

# A Passage Through India

**Air traffic in India is growing fast, an economic success story but a safety challenge.**

BY RICK DARBY

Changes in volume of air traffic, usually in the background of the safety picture, can shift to the foreground for rapidly developing nations, where a sizzling economy often means expansion of the aviation industry and a strain on its systems. India is an example of a country with a fast-growing economy and an emerging middle class that expects air transportation to play a role similar to that in Europe or North America.

A report<sup>1</sup> by the Directorate General of Civil Aviation of India offers striking data on the aviation boom in that country.

Indian domestic air transportation, formerly a state monopoly, was opened to private companies in 1994. As a consequence, private operators that include Jet Airways, JetLite, Simply Deccan, SpiceJet, Paramount Airways, GoAir and Kingfisher Airlines now operate scheduled service. State-owned Indian Airlines, which is being merged with state-owned Air India, flies scheduled domestic routes and serves

destinations in Asia and the Middle East. Meanwhile, numerous non-Indian airlines operate international routes to and from the country.

Table 1 (p. 50) shows the trends for Indian carriers' passengers and cargo — freight plus mail — from 1990–1991 to 2005–2006.<sup>2</sup> The number of passengers grew from 10,386,000 to 32,155,000, or 209.6 percent. The corresponding growth in cargo was from 198,154,000 to 368,962,000 tonnes, a jump of 86.2 percent.<sup>3</sup>

## Accelerated Growth

The volume of scheduled domestic passenger traffic for all Indian airlines from the 1996–1997 measurement period to the 2005–2006 measurement period is shown in Figure 1 (p. 50). After seven periods of more modest expansion, the growth accelerated beginning in 2002–2003. From that period to the next, passenger traffic increased 12.4 percent; in the following period, it increased 24.0 percent; and in the final period,

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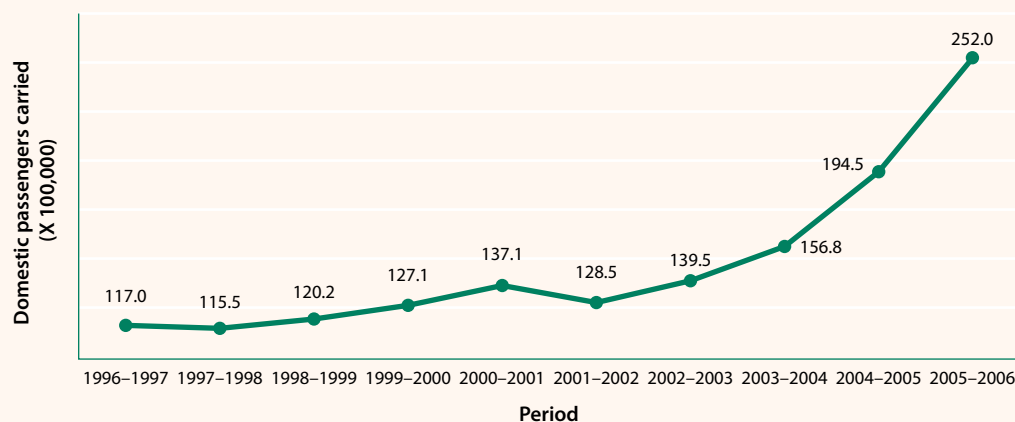
**Total (Domestic and International) Traffic, Indian Carriers, 1990–2006**

Period	Passengers (Thousands)			Cargo (Tonnes)		
	Scheduled	Non-Scheduled	Total	Scheduled	Non-Scheduled	Total
1990–1991	10,343	43	10,386	197,960	194	198,154
1991–1992	11,153	81	11,234	176,043	327	176,370
1992–1993	10,529	759	11,288	157,345	304	157,649
1993–1994	12,259	94	12,353	163,305	58	163,363
1994–1995	13,648	197	13,845	188,680	79	188,759
1995–1996	15,282	424	15,706	215,951	65	216,016
1996–1997	14,996	173	15,168	211,788	253	212,041
1997–1998	14,981	324	15,305	217,582	465	218,047
1998–1999	15,545	284	15,829	231,092	0	231,092
1999–2000	16,368	390	16,758	250,177	339	298,894
2000–2001	17,540	405	17,945	268,019	120	310,519
2001–2002	16,552	303	16,856	258,085	414	308,063
2002–2003	18,152	344	18,496	283,314	597	338,515
2003–2004	20,170	305	20,474	295,188	186	353,404
2004–2005	24,771	352	25,123	357,308	402	438,015
2005–2006	31,752	403	32,155	368,660	302	368,962

Source: Directorate General of Civil Aviation, India

**Table 1**

**Domestic Passengers Carried by All Scheduled Carriers, India, 1996–2006**



Source: Directorate General of Civil Aviation, India

**Figure 1**

the growth was 29.6 percent. That compared with an annualized growth rate of 8.9 percent over the entire 10 years.

Domestic scheduled service by Indian carriers, measured in passenger kilometers

performed (PKP), rose comparably — 23.8 percent in 2004–2005 over the previous period, followed by 31.5 percent in 2005–2006 over 2004–2005. Figure 2 charts available seat kilometers and revenue PKP for scheduled domestic services by Indian carriers beginning in 1996–1997. The annualized growth rate was 10.1 percent for available seat kilometers and 10.3 percent for revenue PKP.

The combined fleet size of scheduled Indian air carriers grew from 158 to 243 aircraft (53.8 percent) from the 2003–2004 measurement period to the 2005–March 31, 2006 period, the report said. The number of scheduled departures per day increased between these periods from 642 to 865 for domestic flights and from 98 to 147 for international flights.

Scheduled domestic and international flights combined on Indian airlines carried 11.1 percent more passengers in 2003–2004 than in the previous period, a further 22.8 percent more in 2004–2005 and another 28.2 percent in 2005–2006, the report said.

### Turning up the Volume

Indian carriers' international traffic volume was 4,493,000 passengers carried in 2003–2004. By 2005–2006, the figure had increased to 6,547,000, a 45.7 percent increase. The report said that scheduled domestic plus international traffic volume on Indian carriers rose from 18,151,799 passengers in 2002–2003 to 31,752,173 in 2005–2006, a jump of 74.9 percent.

PKP on Indian carriers' international flights added 23.0 percent in 2004–2005 compared with 2003–2004, and an additional 25.1 percent in the next period.

Between 1996–1997 and 2005–2006, the passenger load factor for combined domestic plus international operations of Indian carriers stayed within a narrow range, and at 68.3 percent ended near where it began at 67.4 percent. PKP, in the same period, increased 121.8 percent.

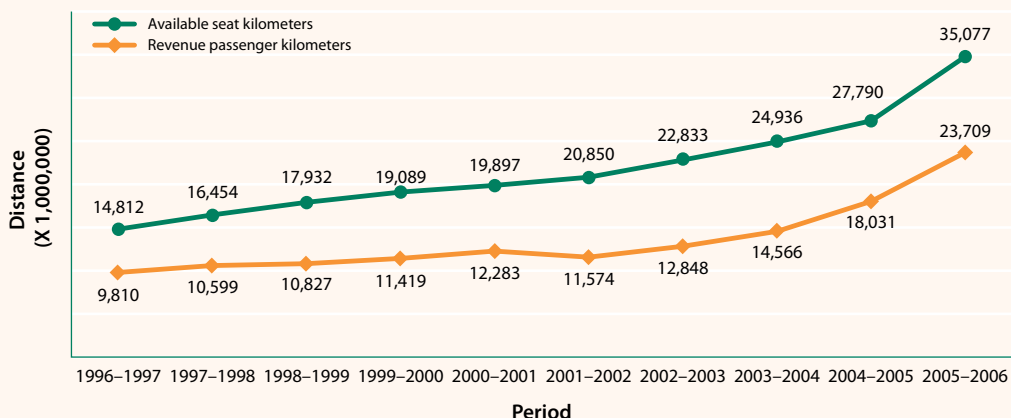
### Carry That Weight

Scheduled domestic cargo on Indian carriers rose from 120,901,000 tonnes<sup>3</sup> to 256,481,000 tonnes between 1996–1997 and 2005–2006 (Figure 3). The increase from the 2001–2002 period to the 2005–2006 period alone was 59.7 percent. Freight on international scheduled services of Indian carriers rose modestly,

from 95,000 tonnes in 2003–2004 to 110,000 tonnes in both 2004–2005 and 2005–2006.

Growth from 1996–1997 to 2005–2006 in available tonne kilometers and revenue tonne kilometers (including the weight of passengers) in scheduled domestic service on Indian carriers is charted in Figure 4 (p. 52). Available tonne kilometers rose from 1,572 to 3,488, or 121.9 percent, between 1996–1997 and 2005–2006. Revenue tonne kilometers increased by 150.3 percent, from 935 to 2,340, during the same time.

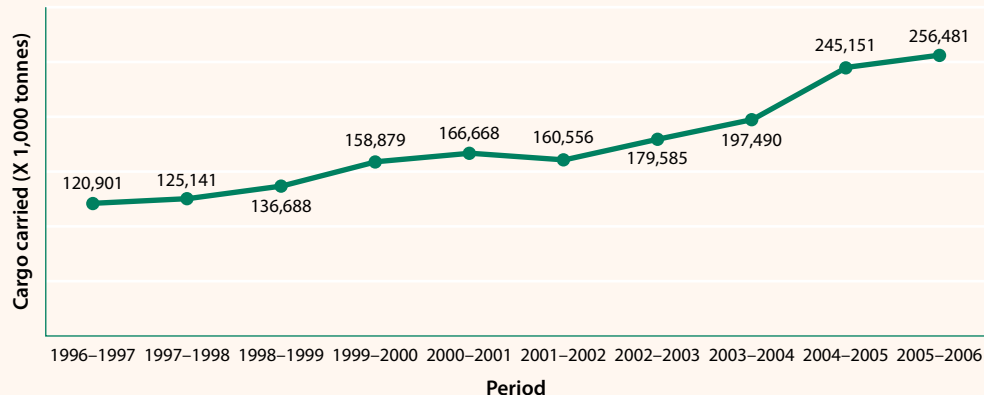
**Available Seat Kilometers and Revenue Passenger Kilometers Performed, Scheduled Indian Domestic Carriers, 1996–2006**



Source: Directorate General of Civil Aviation, India

**Figure 2**

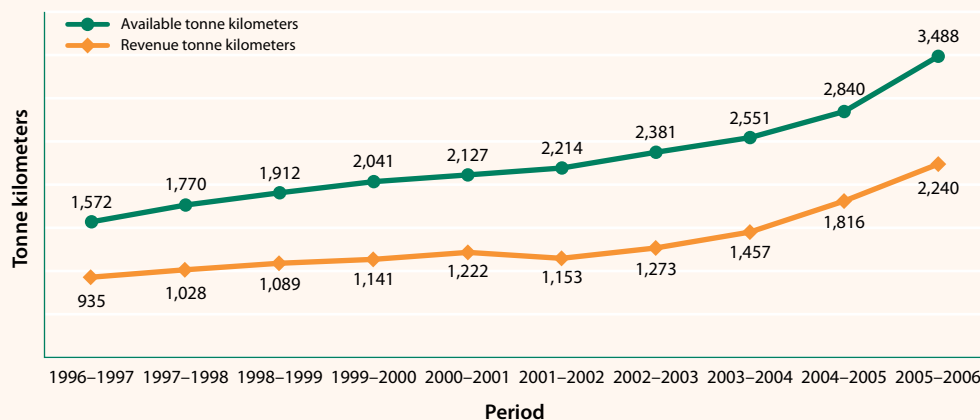
**Cargo, Scheduled Indian Domestic Carriers, 1996–2006**



Source: Directorate General of Civil Aviation, India

**Figure 3**

### Available Tonne Kilometers and Revenue Tonne Kilometers Performed, Scheduled Indian Domestic Carriers, 1996–2006



**Note:** Revenue tonne kilometers performed include the weight of passengers, standardized at 75 kilograms (165 pounds).

Source: Directorate General of Civil Aviation, India

Figure 4

### Annual Air Traffic, Passengers and Freight at Three Major Airports, India, 2001–2006

Period	Aircraft Movements	Passengers	Freight (Tonnes)
<b>Mumbai</b>			
2001–2002	115,280	10,954,308	275,941
2002–2003	125,551	11,731,861	307,605
2003–2004	137,212	12,764,959	326,497
2004–2005	153,166	15,078,019	402,715
2005–2006	171,145	17,789,193	431,321
<b>Delhi</b>			
2001–2002	86,413	8,240,419	233,049
2002–2003	93,463	8,843,645	276,042
2003–2004	105,540	10,165,965	295,805
2004–2005	122,123	12,539,258	344,501
2005–2006	151,117	16,001,466	383,052
<b>Kolkata</b>			
2001–2002	28,549	2,506,118	56,149
2002–2003	32,359	2,773,260	58,259
2003–2004	38,820	3,061,336	62,307
2004–2005	42,374	3,464,764	69,628
2005–2006	51,560	4,355,536	74,499

Source: Directorate General of Civil Aviation, India

Table 2

The number of passengers flying to and from India on all airlines rose by 18.0 percent between 2003–2004 and 2004–2005, and a further 16.8 percent between 2004–2005 and 2005–2006, the report said. Freight carried to and from India on all airlines increased 19.9 percent and 10.2 percent, respectively.

Aircraft movements, passengers boarding and exiting, and freight grew substantially at India's

three major airports, Mumbai — formerly Bombay; Delhi; and Kolkata — formerly Calcutta (Table 2). At Mumbai, aircraft movements increased from 115,280 in 2001–2002 to 171,145 in 2005–2006, or 48.5 percent. Between these periods, passenger traffic at Delhi increased from 8,240,419 to 16,001,466, representing 94.2 percent growth. Freight showed similar growth patterns; at Delhi, for example, a five-year rise from 233,049 to 383,052 tonnes, a 64.4 percent increase. ●

#### Sources

1. Directorate General of Civil Aviation of India, Statistical Division. *India Air Transport Statistics 2005–06*. Accessible via the Internet at <[www.dgca.nic.in/reports/stat-ind.htm](http://www.dgca.nic.in/reports/stat-ind.htm)>.
2. Statistics are recorded by the Directorate General of Civil Aviation in terms of fiscal years, which include parts of two calendar years, such as 2005–2006.
3. A *tonne* is the mass equal to 1,000 kg (2,205 lb). The number of tonnes of cargo or freight carried is obtained by counting each tonne on a flight with a single flight number once only, not repeatedly on each segment of the flight.