SAFETY MATTERS FOUNDATION | POLICY BRIEF

# Fix Operator Responsibility in the Fatigue Rules — and Half the Worries Are Gone

*What 1,072 Indian pilots told the Safety Matters Foundation across two national surveys (2022 and 2024), and how their experience compares with the obligations the DGCA has already placed on operators under CAR Section 7, Series J, Part III, §4.*

**Safety Matters Foundation** · A policy brief based on the 2022 and 2024 Safety Culture Surveys on Pilot Fatigue

*If a man walked into the cockpit of an Indian airliner with a 0.05% blood alcohol level, he would be hauled off in handcuffs before pushback. We accept this without debate. Yet every day, hundreds of Indian pilots take off in a state that science says is the cognitive equivalent of that same drunk — not because they drank, but because they were not allowed to sleep. The data is no longer in dispute. The only question left is how many more times we are willing to gamble with 180 lives per aircraft before someone in authority finds the courage to act.*

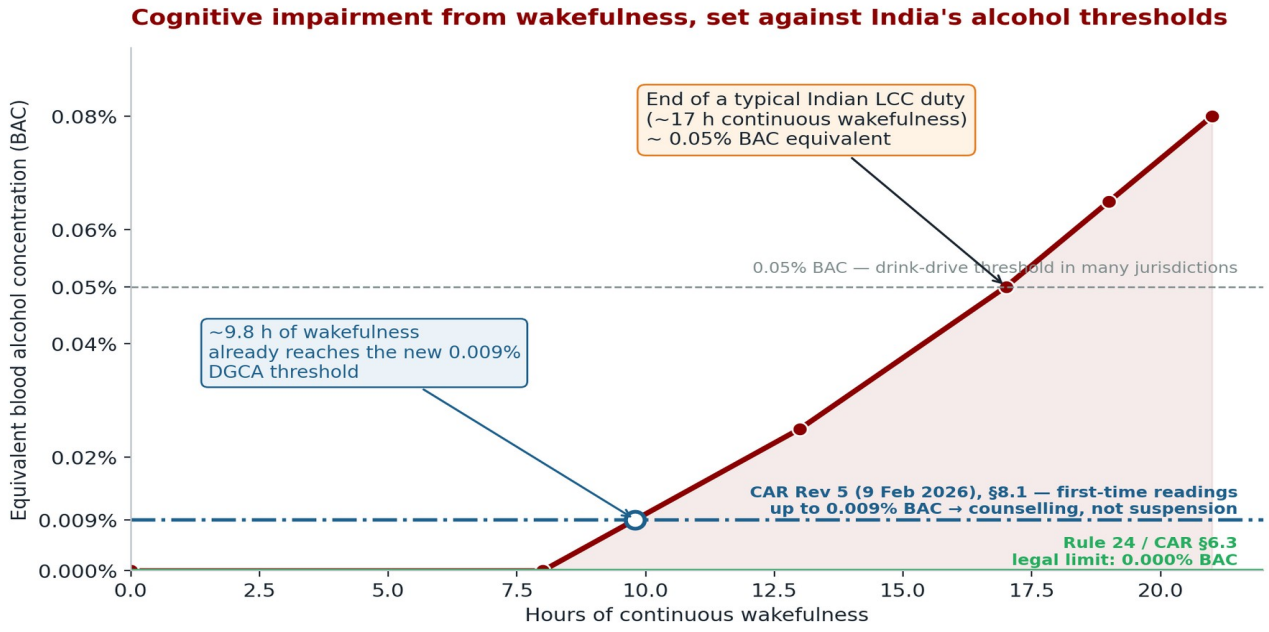


*Figure 1. Continuous wakefulness produces cognitive impairment that, in peer-reviewed studies, can be expressed as an equivalent blood alcohol concentration. Two DGCA thresholds are overlaid: the 0.000% legal limit under Rule 24 and CAR §6.3, and the new 0.009% counselling-rather-than-suspension threshold introduced in CAR Section 5, Series F, Part III, Issue III, Rev 5 (9 Feb 2026), §8.1. (Curve sources: Williamson & Feyer 2000; NASA; EASA.)*

# The Numbers Should End the Argument

The Safety Matters Foundation surveyed 542 Indian pilots in 2022 and another 530 in 2024. Together that is over a thousand line pilots — captains, first officers, trainers — most of them flying the regional and short-haul sectors that carry the bulk of India's flying public. They were not asked to complain. They were asked, with clinical instruments such as the Epworth Sleepiness Scale, to describe their working reality. The findings are not opinions. They are diagnoses.

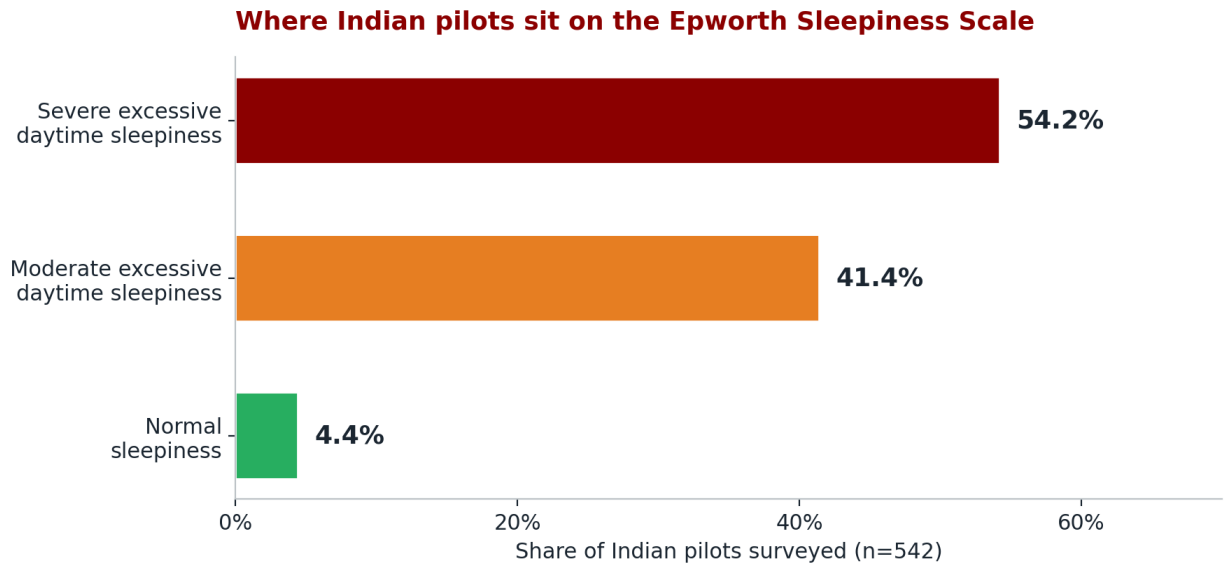


*Figure 2. On the clinically validated Epworth Sleepiness Scale, only 4.4% of Indian pilots fall in the normal band. (Source: Safety Matters 2022, n=542.)*

- 54.2% of Indian pilots self-assessed as suffering from severe excessive daytime sleepiness on the Epworth Scale. Another 41.4% sat in the moderate-to-mild excessive range. Only 4.4% were in the normal band.
- 66% admitted to falling asleep in the cockpit without the planning or consent of the other pilot, or to experiencing microsleep episodes on duty.
- 71% said they had often felt so tired they should not have been operating the flight in the first place.
- 31% reported a close call — an incident that almost happened — that they directly attributed to fatigue.
- 43% said they were already fatigued for their next flight before it had even begun.
- 97% said the Directorate General of Civil Aviation, India is not doing enough through regulation or oversight to manage fatigue.

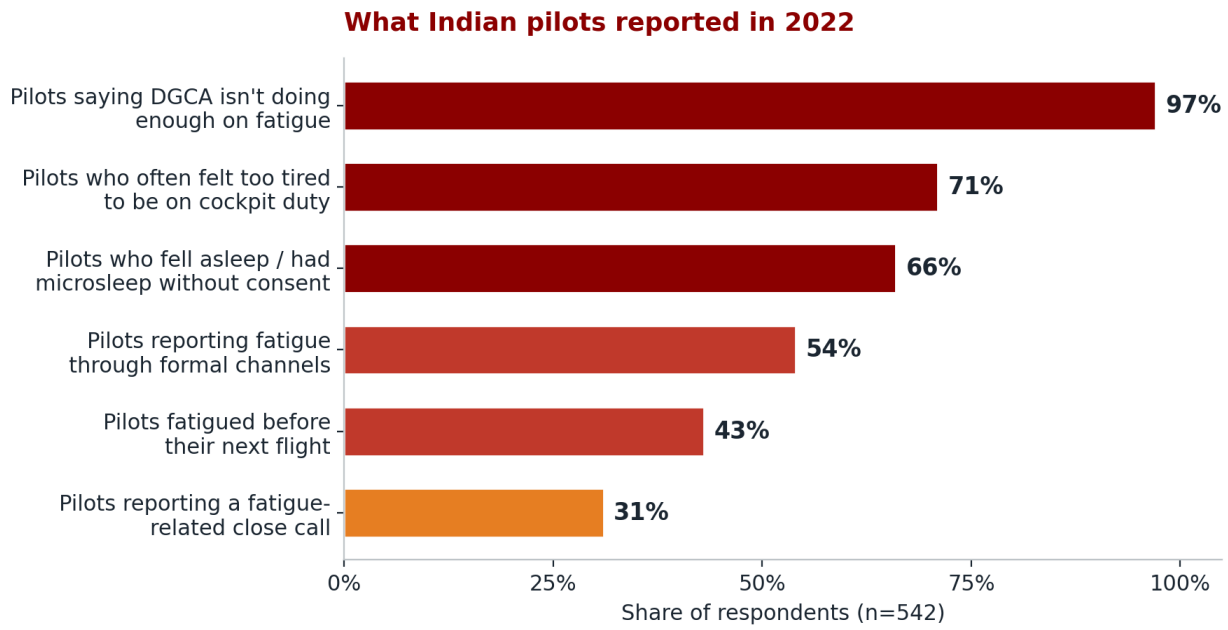


*Figure 3. What 542 Indian pilots reported, in their own words, in 2022. (Source: Safety Matters Foundation, Pilot Fatigue Survey 2022.)*

These are not the numbers of an industry under occasional strain. These are the numbers of an industry where impairment is the normal state of work.

**Two-thirds of Indian pilots have nodded off in the cockpit. Seven in ten have flown when they knew they were too tired to fly. And ninety-seven in a hundred have given up on the regulator.**

## The Alcohol Equivalence — the Inconvenient Truth

DGCA rules permit a flight duty period of up to 13 hours and a duty period of up to 60 hours in any 7 consecutive days. Add commute, pre-flight reporting, post-flight debrief and the simple act of waking up early enough to reach the airport, and a routine working day for a low-cost-carrier pilot easily aggregates 17 to 19 hours of continuous wakefulness.

Peer-reviewed research — Williamson and Feyer's landmark study, replicated since by NASA and EASA — shows that 17 hours of sustained wakefulness produces cognitive and motor impairment equivalent to a blood alcohol concentration of 0.05%. Nineteen hours pushes that towards 0.08%. The DGCA mandates 0.000% BAC for pilots, with breathalyser tests before every flight and zero tolerance for failure. Under the recent Rev 5 of CAR Section 5 Series F Part III (9 February 2026), first-time confirmatory readings up to 0.009% BAC now attract counselling rather than a 3-month suspension. As Figure 1 shows, on the same

impairment curve a pilot crosses the 0.009% equivalent at roughly ten hours of continuous wakefulness — well within a routine duty day, before the flight has even reached top of climb on the second sector.

**We test pilots for alcohol they have not consumed and ignore an impairment we have rostered them into.**

## Mangalore Was Not a Warning. It Was a Receipt.

On 22 May 2010, Air India Express flight 812 overshot the runway at Mangalore and killed 158 people. The Cockpit Voice Recorder revealed that the captain had been asleep for 1 hour and 40 minutes of the 2 hour 5 minute flight. Residual sleepiness and impaired judgement were officially identified as contributory causes. Globally, fatigue is implicated in 21–23% of major aviation accident investigations.

Mangalore was sixteen years ago. In those sixteen years, India has built new airports, ordered hundreds of new aircraft, and pushed pilot utilisation harder than at any point in its aviation history. What it has not done — alone among large aviation economies — is mandate a Fatigue Risk Management System grounded in scientific principles. ICAO permits states to choose between prescriptive limits and FRMS. India has chosen prescriptive limits, then quietly admitted that the science behind them is, in the regulator's own words, “debatable”.

## The 2024 Survey: It Got Worse

If the 2022 survey diagnosed the disease, the 2024 survey traces the cause to the bone. When 530 pilots were asked which features of the working week most deeply influence fatigue, the verdict was unanimous and unforgiving:

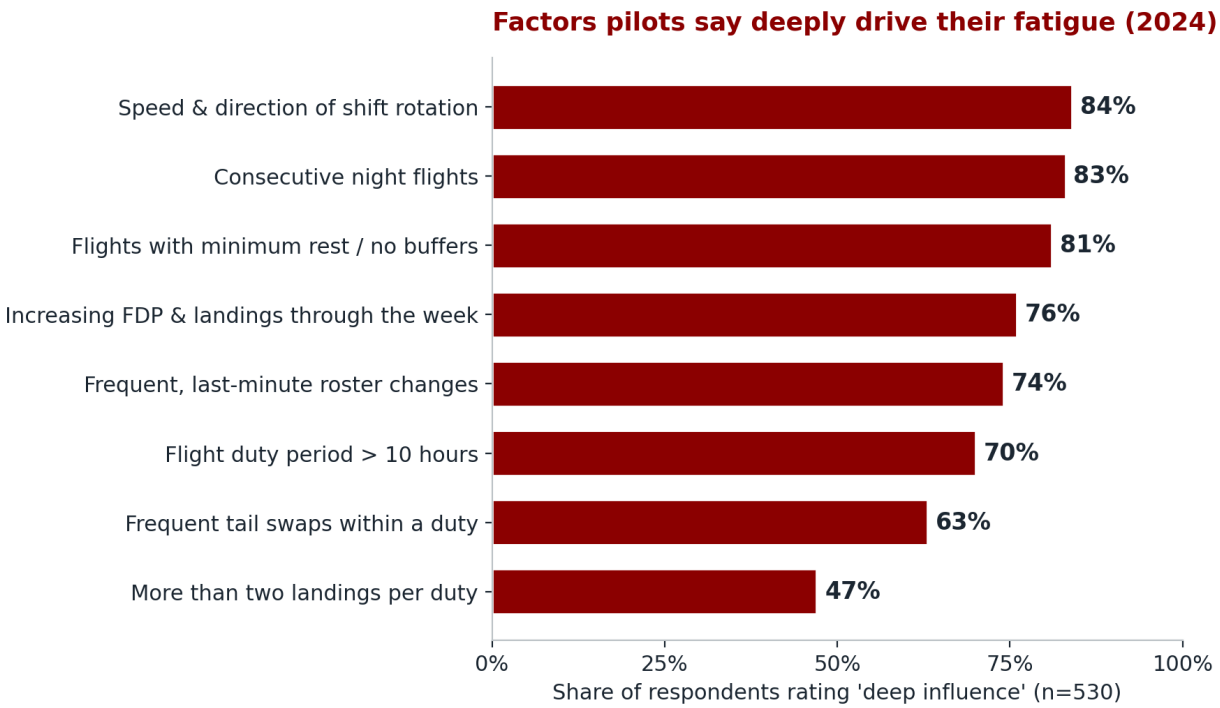


*Figure 4. The eight roster practices Indian pilots flag as deep drivers of fatigue. Every bar is a working week the regulator has signed off on. (Source: Safety Matters 2024, n=530.)*

- 84% are deeply concerned by the speed and direction of shift rotation.
- 83% point to consecutive night flights as a deep driver of fatigue.
- 81% say flights with minimum rest and rosters without buffers are pushing them past the limit.
- 76% say the practice of stacking longer flight duty periods and more landings as the week progresses is a deep contributor to fatigue.
- 74% say frequent, last-minute roster changes deeply influence fatigue.
- 70% say a flight duty period over 10 hours is profoundly fatiguing — and yet the DGCA permits 13.
- 63% identify frequent tail swaps within a single duty as deeply fatiguing.
- 47% are deeply concerned that more than two landings in a duty produces unsafe levels of fatigue.

Both NASA (1996) and EASA have independently concluded that a flight duty period beyond 10 hours "exceeds reasonable limits" and "is not in keeping with the body of scientific evidence." EASA has formally recommended that the 13–14 hour ceiling be reduced. India's ceiling remains 13 hours. India's weekly ceiling remains 60 hours — a number the World Health Organization and the International Labour

Organization linked, in their joint 2021 communique, to 745,000 deaths from stroke and ischaemic heart disease. The ILO's threshold of concern is 55 hours. Ours, again, is higher.

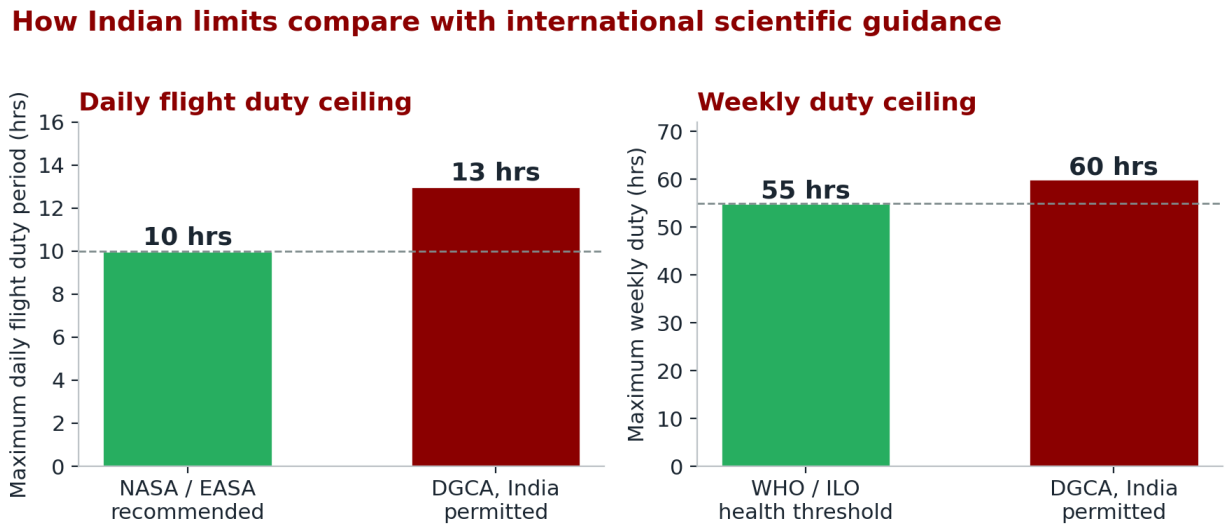


*Figure 5. How Indian limits compare with international scientific guidance, on both axes. (Sources: NASA Ames 1996; EASA scientific opinion on FTL; WHO/ILO 2021 joint estimates; DGCA CAR on FDTL.)*

**We are not at the edge of international norms. We are five hours past them — with the regulator's blessing.**

## A Fatigue Reporting System That Punishes the Reporter

Even more damning than the rosters is the response to those who speak up. 40% of pilots in the 2024 survey said they fear reporting fatigue. Another 30% rated that fear a significant factor in their working life. A captain at a major Indian carrier was recently terminated for filing a fatigue report. Others have been reprimanded directly or indirectly for the same. Crew schedulers at a leading full-service airline have, on the record, threatened cancellation-induced “consequences” to pilots who decline a flight on fatigue grounds. At another carrier, filing a fatigue form deducts the day from sick leave — a structural disincentive to report a safety hazard.

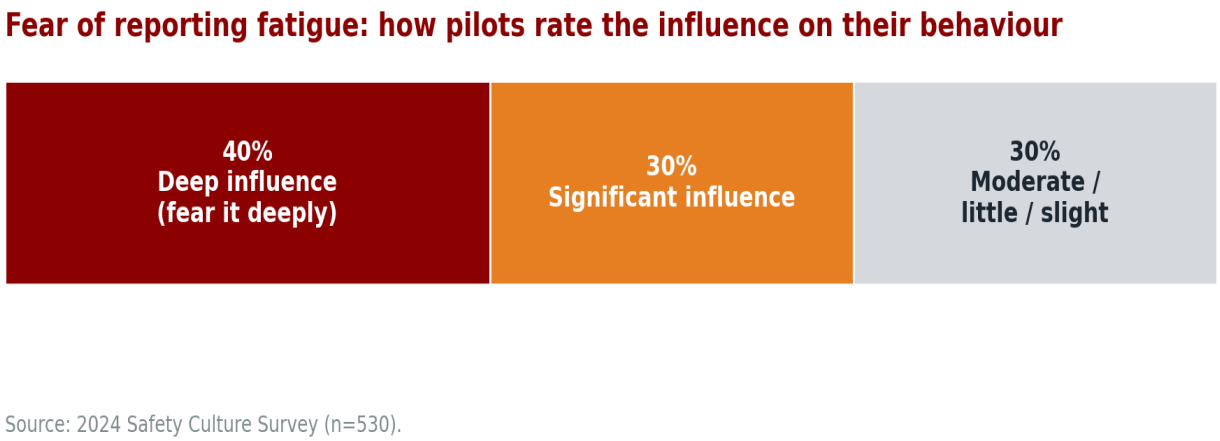


*Figure 6. Seven in ten Indian pilots feel pressure not to file a fatigue report. (Source: Safety Matters 2024, n=530.)*

A reporting system that costs the reporter their job, their pay or their leave is not a Just Culture. It is a silencer. The aviation industry has spent thirty years building the case that safety depends on candid reporting, and Indian operators have spent the last three years actively dismantling it.

## The Bodies Are Already Stacking Up

The number of Indian pilots being declared Temporarily or Permanently Medically Unfit — TMU and PMU — has been rising on insurance-claim data. Fatigue is a known contributor to cardiac disease. Neither the operators nor the regulator have commissioned a risk assessment to ask the obvious question: is the schedule killing the pilot? The Safety Management System exists precisely to ask such questions. That it has not asked this one is itself a failure of the SMS.

The right to sleep has been recognised as fundamental under the Indian Constitution. Only Parliament can legislate it away. The DGCA has not been granted that authority, and yet the rosters that pass its inspection routinely deny pilots the sleep that the Constitution guarantees ordinary citizens.

## The Rules Already Exist. They Are Just Not Being Enforced.

The most striking finding of this exercise is not what the regulations are missing. It is what they already contain. Section 4 of CAR Section 7, Series J, Part III (Issue III, Rev 2 dated 26 March 2024) — the principal Indian flight-and-duty-time regulation — already places binding obligations on every operator that, if observed, would resolve the great majority of the issues the 2022 and 2024 surveys identify. The text below is paraphrased from the CAR itself; the contrast is with what the surveys say is happening on the line.

- §4.1 — Operators "shall ensure adequate buffer margin in roster planning" with respect to maximum flight time, FDP and duty period. The 2024 survey records that 81% of pilots say flights with minimum rest and rosters without buffers are deeply driving fatigue.
- §4.3 — Operators "shall not require a flight crew member to perform flight crew duties on a flight if it is known or suspected that the flight crew member is fatigued to the extent that the safety of flight may be adversely affected." In 2022, 71% of pilots said they had often felt so tired they should not have been on cockpit duty, and 43% said they were already fatigued for their next flight before it had even begun.
- §4.5 — "Each operator shall publish the Flight Crew Roster sufficiently in advance which shall include the weekly rest." 74% of pilots in 2024 cited frequent, last-minute roster changes as a deep driver of fatigue. The respondent comments include rosters revised two and a half hours before report time.
- §4.8 — "FDTL limits given in this Document are the 'outer limits' and should be treated as such." Pilot comments uniformly describe rosters that are planned to the limit by default, with discretion used routinely rather than exceptionally.
- §4.8.2 — Operators shall "avoid combination of long duty periods with min rest periods." This is the precise pattern 81% of pilots flag as a deep driver of fatigue.
- §4.8.3 — Operators shall "avoid alternating night / day or late night / early morning duties." 84% of pilots in 2024 are deeply concerned by the speed and direction of shift rotation; 83% by consecutive night flights.
- §4.9 — "Operators shall ensure that annual training regarding fatigue, its effect on flight crew and measures to mitigate fatigue is imparted to all personnel responsible for implementation of various provisions of this CAR." In 2022, 69% of pilots said the airline is not training pilots and crew schedulers on fatigue and fatigue management.
- §4.10.2 — "Fatigue Reports shall follow a non-punitive and confidentiality policy." In 2024, 40% of pilots said they fear reporting fatigue, and another 30% rated that fear a significant factor in their working life.

The implication is uncomfortable, but it is also constructive: the DGCA does not need to author a new regulatory regime to produce most of the safety improvement the data calls for. It needs to enforce, with consequences, the regulation it has already issued. A Civil Aviation Requirement that operators systematically disregard is not a regulatory framework. It is a guideline that has been allowed to atrophy.

**If the DGCA strictly enforces Section 4 of its own FDTL CAR, a great deal of what the surveys flag will resolve itself.**

# Recommendations

Acting on the data does not require radical departure from existing law. It requires three steps: (i) enforce CAR Section 7 Series J Part III §4 as it stands; (ii) close two specific scientific gaps; and (iii) protect the reporting culture without which the rest does not work.

## 1. Enforce existing obligations

- Audit each operator's FDTL Scheme against §4.1 (buffers in rostering), §4.5 (advance roster publication and weekly rest), §4.8 (treating prescriptive limits as outer limits), §4.8.2 and §4.8.3 (avoiding fatiguing duty combinations), §4.9 (mandatory annual fatigue training) and §4.10 (fatigue-report management).
- Publish a quarterly enforcement summary, including any directions, warnings or penalties issued under these provisions.
- Treat persistent §4.8 violations as an SMS finding, not as routine commercial scheduling.

## 2. Close two scientific gaps

- Align the maximum flight duty period with the NASA / EASA scientific guidance of 10 hours, rather than the current outer limit of 13 — or, at minimum, require operators' FDTL Schemes to demonstrate, on the operator's own data, that operating at 13 is being managed within an FRMS.
- Bring the maximum weekly duty in line with the WHO / ILO health threshold of 55 hours, given the documented cardiovascular and stroke risk above that level.

## 3. Protect the reporting culture

- Ring-fence fatigue reporting from sick-leave deductions and from any disciplinary, scheduling or pay consequence, in line with §4.10.2.
- Establish an independent appeal channel for any pilot who alleges retaliation following a fatigue report, with timelines published by the DGCA.
- Commission a public, independent epidemiological study of the rising TMU and PMU rate among Indian pilots, with fatigue as a primary candidate variable.

# Conclusion

The aviation regulator in India likes to say that no Indian airline has had a hull-loss accident in years. That sentence is an answer to a question no one asked. The question is whether the absence of a smoking crater is the same as the presence of safety. Two-thirds of Indian pilots have already fallen asleep at the controls. One in three has had a close call they blame on fatigue. Ninety-seven percent have given up on the regulator. The next Mangalore is not a question of if. It is a question of which roster, which day, and which crew.

We can keep telling ourselves that the system is working because the bill has not yet arrived. Or we can read the data the pilots have already given us, and act before the bill is paid in lives. The Safety Matters Foundation has done its part. The pilots have done theirs. The DGCA and the airlines have run out of plausible excuses, and they have run out of time.

**Fatigue is not a complaint. It is the warning that a country has chosen to ignore for the second time in sixteen years.**

## Sources

Safety Matters Foundation — Safety Culture Survey: Pilot Fatigue 2022 (PDF)

Safety Matters Foundation — Safety Culture Survey: Pilot Fatigue & Work Environment 2024 (PDF)

Supporting science and regulatory texts cited above: Williamson & Feyer (2000), Occup Environ Med, on sleep deprivation and BAC equivalence; Goode J. H. (2003), J Safety Res, on duty length and accident risk; NASA Ames (1996) Principles and Guidelines for Duty and Rest Scheduling in Commercial Aviation; ICAO Doc 9966; EASA scientific opinion on FTL; WHO/ILO Joint Estimates on Long Working Hours (2021); Honn et al. (2015) on multi-segment fatigue; DGCA Civil Aviation Requirements, Section 5, Series F, Part III, Issue III, Rev 5 (9 February 2026), §6.3 and §8.1, on alcohol thresholds and enforcement; DGCA Civil Aviation Requirements, Section 7, Series J, Part III, Issue III (24 April 2019), Rev 2 dated 26 March 2024, §4 — Operator's Responsibility; Indian Supreme Court recognition of the right to sleep as a fundamental right.