultural needs, and technological realities. The idea is not at all about protecting rights at the expense of others but rather to keep a living ecosystem where authors gain, audiences become active, and society reaps the benefits.

XII. Bibliography

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