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Understanding India's Military Modernisation

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SYNOPSIS

*India's military modernisation has stepped up pace, especially as it catches up with China in the aftermath of the 2020 standoff between the two countries in the Himalayas. From its traditional dependence on Russia, India has diversified its procurement over the past two decades and is now looking at the co-design and co-production of high-end hardware. **DINAKAR PERI** analyses the changing contours of this modernisation drive.*

COMMENTARY

On 7 March, India's Cabinet Committee on Security (CCS) [approved](#) a project for the design and development of a fifth-generation fighter jet, the advanced medium combat aircraft (AMCA), to be executed by the Defence Research and Development Organisation (DRDO). The AMCA, designed as a 25-tonne twin-engine stealth aircraft with an internal payload of 1,500 kg, an external payload of 5,500 kg, and 6,500 kg of internal fuel, is expected to enter service in about a decade.

This is the latest in a series of domestic research and development projects for high-end military hardware. It encapsulates the current trajectory of India's military modernisation, moving away from direct foreign purchases and even licence manufacturing to pressing for co-design and co-development with foreign partners while pursuing domestic design and manufacturing, where its strengths lie. Also, where such projects were once dominated by the defence public sector, it is now the private sector that is increasingly getting into joint ventures and licence manufacturing.

India's shift away from heavy dependence on Russia for its military procurement needs has been ongoing for some time and has been accentuated since the beginning of the [war in Ukraine](#) in February 2022. This trend has led to unending discussions suggesting that the Indian military is shifting from extreme dependence on Russian hardware towards procuring US and French equipment. However, it is pertinent to note that it is not an either/or choice between Russian and Western manufacturers. The reality is that the Indian military today has a wide range of options to choose from compared with three decades ago as the world reaches out to India for a variety of reasons, although Russian-origin equipment continues to comprise the bulk of the Indian military's inventory.

Diversifying Options

Through the Cold War and up to the mid-1990s, the Soviet Union and then Russia were largely India's one-stop shop for high-end military hardware. However, India's options diversified after France and Israel opened up to it in the late 1990s, followed by the United States after the landmark visit to India in 2000 of then US president Bill Clinton, which laid the ground for the current trajectory of the Indo-US relationship.

However, Russia remained, and to a large extent, remains, the country providing India with the most sensitive military technologies, for instance, nuclear attack submarines on lease. That, and the large military arsenal of Russian origin, means that New Delhi will remain dependent on Moscow for the foreseeable future, much to the consternation of the West. Also, the diversification of India's military arsenal began a couple of decades ago, although the war in Ukraine added an urgency to it as delays in deliveries as well as payment issues arose owing to international sanctions on Russia.

The current modernisation of the Indian Air Force (IAF) involving fighters, transport aircraft and helicopters serves as a useful template to understand the transition in India's defence modernisation process. The IAF has a sanctioned fighter strength of 42 squadrons but is currently at 31 squadrons and is [struggling to keep the number](#) from slipping further as new inductions do not match the phasing out of older jets. The IAF expects its fighter strength to remain at 32–33 fighter squadrons by 2030 and 35–36 by 2040. It is banking heavily on its light combat aircraft (LCA) numbers to shore up its fighter squadron strength, which it hopes will be augmented by a planned foreign fighter to be manufactured locally under licence and subsequently the AMCA. In the existing fleet, the MiG-21 fighter squadrons will be fully phased out by 2025, while the drawdown of the Jaguars, Mirage-2000s and MiG-29s will begin by the end of this decade and will mostly be phased out by early 2040, when the earliest of the Sukhoi-30s will also start being phased out.

In December 2023, the Defence Acquisition Council (DAC), headed by India's defence minister and the highest decision-making body for procurement in the Indian Ministry of Defence, approved the [procurement](#) of 97 additional indigenously designed and manufactured Tejas Mk 1A LCAs for the IAF at an estimated cost of ₹67,000 crore, or about US\$8 billion. This decision brings the collective order for the Tejas Mk 1A LCA variant, including the 83 jets on order earlier, to a total of 180 jets at a combined cost of ₹1.15 lakh crore, or close to US\$14 billion. The IAF operates 40 of the Mk 1 variant

from two earlier orders. A more powerful LCA-Mk 2 is also currently under development.



India's Tejas Mk 1A light combat aircraft (LCA) programme recently featured the successful flight of prototype LSP7 on 19 February 2024, which integrated an indigenously developed digital flight control computer. As new inductions have not matched the phasing out of older jets, the Indian Air Force (IAF) is banking heavily on faster induction of LCAs to shore up its fighter squadron strength, which has also been considerably delayed.

Image from Wikimedia Commons.

The Case of Domestic Fighter Projects

For the LCA and the AMCA, one aspect is common – the platform remains Indian, and the technologies that make the platform potent, i.e., the weapons and sensors as well as engines, will be sourced from far and wide to be plugged into the locally built architecture. The LCA variants will be powered by the General Electric F404 and F414 family of engines and the initial batches of AMCA will also be powered by the F414 engine while the later version will fly with a new, more powerful engine co-developed with France. Similarly, the weapons on board the aircraft will be a combination of Indian and Western ones.

Once predominantly of Russian origin, India's fighter fleet is now a mix, with the share of Russian fighters gradually going down. In this regard, the Sukhoi-30MKIs are likely to be the last of the Russian-origin fighters operated by India. That does not mean India will buy more Western fighters. Up to now, the United States, despite several attempts, has not been able to sell its fighter jets to India, be it the F-16 or the F-18, and the prospect of doing so in the future looks rather bleak. However, the United States is now tasting success in a more critical area – jet engines.

The IAF has a tender for 114 multi-role fighter aircraft (MRFA), with most major global players in the fray. However, the extremely expensive and out-of-sync MRFA plan looks unlikely to come to fruition. This is because of the multiple domestic fighter development programmes lined up and their cost commitments, as well as the huge mismatch between the timelines of new fighters required to arrest further slippage in numbers versus the realistic execution of the MRFA. A more realistic scenario that could materialise in the near future while the LCAs and AMCAs are inducted in sufficient numbers is procuring more Rafales from France, for which the requisite

infrastructure and ecosystem already exist and a considerable amount for India-specific modifications has been invested.

Another case to understand the contours of India's military modernisation is the helicopter fleet of the armed forces. India is unlikely to import new classes of helicopters; only additional units of existing ones already in its inventory like the AH-64E Apache attack helicopters, CH-47F(I) Chinook heavy-lift helicopters, and the Sikorsky MH-60R multi-role helicopters are likely to be acquired. Replacements for the legacy helicopter fleets – the Cheetah, Chetak, and, by the end of the decade, the Mi-17s – will all be built locally. However, they will all be powered by a French-origin engine and will also have other foreign systems and weapons on board.

Once again, this means that the platform remains local, with significant foreign components. Also, the Mi-17 is the last Russian helicopter that the IAF has in its inventory. Its replacement is the Indian multi-role helicopter that is under development by Hindustan Aeronautics Limited (HAL) and is expected to be ready by 2030. HAL and Safran of France have teamed up to build an engine for this helicopter, building on the Shakti engines that currently power India's indigenous advanced light helicopters and their derivatives.

Despite seeming progress in domestic design and development, some critical deficiencies remain. Success has been elusive in manufacturing medium- and high-altitude long-endurance unmanned aerial vehicles (UAVs) and jet engines, along with other hardware. In the [aeroengine](#) segment, although termed a co-development and co-production endeavour, India's foreign dependency is likely to remain essentially split between France and the United States for the remainder of the century: France for its fighter and helicopter engines, and the United States for its fighter segment, both of which will remain the mainstay of India's aeroengine needs over the next 60–80 years. Also, in overall co-design and co-production, critical components will remain import-dependent at least in the foreseeable future while India does local manufacturing and value addition. Finally, Russia will remain an important player, albeit one among many.

To sum up, it is essential to understand that the diversification of India's military hardware is taking place and will accelerate further in the years to come. However, the model is not just that of buying from the West or completely moving away from Russia, but rather one of incorporating the best systems available into locally built hardware to the extent possible. The current push for co-design and co-development of niche systems also fits into this model. This is a model that anyone wanting to partner with India has to take note of.

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