
THE BHARATIYA VAYUYAN ADHINIYAM, 2024: ALIGNING INDIAN AVIATION REGULATION WITH GLOBAL STANDARDS

Om Upadhyaya, Parul University

Harshita Bagh, Parul University

I. Introduction

India's civil aviation sector has witnessed unprecedented growth in recent years, solidifying its position as one of the world's top three aviation markets. According to projections made by the International Air Transport Association (IATA), India is on track to become the third-largest air passenger market globally by 2030, driven by rapid urbanization, a growing middle class, and government schemes aimed at improving regional connectivity. Over 1.43 crore domestic passengers were recorded in 2023–2024, with consistent double-digit growth expected in the next five years¹.

Yet, despite the sector's dynamic evolution, India's legislative infrastructure remained anchored in the Aircraft Act, 1934, a law introduced during the colonial period. Originally intended to regulate limited aircraft operations during the early days of aviation, the Act offered minimal clarity on modern regulatory issues such as airworthiness certification, pilot licensing, digital air traffic control, drone regulation, and carbon emissions monitoring. Over the decades, the Act was amended multiple times, but these amendments only resulted in fragmented oversight and a regulatory patchwork inadequate for today's complex civil aviation ecosystem. Recognizing the necessity for transformation, the Government of India introduced the Bharatiya Vayuyan Adhiniyam, 2024, to replace the antiquated Aircraft Act entirely. The new statute is designed to harmonize India's aviation laws with the Standards and Recommended Practices (SARPs) issued by ICAO under the Chicago Convention, 1944, ensuring international compliance, regulatory efficiency, and readiness for future technological and

¹Press Information Bureau, *India's Soaring Skies with Inclusive and Booming Aviation* (15 September 2024)<https://www.pib.gov.in/PressNoteDetails.aspx?NoteId=152143> accessed 4 June 2025.

environmental challenges².

II. The New Legal Framework, Overview of Bharatiya Vayuyan Adhiniyam, 2024

The Bharatiya Vayuyan Adhiniyam, 2024, marks a pivotal overhaul of India's civil aviation legislation. It repeals and replaces the nearly 90-year-old Aircraft Act, 1934, providing a comprehensive legal framework suitable for modern aviation governance. The legislation was introduced to modernize India's airspace management, oversight capabilities, and compliance with global aviation obligations, particularly those mandated under the Chicago Convention and enforced by the International Civil Aviation Organization.

The new Act consolidates regulatory procedures for manned and unmanned aircraft, streamlines licensing and safety audit systems, and lays down clearer mandates for infrastructure development, environmental compliance, and digital surveillance. This shift also facilitates the integration of emerging technologies, such as drones, urban air mobility vehicles, and AI-based safety monitoring tools into the Indian aviation ecosystem. Though the full text has yet to be published publicly by the Ministry of Civil Aviation, official summaries and press statements from parliamentary briefings suggest that the law aims to improve transparency, accountability, and adaptability³.

i) Key Objectives and Structural Features

The Act is designed around several core objectives:

1. Strengthen safety oversight mechanisms by providing the Directorate General of Civil Aviation (DGCA) enhanced enforcement powers;
2. Ensure compliance with ICAO's 19 Annexes through explicit legal alignment;
3. Promote innovation and digitalization by enabling electronic licensing, real-time audits, and e-surveillance;
4. Legally recognize and regulate Unmanned Aircraft Systems (UAS) and Advanced Air

²Convention on International Civil Aviation (adopted 7 December 1944, entered into force 4 April 1947) 15 UNTS 295

³ Ministry of Civil Aviation, *Official Website* <https://www.civilaviation.gov.in/> accessed 4 June 2025.

Mobility (AAM) infrastructure;

5. Align environmental regulation with ICAO's Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA);
6. Establish clearer accountability for operators, service providers, and infrastructure stakeholders.

Structurally, the Act moves away from the fragmented rule-based model of the Aircraft Act and introduces a codified, principles-based regime, supported by a centralized aviation tribunal, a compliance directorate, and strengthened inter-agency coordination mechanisms. This transformation is especially vital as India prepares to handle over 300 million annual passengers by 2030⁴ and simultaneously implement ICAO's performance-based safety management systems.

ii) Role of DGCA and Ministry of Civil Aviation

Under the Bharatiya Vayuyan Adhiniyam, the DGCA retains its position as the primary regulator but gains enhanced powers related to licensing, certification, surveillance, and enforcement. The DGCA is also tasked with implementing and monitoring ICAO-aligned performance audits and publishing real-time compliance dashboards. Additionally, it will oversee environmental sustainability goals and drone integration⁵.

The Ministry of Civil Aviation continues to serve as the central policy and governance body, with responsibility for formulating the national aviation strategy and facilitating inter-ministerial collaboration. Under the new law, MoCA has broader oversight of infrastructure development (e.g., UDAN routes, greenfield airports, and air cargo logistics), while ensuring that public and private operators comply with safety, security, and economic regulation⁶.

⁴ Neha LM Tripathi, 'By 2030, Domestic Air Traffic Projected to Hit 300 Million' *Hindustan Times* (19 January 2024) <https://www.hindustantimes.com/india-news/by-2030-domestic-air-traffic-projected-to-hit-300-million-101705600452367.html> accessed 4 June 2025.

⁵ *The Bharatiya Vayuyan Adhiniyam, 2024*, Act No. 16 of 2024, enacted on 11 December 2024 <https://www.indiacode.nic.in/bitstream/123456789/20589/1/A2024-16.pdf> accessed 4 June 2025.

⁶ *The Bharatiya Vayuyan Adhiniyam, 2024*, Act No. 16 of 2024, enacted on 11 December 2024, <https://www.indiacode.nic.in/bitstream/123456789/20589/1/A2024-16.pdf> accessed 4 June 2025.

III. Global Compliance Imperatives

i) ICAO and SARPs

The International Civil Aviation Organization is the United Nations 'specialized agency responsible for establishing global standards for the safety, security, efficiency, and environmental protection of international civil aviation. The Standards and Recommended Practices, codified in the 19 Annexes to the Chicago Convention, cover critical areas such as aircraft operations, licensing, airworthiness, navigation systems, and aviation security.

India, a founding ICAO member since 1947, is obligated to comply with SARPs across these annexes. Before the Bharatiya Vayuyan Adhiniyam, Indian aviation law incorporated these requirements mainly through secondary rule-making, leaving room for interpretive variation and enforcement inconsistencies. The 2024 Act addresses this gap by making ICAO SARPs legally binding within India's domestic regulatory framework, including in areas like:

- Annex 1 (Personnel Licensing)⁷,
- Annex 6 (Operations of Aircraft)⁸,
- Annex 14 (Aerodromes)⁹,
- Annex 19 (Safety Management)¹⁰.

By aligning with ICAO's Global Aviation Safety Plan (GASP) and No Country Left Behind (NCLB) initiative, the Act reinforces India's commitment to achieving the Global Aviation

⁷International Civil Aviation Organization, *Annex 1 — Personnel Licensing* (2019)https://www.icao.int/APAC/Meetings/2019%20COSCAP%20SEAEASA%20PEL/AN01_cons.2019_compressed.pdf accessed 4 June 2025.

⁸International Civil Aviation Organization, *Annex 6 — Operation of Aircraft, Part I: International Commercial Air Transport — Aeroplanes*, 11th edn (2018) [https://www.icao.int/safety/CAPSCA/PublishingImages/Pages/ICAO-SARPs-\(Annexes-and-PANS\)/Annex%206.pdf](https://www.icao.int/safety/CAPSCA/PublishingImages/Pages/ICAO-SARPs-(Annexes-and-PANS)/Annex%206.pdf) accessed 4 June 2025.

⁹International Civil Aviation Organization, *Annex 14 — Aerodromes, Volume I: Aerodrome Design and Operations*, 8th edn (July 2018, incorporating Amendment 14)https://www.iacm.gov.mz/app/uploads/2018/12/an_14_v1_Aerodromes_8ed._2018_rev.14_01.07.18.pdf accessed 4 June 2025.

¹⁰International Civil Aviation Organization, *Annex 19 — Safety Management: Self-Instruction* (24 September 2013)<https://www.icao.int/safety/safetymanagement/documents/annex%2019%20-%20icao%20presentation%20-%20self%20instruction%2024september2013.pdf> accessed 4 June 2025.

Safety Roadmap goals¹¹.

ii) Chicago Convention and India's Obligations

The Convention on International Civil Aviation, commonly known as the Chicago Convention (1944), is the foundational treaty governing international air travel. Signed by 52 states, it established the ICAO and set out principles for airspace sovereignty, aircraft registration, airworthiness, and the standardization of air navigation systems. India ratified the Convention in March 1947 and is bound by its provisions, particularly the requirement to incorporate SARPs into national laws and ensure their application.

However, under the now-repealed Aircraft Act, 1934, there was no direct legislative mechanism to integrate the Convention's terms into Indian law. Instead, compliance depended on executive action and regulatory discretion, which often led to compliance delays and procedural inconsistencies. The *Bharatiya Vayuyan Adhiniyam, 2024* brings a transformative change by formally embedding India's obligations under the Chicago Convention into statutory law. It empowers the DGCA to issue directives and monitor operations to ensure full alignment with ICAO audits and data-sharing protocols, thereby reinforcing India's legal commitment to the Annexes of the Convention and its broader policy objectives¹².

iii) FAA IASA Ratings and Global Audits

India's global aviation credibility has also been influenced by the Federal Aviation Administration (FAA) of the United States, which conducts the International Aviation Safety Assessment (IASA) program. IASA evaluates whether a country's civil aviation authority complies with ICAO safety standards rather than domestic U.S. standards.

In 2014, India was downgraded to Category 2 due to deficiencies in regulatory oversight

¹¹*Convention on International Civil Aviation* (adopted 7 December 1944, entered into force 4 April 1947) 15 UNTS 295 <https://www.icao.int/publications/pages/doc7300.aspx> accessed 4 June 2025.

¹²*The Bharatiya Vayuyan Adhiniyam, 2024*, Act No. 16 of 2024, enacted on 11 December 2024, <https://www.indiacode.nic.in/bitstream/123456789/20589/1/A2024-16.pdf> accessed 4 June 2025.

capabilities¹³. Although India regained Category 1 status in 2015¹⁴, the episode exposed serious gaps in institutional capacity and prompted calls for legislative modernization (FAA IASA Program). The *Bharatiya Vayuyan Adhiniyam, 2024* addresses these challenges by improving legal clarity, introducing real-time safety audits, and institutionalizing performance-based oversight. These changes align with ICAO's Universal Safety Oversight Audit Programme (USOAP), in which India scored 69.95% effective implementation¹⁵ in its last published audit.

By meeting the structural and procedural criteria emphasized in both IASA and USOAP, India enhances its international standing and reduces risk for airlines operating into and out of its territory.

IV. Major Innovations in the 2024 Act

i) Licensing and Safety Regulation Overhaul

One of the most transformative changes introduced by the *Bharatiya Vayuyan Adhiniyam, 2024* is the complete overhaul of the licensing and safety oversight framework. The Act explicitly empowers the Central Government, under Section 10(1)(g), (ga), and (o), to regulate the licensing of all aviation professionals, including pilots, maintenance engineers, air traffic controllers, and airworthiness certifiers. This is a marked departure from the fragmented system under the Aircraft Act, 1934, which relied heavily on delegated rules with minimal legislative backing¹⁶. The Act also mandates that licensing rules align with global benchmarks, particularly Annex 1¹⁷ and Annex 6¹⁸ of ICAO's SARPs. Additionally, Section 2(10)¹⁹ redefines

¹³Geeta Gupta, 'India's Aviation Downgrade by US FAA Set to Be Revoked Soon' *The Indian Express* (New Delhi, 1 November 2014) <https://indianexpress.com/article/business/companies/indias-aviation-downgrade-by-us-faa-set-to-be-revoked-soon/> accessed 4 June 2025.

¹⁴India Today, 'India's Aviation Safety Again Upgraded to Category-I' (8 April 2015) <https://www.indiatoday.in/india/story/indias-aviation-safety-ranking-category-1-faa-247760-2015-04-08> accessed 4 June 2025.

¹⁵ICAO Gives India's Aviation Safety Highest Ever Ranking; Global Ranking Jumps from 102 to 48 Now, Above China & Turkey' *The Times of India* (New Delhi, 4 December 2022) <https://timesofindia.indiatimes.com/india/icao-gives-indias-aviation-safety-highest-ever-ranking-global-ranking-jumps-from-102-to-48-now-above-china-turkey/articleshow/95963096.cms> accessed 4 June 2025.

¹⁶*The Bharatiya Vayuyan Adhiniyam, 2024*, Act No. 16 of 2024, enacted on 11 December 2024 <https://www.indiacode.nic.in/bitstream/123456789/20589/1/A2024-16.pdf> accessed 4 June 2025.

¹⁷International Civil Aviation Organization, *Annex 1 — Personnel Licensing* (2019) https://www.icao.int/APAC/Meetings/2019%20COSCAP%20SEAEASA%20PEL/AN01_cons.2019_compressed.pdf accessed 4 June 2025.

¹⁸International Civil Aviation Organization, *Annex 6, Operation of Aircraft, Part I: International Commercial Air Transport, Aeroplanes*, 11th edn (July 2018) [https://www.icao.int/safety/CAPSCA/PublishingImages/Pages/ICAO-SARPs-\(Annexes-and-PANS\)/Annex%206.pdf](https://www.icao.int/safety/CAPSCA/PublishingImages/Pages/ICAO-SARPs-(Annexes-and-PANS)/Annex%206.pdf) accessed 4 June 2025.

¹⁹*The Bharatiya Vayuyan Adhiniyam, 2024*, Act No. 16 of 2024, enacted on 11 December 2024 <https://www.indiacode.nic.in/bitstream/123456789/20589/1/A2024-16.pdf> accessed 4 June 2025.

“maintenance” in a broader, proactive sense to include inspection, repair, and overhaul, aligning with ICAO’s Global Aviation Safety Plan²⁰ goals for continued airworthiness.

New mechanisms under the Act also facilitate real-time audits, digital certification, and e-logbooks, creating a dynamic ecosystem for performance-based safety oversight. The DGCA, through these powers, is now equipped to enforce internationally aligned, technologically responsive safety regulations.

ii) Focus on Sustainability and Carbon Offsetting

The 2024 Act also addresses India’s climate obligations in aviation, particularly in light of global frameworks like ICAO’s Carbon Offsetting and Reduction Scheme for International Aviation (CORSA). While the term “carbon offset” is not explicitly used, Section 10(o) empowers the government to make rules for the safety of life, health, and the environment, broad enough to allow regulation of emissions, fuel quality, and sustainability practices.

Additionally, Section 13²¹ enables further rulemaking for public health in the aviation context, giving DGCA and MoCA legislative room to implement emission tracking, carbon accounting, and SAF (Sustainable Aviation Fuel) integration. These provisions directly support India’s compliance with ICAO Annex 16²², Volume IV, which governs aircraft CO₂ emissions standards. As India prepares for greener aviation infrastructure, the Act also opens the door for mandating Green Airport Master Plans, covering energy use, waste disposal, and noise mitigation. These reforms collectively align India’s civil aviation ecosystem with global standards under the Paris Agreement and climate strategies adopted by the FAA and EASA²³.

iii) Digital Aviation and UAS

A standout feature of the *Bharatiya Vayuyan Adhiniyam, 2024* is its formal inclusion of

²⁰International Civil Aviation Organization, *Global Aviation Safety Plan (2023–2025)*<https://www.icao.int/safety/GASP/Pages/default.aspx> accessed 4 June 2025.

²¹*The Bharatiya Vayuyan Adhiniyam, 2024*, Act No. 16 of 2024, enacted on 11 December 2024<https://www.indiacode.nic.in/bitstream/123456789/20589/1/A2024-16.pdf> accessed 4 June 2025.

²²International Civil Aviation Organization, *Annex 16 — Environmental Protection, Volume I — Aircraft Noise*, 8th edn (July 2017) [https://www.icao.int/safety/GASP/PublishingImages/Pages/ICAO-SARPs-\(Annexes-and-PANS\)/Annex%2016.pdf](https://www.icao.int/safety/GASP/PublishingImages/Pages/ICAO-SARPs-(Annexes-and-PANS)/Annex%2016.pdf) accessed 4 June 2025.

²³Federal Aviation Administration, *2021 United States Aviation Climate Action Plan* (November 2021)https://www.faa.gov/sites/faa.gov/files/2021-11/Aviation_Climate_Action_Plan.pdf accessed 4 June 2025.

Unmanned Aircraft Systems (UAS) and digital aviation technologies within the statutory domain. Under Section 2(3)²⁴, the Act defines “aircraft” expansively to include any machine capable of flight, clearly encompassing drones and unmanned systems. Furthermore, Section 10(l), (m), and (q)²⁵ provide rule-making powers for the registration, certification, and operations of UAS, enabling the Central Government and DGCA to develop a legally enforceable regime for drone corridors, no-fly zones, remote pilot licensing, and AI-assisted traffic management systems.

V. Comparative Analysis

i) Alignment with ICAO SARPs

The Bharatiya Vayuyan Adhiniyam, 2024, aligns more directly and systematically with the Standards and Recommended Practices issued by the International Civil Aviation Organization than any previous Indian statute. Under Section 10²⁶ of the Act, the Central Government is empowered to enact rules governing key domains such as licensing, airworthiness, air traffic control, environmental protection, and airport operations domains that directly correspond to ICAO’s 19 annexes²⁷.

The Act mirrors several Annex provisions, such as Annex 1 Personnel licensing: Explicit legal authority to certify aircrew and maintenance engineers. Annex 6 Aircraft operation: Provisions on maintenance and flight operations tracking. Annex 14 Aerodromes: Rules for airport design and management. Annex 16 Environmental Protection: Enabling framework for carbon emissions and SAF policies. Annex 19 Safety Management: Legal provision for State Safety Programme (SSP) implementation. Unlike its predecessor, the Aircraft Act, 1934, the 2024 Act enshrines legal compatibility with SARPs, rather than relying on ad hoc rulemaking. It also grants the Directorate General of Civil Aviation direct responsibility for aligning national

²⁴The Bharatiya Vayuyan Adhiniyam, 2024, Act No. 16 of 2024, enacted on 11 December 2024 <https://www.indiacode.nic.in/bitstream/123456789/20589/1/A2024-16.pdf> accessed 4 June 2025.

²⁵The Bharatiya Vayuyan Adhiniyam, 2024, Act No. 16 of 2024, enacted on 11 December 2024 <https://www.indiacode.nic.in/bitstream/123456789/20589/1/A2024-16.pdf> accessed 4 June 2025.

²⁶The Bharatiya Vayuyan Adhiniyam, 2024, Act No. 16 of 2024, enacted on 11 December 2024 <https://www.indiacode.nic.in/bitstream/123456789/20589/1/A2024-16.pdf> accessed 4 June 2025.

²⁷International Civil Aviation Organization, *Annex 19 — Safety Management*, 1st edn (24 September 2013) <https://www.icao.int/safety/safetymanagement/documents/annex%2019%20-%20icao%20presentation%20-%20self%20instruction%20september2013.pdf> accessed 4 June 2025.

oversight functions with ICAO’s Universal Safety Oversight Audit Programme²⁸.

ii) Comparison with Aviation Laws in the EU, USA, and Singapore

Compared to major global aviation frameworks, the Bharatiya Vayuyan Adhiniyam, 2024, reflects significant convergence but retains unique institutional features.

Parameter	India – Bharatiya Vayuyan Adhiniyam, 2024	EU – EASA Basic Regulation (EU) 2018/1139	USA – FAA (Title 14 CFR)	Singapore – CAAS Act
Regulatory Authority	DGCA (under MoCA)	EASA (independent EU body)	FAA (under U.S. DoT)	CAAS (autonomous statutory board)
Legal SARP Integration	Direct statutory alignment with ICAO Annexes	Directly incorporated via EU law	Incorporated into CFR Title 14	Referenced via Civil Aviation Orders
Personnel Licensing (ICAO Annex 1)	Legal provisions under Sec. 10(g)	Central EASA licensing regime	Part 61 and Part 67 CFR	CAAS pilot licensing rules
Aircraft Operations (Annex 6)	Flight rules and maintenance under Sec. 10(n)	EASA OPS (EU 965/2012)	Part 91, 121, 135	CAAS Air Navigation Orders
Environmental Regulations	Framework for emissions and SAF (Sec. 10(o))	Fit for 55, SAF mandates	Aviation Climate Action Plan (2021)	Green aviation initiatives; fuel lifecycle
Drone/UAS Regulation	UAS integrated in Sec. 2(3), Sec. 10(q)	U-Space Regulation (EU 2021/664)	FAA Part 107	CAAS Drone Registration & Sandbox
Safety Oversight & Surveillance	DGCA empowered for audits, real-time logbooks	EASA centralized audits + Member States	FAA Inspector Authorization & oversight	CAAS SMS and digital audits
Digital Licensing / ATC Modernization	Enabled under Sec. 10(m), (p)	EASA supports e-licensing	FAA IACRA and ADS-B mandates	Remote towers and smart airspace zones
Passenger Rights Framework	Handled via DGCA circulars	EU Reg. 261/2004 (binding rights)	DOT rules + tarmac delay rules	Limited to service standards

²⁸ICAO, 'ICAO Universal Safety Oversight Audit Programme (USOAP)' SKYbrary <https://skybrary.aero/articles/icao-universal-safety-oversight-audit-programme-usoap> accessed 4 June 2025.

Autonomy & Institutional Design	Executive-led; MoCA exercises influence	Supranational with enforcement authority	Independent with strong federal support	Statutory independence
--	---	--	---	------------------------

Comparative Table: Aviation Law – India Vs Global Standards

In the European Union, aviation regulation is governed by the European Union Aviation Safety Agency under the Basic Regulation²⁹. EASA centrally manages safety oversight, certification, and environmental protection across member states. India's DGCA under the new Act performs a similar role nationally, though EASA has more autonomous supranational enforcement powers.

In the United States, the Federal Aviation Administration operates under Title 14 of the Code of Federal Regulations³⁰. The FAA combines regulation, certification, and operational control. The Bharatiya Vayuyan Adhiniyam provides the DGCA with comparable legal backing, especially in digital licensing, safety data monitoring, and drone regulation via Section 10(l–q)³¹ (FAA Regulations). Where India still lags is in passenger rights codification, which the EU enforces under Regulation EC No. 261/2004³², while India's system leaves such provisions to DGCA regulations rather than explicit statutory rights. Overall, the Bharatiya Vayuyan Adhiniyam, 2024 achieves a high degree of functional equivalence with global best practices while tailoring enforcement and administration to Indian realities.

VI. Stakeholder Impact

i) Airlines and Service Providers

The *Bharatiya Vayuyan Adhiniyam, 2024*, introduces significant regulatory responsibilities for airlines and aviation service providers, particularly in areas of licensing, operations, sustainability, and digital compliance. Under Section 10(n)³³, all operators must maintain real-

²⁹ (EU) 2018/1139, The European Parliament and the Council, The date of adoption 4 July 2018 <https://eur-lex.europa.eu/eli/reg/2018/1139/oj/eng> accessed 4 June 2025.

³⁰Federal Aviation Administration, *2021 United States Aviation Climate Action Plan* (November 2021)https://www.faa.gov/sites/faa.gov/files/2021-11/Aviation_Climate_Action_Plan.pdf accessed 4 June 2025.

³¹*The Bharatiya Vayuyan Adhiniyam, 2024*, Act No. 16 of 2024, enacted on 11 December 2024<https://www.indiacode.nic.in/bitstream/123456789/20589/1/A2024-16.pdf> accessed 4 June 2025.

³²(EU) 2018/1139, The European Parliament and the Council, The date of adoption 4 July 2018 <https://eur-lex.europa.eu/eli/reg/2018/1139/oj/eng> accessed 4 June 2025.

³³*The Bharatiya Vayuyan Adhiniyam, 2024*, Act No. 16 of 2024, enacted on 11 December 2024<https://www.indiacode.nic.in/bitstream/123456789/20589/1/A2024-16.pdf> accessed 4 June 2025.

time flight records, technical logbooks, and mandatory safety inspection data, a shift toward performance-based auditing, consistent with ICAO practices.

In addition, Section 10(q)³⁴ requires airlines to adhere to standardized operating procedures and crew qualifications aligned with ICAO Annex 6. This impacts flight scheduling, maintenance cycles, and pilot training. Airlines operating international routes must also prepare for mandatory environmental reporting and carbon compliance under CORSIA³⁵, with legal enforcement backed by Section 10(o)³⁶. The Act also allows for the legal recognition of electronic certification systems, easing documentation for aircraft leasing, MRO (Maintenance, Repair and Overhaul), and bilateral codeshare agreements.

ii) Passengers

While the Act does not establish a standalone Air Passenger Bill of Rights, it does empower the DGCA, under Section 4³⁷, to issue binding directions related to passenger welfare. This authority includes setting rules on flight delays, cancellations, refunds, and compensation protocols.

The backing of legislative authority strengthens enforcement of DGCA's existing circulars, such as those mandating transparent fare structures, grievance redressal platforms, and compensation for denied boarding. Additionally, digital initiatives like DigiYatra³⁸, which uses facial recognition for seamless passenger processing, are implicitly supported under Section 10(m), which enables the regulation of automated systems for air navigation and surveillance.

i) Airports and ATC Operators

Airport operators now face new mandates under the 2024 Act. Section 10(k)³⁹ empowers the

³⁴The Bharatiya Vayuyan Adhinyam, 2024, Act No. 16 of 2024, enacted on 11 December 2024 <https://www.indiacode.nic.in/bitstream/123456789/20589/1/A2024-16.pdf> accessed 4 June 2025.

³⁵International Civil Aviation Organization, 'CORSIA Implementation Elements' <https://www.icao.int/environmental-protection/CORSIA/Pages/implementation-elements.aspx> accessed 4 June 2025.

³⁶The Bharatiya Vayuyan Adhinyam, 2024, Act No. 16 of 2024, enacted on 11 December 2024 <https://www.indiacode.nic.in/bitstream/123456789/20589/1/A2024-16.pdf> accessed 4 June 2025.

³⁷The Bharatiya Vayuyan Adhinyam, 2024, Act No. 16 of 2024, enacted on 11 December 2024 <https://www.indiacode.nic.in/bitstream/123456789/20589/1/A2024-16.pdf> accessed 4 June 2025.

³⁸Delhi International Airport Limited, 'DigiYatra: Future of Air Travel, a Contactless Experience' <https://www.newdelhiairport.in/digiyaatra> accessed 4 June 2025.

³⁹The Bharatiya Vayuyan Adhinyam, 2024, Act No. 16 of 2024, enacted on 11 December 2024 <https://www.indiacode.nic.in/bitstream/123456789/20589/1/A2024-16.pdf> accessed 4 June 2025.

government to regulate airport infrastructure, including runway maintenance, firefighting, and airside operations, in alignment with ICAO Annex 14⁴⁰. Moreover, ATC operators are now subject to more structured oversight. Section 10(l) and (p) allow for the licensing of air traffic personnel and the management of surveillance infrastructure. This supports India's transition to Performance-Based Navigation (PBN) and satellite-linked ATC systems, enabling better flight efficiency and safety tracking. The DGCA's power to inspect, certify, and impose penalties is also extended under Section 10(r), ensuring that private and public airports meet consistent safety, sustainability, and service benchmarks.

VII. Challenges and Future Roadmaps

i) Institutional Capacity

Despite the legislative sophistication of the *Bharatiya Vayuyan Adhiniyam, 2024*, the effectiveness of its implementation will depend heavily on the institutional capacity of the Directorate General of Civil Aviation (DGCA) and other affiliated bodies. India's past challenges in this regard are well documented. For instance, the FAA downgraded India's safety rating to Category 2 in 2014 under the IASA program due to insufficient regulatory oversight capacity only restoring it in 2015 once staffing and auditing processes were improved⁴¹.

The Act grants the DGCA wide-ranging powers under Sections 4 and 10, including real-time audits, licensing, and surveillance. However, DGCA continues to face understaffing, with inspector-to-aircraft ratios below ICAO-recommended levels. For sustainable implementation, there must be substantial investment in workforce expansion, digital infrastructure, and regional oversight centers. Without addressing these institutional bottlenecks, the Act's ambitious framework risks remaining paper-deep, especially as air traffic is expected to cross

⁴⁰International Civil Aviation Organization, *Annex 14 Aerodromes*, Volume I: Aerodrome Design and Operations, 8th edn (July 2018) https://www.iacm.gov.mz/app/uploads/2018/12/an_14_v1_Aerodromes_8ed._2018_rev.14_01.07.18.pdf accessed 4 June 2025.

⁴¹Federal Aviation Administration, 'International Aviation Safety Assessment (IASA) Program' (16 August 2024) <https://www.faa.gov/about/initiatives/iasa> accessed 4 June 2025.

500 million passengers by 2030⁴².

ii) International Cooperation

To meet the compliance expectations laid out in the 2024 Act, India must also deepen its engagement with international aviation bodies. While the Act aligns well with ICAO's SARPs and the Chicago Convention, operationalizing these standards requires constant bilateral and multilateral cooperation. Provisions under Section 10(w)⁴³ empower the Central Government to implement treaties and international conventions. This enables India to legally honor its obligations under ICAO initiatives such as CORSIA and GASP, and to participate in global data-sharing frameworks for safety and emissions tracking⁴⁴. Additionally, bilateral Air Services Agreements must now reflect the operational and regulatory shifts driven by the Act. For instance, UAS traffic management or carbon credits may soon become factors in market access negotiations with the EU, US, and ASEAN countries. India must also leverage global capacity-building programs, such as ICAO's No Country Left Behind and Global Aviation Training programs, to benchmark and scale its regulatory systems.

Training and Technology Adaptation The implementation of the Act hinges significantly on India's ability to train its aviation workforce and integrate emerging technologies. Section 10(m), (p), and (q) specifically empower the Government and DGCA to regulate and certify digital ATC systems, surveillance infrastructure, and automated aviation technologies⁴⁵. However, these digital systems, such as AI-powered air traffic control, remote towers, and drone delivery corridors require a new class of certified professionals. Training programs will need to embed ICAO's Competency-Based Training and Assessment model (ICAO CBTA) and use real-world simulation for UAS operations, safety management, and digital compliance auditing. Moreover, coordination with industry players like IATA, ACI, and the Flight Safety Foundation will be essential to align training with global best practices. Institutions like the Indira Gandhi Institute of Aeronautics and National Institute of Aviation

⁴²Press Information Bureau, 'Prime Minister Shri Narendra Modi addresses IATA's 81st Annual General Meeting and plenary Session of World Air Transport Summit' (2 June 2025) <https://www.pib.gov.in/PressReleaseDetailm.aspx?PRID=2133351> accessed 4 June 2025.

⁴³*The Bharatiya Vayuyan Adhiniyam, 2024*, Act No. 16 of 2024, enacted on 11 December 2024 <https://www.indiacode.nic.in/bitstream/123456789/20589/1/A2024-16.pdf> accessed 4 June 2025.

⁴⁴International Civil Aviation Organization, 'Global Aviation Safety Plan (GASP)' <https://www.icao.int/safety/GASP/Pages/default.aspx> accessed 4 June 2025.

⁴⁵*The Bharatiya Vayuyan Adhiniyam, 2024*, Act No. 16 of 2024, enacted on 11 December 2024 <https://www.indiacode.nic.in/bitstream/123456789/20589/1/A2024-16.pdf> accessed 4 June 2025.

Management and Research must be resourced and restructured to scale these training needs nationally.

VIII. Conclusion

The *Bharatiya Vayuyan Adhiniyam, 2024*, marks a foundational shift in India's aviation regulation, replacing a colonial-era act with a future-ready, internationally harmonized legal framework. Its alignment with the International Civil Aviation Organization and compliance with key Standards and Recommended Practices embeds India firmly within the global aviation governance structure. By empowering the DGCA with statutory authority to enforce safety, licensing, sustainability, and innovation standards under Sections 4 and 10, the Act eliminates decades of regulatory ambiguity.

This legal modernization is not only essential for domestic airspace management but also enhances India's standing in global platforms like ICAO and the FAA's International Aviation Safety Assessment (IASA) program. It reinforces India's commitment to international safety, environmental protection, and digital aviation transformation, while enabling the country to influence future global norms in emerging domains like UAS and AI-enabled air navigation.

India's aviation sector is projected to surpass 500 million passengers annually by 2030, demanding a legal and institutional system that is scalable, adaptive, and globally integrated. The 2024 Act provides that structure but also sets a policy direction for next-generation airspace governance, including satellite-based navigation, drone corridors, remote ATC, and carbon-neutral operations. Future reforms should focus on operationalizing the Act's mandates through capacity-building, technology partnerships, and cross-border regulatory alignment. Collaborations with ICAO, IATA, EASA, and ASEAN aviation regulators will be key to refining India's airspace governance model. With the *Bharatiya Vayuyan Adhiniyam* as its legal backbone, India is now positioned to not only meet global standards but to lead aviation innovation in the Global South.