

IMPACT OF COVID-19 AND POST-PANDEMIC RECOVERY OF AIR TRANSPORT MOBILITY IN INDIAN AIRPORTS

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Abstract - The COVID-19 pandemic produced the sharpest disruption in the history of commercial aviation and severely affected airport activity, passenger mobility, and aviation-linked tourism in India. This paper examines the trajectory of Indian air transport mobility from the collapse of operations during March-April 2020 to the post-pandemic recovery achieved by 2025-26, using airport traffic statistics reported for domestic and international aircraft movements and passenger volumes. The analysis shows that, relative to 2019-20, total traffic fell dramatically in 2020-21, with international passenger traffic declining by 84.8% and domestic passenger traffic by 61.7%, followed by a sustained recovery led initially by the domestic market. By 2022-23, domestic passenger traffic had recovered to 98.5% of the pre-pandemic benchmark, while total passenger traffic reached 96% of the 2019-20 level. In 2023-24, total passenger throughput surpassed the pre-COVID baseline, and in 2025-26 Indian airports handled 420.09 million passengers, with domestic and international traffic reaching 124% and 121%, respectively, of pre-pandemic levels. The paper argues that the Indian aviation sector has moved beyond recovery into a phase of structural expansion, supported by airport infrastructure growth, regulatory reforms, and airline fleet expansion. The findings contribute to ongoing discussion on transport resilience, post-crisis mobility restoration, and the transformation of emerging aviation markets.

The paper further examines the structural transformation now underway: the Air India-Vistara merger completed in November 2024, unprecedented aircraft order books exceeding 1,600 pending deliveries across IndiGo, Air India and Akasa, and an aviation infrastructure programme targeting 350-400 operational airports by 2047 (up from 164 in 2025), anchored by the commissioning of Navi Mumbai International Airport (December 2025) and Noida International Airport at Jewar (March 2026). The study concludes that Indian civil aviation has not merely recovered from the pandemic but has entered a structurally higher growth trajectory, supported by regulatory reform including the Bharatiya Vayuyan Adhiniyam 2024 and the Protection of Interest in Aircraft Objects Act 2025.

KEYWORDS: *COVID-19, mobility, airport, India, recovery, aviation infrastructure, civil aviation; airport traffic*

1. Introduction

COVID-19, caused by the Severe Acute Respiratory Syndrome Coronavirus-2, is a respiratory illness that was originally confined to animal populations before crossing into humans in China in late 2019. Coronaviruses are enveloped, positive single-stranded RNA viruses capable of infecting a wide range of species. Within months the disease spread to more than 220 countries; by the time global case counts stabilised, over 98 million people had been infected worldwide with roughly 98% recovery, and India alone recorded more than 10.6 million confirmed cases with a similarly high recovery rate. Transportation, tourism and logistics were among the sectors most severely affected. International tourist arrivals fell by an estimated 850 million to 1.1 billion in 2020 compared with 2019, and export revenue from tourism dropped by an estimated USD 910 billion to USD 1.2 trillion, reflecting how heavily global tourism depends on aviation.

Air transport is the only rapid worldwide transportation network and is therefore central to global business and tourism, particularly in developing economies. In 2019-20, all Indian airports taken together handled 341 million total passengers and 3.33 million metric tonnes of cargo at Indian airports. Aviation's total economic footprint — direct, indirect, induced and tourism-catalytic — was estimated at USD 3.5 trillion, or about 4.1% of world GDP. This backdrop makes the scale of the pandemic-era collapse, and the subsequent recovery traced in this paper, especially significant for understanding the resilience of the sector.

2. Contribution of Civil Aviation to the Indian Economy

Prior to the pandemic, airlines, airport operators, on-site retailers, air navigation service providers and aircraft manufacturers directly employed approximately 7.9 million people in India and generated a contribution of USD 44.1 billion to GDP in 2018 once direct, indirect, induced and tourism-catalytic effects are combined. All Indian airports taken together handled 190.13 million passengers in 2014-15,

rising to 344.70 million by 2018-19 on the back of double-digit annual growth, and India climbed from the eighth to the third largest domestic aviation market in the world between 2014 and 2018. This rapid pre-pandemic expansion is the baseline against which both the 2020 collapse and the subsequent recovery must be judged.

3. COVID-19 Impact on Civil Aviation Worldwide

The pandemic produced an unprecedented, near-total shutdown of the global aviation system rather than the more moderate demand shocks seen in earlier crises. At the trough in April 2020, global passenger traffic fell 94.4% year-on-year, comprising a 98.9% collapse in international traffic and a 90.7% collapse in domestic traffic. Analysts estimated a temporary loss of up to 46 million aviation-supported jobs (a 52% reduction) and a USD 1.8 trillion reduction in aviation-supported GDP, alongside a projected fall of 850 million to 1.1 billion international tourists and USD 910 billion to USD 1.2 trillion in tourism export revenue, given that 58% of international tourists travel by air.

4. The Impact of COVID-19 on Indian Airports (2020) — Historical Case Study

The Government of India suspended all non-essential transport services from 24 March 2020. Scheduled international commercial flights were halted from 22 March 2020 and, thereafter, operated only through exclusive air-transport bubbles under bilateral agreements. Domestic scheduled operations were suspended from 25 March 2020 and resumed on 25 May 2020, initially capped at 33% of pre-COVID capacity, before being raised in stages to 45% (26 June 2020), 60% (2 September 2020), 70% (11 November 2020) and 80% (3 December 2020).

The financial impact was severe: Indian carriers' revenue fell from INR 255.17 billion (April–June 2019) to INR 36.51 billion (April–June 2020); airport operator revenue fell from INR 57.45 billion to INR 8.94 billion over the same period; and Air India's revenue fell from INR 70.66 billion to INR 15.31 billion. Employment at airlines, ground-handling agencies and cargo operators all contracted between March and July 2020.

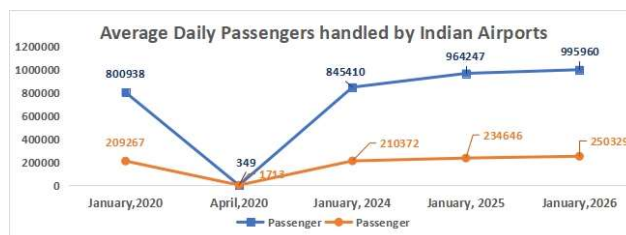
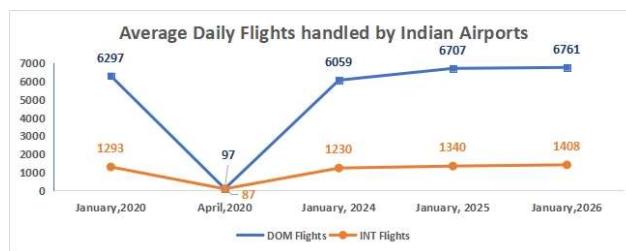
The following table recaps the trough-to-recovery trajectory documented in the original 2020 dataset for all Indian airports taken together.

Table :1

Average Total Daily Flights and Passenger handled by Indian Airports

During January 2020 (Pre-Pandemic Level) to January 2026

Period	Average Total Domestic Daily		Average Total International Daily	
	Flights	Passenger	Flights	Passenger
January,2020 (Pre-Pandemic Level)	6297	800938	1293	209267
April,2020	97	349	87	1713
January, 2024	6059	845410	1230	210372
January, 2025	6707	964247	1340	234646
January,2026	6761	995960	1408	250329



COVID-19 significantly affected the Indian economy, with the civil aviation and tourism sectors among the worst affected by the pandemic.

During April 2020, total average domestic aircraft movements decreased significantly to 97 from 6297 in January 2020, and average daily domestic passengers handled decreased to 349 in April 2020 from 800938 in January 2020, across all Indian airports.

During April 2020, total average international aircraft movements decreased significantly to 87 from 1293 in January 2020, and average daily international passengers handled decreased to 1713 in April 2020 from 209267 in January 2020, across all Indian airports.

In January 2024, daily domestic and international passenger traffic crossed the pre-pandemic level. In January 2025, daily domestic passenger traffic reached 20% above, and international passenger traffic reached 12% above, the pre-pandemic level (i.e., January 2020). In January 2026, daily domestic passenger traffic reached 24% above, and international passenger traffic reached 20% above, the pre-pandemic level (i.e., January 2020).

During 2020-21, compared to 2019-20, all Indian airports handled 0.13 million international and 1.06 million domestic aircraft movements, registering a decline of 68.8% and 50.7%, respectively. International and domestic passengers handled during 2020-21 were 10.13 million and 105.25 million, respectively, representing a decline of 84.8% and 61.7% compared to 2019-20.

In 2021-22, even as the nation faced widespread second and third waves of COVID-19, air passenger traffic saw an impressive recovery, supported mainly by the domestic sector. All Indian airports together handled 188.89 million passengers during 2021-22, against 115.38 million in 2020-21, registering a significant increase of 63.7%.

During 2022-23, domestic passenger traffic almost reached the pre-pandemic level, recovering to 98.5%, while international passenger traffic regained 85.6%. Total passenger traffic showed a strong comeback, registering a recovery of 96% compared to the same period in 2019-20.

5. Post-Pandemic Recovery of Indian Aviation (2021–2023)

Following the calibrated domestic reopening of 2020, Indian air travel demand rebuilt steadily through 2021 and 2022 as vaccination coverage expanded and travel restrictions were progressively lifted. During 2023-24, passenger traffic handled by all Indian airports together surpassed the pre-COVID level. International passenger traffic, domestic passenger traffic and total passenger traffic increased by 22.4%, 13.5% and 15.1%, respectively, during 2023-24 compared to 2022-23.

During 2024-25, domestic passenger traffic reached 122% of the pre-pandemic level, and international passenger traffic reached 116% of the pre-pandemic level.

6. Current Status of Indian Air Transport (2025–2026)

6.1 Domestic and International Traffic

International aircraft movements, domestic aircraft movements and total aircraft movements increased by 3.5%, 0.1% and 0.6%, respectively, during (April–March) 2025-26 compared to (April–March) 2024-25. International passenger traffic, domestic passenger traffic and total passenger traffic increased by 4.2%, 1.4% and 1.9%, respectively, during the same period. India's domestic air passenger traffic reached 339.45 million passengers, up from 334.703 million in 2024-25; India's international air passenger traffic reached 80.64 million passengers, up from 77.38 million in 2024-25; and India's total air passenger traffic reached 420.09 million passengers, up from 412.09 million in 2024-25.

During 2025-26, domestic passenger traffic reached 124% of the pre-pandemic level, and international passenger traffic reached 121% of the pre-pandemic level. All Indian airports together handled 420.09 million passengers during 2025-26, against 412.09 million in 2024-25, registering a marginal increase of 1.9% due to supply side constraints, high fuel costs and global economic slow down.

6.3 Global Comparison

Global air passenger traffic collapsed during COVID-19, falling to 1.8 billion passengers in 2020 from 4.5 billion in 2019, before fully rebounding past 2019 levels to 9.8 billion in 2025 and then moderating to an estimated 5.2 billion total passengers in 2026 amid ongoing Middle East airspace shocks and fuel price pressures. Worldwide airline revenues plummeted to US\$ 189 billion in 2020, compared with US\$ 581 billion previously, and up to two-thirds of the global commercial aircraft fleet sat idle on tarmacs during peak

lockdowns. Traffic surpassed 2019 pre-pandemic levels during 2024, reaching roughly 9.4 to 9.5 billion passengers. Airspace closures and conflicts in the Middle East have since disrupted key transit corridors, causing route detours and spiking jet fuel costs.

7. Infrastructure Expansion and Policy Reform

India's aviation recovery has been reinforced by one of the largest airport-infrastructure programmes in the world. The number of operational airports rose from 74 in 2014 to 163–164 by late 2025, and the Airports Authority of India, together with private developers, is targeting 350–400 airports by 2047 under a programme spanning 2025–2035, backed by more than INR 25,000 crore in AAI capital expenditure and over INR 1 lakh crore in private investment.

Two flagship greenfield projects reached commercial operation within months of each other: Navi Mumbai International Airport began commercial services on 25 December 2025 with an initial capacity of 20 million passengers annually, and Noida International Airport at Jewar was inaugurated on 28 March 2026 with a Phase-1 capacity of 12 million passengers annually, expandable to 70 million passengers per year by around 2040. Both projects are designed to relieve long-standing capacity constraints at the Delhi and Mumbai metropolitan hubs, which have operated at or near design capacity for several years.

The Regional Connectivity Scheme (RCS-UDAN), now in its tenth year, had operationalised 619–663 routes connecting 88–95 airports and benefited over 15 million passengers by early 2025. In 2025 the Union Cabinet approved a revamped ten-year UDAN programme (FY2026-27 to FY2035-36) worth approximately USD 3 billion, targeting 100 additional airports, 200 heliports, and an estimated 40 million additional beneficiary passengers over the decade, alongside viability-gap funding to make routes commercially sustainable rather than infrastructure-only support.

Regulatory reform has accompanied this physical expansion. The Bharatiya Vayuyan Adhiniyam 2024, passed by Parliament in 2024, came into force on 1 January 2025 as the modernised civil aviation statute. The Protection of Interest in Aircraft Objects Act 2025, passed in April 2025, aligns India's aircraft leasing and financing framework with the Cape Town Convention, addressing a longstanding cost disadvantage under which Indian carriers had faced leasing costs 8–10% higher than international peers — a change expected to lower financing costs and support continued fleet expansion.

8. Airline Industry Consolidation and Fleet Expansion

The post-pandemic period has also seen significant consolidation. Vistara, the Tata-Singapore Airlines joint venture, merged into Air India in November 2024, creating a full-service Air India Group (comprising Air India, Air India Express and the former Vistara) that carried 45.8 million passengers in 2024, up from 39.5 million in 2023. In fiscal year 2024-25, IndiGo's 437-strong fleet controlled over half of India's commercial passenger aircraft, with the Air India Group holding roughly 35.5% — together a duopoly controlling about 86% of the total fleet, a structure analysts expect to persist through 2030 even as Akasa Air potentially emerges as a smaller third force.

Fleet growth plans are correspondingly large. DGCA has granted in-principle approval for the import of 470 aircraft by Air India and 500 by IndiGo, with deliveries phased across 2023–2035; combined pending orders across IndiGo, Air India and Akasa stood at over 1,600 aircraft as of early 2026, among the largest order backlogs of any national aviation market. IndiGo has stated an ambition to grow its active fleet from roughly 439 to 600 aircraft and to carry 200 million passengers annually by 2030, while Airbus projects India's total commercial fleet will nearly triple to around 2,200 aircraft within a decade. This scale of ordering has also exposed supply-chain constraints — global narrow-body order backlogs imply multi-year wait times — and a persistent shortage of trained pilots and maintenance engineers, with industry estimates suggesting India will need roughly 37,000 additional pilots and 38,000 additional maintenance technicians over the next two decades.

9. Future Outlook of Indian Air Transport Mobility (2025–2035)

IATA projects that India will overtake existing markets to become the world's third-largest air passenger market by 2030, contributing roughly 10% of Asia-Pacific's total domestic and international air traffic demand. Multiple independent market forecasts converge on strong compound growth: estimates of the value of the India aviation market for 2025 range from roughly USD 14.8 billion to USD 16.2 billion, with projections reaching approximately USD 26–29 billion by 2030-31 and as high as USD 45.6 billion by 2034, implying compound annual growth in the range of 10–12% over the coming decade.

This growth is underpinned by demographic and structural tailwinds: India is expected to add approximately 75 million middle-class households by 2030, a cohort strongly associated

with rising propensity to travel by air, while continued urbanisation and tier-2/tier-3 city connectivity under the revamped UDAN scheme should progressively widen the base of first-time flyers beyond India's traditional metropolitan hubs. Sustainability commitments are also becoming embedded in the sector's growth path: around 80 Indian airports now run on 100% green energy, with Delhi, Mumbai and Hyderabad airports having achieved carbon-neutral accreditation and Bengaluru reaching the highest available accreditation level.

Notwithstanding this momentum, several risks could moderate the pace of growth: prolonged aircraft delivery backlogs (estimated at up to 9.7 years for some narrow-body variants), continued engine-related groundings affecting a meaningful share of the in-service fleet, pilot and technician shortages, land-acquisition and financing challenges for new greenfield airports, and broader macroeconomic or geopolitical shocks of the kind that produced the 2020 collapse in the first instance. The overall trajectory nonetheless points toward a structurally larger and more resilient Indian aviation sector than existed pre-pandemic, rather than a simple return to the 2019 baseline.

10. Conclusions

This study traced Indian air transport mobility across three distinct phases: the near-total collapse of March–April 2020, in which domestic aircraft movements fell by more than 97% and international operations were suspended almost entirely; a calibrated, multi-stage recovery through the remainder of 2020 and 2021 in which domestic traffic reached only about 58% of pre-COVID levels by December 2020; and a subsequent acceleration through 2022–2025 in which India not only regained but substantially exceeded its pre-pandemic traffic base, with international traffic running nearly 20% above 2019 levels and domestic traffic over 8% above 2019 levels by the end of 2024, and both segments projected to extend those gains through 2025.

Beyond simple volume recovery, the period 2020–2025 produced structural changes unlikely to reverse: the consolidation of India's airline industry into an IndiGo–Air India duopoly following the Vistara merger; aircraft order books running into the thousands of units; the commissioning of major new greenfield hub airports at Navi Mumbai and Jewar; a revamped, better-funded UDAN regional connectivity programme targeting 100 further airports; and legislative modernisation through the Bharatiya Vayuyan Adhiniyam 2024 and the Protection of Interest in Aircraft Objects Act 2025. Taken together, these developments support the IATA projection that India will become the world's third-largest air

passenger market by 2030, a milestone that would have appeared implausible at the height of the pandemic's impact on the sector in April 2020.

Future research should track the realised pace of the 2025–2035 airport-capacity build-out against passenger demand growth, examine whether the current airline duopoly constrains fare competition as the market scales, and reassess forecasts as new greenfield airports such as Jewar reach their planned capacity milestones.

Acknowledgements

The Authors would like to thank the Airports Authority of India and the industry data referenced in this analysis, and the anonymous reviewer for constructive comments and valuable suggestions that improved the paper.

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