GS Paper II – Governance **Date: 28.05.26**

Supreme Court Collegium recommends four HC judges, woman advocate to top court

Krishnadas Rajagopal
NEW DELHI

The Supreme Court Collegium headed by Chief Justice of India Surya Kant, in consecutive meetings held on May 22 and 27, recommended the appointment of four High Court Chief Justices and one woman senior advocate as apex court judges. The resolution was published late on Wednesday.

The Collegium has proposed the name of senior advocate V. Mohana, a lawyer practising in the Supreme Court, as a judge of the top court. Ms. Mohana was one of the leading counsel in a series of cases highlighting structural career inequalities for women officers in the armed forces. Currently, the Supreme Court has only one woman judge, Justice B.V. Nagarathna, who is also part of the Supreme Court Collegium.

The High Court Chief Justices recommended for the top court Bench are Justice Sheel Nagu, Chief Justice of the High Court of Punjab and Haryana; Justice Shree Chandrashekhar, Chief Justice of the Bombay High Court; Justice Sanjeev Sachdeva, Chief Justice of the Madhya Pradesh High Court; and Justice Arun Palli, Chief Justice of the High Court of Jammu & Kashmir and Ladakh.

The Collegium's choice of judges reflects a focus on regional and gender representation. Justice Nagu's parent High Court is Madhya Pradesh, Justice Chandrashekhar is originally from the Jharkhand High Court, Justice Sachdeva's parent High Court is Delhi and Justice Palli is from the Punjab and Haryana High Court.

The last woman judge appointed to the apex court was in August 2021. Ms. Mohana, if appointed, would be the first after a gap of over five years. The recommendations come in the wake of a recent increase in the total strength of judges, including the Chief Justice of India, to 38 from the earlier 32.

The court would see more vacancies with the retirement of Justices J.K. Maheshwari and Justice Pankaj Mithal in June.

GS Paper II – Governance

The battle against AI misinformation

Sundar Athreya H.

Assistant Professor at KIIT School of Law, KIIT Deemed to be University, Bhubaneswar

N.S. Amogh Simha

Advocate, Madras High Court and Founder of Ashwin & Amogh Law Chambers, Chennai

India is working towards Viksit Bharat 2047 with the objective of achieving economic growth, and in order to emerge as a technology leader. One of the major areas that India is concentrating on is the Artificial Intelligence (AI) front. However, a question that needs a definite answer is: what will India's policy be with reference to rapidly developing AI tools? While India's aspiration to attain the status of a global AI hub is commendable, Indian policies regarding AI tools should not only be looked at through the lens of development and economic growth, but also through the lens of growing misinformation and identity manipulation that could be spread through AI platforms.

A new era

ChatGPT recently launched its latest AI multimodal image generation model which has been successful in generating text-heavy images that could rival the work of a professional. Modern generative AI systems are now capable of producing highly sophisticated, text-heavy images akin to a professional newspaper or a scientific research paper. In most cases, these outputs are almost indistinguishable from authentic images taken with the help of a camera, or scanned originals. This model can pull up data from the web portal and provide details of the image with near accurate information.

Thus, through this launch, AI image generation has entered a new era. It is no longer a simple recreational model for a user to dabble with and post on social media platforms to follow a trend; rather, it poses serious concerns in the domain of cyber-crime, theft and digital deceit.

Social networking platforms such as Facebook, Instagram and even LinkedIn are flooded with AI-generated content often leaving users wondering about the veracity of the information they consume. The current version of ChatGPT and similar platforms allow such content to be released disproportionately on social media platforms. Since such platforms are primarily accessed by users through their mobile phones, which have limited screen sizes, the ability to verify such content becomes difficult and users may readily accept AI-generated images posted on these platforms as real.

For instance, a post on LinkedIn about publishing a new research paper, along with the image of the first page of the paper which might contain all necessary details such as the name of the journal and author credentials, might just be fake and non-existent. However, this can be verified by other users only if they check the database; most users are unlikely to fact-check such information.

Educational institutions and genuine academic publishers who strive to maintain originality face challenges as AI systems can fabricate mark sheets, degree certificates and research papers. The persuasive effect of AI-generated content significantly amplifies the possibility of misinformation and manipulation, to the extent where genuine photographs, videos and documents themselves may be dismissed as fabricated thus bearing a large impact on academics, journalism, and institutional credibility.

While the country seeks to establish itself as a global AI leader, it must develop a robust legal framework that would effectively address the issues of misinformation, identity misuse and manipulation

Various implications

Cybercrimes related to identity thefts have also multiplied in the recent past.

Additionally, celebrities have filed petitions before various High Courts of India seeking protection of their personality rights, and protection against the unauthorised usage of their likeness in image, voice and name using AI. Although various individuals have filed such cases, India has yet to formulate a sound legislative response to this emerging challenge. The implications of AI-generated content also pose risks in terms of evidence or pleadings that are submitted before courts using AI platforms. The Supreme Court and other High Courts, such as the Bombay High Court, have disparaged such usage and have also imposed costs on lawyers who adopt AI-generated arguments without verifying the submissions and cases cited therein.

Need for regulation

India therefore stands at a critical crossroads at present. While the country seeks to establish itself as a global AI leader, it must develop a robust legal framework that would effectively address the issues of misinformation, identity misuse and manipulation. The challenge at hand is to craft a balanced regulatory framework – one that encourages innovations and technological advancements while simultaneously ensuring accountability from platforms and safeguarding the authenticity of the digital ecosystem.

India's recently amended Information Technology Rules, 2026 mandate the disclosure of AI-generated/altered content throughout the video. They have also attempted to revamp the age-old intermediary liability framework with the stipulated timeline of three hours to remove synthetically generated content upon receiving a court order or government notification. They also mandate that personal complaints filed by users must be solved within 36 hours of its filing. This is a step in the right direction.

Further, there is a need to develop a code of ethics for AI platforms to prevent them from generating images/videos that would undermine trust in digital news. Beyond the quintessential legal and regulatory frameworks, there is a need for developing digital and AI literacy amongst the public at large. Unless users themselves develop the capacity to critically evaluate a particular digital content and verify the same before dissemination, these issues will continue to linger.

GS Paper II – Governance

Global crises demand more than 'citizen sacrifice'

Chandrakant Lahariya

Practising cardiometabolic physician and health policy specialist who has worked with the United Nations system for nearly 18 years

Recently, Prime Minister Narendra Modi issued seven appeals urging citizens to embrace restraint, self-reliance, and responsible consumption amid global uncertainty caused by the America-Iran conflict and disruptions in the Strait of Hormuz. These included buying local products, conserving energy, avoiding unnecessary foreign travel, prioritising domestic tourism, supporting indigenous innovation, and promoting work from home wherever feasible.

The appeals have drawn mixed reactions from political parties, economists, businesses, and the public. Some view them as practical nationalism suited to an unstable world, while others see them as realism rather than rhetoric. Supporters argue that promoting domestic consumption and reducing external dependence could strengthen India's resilience in a fractured global economy, while some in the social sector see the messages as supportive of healthier and environmentally sustainable lifestyles.

A subtle shift to the citizen

There is merit in these arguments. India, like every other country, must prepare for a more uncertain global environment. Yet, Mr. Modi's appeals warrant closer scrutiny, as they primarily seek to modify citizen behaviour while leaving governments and institutions relatively insulated from equivalent responsibility. In doing so, the burden of managing structural crises is subtly shifted from the state to individuals.

Modern democratic governance rests on an implicit social contract. Citizens pay taxes, obey laws, participate in democracy, and contribute to the economy. In return, governments are expected to provide public goods, social protection, health care, infrastructure, education, economic stability, and strategic preparedness. Governments exist not merely to advise citizens during crises, but to build systems resilient enough to withstand them. Yet, they often fall short of fulfilling this contract, with even electoral promises only partially implemented before being repackaged for future elections.

When elected governments increasingly respond to structural economic or geopolitical shocks by urging citizens to consume responsibly, sacrifice, adapt, or remain resilient, without simultaneously undertaking matching institutional reforms, the social contract begins to weaken. Long-term opportunities for structural correction are gradually replaced by behavioural messaging and symbolic appeals.

This phenomenon, of course, is not unique to India. Across the world, governments confronting inflation, climate stress, energy insecurity, or economic slowdown routinely ask citizens to reduce consumption, recycle more, conserve electricity, or embrace austerity. Individual behaviour certainly matters. But such appeals often obscure the much larger responsibility of states and corporations in shaping systemic outcomes. That is why a wider public dialogue and deeper reflection on these issues become essential. Behavioural appeals may generate symbolic solidarity, but symbolism cannot become a substitute for institutional preparedness.

National resilience requires strong institutions, not merely behavioural appeals alone

Question for the government

The modern global economy is extraordinarily interconnected. Food security, climate change, financial systems, and technological ecosystems all transcend national borders. No country, including India, can insulate itself through behavioural nationalism alone. The danger lies in oversimplifying complex structural challenges into moral obligations for citizens. Patriotism, however emotionally resonant, cannot replace long-term economic planning, institutional competence, and policy coherence. National resilience is built through capable institutions and sustained public investment.

There is also an uncomfortable asymmetry. Citizens are repeatedly advised to conserve, adjust, and become self-reliant. Yet, why are governments not publicly issuing equivalent commitments to transparency, regulatory stability, public investment, and institutional reform?

Instead of focusing primarily on what citizens should do for governments during crises, one may ask a more foundational democratic question: what should governments do for citizens during periods of global instability? If these seven appeals were reconstructed from a citizen-centric perspective, the priorities would look very different.

First, governments must invest far more seriously in social protection systems. The COVID-19 pandemic showed that resilient societies are built not only through disciplined citizens, but also through strong public institutions. Yet, improvements since then have remained uneven. In health care, the expansion of private and corporate services has often outpaced the strengthening of public systems. Future resilience requires sustained investment in primary health care, disease surveillance, nutrition, mental health, emergency preparedness, education, and other social sectors.

Second, governments must confront rising economic inequality rather than relying excessively on consumption patriotism. Economic resilience cannot emerge from patriotic appeals alone when millions remain financially insecure, unemployed, or trapped within informal labour systems and the gig economy without adequate social protection.

Third, governments must prioritise long-term investments in education, scientific research, and public universities. Genuine self-reliance is built through decades of investment in laboratories, universities, manufacturing ecosystems, scientific temper, and innovation capacity. It is not enough merely to establish Indian campuses of Ivy League universities; Indian universities and research institutions must themselves emerge as among the world's leading centres of knowledge and innovation.

Fourth, governments must strengthen transparency, public trust, and their handling of widespread public anxiety and uncertainty. During crises, trust becomes a strategic national asset. Citizens cooperate when governments communicate honestly, acknowledge uncertainties, and allow independent institutions, experts, and media to function freely.

Fifth, governments must invest far more seriously in climate resilience and sustainable urbanisation. Asking citizens to conserve electricity while cities continue to suffer from poor planning, inadequate public transport, shrinking green spaces, and worsening environmental degradation addresses symptoms rather than causes. While the push for electric vehicles and alternative energy is welcome, quality urban infrastructure remains inadequate. Failed initiatives such as smart cities are rarely evaluated critically and are instead quietly forgotten.

Sixth, governments must reduce regulatory unpredictability and create stable, fair policy environments for businesses, workers, researchers, and entrepreneurs. National resilience depends upon predictable governance and institutional consistency.

Seventh, governments must protect democratic dialogue instead of allowing criticism to be routinely framed as anti-national. Democracies become stronger through open debate, institutional criticism, intellectual diversity, and democratic course correction.

The need for strong institutions

None of this implies that citizens have no responsibilities. Responsible consumption, environmental awareness, social solidarity, and support for domestic capabilities are important civic virtues. But they cannot substitute for governance itself. Democracies cannot function sustainably if governments merely offer behavioural advice while citizens bear the consequences of structural vulnerabilities.

The larger danger of behavioural politics is that it normalises institutional underperformance. Individual responsibility matters, but it cannot become the primary response to fundamentally structural problems.

India aspires to become a major economic and geopolitical power. Achieving that ambition will require strong institutions, evidence-based policymaking, investment in human capital, and a renewed social contract in which governments accept greater responsibility for national resilience. The true test of leadership during crises is whether governments demonstrate the accountability, foresight, and policy seriousness needed to protect citizens in an increasingly uncertain world.

GS Paper II – Social Issue

Health expenses dip as govt. spend rises

The out-of-pocket expenditure as a share of the total health expenditure has been calculated as 43.4% in 2022-23, as against 64.2% in 2013-14; the Ministry credits the results to operationalisation of Ayushman wellness centres; the share of private health insurance has also increased, report says

Bindu Shajan Perappadan
NEW DELHI

Concurrent with the increase in government health expenditure, the out-of-pocket expenditure (OOPE) share in total health expenditure has declined by 21%, from 2013-14 till date, noted the National Health Accounts (NHA) estimates for India 2022-23, released by the Union Health Ministry on Wednesday .

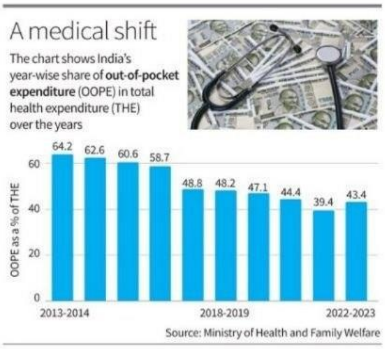
The OOPE as a share of the total health expenditure has been calculated as 43.4% in 2022-23, as against 64.2% in 2013-14.

"This declining trend of OOPE indicates the improved access to health services, leading to reduced financial burden on the households," said a senior Health Ministry official. He added that this is also the impact of operationalisation of more than 1.8 lakh Ayushman Arogya Mandir wellness centres across the country, providing preventive and curative healthcare services closer to the community.

These centres provide free services across 12 expanded packages, including reproductive and child health, communicable/non-communicable diseases, free drugs/diagnostics services, teleconsultations, and preventive care through wellness sessions.

"These measures have reduced the episodes of sickness. On in-depth analysis, it has been observed that the purchase of pharmaceuticals, including health supplements, vitamins, protein and other supplements [from wellness centres], is the main driver of OOPE in the current estimates," the Ministry said.

The NHA 2022-23 is the 10th report on health expenditure estimates prepared by the National Health Accounts Technical Secretariat (NHATS), National Health Systems Resource Centre, Ministry of Health and Family Welfare, using the System of Health Accounts (2011) framework.



The part reasons of OOPE in current estimates is purchase of pharmaceuticals and supplements from govt. centres

The report indicates an increase in the share of government health expenditure in the country's Gross Domestic Product (GDP). It has risen from 1.15% in 2013-14 to 1.43% in 2022-23.

Similarly, health expenditure's share in general government expenditure has increased from 3.78% to 4.89% over the same period.

In per capita terms, government health expenditure has increased nearly 2.7 times, from ₹1,042 to ₹2,786 between 2013-14 and 2022-23.

To address the emergency COVID pandemic situation, the government increased the health expenditure significantly to 1.84% of GDP in 2021-22 towards managing the pandemic situation given these additional spending by the government as a one-time measure, OOPE as a percentage of total health expenditure during this period also declined to 39.4%.

Inter-temporal comparisons also reveal a positive trend in the growth of social security expenditure. Spending here increased substantially from 6% in 2013-14 to 9.9% in 2022-23.

The share of private health insurance has also increased, from 3.4% to 9.2%, clearly indicating improved health-seeking behaviour due to awareness.

GS Paper III – Environment

Kerala scientists discover new evergreen tree species at Shendurney Sanctuary

Sarath Babu George
THIRUVANANTHAPURAM

Scientists from the Jawaharlal Nehru Tropical Botanic Garden and Research Institute (JNTBGRI), in Palode, Kerala, have discovered a new evergreen tree species from the southern Western Ghats of Kerala. The newly discovered species identified in the riparian forests of the Shendurney Wildlife Sanctuary has been officially named as *Humboldtia nairiana*.

Humboldtia nairiana has been named in honour of G.M. Nair, a distinguished plant biotechnologist. SPECIAL ARRANGEMENT

The species, belonging to the genus *Humboldtia*, has been named in honour of G.M. Nair, a distinguished plant biotechnologist and former Director of JNTBGRI. The initial breakthrough for the discovery came in 2010 during a floristic exploration along the Cheenikkala-Pandimotta forest trail within the Shendurney Wildlife Sanctuary. Three scientists from JNTBGRI collected an unusual and taxonomically intriguing specimen.

To carefully observe and safeguard the plant, a few healthy seedlings were brought back and successfully established *ex-situ* within the JNTBGRI Arboretum. After a prolonged juvenile phase, the cultivated trees began flowering and fruiting in 2022. This allowed the research team to conduct a comprehensive morphological assessment, which confirmed that its distinct vegetative and reproductive characters set it apart as a brand-new species to science.

The species is strictly endemic to Kerala and is presently known only from the biodiversity-rich Agasthyamala Biosphere Reserve. Alarmingly, field surveys indicate a fragile wild population. Based on the IUCN Red List criteria, the species has been categorised as 'data deficient' to highlight the need for extensive field tracking and habitat protection.

GS Paper III – Science & Technology

The Ebola species with no vaccine

The Bundibugyo ebolavirus outbreak in Congo and Uganda has exposed gaps in vaccine preparedness, with no licensed vaccine yet for the rare species; funding constraints, weak commercial incentives, and limited research investment continue to hamper vaccine development for neglected tropical diseases

FULL CONTEXT

Vasudevan Mukunth

The World Health Organization (WHO) declared the Bundibugyo ebolavirus (BDBV) outbreak in the Democratic Republic of the Congo and Uganda to be a public health emergency of international concern on May 17.

The outbreak exposes a critical gap in international vaccine preparedness. There is no licensed vaccine yet for the Bundibugyo species of the ebolavirus because the resources required to develop one have not been mustered and because of the specific economic realities of neglected tropical diseases (NTDs).

BSL-4 facilities

To study, develop, and test a vaccine, medical researchers need the virus itself or its genetic sequence to ensure the vaccine's antigens match the circulating strain. In mid-May, the National Institute of Biomedical Research in the Congo and the Central Public Health Laboratories in Uganda delivered this sequence.

Second, to work with a live ebolavirus, scientists need Biosafety Level (BSL) 4 facilities. These are research facilities with the highest level of biological containment, required when dealing with deadly viruses – like ebolavirus and Nipah virus – or viruses that are very easily transmitted or which have no known treatment.

BSL-4 facilities are strongly isolated, with monolithic walls, floors, and ceilings, tightly sealed pipes and wires, multiple sterile rooms with specialised airlocks, negative air pressure (so that a leak causes air to flow into the facility), dedicated ventilation systems, and redundant HEPA filters. All waste from the facility is first sterilised before being disposed of.

Personnel in a BSL-4 facility have to don positive-pressure suits (leak causes air to flow out) and pass through decontamination showers. They also have to undergo rigorous medical tests. There are just over a hundred BSL-4 facilities worldwide, including two in India.

Primate trials

To design the vaccine, researchers need to identify which proteins of the virus provoke the antibody responses in the human body. Then, they need to select a platform – the technology that will carry the antigen into the body and present it to the immune system. The options for ebolavirus include viral vectors such as rVSV or ChAdOx1, mRNA-based approaches, and protein subunits.

Finally, the vaccines may be tested in animal models, in particular non-human primates, as they are the gold standard to assess the safety and efficacy of a vaccine against a disease with a mortality rate of 25% to 90%.

Human clinical trials would be better but such an enterprise would be extraordinarily complicated during an ongoing outbreak.

Once a vaccine is ready, manufacturing it will require hundreds of millions of dollars in addition to development costs, including specialised facilities, cold storage and transport chains (at -80° to -60° C), quality control, regulatory approvals, and advance purchase commitments.

Then, at the very last stage of this long pipeline, healthcare workers and public health officials must detect an outbreak early and administer the vaccine to avail its benefits.

Once a vaccine is ready, manufacturing it will require hundreds of millions of dollars in addition to development costs, including specialised facilities, cold storage and transport chains, quality control, regulatory approvals, and advance purchase commitments. GETTY IMAGES

What 'neglect' means

The ebolavirus is not a single virus species but a genus with multiple species, including 'Zaire', 'Sudan', 'Bundibugyo', and 'Taï Forest'. If a person has become immune to one species, they are not expected to be sufficiently cross-protected against infection by another species. This is because the different species have different surface proteins, so each outbreak may require species-specific research.

Ebolavirus outbreaks are also sporadic and hard to predict as to their location – which is unlike influenza or COVID-19, which circulate continuously in populations. So by the time an ebolavirus vaccine reaches the third phase of a clinical trial, the outbreak may have already subsided, leaving fewer cases to track for the trial.

The commercial market for ebolavirus vaccines is small and concentrated in lower-income countries, which means the financial incentive for pharmaceutical companies to invest without substantial backing from governments and/or coalitions like Gavi and the Coalition for Epidemic Preparedness Innovations (CEPI) is minimal.

All of the same factors attend to most NTDs, and illustrate what the 'neglect' in their name entails. NTDs are almost always diseases of poor, rural, and politically marginalised populations in the world's tropical and subtropical areas. In fact, these people are neglected – and that's why their diseases are neglected as well.

Two declarations

Historically, funding for infectious diseases was dominated by just three: HIV/AIDS, tuberculosis, and malaria. The situation changed somewhat following the London Declaration in 2012 and the Kigali Declaration in 2022.

With the participation of the WHO, the World Bank, 13 pharmaceutical companies, and representatives from seven countries, the London Declaration committed to eliminate or control 10 NTDs by 2020 with more than $785 million for research and development. The Kigali Declaration, sponsored by Rwanda, aimed to reinvigorate commitments to eliminate the NTDs; at a June 23, 2022, event, the country reported a pledge of $1.5 billion by various governments, pharmaceutical companies, and NGOs.

However, R&D has often been patchy, compounded by weak healthcare delivery and poor (disease) surveillance. Governments have also often prioritised diseases afflicting patients in richer countries. But the worst is perhaps market failure, as affected populations have little purchasing power while developing a single vaccine these days costs more than a billion dollars. The vaccines also cannot be sold for much in countries most of whose populations live on two dollars a day.

Many NTDs are caused by eukaryotic parasites, i.e. worms and protozoa, which develop in multiple stages across multiple hosts, complicating researchers' efforts to identify a stable antigen for vaccines to target. The immune system also struggles to confer lasting protection against infections by these organisms, making them categorically harder to vaccinate against than, say, measles.

Local response

At this time, there are two licensed Ebolavirus vaccines – Ervebo and a combination of Zabdeno and Mvabea – but they are both for the 'Zaire' species. The Bundibugyo species is also much rarer, having caused only two outbreaks before the current one. As a result, research on it hasn't drawn significant investments.

Promising Bundibugyo vaccine candidates are currently in preclinical or early development, with the WHO and the Oxford Vaccine Group estimating at least six months more to manufacture enough doses for a small clinical trial.

Taken together, the local healthcare systems – already strained by conflict and climate change – are left with reliably detecting cases, isolating patients, contact-tracing, safe burial practices, and community engagement to manage the Bundibugyo ebolavirus outbreak.

Causes for hope

That said, in the meantime, the Road Map 2021-2030 of the WHO has specified eliminate-by targets for particular NTDs and has been pushing domestically led programmes that combine mass drug administration, vector control, sanitation, and surveillance.

In February this year, the African Union launched 'ACHIEVE Africa', a programme to build indigenous R&D for vaccine development for NTDs that western manufacturers have overlooked. Using the help of such programmes, the African Union plans to manufacture 60% of the continent's vaccine needs by 2040. Likewise, CEPI has increasingly funded work on pathogens that currently present weak commercial incentives.

Also earlier this year, India initiated phase I human clinical trials for an indigenous vaccine against Kyasanur forest disease, a regional NTD. Hubs established in South Africa and Senegal to manufacture mRNA vaccines for COVID-19 are being repurposed to produce experimental vaccines for NTDs, including leishmaniasis.

Brazil and Cuba have built state manufacturing capacity to address diseases that multinational firms have skipped (although this may no longer be a priority in Cuba, which has faced prolonged fuel and medicine shortages thanks to crippling U.S. embargoes).

But for now, the Bundibugyo ebolavirus outbreak continues to unfold against infrastructure and financing gaps and a broader system that struggles to respond to diseases of the poor and the peripheral.

THE GIST

- Scientists need BSL-4 facilities and non-human primate trials to safely study and test vaccines against deadly viruses like ebolavirus.
- Different ebolavirus species have different surface proteins, meaning immunity against one species may not sufficiently protect against another.
- Local healthcare systems are relying on early detection, isolation, contact-tracing, safe burial practices, and community engagement to manage the outbreak.

GS Paper III – Science & Technology

AMCA fighter project moves ahead as Centre issues RFP to shortlisted firms

Saurabh Trivedi
NEW DELHI

The Ministry of Defence on Wednesday issued the Request for Proposal (RFP) for the indigenous fifth-generation Advanced Medium Combat Aircraft (AMCA) programme to three shortlisted bidders, marking a major step forward in India's push for self-reliance in advanced combat aviation.

The shortlisted entities include the Larsen and Toubro-Bharat Electronics Limited combine, Tata Advanced Systems, and the Bharat Forge-BEML consortium. A top official in the Ministry of Defence confirmed the development to *The Hindu*. "It is a huge step towards the Make in India initiative of the Centre to develop an indigenous fifth-generation fighter jet," the official said.

Next-gen project: An Advanced Medium Combat Aircraft fighter jet designed by the Aeronautical Development Agency. K. MURALI KUMAR

Interestingly, the State-run aerospace major Hindustan Aeronautics Ltd. has been kept out of the process, sources said.

After the shortlisted companies submit their responses to the RFP, the selection process is likely to be completed within four to five months based on technical and commercial evaluations.

Under the programme, the government plans to build five prototypes of the AMCA, a stealth fighter aircraft being developed to meet the Indian Air Force's long-term operational requirements.

The selected private defence entity will work in partnership with the Aeronautical Development Agency, functioning under the Ministry of Defence, for the development of the prototypes.

The AMCA programme is considered one of India's most ambitious indigenous aerospace projects aimed at developing a fifth-generation stealth combat aircraft with advanced avionics, supercruise capability, and reduced radar signature.

On May 15, Defence Minister Rajnath Singh and Andhra Pradesh Chief Minister N. Chandrababu Naidu laid the foundation stone for the ₹15,803-crore AMCA infrastructure project in Andhra Pradesh's Sri Sathya Sai district.

Last year, the Defence Minister approved the AMCA Programme Execution Model, under which the Aeronautical Development Agency will execute the project through industry partnership.

GS Paper III – Environment

CACHE

Bird-glass collisions are severely undercounted partly because collisions are hard to observe. GETTY IMAGES

Ordinary homes and offices are becoming death traps for birds

Bird-glass collisions are emerging as an undercounted threat in India, with birds flying into reflective or transparent glass panels in homes, schools, offices and apartment buildings; experts say many small and migratory birds are injured or killed by these human-made structures

Aditya Ansh

In 2008, architect and avid birdwatcher Peeyush Sekhsaria was having breakfast at a traditional homestay in Coorg when he heard a loud thud. Sekhsaria tracked down the cause of the noise to find an emerald dove lying still on the floor after flying into a glass panel.

Bird-glass collisions, also called bird-window strikes, happen because birds are not able to notice clear or slightly reflective glass.

India has no national estimate for bird-glass collisions, nor is there a coordinated monitoring system to track how many birds die or are injured after colliding with windows.

In one October 2025 study from the Nilgiris, researchers from around India documented 35 bird-glass collision incidents in two locations within a year. In Bengaluru, the Avian and Reptile Rehabilitation Centre (ARRC) has recorded more than 500 birds injured in collisions over the last three years.

"At Bengaluru, most of the major threats bringing birds to our rescue centre are human-made: manja is still the worst, but collisions are frequent," ARRC executive director Jayanthi Kallam said.

Beyond skyscrapers

A major concern researchers and birdwatchers have is the nature of buildings involved in such accidents. Contrary to common perception, most collisions do not occur at skyscrapers but at everyday structures like homes, schools, office complexes, and apartment balconies.

"Glass collisions aren't a skyscraper problem but they are a glass problem," Dr. Kallam said. "People often imagine this as something that happens only at IT parks, corporate campuses or large glass buildings. But our cases come from ordinary urban spaces like homes, cafe fronts, schools, resorts and two- or three-storey buildings."

Reflective surfaces mirror sky, foliage, and open space, creating what ecologists call a visual illusion. Transparent panes can also appear as clear flight paths. To birds moving quickly through urban vegetation, the barrier often remains invisible.

According to Mr. Sekhsaria, "The data in the U.S. shows us that 50% of bird deaths actually happen up to third-floor buildings and a lot of birds are active within a certain height range from the ground up to the canopy height."

In Indian cities where residential towers and office buildings are often located alongside fragmented green spaces, the risk increases.

Glass near trees, balconies, and gardens can reflect the vegetation nearby, confusing birds.

Vulnerable migrating birds

Certain bird species are especially vulnerable. Between September and January, when birds migrate, ARRC said it often finds Indian pittas (*Pitta brachyura*) dazed or injured near buildings.

White-cheeked barbets (*Psilopogon viridis*) seem vulnerable during the March-April breeding season.

"At the moment, we are seeing many white-cheeked barbets, mostly newly fledged young birds that are inexperienced fliers, easily misled by reflections of foliage on glass," Dr. Kallam said.

Asian koels (*Eudanamys scolopaceus*) also appear susceptible during breeding, possibly because of their higher territorial movement, which can bring them closer to reflective surfaces.

Pune-based birdwatcher Parth Barhate began noticing patterns similar to this after moving from Jalgaon: "Small bird species such as sparrows, robins, sunbirds and babblers are particularly vulnerable."

According to experts at ARRC, bird-glass collisions are severely undercounted partly because collisions are hard to observe. Smaller birds may move away after the impact and die elsewhere, while some others are quickly removed by scavengers. The rescue centres eventually receive only a subset of injured or dead birds.

"When we looked more closely at building collision cases, nearly 70-80% involved glass in some form, be it windows, sliding doors, panels, reflective glass or facades," Dr. Kallam said.

"And this is almost certainly an undercount. Small birds are easy to miss, many collisions are never witnessed and if a bird moves away from the impact site, identifying glass as the cause also becomes harder."

Citizen science

In recent years, citizen-science platforms and informal reporting networks have begun filling some data gaps. Birdwatchers now upload collision records to platforms like iNaturalist. Rescue organisations also compile local observations.

Mr. Sekhsaria and his collaborators have analysed several hundred such records collected from online birding communities and wildlife rescue groups.

"We have about 110 species of birds that we have recorded having bird-window collisions," he said. "For a country like India, a thousand data points is nothing, but we actually have some data points to begin with."

"One common thing would be a head injury to birds," Dr. Kallam said. "Post-concussion, they will be dull and dazed." Some injuries are also difficult to spot by seeing: "Sometimes there could be internal organs bleeding. Those will be very difficult to diagnose," she added.

According to her, many birds appear to recover briefly after impact, leading residents to release them too early. She said she believes substantial underreporting persists.

"Particularly in the small birds, which are difficult to notice, if it is impacted and goes some distance and falls in a wooded area, those are difficult for anybody to notice."

Bird-safe cities

Researchers said the absence of regulations does not mean mitigation is impossible. Experts have pointed to many simple, inexpensive interventions. For example, patterns, decals or strips pasted on the outward-facing parts of windows can help birds identify glass surfaces as barriers.

"The first step is simple: make glass visible to birds," Dr. Kallam said.

Awareness and understanding of bird-glass collisions also suffer from their absence in mainstream urban ecological discussions in the country. Conservation debates continue to focus on habitat destruction, air pollution, and infrastructure expansion.

One 2023 petition before the National Green Tribunal filed by a resident in Bengaluru had asked for the Ministry of Environment, Forest and Climate Change to draft bird-safe building guidelines. As of May 2026, no public update or draft framework has been released.

Mr. Sekhsaria said systematic citizen-science reporting may eventually shift that understanding.

(Aditya Ansh is an independent media writer based in New Delhi, India)