

To stop relying on imported weapons, govt must create separate MoD for production, rejig DRDO

The naval variant of the Tejas fighter put India in an elite club of nations.

But India remains an underperformer in the military-industrial field

By Admiral Arun Prakash (Retd.)

The first simulated carrier-landing on 13 September by the naval variant of the Tejas fighter using a tail-hook was a unique achievement that received insufficient recognition and applause in India. It placed India in the elite club of just five nations capable of not only designing and building aircraft-carriers, but also the aircraft that can operate from them.

This accomplishment demonstrated that technological talent, design expertise and engineering competence are abundant and yet, India remains an under-performer in the military-industrial field.

Seven decades after independence, India's failure to attain self-reliance in military hardware, and abject dependence on import of defence equipment, represents a huge vulnerability as far as national security is concerned.

While the Comptroller and Auditor General of India often draws Parliament's attention to our half-empty arsenal, our adversary Pakistan has ensured a steady arms-supply from its 'iron brother' China and the People's Liberation Army (PLA). India's claims to the 'major power' status will remain hollow until we develop the capability for design and serial production of our own weapon systems.

How China raced ahead

China's formidable capabilities in the conventional, nuclear, cyber, space and other domains apart, the true strength of the PLA lies in the country's vast and innovative military-industrial complex.

Ironically, in 1949, when the People's Republic of China came into being, India was industrially ahead, because the demands of World War II had led to the establishment of arms, ordnance and aircraft production facilities to support the war effort of the Allied powers worldwide. So, how did China manage such a 'great leap forward' in this field?

In the early 1950s, a fraternal Soviet Union began a massive transfer of arms to the PLA, but as ideological differences with China emerged, the Soviets started to choke-off this aid.

In the mid-1960s, the Chinese leadership launched a national mission of reverse engineering Soviet weaponry. Termed 'guochanhua' in Mandarin, the first phase of this project enabled China to establish, by the mid-1980s, serial production of the full range of Soviet-origin tanks, artillery, submarines, jet fighters, bombers and missiles.

Manufactured without Soviet licences, many of these defence products had serious flaws, and mishaps occurred. Subsequently, by using industrial espionage and often violating intellectual property rights, China launched repeated cycles of 'guochanhua'.

Today, China has surprised the world by its ingenuity and innovation. Till 2018, China's 'TaihuLight' was the world's fastest supercomputer (currently, the US' 'Summit' holds that distinction), the J-31 fifth-generation stealth-fighter, anti-ship ballistic missiles, new aircraft-carriers and huge strides in robotics, artificial intelligence and drones.

Where India faltered

India, by quirk of circumstance, became an economic and military entity with 'great-power' aspirations before it could become a significant industrial power. Consequently, we see an anomalous situation where a nuclear-weapon state, despite having the world's fourth-largest armed forces, has to

support them through massive imports of everything from tanks, submarines, fighters, missiles and artillery to small-arms and ammunition.

Illustrative of this conundrum is India's aviation industry, which traces its roots to the establishment of Hindustan Aircraft Ltd (HAL) in December 1940. During WWII, a nationalised HAL repaired and overhauled thousands of aircraft for the Allied powers. HAL's crowning glory came in 1961 with the flight of the HF-24 fighter jet 'Marut' designed with the help of German designer Kurt Tank.

The Marut was ahead of its time and had huge potential as a supersonic fighter, but powered by two small turbojets, it lacked adequate thrust and its performance remained below par. Instead of pursuing the acquisition of a new engine from abroad, and persevering with the development of this successful design, the Indian government, in a stunning display of apathy and myopia, allowed this project to lapse. The Ministry of Defence (MoD), the Indian Air Force (IAF) and the scientific community remained mute spectators to this historic blunder.

No lessons learnt

Regrettably, no lessons were learnt from the aborted Marut project, and two decades later, when the Defence Research and Development Organisation (DRDO) embarked on its Light Combat Aircraft (LCA) project, the approach of all agencies involved — MoD, DRDO, IAF and HAL — was marked by the same apathy and lack of imagination.

Here was a third-world nation embarking on an ambitious and exciting adventure of designing and building a lightweight, unstable, fly-by-wire 4th generation fighter. So, challenges, impediments (including US sanctions) and delays should have been anticipated by the Indian government and the MoD. However, general indifference, bureaucratic mismanagement, failure to address hurdles and stalling of critical decisions, injected huge delays in the LCA project. The IAF has ordered 83 Tejas aircraft from Hindustan Aeronautics Limited, but the fate of the programme remains uncertain. This is because the MoD is yet to announce its long-term 'vision' for the Tejas and its successors – if any.

The need for introspection

Another project, complementary to the LCA, was the development of a suitable turbo-jet engine. Having been tasked to develop an indigenous power plant for the LCA mission, DRDO's Gas Turbine Research Establishment (GTRE) started work in 1986.

The first prototype turbofan, called the 'Kaveri', began tests in 1996. Progress remained hindered because the GTRE was struggling with daunting design and performance issues, beyond its ken. No one in the MoD seemed to care, and it is understood that in 2014, this vital project was shut down by the DRDO, only to be subsequently revived. The reasons for the peremptory termination of the project, as well as its revival, remain unknown.

It is also understood that DRDO approached foreign aero-engine manufacturers for consultancy to enhance Kaveri's performance, but negotiations failed reportedly on cost considerations.

There is no doubt that formulating a turbojet design and its indigenous manufacturing constitute a huge and expensive technological challenge. China has struggled for three decades and considered it worthwhile spending billions of dollars to finally produce the WS-10 turbofan engine.

Critics of Tejas and Kaveri have had a field day, pouring scorn on them, overlooking their strategic significance for our national security. No matter what it costs to make these two programmes successful, it cannot possibly exceed the huge 'strategic' and 'opportunity cost' that India will pay in terms of its eternal dependence on (unreliable) foreign sources.

We also need to introspect how, starting from a similar base in the 1950s, the defence industries of China, Brazil, South Korea, Taiwan and Turkey have left India miles behind.

Moreover, the question lingers whether we should even persevere with a model that has brought us hardly any success in the last 72 years.

India does have an alternate model in its warship-building industry, which demands a quick look.

The Indian Navy persuaded the government way back in 1960 to embark on indigenous warship construction, and took full 'ownership' of this enterprise. As an important stakeholder, the Navy has remained involved in every aspect of this mission: be it design, construction, project management, quality control and financial management. The last 60 years have seen this successful programme deliver warships, ranging from patrol boats to destroyers and aircraft carriers, as well as conventional and nuclear-powered submarines. While India's warship construction paradigm may not be applicable across the board, the 'best practices', must be replicated elsewhere in the defence industry.

Blame all four stakeholders

It is worth noting how each of the four main stakeholders in the defence-industrial arena has contributed to its dismal performance:

- At the political level, there has been little or no appreciation of the need for self-sufficiency in military hardware. Successive defence ministers have shown little comprehension of why we need to invest in research and development in defence and failed to provide impetus to vital indigenous projects.
- The MoD bureaucracy that wields power and takes executive and financial decisions has, in general, lacked comprehension of military technology as well as interest in its pursuit.
- The defence-science establishment, lacking guidance and direction from the political or bureaucratic levels of MoD, has focused on 'research' and 'technology demonstrations' whereas the military has been seeking timely delivery of 'hardware' and 'products'.
- India's armed forces have failed to devote adequate attention to the future of our defence-industrial capability, given their justifiable concern for maintaining 'current combat capability'. This focus is perceived as a 'bias' against indigenous projects, in favour of the import option. The crux of the problem, however, is that as users, the armed forces should have shown far more concern for and involvement in indigenous projects.

What needs to be done

If India is not to perpetuate its 72-year-old dependence on imported weapons, it is time for two vital stakeholders — the three chiefs of the armed forces and the Director-General of the DRDO — to take the initiative and draw up a Defence Production Strategy Paper for the government to rejuvenate India's defence-industrial base over the next 50 years. The issues that the strategy must address are:

- Creation of an independent Ministry of Defence Production
- Earmarking DRDO's budget for urgently required technologies/military capabilities, prioritised by the military
- Restructuring of DRDO; adopting features of successful models in Israel, Singapore and the UK
- Mandating the involvement of user service(s) at the concept design stage, in terms of management as well as financial contribution to a project
- Specifying time frames for capability development, after which external consultancy must be obtained or the project foreclosed
- Mobilisation of private sector as a full partner in R&D as well as production.

To prove a point, the government should declare the Tejas and the Kaveri projects as 'national missions' and implement a long-term strategy for product enhancement and evolution of follow-on versions of both the products. The success of these two programmes can not only transform India's aeronautics landscape, but also provide a major boost to our somnolent defence-industrial sector. *(The author is former Indian Navy Chief. Views are personal.)*

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