VOLUME 7 | ISSUE 1

INTERNATIONAL JOURNAL OF ADVANCED LEGAL RESEARCH

AIR RIGHTS AND VERTICAL URBAN DEVELOPMENT: EMERGING CHALLENGES IN PROPERTY LAW

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Abstract

Rapid urbanization, population growth, and increasing scarcity of developable land have significantly transformed the nature of urban development across the world. As metropolitan cities continue to expand vertically rather than horizontally, the legal concept of air rights has assumed growing importance within contemporary property . Air rights refer to the legal entitlement to use, transfer, lease, or develop the space above a parcel of land, subject to statutory regulation and public interest considerations. Modern infrastructure projects, high-rise buildings, transit-oriented development, mixed-use commercial complexes, and urban redevelopment initiatives increasingly rely upon the effective utilization of air space. Consequently, the regulation of air rights has become an important component of sustainable urban planning, real estate development, infrastructure financing, and property governance.

This paper critically examines the legal concept of air rights within the broader framework of property law and urban development. It analyses the historical evolution of air rights, evaluates the existing legal framework governing vertical development, and comparatively examines regulatory approaches adopted in jurisdictions such as the United States, the United Kingdom, Singapore, and India. The paper further explores emerging legal challenges concerning ownership, transferability, planning regulation, public infrastructure, aviation restrictions, environmental considerations, and constitutional property rights. Finally, it proposes legislative and policy recommendations for developing a coherent legal framework capable of facilitating vertical urban development while ensuring legal certainty, equitable property rights, sustainable land use, and effective urban governance.

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Keywords: *Air Rights; Property Law; Vertical Urban Development; Urban Planning; Land Use Regulation*

1. Introduction

Rapid urbanization has fundamentally transformed patterns of land use throughout the world. Increasing population density, migration toward metropolitan cities, and expanding commercial activities have substantially increased the demand for urban land while simultaneously reducing the availability of vacant developable space.[2] As a consequence, cities are increasingly expanding vertically through high-rise residential buildings, commercial complexes, mixed-use developments, elevated transportation systems, and integrated urban infrastructure rather than through traditional horizontal expansion. This transformation has brought renewed legal attention to the concept of air rights, which has emerged as an important component of contemporary property law and urban planning.

Traditionally, property ownership was influenced by the common law maxim *cujus est solum, ejus est usqueadcoelum et ad inferos*, meaning that ownership of land extended indefinitely upward to the heavens and downward to the centre of the earth.[3] This doctrine reflected historical conditions in which the practical use of airspace was extremely limited and technological developments had not yet created competing interests in aerial navigation, telecommunications, aviation, or vertical urban construction. The emergence of aircraft, skyscrapers, elevated transport systems, telecommunications infrastructure, and modern engineering technologies has substantially weakened the practical application of this traditional doctrine. Contemporary legal systems increasingly recognize that unlimited ownership of airspace is neither feasible nor compatible with modern urban development and public interest.

The legal significance of air rights has expanded considerably with the development of high-density urban centres. Modern construction techniques enable developers to construct buildings above railway stations, highways, public transport corridors, commercial centres, and existing structures while preserving the underlying land use.[4] Air rights therefore

[2] United Nations, *World Cities Report 2022: Envisaging the Future of Cities* 11–37 (U.N.-Habitat 2022).
[3] William Blackstone, 2 *Commentaries on the Laws of England* *18 (1766); *United States v. Causby*, 328 U.S. 256, 260–61 (1946).
[4] Stephen B. Siegel, *Air Rights Development: Building Above the City* 3–27 (1982).

facilitate efficient utilization of scarce urban land by allowing the vertical separation of ownership and development rights. Such arrangements have become increasingly important in metropolitan cities where conventional land acquisition is economically impractical or physically impossible due to existing infrastructure and dense urban development.

Air rights also possess considerable economic significance. The ability to transfer, lease, or commercially exploit development rights associated with airspace has created new forms of property transactions and urban redevelopment financing. Developers frequently acquire transferable development rights or air rights to increase permissible floor area, construct additional building levels, or develop projects above existing public infrastructure.[5] Consequently, air rights have evolved from a purely theoretical property concept into valuable commercial assets capable of substantially influencing urban real estate markets, infrastructure investment, and municipal planning policies.

Despite their growing economic importance, air rights present complex legal questions concerning ownership, transferability, regulation, and public interest. Unlike conventional land ownership, air rights frequently involve overlapping claims by private landowners, government authorities, municipal planning agencies, aviation regulators, infrastructure operators, and neighbouring property owners.[6] Determining the extent to which landowners possess enforceable rights over the airspace above their property requires balancing individual property rights against broader public interests relating to aviation safety, urban planning, environmental protection, infrastructure development, and sustainable land use. These competing interests have resulted in significant judicial and legislative developments across several jurisdictions.

Comparative legal systems have adopted different approaches to regulating air rights. In the United States, transferable development rights, zoning regulations, and judicial interpretation have facilitated extensive commercial utilization of airspace, particularly within cities such as New York and Chicago.[7] The United Kingdom has recognized separate ownership and transfer of airspace under certain circumstances through property law and planning legislation. Singapore has integrated airspace regulation into comprehensive urban planning policies designed to maximize efficient land utilization within its geographically constrained

[5] John R. Nolon, *Well Grounded: Using Local Land Use Authority to Achieve Smart Growth* 145–68 (2001).
[6] John G. Sprankling, *Understanding Property Law* 195–215 (5th ed. 2023).
[7] *Penn Central Transportation Co. v. City of New York*, 438 U.S. 104 (1978).

territory. India, by contrast, has no comprehensive statutory framework specifically governing air rights, although constitutional property protections, municipal development regulations, land acquisition laws, building regulations, aviation legislation, and judicial decisions collectively influence the legal treatment of vertical development.

The Indian legal framework governing air rights remains fragmented. Property rights are protected under Article 300A of the Constitution of India, while urban development is regulated through municipal legislation, planning statutes, building regulations, development control regulations, and sector-specific laws governing civil aviation, environmental protection, and infrastructure development.[8] Although Indian cities increasingly rely upon vertical redevelopment, transit-oriented development, and redevelopment of congested urban areas, the legal status, transferability, valuation, and regulation of air rights remain comparatively underdeveloped. The absence of comprehensive statutory regulation has created uncertainty regarding ownership rights, compensation, planning approvals, redevelopment projects, and public-private infrastructure initiatives.

The growing emphasis on sustainable urban development has further increased the importance of air rights within modern property law. Efficient utilization of urban airspace supports compact city planning, reduces urban sprawl, improves transportation integration, encourages mixed-use development, and enhances infrastructure financing.[9]At the same time, unregulated vertical development may adversely affect environmental quality, access to sunlight, ventilation, heritage conservation, public infrastructure, and neighbouring property rights. Consequently, legal regulation of air rights must balance economic development with environmental sustainability, equitable property rights, and sound urban governance.

Against this background, this paper critically examines the legal concept of air rights within the broader framework of contemporary property law. It analyses the historical evolution of air rights, evaluates existing legal frameworks governing vertical urban development, compares international regulatory approaches, identifies emerging legal challenges, and proposes reforms for developing a coherent legal regime capable of supporting sustainable urban development while safeguarding private property rights and the public interest.

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[8] INDIA CONST. art. 300A; Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, No. 30 of 2013 (India); Bharatiya Vayuyan Adhiniyam, No. 47 of 2024 (India).

[9] United Nations Human Settlements Programme (UN-Habitat), *International Guidelines on Urban and Territorial Planning* (2015).

2. Concept and Evolution of Air Rights

The concept of air rights has undergone significant transformation in response to changing patterns of urban development, technological advancement, and evolving property law principles. Historically, ownership of land was understood to include unlimited control over the airspace above the land. This understanding originated from the common law maxim *cujus est solum, ejus est usqueadcoelum et ad inferos*, which literally means that ownership extends "from the heavens to the centre of the earth."[10] Under this traditional doctrine, a landowner possessed exclusive rights over the column of airspace above the land without any practical limitation. Although this principle provided conceptual certainty during earlier periods, it gradually became incompatible with technological developments such as aviation, telecommunications, and vertical urban construction.

The emergence of civil aviation during the twentieth century fundamentally altered the legal understanding of airspace ownership. If private landowners possessed unlimited ownership extending indefinitely into the sky, every aircraft passing over private property would constitute trespass. Such an interpretation would make modern aviation legally impossible. Consequently, courts and legislatures increasingly limited the scope of private ownership by distinguishing between the airspace reasonably necessary for the ordinary use and enjoyment of land and the higher navigable airspace reserved for public use.[11] This distinction represented one of the most significant developments in modern property law and laid the foundation for the contemporary doctrine governing air rights.

The landmark decision of the Supreme Court of the United States in *United States v. Causby* significantly influenced the evolution of air rights.[12] The Court rejected the literal application of the common law maxim and held that landowners do not possess unlimited ownership extending indefinitely upward. Instead, the Court recognized that property owners retain exclusive rights only over the immediate reaches of the airspace necessary for the reasonable use and enjoyment of their land. Flights through navigable airspace authorized by law therefore do not ordinarily constitute trespass, although repeated low-altitude flights

[10] William Blackstone, 2 *Commentaries on the Laws of England* *18 (1766).
[11] Restatement (Second) of Torts § 159 (Am. L. Inst. 1965).
[12] *United States v. Causby*, 328 U.S. 256, 260–67 (1946).

substantially interfering with the use of private property may amount to a compensable taking. The judgment fundamentally reshaped modern legal understanding by balancing private property rights with the public interest in aviation.

The evolution of air rights has also been closely linked to urban planning and land use regulation. Rapid urbanization, increasing land scarcity, and advances in construction technology have encouraged cities to utilize vertical space more efficiently. High-rise buildings, elevated transport corridors, integrated commercial complexes, and mixed-use developments increasingly rely upon the ability to separate ownership of land from the right to develop the airspace above it.[13] Consequently, air rights have evolved beyond their traditional association with aviation law and have become valuable property interests capable of independent commercial exploitation within urban real estate markets.

Modern legal systems increasingly recognize air rights as transferable development interests rather than absolute incidents of land ownership. In several jurisdictions, owners may transfer unused development potential or air rights to neighbouring properties through transferable development rights (TDR) programmes or similar planning mechanisms.[14] Such arrangements enable municipalities to preserve heritage buildings, environmentally sensitive areas, or public infrastructure while permitting developers to utilize additional building capacity at alternative locations. Air rights therefore function both as property interests and as planning instruments facilitating sustainable urban growth.

The economic importance of air rights has expanded considerably during recent decades. In densely populated metropolitan areas where land values are exceptionally high, the commercial value of unused airspace frequently exceeds the value of the underlying land itself.[15] Developers increasingly acquire air rights above railway stations, highways, public utilities, commercial centres, and transportation corridors to construct residential towers, office complexes, hotels, and mixed-use developments. These projects maximize urban land utilization while generating significant revenue for public authorities and infrastructure operators through the sale or lease of development rights.

The evolution of air rights has also been influenced by constitutional and regulatory considerations. Property ownership today exists subject to planning controls, zoning

[13] Stephen B. Siegel, *Air Rights Development: Building Above the City* 28–67 (1982).
[14] John R. Nolon, *Well Grounded: Using Local Land Use Authority to Achieve Smart Growth* 159–181 (2001).
[15] Robert C. Ellickson & Vicki L. Been, *Land Use Controls* 829–856 (4th ed. 2020).

regulations, building height restrictions, aviation safety requirements, environmental regulations, and public interest limitations.[16] Consequently, ownership of airspace cannot be understood as an unrestricted proprietary entitlement but rather as a legally regulated development interest whose exercise depends upon statutory planning approval and compliance with applicable regulatory standards. This regulatory approach reflects the modern understanding that urban airspace constitutes a limited public resource requiring balanced utilization for private development and community welfare.

In India, the concept of air rights has developed primarily through urban planning regulations rather than comprehensive property legislation. Municipal development authorities regulate building heights, floor space indices, setback requirements, transferable development rights, redevelopment schemes, and transit-oriented development through local planning laws.[17] Although Indian statutes do not expressly define air rights as independent proprietary interests, several redevelopment projects in metropolitan cities such as Mumbai, Delhi, Bengaluru, and Hyderabad increasingly involve the practical utilization and transfer of development potential associated with vertical construction. Judicial decisions concerning property rights, municipal planning, redevelopment, and land acquisition have likewise contributed indirectly to the evolving legal understanding of airspace utilization within Indian property law.

The concept of air rights continues to evolve alongside advances in urban engineering, smart city development, infrastructure integration, and sustainable land use planning. Increasing urban density, environmental concerns, transit-oriented development, and technological innovation have transformed airspace from an abstract legal concept into an economically valuable and strategically important component of modern urban governance. Understanding this evolution is essential for evaluating the existing legal framework governing air rights and assessing whether contemporary property law adequately addresses the emerging challenges associated with vertical urban development.

3. Legal Framework Governing Air Rights and Vertical Urban Development

The legal regulation of air rights represents an intersection of property law, constitutional law, urban planning, land use regulation, municipal governance, aviation law, and environmental

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[16] John G. Sprankling, *Understanding Property Law* 195–223 (5th ed. 2023).

[17] Maharashtra Regional and Town Planning Act, No. 37 of 1966 (India); Development Control and Promotion Regulations for Greater Mumbai, 2034 (India).

law.[18] Unlike conventional land ownership, which is generally governed by established principles of property law, the utilization of airspace above land is subject to multiple statutory restrictions intended to balance private proprietary interests with broader public objectives. As cities increasingly adopt vertical development strategies to accommodate growing populations and infrastructure demands, the legal framework governing air rights has assumed considerable importance in determining the permissible scope of urban expansion.

Property law continues to provide the foundational basis for regulating air rights. Traditionally, ownership of land included the exclusive right to possess, enjoy, and utilize the space immediately above the land, subject to limitations imposed by public law. Modern legal systems, however, distinguish between proprietary interests necessary for the ordinary use and enjoyment of land and navigable airspace reserved for public purposes.[19] Consequently, contemporary property rights no longer confer unlimited ownership extending indefinitely upward but instead recognize legally protected interests within the reasonable and beneficial use of airspace associated with the underlying land.

Urban planning legislation constitutes the principal mechanism through which air rights are regulated in practice. Municipal planning authorities determine permissible building heights, floor area ratios, floor space indices, setbacks, density controls, land use classifications, and development permissions.[20] These regulatory instruments effectively determine the extent to which airspace may be commercially developed. Rather than recognizing unrestricted proprietary freedom, planning laws condition the exercise of air rights upon compliance with zoning regulations, infrastructure capacity, environmental safeguards, and broader urban development objectives. Accordingly, the economic value of air rights frequently depends upon planning permissions rather than ownership alone.

The concept of transferable development rights has become an increasingly important legal mechanism facilitating vertical urban development. Transferable development rights permit landowners to transfer unused development potential from one parcel of land to another

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[18] John G. Sprankling, *Understanding Property Law* 195–223 (5th ed. 2023).

[19] *United States v. Causby*, 328 U.S. 256, 260–67 (1946); Restatement (Second) of Torts § 159 (Am. L. Inst. 1965).

[20] Robert C. Ellickson & Vicki L. Been, *Land Use Controls* 635–701 (4th ed. 2020).

under prescribed statutory conditions.[21] Such mechanisms enable authorities to preserve environmentally sensitive areas, heritage buildings, open spaces, or public infrastructure while simultaneously allowing developers to utilize equivalent development potential elsewhere. By separating development rights from physical ownership of land, transferable development rights promote efficient urban planning while reducing pressure for compulsory land acquisition and extensive horizontal urban expansion.

In India, statutory regulation of air rights remains fragmented across multiple legislative instruments rather than being governed through a comprehensive national statute. Property ownership is protected under Article 300A of the Constitution, which provides that no person shall be deprived of property except by authority of law.[22] Although Article 300A does not expressly recognize air rights, constitutional protection extends to legally recognized proprietary interests subject to valid statutory regulation. Consequently, restrictions imposed upon vertical development must satisfy constitutional requirements relating to legality, reasonableness, and public purpose.

Municipal planning statutes further regulate the utilization of urban airspace through comprehensive development plans, zoning regulations, building permissions, redevelopment schemes, and development control regulations. The Maharashtra Regional and Town Planning Act, 1966 and the Development Control and Promotion Regulations for Greater Mumbai, 2034 illustrate the increasing use of planning instruments facilitating transferable development rights, redevelopment incentives, transit-oriented development, and high-density urban construction.[23] Similar planning frameworks operate in several other metropolitan regions through state-specific town planning legislation and municipal development regulations. Although these statutes do not explicitly define air rights as separate proprietary interests, they effectively regulate the commercial utilization of urban airspace by prescribing permissible development potential.

Infrastructure development projects have further expanded the practical significance of air rights in India. Redevelopment projects involving railway stations, metro corridors, airports, highways, and public transport infrastructure increasingly utilize the airspace above existing

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[21] John R. Nolon, *Well Grounded: Using Local Land Use Authority to Achieve Smart Growth* 159–181 (2001).
[22] INDIA CONST. art. 300A.
[23] Maharashtra Regional and Town Planning Act, No. 37 of 1966 (India); Development Control and Promotion Regulations for Greater Mumbai, 2034 (India).

public assets for commercial development.[24] Such projects enable governments and public authorities to generate additional revenue while maximizing land utilization within densely populated urban centres. However, these arrangements frequently raise complex legal questions concerning ownership, valuation, licensing, public-private partnerships, revenue sharing, and long-term management of vertically integrated developments.

Aviation law imposes another important limitation upon the exercise of air rights. Building heights, construction activities, communication towers, and other vertical structures located near airports or within designated flight paths are subject to statutory restrictions designed to ensure aviation safety.[25] In India, the Bharatiya Vayuyan Adhiniyam, 2024, together with subordinate regulations governing obstacle limitation surfaces and height clearances, empowers aviation authorities to regulate structures capable of interfering with aircraft operations. Consequently, ownership of land does not confer an unrestricted entitlement to construct buildings extending into protected navigable airspace, even where municipal planning permission has been obtained.

Environmental regulation also plays an increasingly significant role in governing vertical urban development. Large-scale high-rise developments may affect sunlight, natural ventilation, wind circulation, urban heat islands, ecological sustainability, and neighbouring property rights.[26] Environmental impact assessment requirements, heritage conservation laws, coastal regulation norms, and disaster management standards therefore operate alongside planning legislation to ensure that vertical development remains compatible with broader environmental and public welfare objectives. Modern property law increasingly recognizes that urban airspace constitutes a shared resource whose utilization must be balanced against competing community interests.

Judicial decisions have likewise influenced the legal framework governing air rights by emphasizing the relationship between property rights and planning regulation. Courts in several jurisdictions have consistently held that development rights are not absolute proprietary entitlements but remain subject to statutory planning controls enacted in the

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[24] Ministry of Housing and Urban Affairs, Government of India, *Transit-Oriented Development Policy* (2017); Indian Railway Stations Development Corporation Ltd., *Station Redevelopment Programme* (2023).

[25] Bharatiya Vayuyan Adhiniyam, No. 47 of 2024 (India); Aircraft (Demolition of Obstructions Caused by Buildings and Trees, etc.) Rules, 1994 (India).

[26] Environment (Protection) Act, No. 29 of 1986 (India); Environmental Impact Assessment Notification, 2006, S.O. 1533(E) (Sept. 14, 2006) (India).

public interest.[27] Judicial review therefore generally focuses upon ensuring that planning authorities exercise their regulatory powers lawfully, reasonably, and consistently with constitutional principles rather than recognizing unrestricted private rights over urban airspace.

The existing legal framework demonstrates that air rights can no longer be understood solely through traditional doctrines of property ownership. Contemporary regulation reflects a complex interaction among constitutional property protections, municipal planning legislation, infrastructure development policies, aviation safety requirements, environmental regulation, and public interest considerations. As vertical urban development continues to expand, these legal frameworks will increasingly determine how urban airspace is allocated, regulated, and utilized within modern cities. Their comparative evolution across different jurisdictions therefore provides valuable insights into emerging models of air rights governance and sustainable urban planning.

4. Comparative Legal Approaches

The legal regulation of air rights has developed differently across jurisdictions depending upon patterns of urbanization, constitutional property protections, planning legislation, and infrastructure requirements.[28] Although the fundamental objective remains the efficient utilization of urban space while protecting private property and the public interest, individual legal systems have adopted distinct regulatory models governing ownership, transferability, development permissions, and commercial exploitation of airspace. A comparative examination of the approaches adopted in the United States, the United Kingdom, Singapore, and India illustrates the evolving legal treatment of air rights within contemporary property law.

The United States possesses one of the most developed legal frameworks governing air rights. Rapid urbanization, particularly in cities such as New York, Chicago, and Boston, encouraged the evolution of transferable air rights and development rights as important commercial property interests.[29] Zoning legislation permits developers to acquire unused development potential from adjoining properties or designated parcels, thereby enabling

[27] *Penn Central Transportation Co. v. City of New York*, 438 U.S. 104 (1978); *Friends Colony Development Committee v. State of Orissa*, (2004) 8 S.C.C. 733 (India).
[28] John G. Sprankling, *Understanding Property Law* 195–223 (5th ed. 2023).
[29] Stephen B. Siegel, *Air Rights Development: Building Above the City* 68–121 (1982).

higher-density construction without expanding the physical footprint of development. The transfer of air rights has become particularly significant in redevelopment projects involving railway stations, public infrastructure, heritage buildings, and transportation corridors.

Judicial interpretation has played a decisive role in shaping American air rights jurisprudence. In *United States v. Causby*, the Supreme Court rejected the traditional common law doctrine that ownership extends indefinitely upward, holding instead that landowners possess rights only over the immediate reaches of airspace necessary for the reasonable use and enjoyment of their property.[30] Subsequently, *Penn Central Transportation Co. v. City of New York* recognized that development rights associated with property may be regulated through land use legislation without necessarily constituting an unconstitutional taking of private property.[31] Together, these decisions established the principle that air rights constitute legally protected proprietary interests while remaining subject to extensive governmental regulation in furtherance of legitimate planning objectives.

The United Kingdom has adopted a more flexible property law approach toward airspace ownership. English law generally recognizes that airspace immediately above land forms part of the property owner's proprietary interest to the extent necessary for the ordinary use and enjoyment of the land.[32] However, higher airspace is not subject to unrestricted private ownership and remains available for lawful public use, including civil aviation. Airspace may also constitute an independent property interest capable of separate ownership, lease, transfer, or development under appropriate contractual arrangements. Urban redevelopment projects within London have increasingly utilized this flexibility by permitting commercial development above railway stations, commercial premises, and transportation infrastructure.

Planning legislation in the United Kingdom further regulates vertical development through comprehensive planning permission systems administered by local planning authorities.[33] Building heights, density controls, heritage conservation requirements, environmental considerations, and public infrastructure capacity collectively determine the permissible utilization of urban airspace. Consequently, proprietary ownership alone does not confer an

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[30] *United States v. Causby*, 328 U.S. 256, 260–67 (1946).
[31] *Penn Central Transportation Co. v. City of New York*, 438 U.S. 104 (1978).
[32] *Bernstein of Leigh (Baron) v. Skyviews& Gen. Ltd.*, [1978] Q.B. 479 (Eng.).
[33] Town and Country Planning Act 1990, c. 8 (U.K.).

unrestricted entitlement to develop vertically; rather, development remains conditional upon statutory planning approval consistent with broader public policy objectives.

Singapore provides another important comparative model owing to its limited geographical area and exceptionally high urban density. Recognizing the scarcity of developable land, Singapore has integrated vertical urban development into its long-term national planning strategy.[34] The Urban Redevelopment Authority exercises comprehensive control over land use planning, zoning, building intensity, and redevelopment approvals. Airspace above transportation infrastructure, commercial developments, and mixed-use projects is systematically incorporated into urban planning through detailed master plans and coordinated land management policies. This integrated regulatory approach has enabled Singapore to maximize land utilization while maintaining efficient public infrastructure and environmental sustainability.

India's legal approach remains comparatively fragmented. Unlike the United States, where transferable air rights constitute well-established proprietary interests, or Singapore, where comprehensive planning integrates vertical development into national urban policy, India regulates airspace primarily through municipal planning laws, redevelopment regulations, aviation legislation, and constitutional property principles.[35] Development Control Regulations, Floor Space Index (FSI) provisions, Transferable Development Rights (TDR) mechanisms, and transit-oriented development policies collectively determine the practical utilization of urban airspace. However, no central legislation expressly recognizes air rights as independently transferable proprietary interests applicable throughout the country.

The Maharashtra model provides one of India's most advanced regulatory frameworks concerning vertical development. Through the Maharashtra Regional and Town Planning Act, 1966 and the Development Control and Promotion Regulations for Greater Mumbai, 2034, the State has extensively utilized Transferable Development Rights to facilitate redevelopment, infrastructure expansion, slum rehabilitation, heritage preservation, and public projects.[36] These planning mechanisms enable development potential to be transferred

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[34] Urban Redevelopment Authority, *Master Plan 2019* (Sing.); Singapore Land Authority, *State Land Management Framework* (2022).

[35] INDIA CONST. art. 300A; Maharashtra Regional and Town Planning Act, No. 37 of 1966 (India); Bharatiya Vayuyan Adhiniyam, No. 47 of 2024 (India).

[36] Maharashtra Regional and Town Planning Act, No. 37 of 1966 (India); Development Control and Promotion Regulations for Greater Mumbai, 2034 (India).

between properties under specified statutory conditions, thereby promoting efficient land utilization while reducing the need for compulsory land acquisition. Similar approaches are gradually being adopted by several other Indian metropolitan regions, although regulatory implementation remains inconsistent across States.

Despite these differences, important similarities exist among the jurisdictions examined. First, each legal system recognizes that unrestricted application of the traditional doctrine extending ownership indefinitely upward is incompatible with modern urban development and aviation. Secondly, all jurisdictions subject private development rights to statutory planning controls designed to protect public interests including infrastructure, environmental sustainability, public safety, and orderly urban growth. Thirdly, planning authorities rather than ordinary property law increasingly determine the practical scope of vertical development through zoning regulations, building controls, and development permissions.[37] Finally, each jurisdiction seeks to balance private economic interests with broader objectives relating to sustainable urban development and efficient utilization of scarce urban land.

The comparative analysis nevertheless demonstrates that India continues to lag behind several developed jurisdictions in providing a comprehensive legal framework specifically governing air rights. Existing regulation remains dispersed across multiple statutes, planning regulations, and administrative policies, creating uncertainty regarding ownership, transferability, valuation, and enforcement. Comparative experience suggests that greater legislative clarity, standardized planning mechanisms, and explicit statutory recognition of transferable air rights could significantly strengthen India's legal framework while promoting sustainable urban development and efficient utilization of urban airspace.

5. Challenges in Regulating Air Rights

The increasing importance of vertical urban development has transformed air rights into one of the most complex subjects within contemporary property law. Although air rights facilitate efficient land utilization, urban redevelopment, and infrastructure expansion, their regulation presents numerous legal, administrative, economic, and environmental challenges.[38] These challenges arise because airspace simultaneously constitutes an element of private property, an object of public regulation, and a resource essential for transportation, urban planning,

[37] Robert C. Ellickson & Vicki L. Been, *Land Use Controls* 701–856 (4th ed. 2020).
[38] John G. Sprankling, *Understanding Property Law* 223–248 (5th ed. 2023).

environmental protection, and public infrastructure. Consequently, the legal governance of air rights requires balancing competing public and private interests within increasingly dense urban environments.

One of the foremost challenges concerns the uncertainty surrounding the legal nature of air rights. Traditional property law treated ownership of land as extending upward to the extent necessary for its beneficial enjoyment. Modern planning legislation, however, increasingly separates development rights from ownership of the land itself by permitting governments to regulate building heights, density, and permissible floor space.[39] This evolution has created uncertainty regarding whether air rights constitute independent proprietary interests, statutory development entitlements, contractual rights, or merely planning permissions granted by public authorities. The absence of clear statutory definitions frequently leads to disputes concerning ownership, valuation, transferability, and compensation.

Another significant challenge arises from the fragmented regulatory framework governing vertical development. Air rights are not regulated exclusively by property law but instead fall within the jurisdiction of multiple legal regimes, including municipal planning laws, zoning regulations, building codes, aviation legislation, environmental law, heritage conservation statutes, and infrastructure regulations.[40] Different regulatory authorities often exercise overlapping powers relating to the same development project, resulting in procedural complexity, inconsistent decision-making, and delays in project implementation. Developers may therefore be required to obtain approvals from numerous governmental agencies before undertaking vertical construction, increasing both administrative costs and legal uncertainty.

Valuation of air rights presents another complex legal and economic issue. Unlike land, whose market value may be determined through relatively established valuation methods, the value of unused airspace depends upon multiple variables, including permissible floor area ratios, zoning restrictions, surrounding infrastructure, market demand, transportation connectivity, and future planning policies.[41] Variations in municipal regulations frequently produce significant differences in the commercial value of comparable air rights, complicating acquisition, taxation, compensation, mortgage financing, and dispute resolution.

[39] *United States v. Causby*, 328 U.S. 256 (1946); *Penn Central Transportation Co. v. City of New York*, 438 U.S. 104 (1978).
[40] Robert C. Ellickson & Vicki L. Been, *Land Use Controls* 701–856 (4th ed. 2020).
[41] Stephen B. Siegel, *Air Rights Development: Building Above the City* 122–176 (1982).

The absence of standardized valuation methodologies further increases uncertainty for landowners, investors, financial institutions, and public authorities.

The transferability of air rights also raises difficult legal questions. Several jurisdictions recognize transferable development rights that permit unused development potential to be transferred between designated properties. However, the legal character of such transfers differs considerably across jurisdictions.[42] Some legal systems treat transferable development rights as transferable property interests, while others regard them as statutory planning incentives that exist only by virtue of legislation. In India, transferable development rights operate primarily through municipal planning regulations rather than comprehensive national legislation, creating variations in legal treatment among different States and urban planning authorities.

Urban redevelopment projects frequently generate conflicts between private property rights and public interest. Governments increasingly encourage construction above railway stations, highways, metro corridors, and other public infrastructure in order to maximize land utilization and generate additional revenue.[43] Although such projects contribute significantly to sustainable urban development, they may also affect neighbouring landowners through reduced access to sunlight, ventilation, privacy, and open space. Determining the appropriate balance between redevelopment objectives and the protection of adjoining property owners remains one of the most contested issues within contemporary planning law.

Constitutional considerations further complicate the regulation of air rights. In India, Article 300A protects individuals from deprivation of property except by authority of law.[44] Although the right to property is no longer a fundamental right, it remains an important constitutional and legal right requiring that restrictions upon proprietary interests possess statutory authority and serve legitimate public purposes. Redevelopment projects involving compulsory acquisition, modification of development rights, or planning restrictions may therefore generate constitutional challenges concerning compensation, procedural fairness, arbitrariness, and proportionality. Courts have consistently emphasized that urban planning regulations must balance public welfare with the legitimate expectations of property owners.

[42] John R. Nolon, *Well Grounded: Using Local Land Use Authority to Achieve Smart Growth* 181–206 (2001).
[43] Ministry of Housing and Urban Affairs, Government of India, *Transit-Oriented Development Policy* (2017).
[44] INDIA CONST. art. 300A; *K.T. Plantation Pvt. Ltd. v. State of Karnataka*, (2011) 9 S.C.C. 1 (India); *Delhi Airtech Services (P) Ltd. v. State of U.P.*, (2011) 9 S.C.C. 354 (India).

Environmental sustainability presents another emerging challenge. Increasing vertical construction may contribute to congestion, urban heat island effects, obstruction of natural ventilation, reduction of sunlight, increased energy consumption, and pressure upon public infrastructure if not properly regulated.[45] Modern planning policies therefore require that vertical development comply with environmental impact assessment requirements, disaster resilience standards, climate-responsive building regulations, and sustainable urban planning principles. Air rights regulation must consequently integrate environmental considerations rather than focusing solely upon commercial development potential.

Technological developments have introduced additional legal complexities. Advances in construction engineering, drone technology, telecommunications infrastructure, urban air mobility, and autonomous aerial transport have significantly expanded commercial utilization of urban airspace.[46] Existing property law doctrines, many of which developed before these technologies emerged, provide limited guidance regarding competing rights involving low-altitude drone operations, aerial logistics, digital infrastructure, and future forms of urban aerial transportation. Legislatures will therefore increasingly be required to redefine the legal boundaries between private property rights and public use of low-altitude airspace.

Institutional capacity also remains a major concern, particularly in developing countries. Effective regulation of air rights requires accurate land records, digital cadastral systems, integrated urban planning, specialized valuation expertise, transparent approval procedures, and effective dispute resolution mechanisms.[47]In many jurisdictions, fragmented land administration, overlapping institutional responsibilities, and inconsistent planning practices reduce the efficiency of air rights governance and discourage long-term investment in vertical redevelopment projects.

These challenges demonstrate that the regulation of air rights extends far beyond traditional questions of property ownership. It requires a coordinated legal framework integrating constitutional protections, planning regulation, infrastructure development, environmental sustainability, aviation safety, and modern technological realities. As cities continue to grow vertically, addressing these legal and institutional challenges will become essential for

[45] Environment (Protection) Act, No. 29 of 1986 (India); United Nations Human Settlements Programme (UN-Habitat), *International Guidelines on Urban and Territorial Planning* (2015).
[46] International Civil Aviation Organization, *Manual on Remotely Piloted Aircraft Systems (RPAS)* (2d ed. 2023).
[47] World Bank, *Transit-Oriented Development Implementation Resources and Tools* (2022).

ensuring that air rights contribute to sustainable urban development while preserving the fundamental principles of property law and the public interest.

6. Need for a Comprehensive Legal Framework for Air Rights

The increasing dependence of modern cities upon vertical development demonstrates that traditional principles of property law are no longer sufficient to regulate the complex legal relationships associated with urban airspace.[48] High-rise buildings, integrated transport hubs, elevated commercial developments, transit-oriented redevelopment, and mixed-use infrastructure projects increasingly require the separation of ownership, development rights, planning permissions, and public regulatory control. Despite these developments, many jurisdictions, particularly India, continue to regulate air rights through fragmented planning laws rather than a coherent legislative framework. The absence of comprehensive regulation creates uncertainty regarding ownership, transferability, valuation, compensation, and dispute resolution, thereby highlighting the need for a dedicated legal framework governing air rights.

The foremost justification for legislative reform lies in providing legal certainty. Property law functions most effectively where proprietary interests are clearly defined, legally enforceable, and capable of objective determination.[49]At present, Indian law does not expressly define air rights as independent proprietary interests or establish their legal characteristics. Instead, the utilization of urban airspace depends largely upon municipal planning regulations, transferable development rights policies, zoning controls, and administrative approvals that differ considerably among States. A comprehensive statutory framework should therefore define the legal nature of air rights, identify the circumstances under which they may be created, transferred, leased, mortgaged, or extinguished, and clarify the relationship between private ownership and public regulatory authority.

Legislative reform would also strengthen the integration of property law with urban planning. Modern planning increasingly requires the vertical separation of land uses, permitting commercial, residential, transportation, and public infrastructure projects to coexist within the same geographical footprint.[50] A comprehensive legal framework should expressly recognize air rights as planning instruments capable of facilitating sustainable urban redevelopment

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[48] Richard R. Powell, *Powell on Real Property* ¶ 64.01–64.05 (Michael Allan Wolf ed., 2024).
[49] Herbert T. Tiffany & Basil Jones, *The Law of Real Property* §§ 585–590 (3d ed. 2015).
[50] Robert C. Ellickson & Vicki L. Been, *Land Use Controls* 857–912 (4th ed. 2020).

while ensuring that planning authorities exercise regulatory powers according to transparent statutory standards. Such integration would reduce uncertainty concerning redevelopment permissions and encourage long-term investment in vertical urban infrastructure.

Another compelling justification concerns the regulation of transferable development rights. Several Indian States have successfully utilized transferable development rights to facilitate infrastructure expansion, slum rehabilitation, heritage conservation, and public projects.[51] However, the legal treatment of transferable development rights varies significantly across jurisdictions because they are created primarily through municipal regulations rather than uniform legislation. A national statutory framework could establish common principles governing the creation, transfer, registration, valuation, taxation, and enforcement of transferable development rights while permitting States to adopt region-specific planning policies consistent with local development requirements.

The establishment of standardized valuation principles constitutes another important legislative priority. Air rights frequently represent valuable commercial assets whose economic significance depends upon planning permissions, permissible floor area ratios, infrastructure accessibility, and market conditions.[52] Existing valuation practices remain inconsistent, creating disputes concerning compensation during land acquisition, redevelopment, taxation, mortgage financing, and commercial transactions. A comprehensive legal framework should therefore prescribe objective valuation principles supported by professional standards and transparent assessment methodologies capable of ensuring fairness, consistency, and predictability across jurisdictions.

Legislative reform is also necessary to protect constitutional property rights while promoting public interest. Article 300A of the Constitution guarantees that no person shall be deprived of property except by authority of law.[53] Although property remains subject to reasonable regulation through planning legislation, restrictions affecting valuable development rights should operate according to clearly defined statutory procedures, provide adequate procedural safeguards, and where appropriate, incorporate fair compensation mechanisms. A dedicated

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[51] Maharashtra Regional and Town Planning Act, No. 37 of 1966 (India); Development Control and Promotion Regulations for Greater Mumbai, 2034 (India).

[52] Stephen B. Siegel, *Air Rights Development: Building Above the City* 177–231 (1982).

[53] INDIA CONST. art. 300A; *K.T. Plantation Pvt. Ltd. v. State of Karnataka*, (2011) 9 S.C.C. 1 (India); *JilubhaiNanbhai Khachar v. State of Gujarat*, 1995 Supp. (1) S.C.C. 596 (India).

legal framework would reduce constitutional uncertainty by clearly identifying the scope of governmental regulatory authority over privately owned airspace and development rights.

The increasing commercialization of air rights further supports statutory recognition. Contemporary infrastructure projects frequently involve the development of commercial complexes above railway stations, metro depots, highways, airports, and other public facilities.[54] Public-private partnerships increasingly rely upon the economic value of airspace to finance infrastructure development without requiring extensive acquisition of additional land. A comprehensive legal regime should establish transparent procedures governing licensing, leasing, revenue sharing, contractual allocation of rights, and long-term management of airspace utilized in infrastructure projects. Such regulation would encourage private investment while protecting public assets and ensuring accountability in public-private development initiatives.

Environmental sustainability should constitute another central feature of any future legislative framework. Vertical development undoubtedly reduces urban sprawl and promotes efficient land utilization; however, excessive or poorly planned high-density construction may adversely affect environmental quality, urban ventilation, sunlight access, ecological balance, heritage conservation, and public infrastructure capacity.[55] Accordingly, legislation governing air rights should require integration with environmental impact assessments, climate-responsive urban planning, disaster resilience standards, and sustainable building regulations. Such an approach would ensure that commercial exploitation of airspace remains consistent with long-term environmental and social objectives.

Technological innovation also necessitates legislative modernization. Emerging technologies including unmanned aircraft systems, drone logistics, advanced telecommunications infrastructure, and prospective urban air mobility systems increasingly occupy low-altitude airspace that historically attracted limited legal attention.[56] Existing property law provides only limited guidance concerning competing claims involving private air rights, aviation safety, and technological infrastructure. Future legislation should therefore clearly define the

[54] Ministry of Housing and Urban Affairs, Government of India, *Transit-Oriented Development Policy* (2017); Indian Railway Stations Development Corporation Ltd., *Station Redevelopment Programme* (2023).

[55] Environment (Protection) Act, No. 29 of 1986 (India); United Nations Human Settlements Programme (UN-Habitat), *International Guidelines on Urban and Territorial Planning* (2015).

[56] International Civil Aviation Organization, *Manual on Remotely Piloted Aircraft Systems (RPAS)* (2d ed. 2023); Aircraft Rules, 1937 (India).

legal relationship between privately controlled airspace, navigable airspace, digital infrastructure, and emerging aerial technologies in order to reduce legal uncertainty while promoting innovation.

Finally, institutional coordination represents an indispensable element of effective regulation. Air rights presently fall within the jurisdiction of numerous governmental authorities responsible for land administration, municipal planning, aviation, environmental protection, infrastructure development, registration, taxation, and local governance.[57] A comprehensive statutory framework should establish coordinated institutional mechanisms facilitating integrated decision-making, digital land information systems, transparent approval procedures, standardized registration practices, and specialized dispute resolution forums. Improved institutional coordination would reduce administrative delays while increasing public confidence in the governance of vertical urban development.

The continued growth of India's metropolitan regions demonstrates that air rights will play an increasingly important role in shaping future patterns of urban development. A comprehensive legal framework would provide the certainty necessary for efficient property transactions, responsible urban planning, sustainable infrastructure development, and effective protection of constitutional property rights. Such legislation would modernize Indian property law by recognizing that urban airspace has evolved into a valuable legal and economic resource requiring coherent statutory regulation rather than fragmented administrative control.

7. Recommendations and Conclusion

The increasing scarcity of urban land, rapid population growth, and expansion of metropolitan infrastructure have transformed air rights from a theoretical concept of property law into an indispensable instrument of contemporary urban development.[58] Throughout this paper, it has been demonstrated that modern cities can no longer rely exclusively upon horizontal expansion to accommodate residential, commercial, industrial, and public infrastructure requirements. Vertical development has therefore become an essential component of sustainable urban planning, requiring legal systems to redefine traditional principles governing ownership, development rights, and the utilization of airspace. The

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[57] John G. Sprankling, *Understanding Property Law* 223–248 (5th ed. 2023); Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, No. 30 of 2013 (India).

[58] Richard R. Powell, *Powell on Real Property* ¶¶ 64.01–64.10 (Michael Allan Wolf ed., 2024).

absence of comprehensive statutory regulation, however, continues to generate uncertainty regarding proprietary interests, planning permissions, valuation, redevelopment, and constitutional protection of property.

The first recommendation is the enactment of a comprehensive national legislation specifically governing air rights. India presently regulates vertical development through municipal planning statutes, zoning regulations, development control regulations, transferable development rights schemes, and aviation laws without providing a unified statutory framework defining the legal status of air rights.[59] Parliament should therefore enact legislation expressly recognizing air rights as legally protected development interests, clearly identifying the circumstances in which such rights may be created, transferred, leased, mortgaged, inherited, or extinguished. Statutory recognition would substantially reduce legal uncertainty while improving consistency across States and urban planning authorities.

Secondly, legislation should establish a uniform legal framework governing Transferable Development Rights (TDRs). Existing TDR mechanisms differ significantly among Indian States, resulting in inconsistent valuation practices, procedural requirements, registration systems, and enforcement standards.[60] A model legislative framework should prescribe common principles relating to the creation, transfer, registration, taxation, valuation, and utilization of development rights while permitting State Governments to adapt planning policies according to local urban conditions. Standardization would improve transparency, facilitate investment, and reduce litigation concerning redevelopment projects.

Thirdly, statutory reform should introduce a dedicated registration system for air rights and development rights. Present property registration laws primarily record ownership of land and buildings without separately identifying transferable airspace interests.[61] A modern registration framework should permit independent recording of air rights, development rights, restrictive covenants, easements affecting vertical development, and public infrastructure interests. Integration of such records within digital land information systems would improve

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[59] Maharashtra Regional and Town Planning Act, No. 37 of 1966 (India); Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, No. 30 of 2013 (India).

[60] Development Control and Promotion Regulations for Greater Mumbai, 2034 (India); John R. Nolon, *Well Grounded: Using Local Land Use Authority to Achieve Smart Growth* 181–206 (2001).

[61] Registration Act, No. 16 of 1908 (India); Herbert T. Tiffany & Basil Jones, *The Law of Real Property* §§ 585–590 (3d ed. 2015).

certainty of title, facilitate commercial transactions, strengthen mortgage financing, and reduce disputes concerning ownership and development potential.

Fourthly, legislation should prescribe transparent valuation principles applicable to air rights. The commercial value of urban airspace frequently exceeds the value of the underlying land in densely populated metropolitan regions, yet existing valuation methodologies remain inconsistent.[62] Standardized valuation criteria should consider permissible floor area ratios, planning restrictions, infrastructure accessibility, zoning classifications, market demand, environmental constraints, and future redevelopment potential. Such uniform valuation standards would promote fairness in land acquisition, taxation, redevelopment compensation, mortgage financing, and commercial transactions involving air rights.

Fifthly, stronger coordination should be established among planning authorities, land administration agencies, aviation regulators, municipal corporations, environmental authorities, and infrastructure agencies. At present, overlapping institutional responsibilities frequently delay redevelopment projects and generate inconsistent regulatory decisions.[63] A coordinated approval mechanism integrating planning, aviation, environmental, and infrastructure clearances would significantly improve administrative efficiency while maintaining appropriate regulatory safeguards. Digital governance platforms and integrated approval systems would further enhance transparency and accountability.

Sixthly, environmental sustainability should become an integral component of air rights regulation. Legislative reforms should require that vertical development projects comply with environmental impact assessments, urban climate resilience measures, disaster management standards, heritage conservation requirements, and sustainable building practices.[64] Particular attention should be given to ensuring adequate sunlight, natural ventilation, green building standards, public open spaces, and infrastructure capacity within densely developed urban areas. Such safeguards would enable air rights to contribute positively to sustainable urbanization rather than merely facilitating increased construction density.

Seventhly, the legal framework should address emerging technological developments affecting urban airspace. The increasing use of unmanned aircraft systems, drone-based

[62] Stephen B. Siegel, *Air Rights Development: Building Above the City* 177–231 (1982).
[63] Robert C. Ellickson & Vicki L. Been, *Land Use Controls* 913–968 (4th ed. 2020).
[64] Environment (Protection) Act, No. 29 of 1986 (India); United Nations Human Settlements Programme (UN-Habitat), *International Guidelines on Urban and Territorial Planning* (2015).

logistics, aerial surveillance technologies, telecommunications infrastructure, and future urban air mobility systems has fundamentally altered the legal significance of low-altitude airspace.[65] Future legislation should clearly distinguish private proprietary interests from navigable public airspace while establishing rules governing technological use of urban airspace consistent with aviation safety, privacy, and property rights. Such forward-looking regulation would ensure that property law remains responsive to technological innovation.

Finally, greater judicial and academic engagement with air rights jurisprudence should be encouraged. Compared with jurisdictions such as the United States and the United Kingdom, Indian jurisprudence concerning air rights remains relatively underdeveloped.[66] Courts will increasingly be required to resolve disputes involving redevelopment, planning restrictions, compensation, constitutional property rights, and vertical subdivision. Continued judicial interpretation, supported by legislative clarity and academic scholarship, will therefore play an important role in shaping the future development of Indian property law.

In conclusion, air rights represent one of the most significant emerging dimensions of contemporary property law. The traditional conception of land ownership extending indefinitely upward has gradually yielded to a modern regulatory framework recognizing that urban airspace must be managed through a careful balance between private proprietary interests and the broader public interest. Comparative analysis demonstrates that jurisdictions such as the United States, the United Kingdom, and Singapore have progressively developed sophisticated legal mechanisms regulating transferable development rights, vertical redevelopment, and commercial utilization of airspace. India has likewise made significant progress through municipal planning legislation and redevelopment policies; however, the absence of a comprehensive statutory framework continues to create legal uncertainty regarding ownership, transferability, valuation, and institutional governance.

The future of urban development will increasingly depend upon the effective legal regulation of vertical space. A comprehensive statutory framework recognizing air rights, supported by transparent planning procedures, standardized valuation mechanisms, integrated institutional governance, constitutional safeguards, and environmentally sustainable planning principles,

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[65] Aircraft Act, No. 22 of 1934 (India); Aircraft Rules, 1937 (India); International Civil Aviation Organization, *Manual on Remotely Piloted Aircraft Systems (RPAS)* (2d ed. 2023).

[66] *United States v. Causby*, 328 U.S. 256 (1946); *Penn Central Transportation Co. v. City of New York*, 438 U.S. 104 (1978); *Bernstein of Leigh (Baron) v. Skyviews& Gen. Ltd.*, [1978] Q.B. 479 (Eng.); *K.T. Plantation Pvt. Ltd. v. State of Karnataka*, (2011) 9 S.C.C. 1 (India).

would substantially strengthen India's property law regime. Such reforms would facilitate efficient urban redevelopment, promote infrastructure investment, enhance legal certainty, and protect both private property rights and the public interest. By modernizing the legal treatment of air rights, Indian property law can provide a durable foundation for sustainable and equitable urban growth in the twenty-first century.