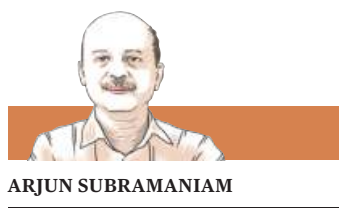


Upgraded planes in tough skies

The Indian Air Force must lay down clear red lines for continued operational effectiveness



An Indian Air Force AN-32 plane undergoing maintenance and equipment upgrade • GETTY IMAGES/ISTOCKPHOTO

The recent crash of an AN-32, which was on an air maintenance sortie to the Mechuka Advanced Landing Ground in Arunachal Pradesh, has raised questions on flight safety in the Indian Air Force despite accident rates having declined exponentially over the past few decades.

Air crashes today are subjected to the full glare of the media, exposing vulnerable families of the crash victims to needless trauma and also seriously hampering the remedial measures and outcomes that would flow from professionally conducted accident inquiries. In this milieu, it is important to explore some of the less-dissected issues that continue to plague aviation safety in the IAF.

The IAF flies 38 different types of aircraft and has the most varied fleet among modern air forces. Its fleet comprises aircraft like the MiG-21 and the Avro that hardly fly anywhere else. Seven of these have not had a major accident in the last five years. The long-serving IL-76 has had an accident-free innings in the IAF, a fact that is missed by most.

The U.K.'s Royal Air Force flew the Jaguar for 34 years (1973 to 2007) during which it had 67 accidents. In comparison, the IAF has lost 52 Jaguars over four decades. The U.S. Air Force flew slightly over two million flying hours in 2017 and suffered 83 'Category A' mishaps. During the same period, the IAF flew 2,51,405 hours and had an accident rate of 0.24 for every 10,000 hours of flying. This translates to 8.9 'Category A' mishaps — a comparable ratio. It would be unfair to make literal comparisons as the U.S. Air Force was and continues to be a dispersed force engaged in multiple locations like Afghanistan, Iraq and Syria.

Comparing the mishap rates

While there was a rise of 17% when we consider the 'Category A' mishaps in the U.S. Air Force between 2013 and 2017, there was a decline in the IAF's accident rate from 0.29 (2013-14) to 0.24 (2017-18). Similarly, when

one compares the mishap rates between the F-16 fleet in the U.S. Air Force and the Mirage-2000 fleet in the IAF over the last five years, there is a positive story that emerges.

There is constant criticism as regards the slow phasing-out of the older variants of the MiG-21 and the MiG-27 fleets, which merits reflection. That these aircraft have no business continuing to fly is a proposition upheld even by senior IAF leadership. However, further investigation reveals a complex web of operational necessities that have forced the IAF to stretch their life and manage the ensuing risks.

For the IAF to remain combat ready for full-spectrum operations, it needs a continuously trained cockpit-to-crew ratio of between 1:1.75 to 1:2 that can undertake operations and seamlessly manage the switch to more advanced platforms as they get inducted into service. Currently, the ratios can barely sustain a limited conflict, leave alone extended ones.

The MiG-21s and MiG-27s were supposed to have been replaced by Light Combat Aircraft (LCA) and Medium Multi-Role Combat Aircraft (MMRCA), a process that is unfolding at a snail's pace.

Hypothetically, had all the MiG-21s and MiG-27s been phased out without replacement, there was no scope to increase the flying of other fleets to feed the residual pilots, due to maintenance and budgetary constraints. The IAF would then have

been down to 25 squadrons and saddled with large numbers of fighter pilots without operational continuity. It would then have been tough to induct advanced platforms like the LCA and Rafale, which need pilots who are current and proficient.

The IAF had very little choice in the matter and the bottom line is that the risks are rising and must be addressed with greater urgency. The way out is simple — an accelerated LCA production, no hiccups in the ongoing Rafale induction and a fast-tracking of the new deal for I14 fighter jets.

Shortage of training aircraft

As far as other flying accidents are concerned, human error is responsible for around 50% of them while issues revolving around technical, environmental and miscellaneous factors are responsible for the rest. One of the major reasons for human error is training deficiencies due to a shortage of training aircraft.

The non-availability of the HTT-40 to complement the reliable Pilatus, a delayed induction of the Intermediate Jet Trainer and a lack of clarity within the Ministry of Defence about the IAF's proposal to buy additional Pilatus aircraft means that the IAF has kept the 40-year-old Kiran fly-worthy and compromise on training quality and future operational proficiency. The IAF flies air maintenance sorties to support the Indian Army and conducts humanitarian assis-

tance and disaster relief missions in the most inclement of weather conditions and highly varied and inhospitable terrain.

Several weather- and terrain-related accidents on helicopter and transport aircraft like the MiG-17 and AN-32 are caused due to the non-availability of on-board equipment like Ground Proximity Warning Systems and Terrain Following Radar that allow such missions to be conducted in near-blind conditions. The recent accident may never have happened had there been a fleet of medium-lift aircraft with such systems.

Navigating crest tops

An AN-32 can fly well above the crest tops but in case of a single-engine failure, it has to descend below 8,000 ft, which is below the crest tops in the region; hence the ground below has to be in contact at all times. Therefore, in sorties such as this, the route has to planned through known valleys — informed sources point out that the crashed aircraft may have been impacted by a visually obscured mountain located at some distance below the crest top.

Replacing the Avro aircraft with a modern platform that can share the workload of the AN-32, particularly in high-altitude areas, is another key suggestion that can be considered. The Tata-Airbus C-295 with all modern systems has been clearly the IAF's first choice and can maintain 19,000 ft on a single engine that would keep it above mountain tops in all areas serviced by the AN-32.

Accidents will continue to happen and the IAF will have to balance risks with operational necessity. Speedy replacements for MiG-21s and MiG-27s, Jaguars, Avros, Kiran trainers and Cheetah/Chetak helicopters; fast-track modifications and upgrades that are required for operations in remote and hostile terrain; and upgrading of simulators as force enablers and not merely as training aids are among the necessary measures to improve flight safety. Finally, the IAF leadership must lay down clear red lines for continued operational effectiveness — a 'we will fight and train with what we have' attitude has ominous signals.

Air Vice-Marshal Arjun Subramaniam is a retired fighter pilot from the IAF and a visiting professor at Ashoka University

A sound foundation

The draft National Policy on Education has an important reform on the first stage of education



The draft National Policy on Education is in the public domain for comments till June 30, 2019. A commendable reform suggested in the policy is creating a foundational stage as the first stage of school education. This reform proposes to bring the three years of pre-primary and the two years of Grades 1 and 2 into a composite unit with "a single curricular and pedagogical phase of play and discovery-based learning" between the ages of 3 and 8 years.

This proposal suggests a significant departure from the present structure of school education, in which the pre-school stage of 3-6 years is delinked from Grades 1 and 2 and even kept out of the ambit of the Right To Education Act. It is currently under the Ministry of Women and Child Development.

'Best investment'

The proposal's implications need to be understood from two perspectives. One, this implies that Early Childhood Care and Education (ECCE) for 3- to 6-year-olds will become an integral part of the organised school structure, and thus become the responsibility of the education department. It should also make ECCE a justifiable right of all 3- to 6-year-olds. The committee considers ECCE to be "among the very best investments" that India could make in education since neuroscience evidence indicates that "over 85% of a child's cumulative brain development occurs prior to the age of 6".

Secondly, the curriculum for Grades 1 and 2 will be developed in upward continuity with the pre-school curriculum, in terms of both content and pedagogy. If implemented well, this can have a positive impact on children's learning as it would ensure a play-based, developmentally appropriate curriculum for children up to not just 6 but 8 years, which would give them a stronger foundation. This upward extension will further smoothen the transition from pre-school to the primary stage and consolidate the foundation for future learning.

However, two significant concerns identified from collaborative research by Ambedkar University and ASER Centre need to be addressed in implementation. The pre-school curriculum was observed to be primarily a downward extension of the primary curriculum. Children were engaged for most

of the time in copying or rote learning of alphabet and numbers, a practice which is developmentally inappropriate and can be counterproductive from the perspective of a sound foundation.

Play-based learning

Children at this stage require a curriculum which emphasises play-based learning opportunities that promote engagement with play materials, picture books, building blocks, puzzles, etc. and include teacher-led storytelling, conversations, rhymes, emergent literacy and numeracy activities, outdoor and indoor play. These opportunities will enable children to acquire not only the right foundation for development of skills prioritised for the 21st century, i.e. creativity, critical thinking, communication, collaboration and self-confidence, but also an abiding interest in lifelong learning.

The second issue is the rigid structure of the primary grades' curriculum, which changes annually with every grade, thus providing little or no opportunity for children to revisit the previous year's curriculum. This rigidity comes possibly from a mistaken assumption made by curriculum framers that all children enter pre-school or a school grade at the prescribed age and move annually into the next grade, so that each grade is age-wise homogeneous; the reality is very different. Children tend to follow multiple pathways in these early years and it is difficult to predict at what age a child will be in which grade. Participation trends tend to stabilise only by the time children are around eight years old, when most come into the primary stage, often still in different grades. This leads to multi-age, multi-level composition at each level. Since age is a significant factor in learning, this diversity creates incompatibility with the given grade-wise curriculum and creates learning gaps for many children. This rigidity of the grade structure leads to cumulative learning deficits in children over time.

The foundational stage can address this rigidity, but for this the requirement would be to develop a progressive curriculum upward from pre-school to primary stage. Further, it has to be in a spiral, not linear, mode with adequate flexibility to enable children to revisit concepts and learn at their own pace. Most importantly, basing the curriculum on play-based, developmentally appropriate content and pedagogy will help children to develop holistically and enjoy the learning process, an imperative for not only school learning but learning for life.

Venita Kaul is professor emerita, education, Ambedkar University, Delhi

SINGLE FILE

A leader in his labyrinth

The road ahead seems to be a bumpy one for Nara Chandrababu Naidu

SATYA NAAGESH AYYAGARY



This is not a political epitaph or obituary of Nara Chandrababu Naidu or his Telugu Desam Party (TDP). Not yet.

After a four-decade autobahn-like cruise — albeit with a few potholes that he has deftly navigated — the road ahead seems to be a bumpy one for this shrewd politician who has seen more crests than troughs. But this time, the trough appears to be a deep gorge.

Here's why. First, with just 23 seats, 'Team Naidu' is too small to offer even a semblance of opposition to the new Chief Minister of Andhra Pradesh, Y.S. Jaganmohan Reddy, leader of the YSR Congress Party (YSRCP).

Second, Mr. Naidu's TDP — a party he recast and remodelled, from the original version founded by his father-in-law and iconic Telugu film hero Nandamuri Taraka Rama Rao, after a revolt — has no 'No. 2' by design. What was a tactical move taken almost a quarter century ago became a rule, and has now turned into the proverbial albatross around Mr. Naidu's neck.

However, Mr. Naidu is known to bounce back. The self-styled CEO in the undivided Andhra Pradesh had a nine-year reign in the zenith of his career — he was even a king-maker during the coalition politics-era of the 1990s at the national level. Defeated in 2004 by his friend-turned-foe Y.S. Rajasekhara Reddy (YSR) of the Congress, Mr. Naidu had to be content being the Leader of the Opposition. Nonetheless, he rode back to power in the residual Andhra Pradesh after a decade's wait, aided by a mix of political factors — anger among anti-Congress Andhra Pradesh voters peeved at the State's bifurcation; an almost non-existent BJP; and a YSRCP still in its fledgling state.

Almost five years later, Mr. Jaganmohan Reddy has the State's reins. His campaign promise of the return of *Rajanna Rajyam* (YSR's rule, marked by hugely popular welfare policies) with his *Navaratnalu* (nine jewels) covering all sections of the society is what voters bought into. Within days of assuming office, he announced 'Rythu Bharosa', a direct payment scheme covering both landed and tenant farmers and more than tripled the honorarium for thousands of Aasha health workers from ₹3,000 per month to ₹10,000 per month. Further, he has hiked old-age pensions and provided employment to 1.6 lakh village volunteers to oversee corruption-free delivery of welfare schemes. All these constitute the elements of a welfare state.

In this difficult-to-emulate scenario, a resurgence of Mr. Naidu appears distant. The reason? Though in sound health, he is 69. His heir apparent — son Nara Lokesh — turned out to be a huge disappointment. Further, there's no other acceptable leader in the TDP to take the party forward as he never let anyone grow, a factor endemic in many one-man driven parties. So, Mr. Naidu and TDP have little chance of a third innings in the near future.

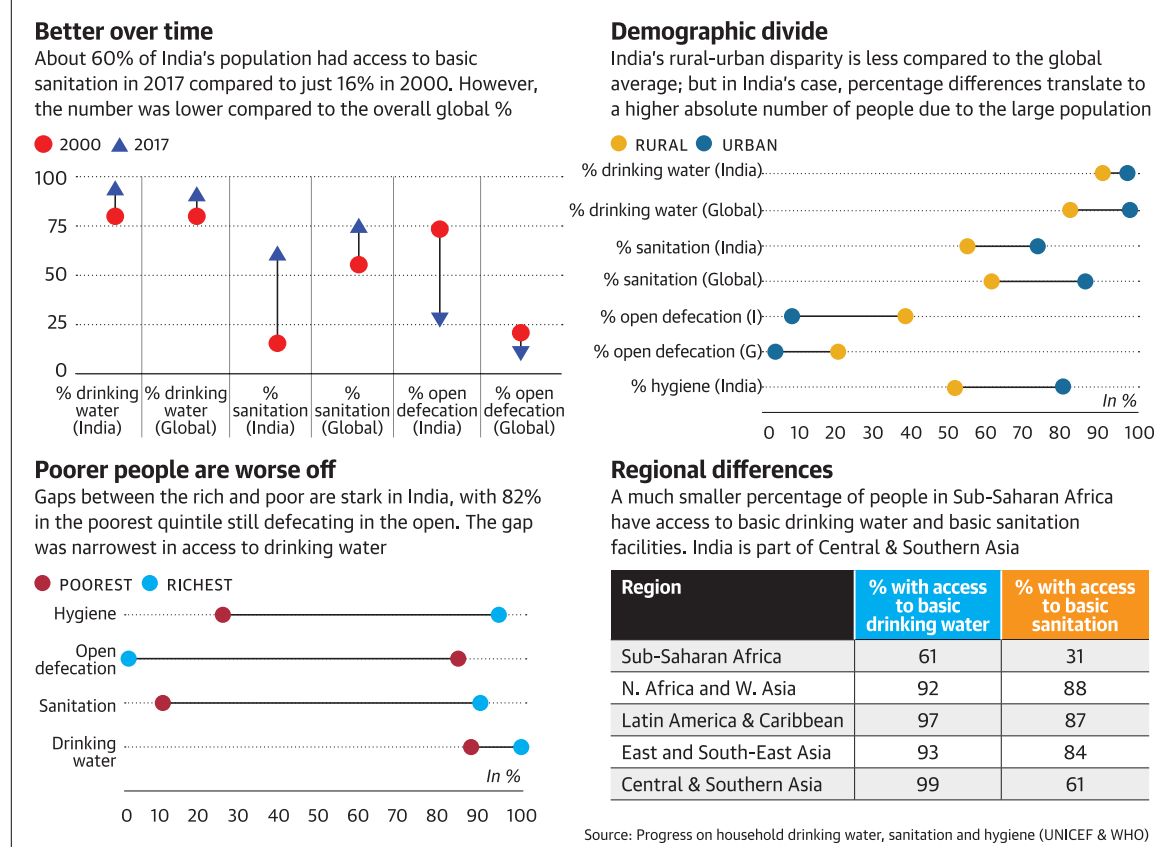
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DATA POINT

Down to the basics

Between 2000 and 2017, India, like many other nations, has been able to provide access to drinking water and better sanitation facilities to a larger percentage of the population. With a push from Swachh Bharat, open defecation has dropped drastically. However, demographic inequalities persist. By Varun B. Krishnan



FROM THE HINDU ARCHIVES

FIFTY YEARS AGO JUNE 25, 1969

Riot, arson in Hyderabad

Army Units were called out here [Hyderabad] to-day [June 24] to help the police disperse violent Telengana agitators who attacked a hotel and a police station near the Abids circle. When the crowd became unruly the police made a lathi-charge and fired tear-gas shells. Over a dozen persons were injured, two of them seriously in the lathi-charge. The agitation for a separate Telengana reached a crescendo to-day [June 24] when thousands of demonstrators courted arrest in the twin cities and in Telengana districts. In the twin cities alone 3,221 people including 237 women were arrested to-day [June 24]. Wherever one went in Hyderabad city, one could see lorries jam-packed with slogan-shouting Telengana agitators. The Telengana Praja Samiti in a Press note claimed that 50,000 people including 12,000 women and 17,000 students offered satyagraha in 236 places in the nine Telengana districts.

A HUNDRED YEARS AGO JUNE 25, 1919

Serious Railway Collision. Very Heavy Casualties.

The 'Leader' [in Allahabad] understands that in Ferozabad accident the names of drivers killed are Mr. Whitting of passenger train and Ramzan of goods train. The guard of the goods train injured is Mr. Pritchard. Other company servants killed and injured were Indians. The 10 passengers injured included Guard D'Silva and four members of his family, one other member, a child having just escaped. Guard D'Silva was on leave at the time. They have been removed to Tundla railway hospital. Other injured passengers are detained at Ferozabad civil hospital. At 2:30 p.m. on Saturday through running was resumed on this section of line as a result of completion of diversion. The accident occurred owing to an error in the handing of tokens at Ferozabad station.

CONCEPTUAL

Medical students' syndrome

Also known as the intern's syndrome or the medical school syndrome, this refers to a phenomenon wherein students of medicine who learn about a new disease may begin to think that they suffer from its symptoms. They may even feel that they are at increased risk of contracting it. Some have argued that while medical students may not be predisposed to this syndrome, they may be more prone to its effects simply because they have much easier access to study about different medical conditions than others. Studies, however, have shown mixed results as to the prevalence of the syndrome among medical students.

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<http://bit.ly/IndiaCricketKit>