

Institutions that Shaped India: DRDO

by Ravi Kumar Gupta, New Delhi: Rupa, 2021, pp. 215, Rs 395
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With India approaching the 75th year of independence in 2022, there are few institutions that can narrate the roller-coaster journey that the country has taken to become a modern nation. The Defence Research and Development Organisation (DRDO), a premier research and development (R&D) wing of the Ministry of Defence (MoD), is one such institution. It is due to the persistent and painstaking efforts of DRDO that the country can hold its head high among the comity of nations in key defence and strategic technologies. Today, India can boast of being one of the few countries in the world to have indigenously designed and developed a multi-layered nuclear deterrent capability, an anti-satellite missile system, a fourth-generation combat aircraft, a main battle tank and an array of radars and sensors, among other armaments, for the Indian defence forces. With Prime Minister Narendra Modi's government focusing on transforming India's manufacturing base through the 'Make in India' initiative and 'Aatmanirbhar Bharat Abhiyan', the DRDO has assumed an even greater role in India's quest for self-reliance in defence procurement.

The book, *Institutions that Shaped India: DRDO*, traces the journey of the DRDO, which has been anything but easy, since its formation in the late 1950s. In order to successfully develop frontline defence

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technologies, the organisation has had to overcome many obstacles. However, what distinguishes the DRDO's struggles from those of post-independent India is that its obstacles were mostly internal and avoidable. This strenuous journey of the DRDO is the key theme of Ravi Gupta's book, which is a part of the series on Institutions that Shaped Modern India, brought out by Rupa Publications.

Being an insider with over 35 years of service, and as the head of the DRDO's Directorate of Public Interface (DPI), Ravi Gupta has made a bold attempt to narrate the obstacles faced by the institution over the last six decades. He has termed the main hurdle as 'importeomania', referring largely to the import-happy system consisting of civilian and military bureaucracy, political leadership and a set of complex procurement procedures developed by them to limit the efficacy of India's technology development. Gupta has cited numerous examples of obstacles that the import-happy lobby erected to cripple DRDO's technology progress. The author's subtle message in the six chapters of the book is that without the crippling effects of the importeomania, DRDO's contributions and India's self-reliance image would have been much different than what it is today.

Gupta's argument has several merits. Indeed, unlike other key science and technology bodies, particularly the Indian Space Research Organisation (ISRO) and Atomic Energy Commission (AEC), DRDO functions in a much more complex bureaucratic and decision-making environment. While ISRO and AEC benefit from being under the PM's direct supervision and being their own customer, the DRDO has to navigate MoD's multi-layered labyrinthine bureaucratic structures—Defence Acquisition Council, Defence Procurement Board, Defence Production Board and Defence R&D Board, to name a few—and face the most demanding customer in the form of the Indian Armed Forces. For the armed forces, DRDO-developed products (or for that matter any other indigenous items) are just one of the options, with the import route being the most sought after.

The involvement of so many stakeholders, each having their own ethos and interests, has not only created silos but also animosity among them, to the detriment to India's progress in defence technology and manufacturing. In fact, the animosity among the stakeholders dates back to the formative days of the DRDO. When the then Defence Minister V.K. Krishna Menon issued instructions for the creation of DRDO, both the civilian and military bureaucracy resisted it, fearing a loss of their

own importance. Though Menon's determination to create a dedicated R&D organisation succeeded, but the 'battle royal' that ensued could not be prevented. The new organisation had to face numerous challenges in the form of restricted access to top political leadership, inadequate human resources, poor infrastructure, limited financial support, stiff and often conflicting specifications for undertaking technology development and an unfriendly environment for field trials of the equipment. All these worked to slow down the pace of indigenous arms development, while arms import kept on burgeoning.

Gupta further notes that the hostile environment was well supported by a well-planned malicious campaign by the same importomania to defame the organisation's developmental efforts, without paying due regard to the constraints of the organisation. Suffice it to say that the organisation was starved of funds for decades after its birth. It is only in the early 1980s that the organisation's budget exceeded 2 per cent of the defence expenditure, reaching an all-time high of 6.74 per cent in 2008–09 (the United States [US] and China spend over 10 per cent of their much larger defence budget on R&D). With a budget of Rs 20,457 crore in 2021–22 (representing 4.3 per cent of MoD's total outlays and 5.9 per cent of the defence services' budget), the DRDO's budget amounts to less than 3 per cent of the US Department of Defense's R&D spending. Any comparison with technological advancement in other countries would therefore need a cautious background check.

Along with a miniscule budget, the limited manpower of the DRDO is also a big constraint for the organisation. With just 6,960 scientists (out of the organisation's nearly 24,700 employees), there is a limit to which the organisation can spread its scant human resources to make a timely and meaningful impact.

The book is undoubtedly a notable contribution to an otherwise scant body of literature on DRDO, whose impressive infrastructure, consisting of nearly 52 dedicated labs and other facilities, is a national asset. However, the author could have been a little more pragmatic and looked at the subject from the prism of contemporary development of defence science and technology, including the necessary changes required to make the organisation more effective. Also, Gupta seems to have been little carried away in defending the organisation at all costs, dismissing some of the genuine suggestions/concepts offered by many past committees.

Gupta appears to dismiss the 2007 report of the Rama Rao Committee by terming it 'as a half-baked recipe with missing ingredients' and equating the recommendations of the report to the chairman's 'frustration of having lost the race with the appointment of Dr Kalam as DRDO chief' (pp. 98–99). Any neutral observer who has access to the committee report would strongly disagree with Gupta and vouch for Rama Rao Committee's ingenuity and sincere attempts to improve the functioning of DRDO.

The author also dismisses the usefulness of the highly acclaimed US-based Defense Advanced Research Projects Agency (DARPA) in the Indian context, without paying much attention to the inherent character of the organisation which makes it highly successful and worth emulation by others. The uniqueness of DARPA is its corporate culture, sophisticated programme management, mission-oriented goal and risk-taking ability. Being a government organisation, the DRDO lacks some of these qualities. With emerging technologies, such as artificial intelligence, quantum computing, lethal autonomous weapons, directed energy weapons, hypersonic weapons and biotechnology, shaping modern warfare, DRDO's traditional way of technology development needs rethinking, to say the least.

Notwithstanding the above-mentioned shortcomings, Gupta's work has brought the spotlight back on the organisation which is at the heart of India's defence innovation set-up. It also reiterates the vital question as to why the India's strategic programmers are a stupendous success, whereas many conventional arms projects, including those related to small arms, suffer from mudslinging. Is the lack of success in conventional arms development due to paucity of domestic capability or because of import-happy culture? Gupta's book provides some key insights for the readers.