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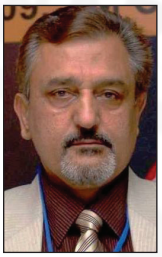
Towards a Strong Military-Industrial Base



Brig Deepak Sethi (Retd), PhD served the Army for 31 years and took early retirement in 1997. While in service, he also edited *The Artillery Journal*, and scripted and anchored a film; *Pause to Ponder: Ethics Values and the Soldier*. He earned PhD in International Business Strategy from *University of Texas at Dallas* in 2001.

Development of armaments is a race. Nations failing to keep pace risk serious harm to their security. Major powers, whose core strengths are their military-industrial complexes, spend billions of dollars to stay ahead. According to SIPRI, the world's total military expenditure rose to $1,739 billion in 2017 (at constant 2016 $), which was 2.2 percent of the Global Gross Domestic Product (GDP). This represented an expenditure of $230 per person on armaments that is far above what the world spends on food.

However, such enormous spending is no drain on their economies. Sales of arms worldwide not only help finance their Research and Development (R&D), they also generate huge profits. Besides, the industry creates large-scale employment for scientists and engineers and funds research projects in leading universities to tap their talent. It is a *win-win* situation for the universities, students and the firms, apart from enhancing the scientific temper overall. Clusters of ancillary industries and suppliers benefit local economies and taxes

Key Points

1. A Nation aspiring for a seat on the Global High Table cannot be dependent on imported weapons
2. Imperative to have a strong Military-Industrial Base and time-bound Defence Modernization
3. Private sector must form its nucleus and be the engine of growth, productivity and innovation
4. Revamping of Defence PSUs and DRDO to boost productivity and competitiveness
5. Extensive armament exports to generate revenues for R&D and Defence Modernization
6. Exclusive University for B Tech and M Tech degrees and R&D in advanced Defence Technologies

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Website: www.claws.in Contact us: landwarfare@gmail.com

on the multi-billion dollar profits raked by these corporations fill up National and State coffers.

Then, there is India, the world's largest importer of armaments. It still does not have the capability to produce cutting-edge weapon systems for its Armed Forces even though it had to fight five wars (1947-48, 1962, 1965, 1971, 1999) with China and Pakistan. If India aspires to be a significant player in the emerging *multipolar* world order, it is vital that it builds a "state-of-the-art" armaments industry. It cannot remain dependent on imports.

DEFENCE MODERNISATION AND BUDGETARY CONSTRAINTS

There is a critical backlog in the modernisation programme of all three Services. We lag several decades behind China, which initiated its military's modernisation in 1979, with the exclusive allocation of funds under the *Four Modernisations* mission. China is increasing the gap further as its 2018 Defence Budget of $ 168.2 billion was 290 percent higher than India's $ 57.9 billion budget (at average market exchange rates) according to the 2019 edition of *The Military Balance* published by the International Institute for Strategic Studies.[1] Even this meagre allocation has been shrinking year-after-year, and currently, it is only 1.578 percent of the GDP. Moreover, Revenue Expenditure on pay, stores, supplies, etc., takes up over 80 percent of the Defence Budget, which leaves less than 20 percent for the Capital Expenditure on modernisation.

It is painfully obvious that such a situation is just not tenable given that we have to face two formidable adversaries. Besides, we need to be far stronger to be able to cope with the high volatility of the new multipolar world, especially in our region. It is imperative that we close the perilously large gap by taking-up force modernisation as a time-bound mission. We also need "out-of-the-box" solutions for a major restructuring of the defence industry and to generate additional resources for this mission.

By far the most important thrust area should be large-scale export of armaments. All advanced nations follow this model, where revenue from armament exports finances their R&D, and which ensures that they are always at the frontiers of technology. Like these countries, we too must facilitate the entry of the Private Sector in a big way and let it become the engine of growth, productivity, and innovation. Against this backdrop, let us examine the current state of our defence manufacturing capability.

INDIA'S DEFENCE INDUSTRY

Public Sector

For a nation, wherein the British set up the first Ordnance factory in 1787, and which increased to 18 by 1947, regrettably we still do not have a modern military-industrial complex. Currently, we have 40 Ordnance factories, but our Armed Forces continue to face shortages of conventional munitions and even rudimentary defence equipment and stores.

Despite the severe resource crunch, national leaders had the vision to set up Defence Public Sector Units (PSUs) such as the Hindustan Aeronautics Limited (HAL), Bharat Electronics Limited (BEL), Mazagon docks, as well as plants for producing tanks, guns, and vehicles soon after the Independence. Yet, even after decades of operations, these have not attained global standards of R&D and product excellence, which could have obviated the need for imports.

[1] International Institute for Strategic Studies, *The Military Balance*, (London: Routledge, 2019).

What ails our Ordnance factories and Defence PSUs? It is the same ills as those afflicting most government offices and establishments, namely, overstaffing, lack of accountability, and lackadaisical self-serving work culture. It is an established dictum that only systems based on competition, rewards, and accountability are able to deliver high performance and innovation. That is why government units and establishments have much lower productivity compared to the corporate world.

For instance, for decades the Armed Forces had to purchase Shaktiman and Nissan trucks made by the Vehicle Factory Jabalpur under license from the foreign developers. All those years that our generation of soldiers had to suffer them, we did not see even marginal improvements. There was just no incentive for the government factory to put in that extra effort.

Protectionism invariably spells the death-knell of innovation and excellence. Defence PSUs enjoy protection since the Armed Forces are captive buyers and the MoD forces even sub-standard products upon them. If these units were to face competition and win orders based only on superior products and reliability, then productivity would improve substantially. According to the corporate dictum, "perform or perish", managers have to be accountable. Unfortunately, antiquated labour laws and politico-bureaucratic vested interests perpetuate mediocrity and low productivity.

Private Sector

The Private Sector has minimal participation in our defence industry, whereas it is the backbone of military-industrial complexes all over the world. Even Socialist economies such as Russia and China run their defence-manufacturing units as autonomous profit-centres. Bureaucratic red tape, political interference, and sloth in the workforce do not affect the Private Sector. Competition keeps them lean and mean, and they have to fight for orders based on innovative features and product quality.

India has several large corporations that compete in the highly demanding global marketplace with a wide range of their products. A vast pool of skilled engineers and technicians is already doing excellent work for them and many more are readily available. Given appropriate policy decisions to enable their entry into the armaments industry, they have the potential to turn India into a major developer and exporter of sophisticated weapon systems.

Firms, such as Tatas and Mahindras have been providing high-quality military vehicles for many years. We produce various grades of high tensile steel, which is the core requirement of the defence industry. Likewise, Bharat Forge now produces world-class metal forgings that go into tanks and guns. Our large pool of talented software experts and system designers can contribute immensely to developing hi-tech opto-electronic systems and avionics for the Armed Forces.

It is imperative that our Private Sector forms the nucleus of our military-industrial complex and leads its growth. However, given the enormous sunk costs in our Ordnance factories and Defence PSUs, those too have to contribute. However, their work ethos will require radical changes to make them more productive. Greater divestment and restructuring can help inject the work culture of the Private Sector so that they play a complementary, even competitive, role in boosting our defence capabilities.

THE WAY FORWARD

Foremost, it is essential to take up modernisation as a time-bound 5-year mission. The timeframe is short, yet we will have to achieve it to catch up with China. It must have a dedicated allocation in the Union Budget, outside the regular Defence Budget. Some avenues for raising funds for the Defence Modernisation Mission could be, divestment in Defence PSUs, Joint ventures (JVs) with Private Sector, National Defence Bonds for public subscription, foreign partnerships, routing all weapon import offsets exclusively for modernisation, and greater indigenisation.

Private Sector firms will obviously have to make huge investments in infrastructure and equipment, without any guarantee of bagging the contract eventually. Since this Mission is critical for the nation, the government will have to incentivise the Private Sector, facilitate their entry with speedy clearances, and nurture them through their teething problems. It must encourage and assist them to export their weapon systems, and give them export subsidies. Only then will they become major revenue earners.

The government, however, must pre-qualify corporate houses that seek entry into the defence sector for security as well as financial reasons. It must apply stringent criteria based on their extant product line, technical capability, infrastructure, management, financial resources, and performance record. The focus must be only on those corporate houses that have the potential to develop, produce, and export complete systems. The government must deal only with a single entity, which will have the overall accountability for all aspects of the systems. Firms, however, may select own vendors for producing components.

Corporate houses would establish a Defence Subsidiary (DS) for this endeavour. Financial due diligence must be carried out both, of the subsidiary and the parent firm. It must include the debt and equity structure, working capital, reserves, and its liabilities to banks. Contracts must put the liability squarely on the parent firm in case of default, to avoid *Kingfisher* like situations. They must raise capital mainly from corporate reserves, global capital markets or public issues, and preferably not through debt instruments.

Competition must be an important keystone of this policy and there should never be a monopoly situation. There should be an oligopoly at the minimum, to ensure competition and innovation, and prevent price gouging. To uphold this principle the government must invite and pay two to three potential developers to produce prototypes, which the users can then test out comprehensively.

ORDNANCE FACTORIES AND DEFENCE PUBLIC SECTOR UNITS

The biggest challenge will be to stir the huge behemoth of our Ordnance factories and Defence PSUs. With astronomical sums invested in this *white elephant,* it is imperative to extract optimum utilisation and productivity. All units must be self-sustaining profit centres and subject to a stringent performance audit. Our leadership will have to find the political will to counter the inevitable resistance from workers, managers, bureaucrats, and politicians since all have a stake in maintaining the status quo.

An option for restructuring could be JVs between the DSs and select Ordnance factories, based on complementarities of respective resources, skills,

and product lines. Depending on the value of equity purchased, the JV could get some plant, machinery, and infrastructure of the PSU. The PSU may also transfer some engineers and technicians so that the JV can hit the ground running.

The intent is to eliminate monopoly, by making the PSU and JV compete for orders from the Armed Forces for that equipment or armament. Such competition will boost productivity and innovation and help PSUs imbibe the private sector's work culture and best practices. Besides, divestment of equity in PSUs will generate invaluable resources for the Defence Budget.

An Apex Body will be necessary to oversee the entire mission. This will include the entire gamut from strategy formulation, shepherding the necessary legislative and regulatory processes, coordinating between government agencies and the private sector, right up to the timely implementation.

Restructuring is a complex and time-consuming process. Eventually, the Public and Private Sector components of our defence industry will consolidate and commingle to leverage the economies of scope as well as of scale between themselves. Only then will they be able to develop synergies and tap our full potential.

INTENSIVE EFFORTS TO BOOST EXPORTS

The success of this endeavour will depend solely on the ability of our defence industry, both in the Private and Public Sectors, to generate huge export revenues. The government and the corporate houses will have to pull out all stops.

It will require organising regular Defence Expos on a grand scale in potential markets in Asia, Africa, Latin America, and the Middle East. Our Defence attaches abroad can play a vital role in assessing potential requirements in those countries and help them connect with firms back home.

The large investments by the Private Sector will take many years to bear fruit. Until export revenues start streaming in, the government will have to provide all possible support through suitable regulations, tariff structures, subsidies, and knowledge transfers from the government's R&D establishments. Such protection is permissible even by the World Trade Organization (WTO) under the "infant industry" clause.

JOINT VENTURES WITH FOREIGN FIRMS

Armaments involve large high-risk investments and global arms manufacturers are reluctant to agree to technology transfers. However, we have a significant advantage by way of low-labour costs, good industrial base, infrastructure, and skilled workers. Private Sector firms and PSUs must go for foreign technical collaboration and JVs in a big way to produce modern weapon systems in India. Such manufacturing hubs will not only generate employment but also, more importantly, facilitate invaluable knowledge dissemination to firms and the general industrial ecosystem.

Technology transfer must remain a key priority to upgrade features of systems for our domestic use and to make our weapon systems meant for export markets more attractive. This must go beyond just incremental upgrades to more substantive futuristic technologies.

WEAPON SYSTEM IMPORTS

This may tantamount to showing a red rag to a bull, but nonetheless, import of new weapon systems must be channelised only through Private Sector defence firms. The rationale is that corporate houses are very adept at negotiations, which they undertake regularly for acquisitions, mergers, JVs, and collaborations with foreign entities. They have better bargaining skills and can negotiate critical technology transfers by leveraging their own capabilities to manufacture sophisticated systems for them at much lower costs. Their ability to forge these long-term relationships will help us upgrade our weapons technology on a continual basis.

This will also eliminate the "sword of scandals" that hangs over all arms deals negotiated by the government, which have wreaked havoc with our defence preparedness. Ideally, two or three Private Sector defence firms must negotiate separately with competing foreign arms manufacturers, and then make product offerings of their entire package to the government. The Armed Forces can then pick whichever package is best overall.

All advanced nations follow this model, where the Private Sector is the lead player for all armament transactions from R&D, manufacture, sales to own Armed Forces and for exports. There is no reason why we should not adopt it too. Only the politico-bureaucratic combine would be averse to it.

DEFENCE RESEARCH AND DEVELOPMENT ORGANIZATION

The Defence Research and Development Organization (DRDO) is another much-derided, money-guzzling white elephant. It gets a major share of the Defence Budget but sadly does not have much to boast about by way of results and productivity. Ever eager to bag projects, the DRDO makes lofty promises of meeting all General Staff Qualitative Requirements (GSQRs) within time. It thus secures virtually a blank cheque from the MoD, but tales abound of its indefensible cost and time over-runs in every project, which are available in the public domain. However, such is its power and influence as a fiefdom of the MoD, that the Armed Forces are invariably compelled to accept sub-standard offerings, much to the mortification of the users and strategic experts.

Not just restructuring, more importantly, it needs a drastic overhaul of its work culture. Stringent performance audit and financial accountability must be the key norm. DRDO must follow the same model as in all foreign R&D establishments and university research departments, which have to earn their existence. Most of them have only a small nucleus of permanent cadre, who earn tenure only after years of sustained results. The remaining personnel are hired based on the demand and have to justify continued retention with sustained good performance.

The Defence Research and Development Organization must get only a limited fixed amount from the budget just for its core establishment. The bulk of its funding should come from the number of product or process patents it can sell to our defence industry and from research grants secured from the industry on the strength of their R&D results. It too must follow the principle *perform or perish,* and its funding should be contingent only upon its productivity in terms of quality, cost, and time.

... Strong Military-Industrial Base

NATIONAL UNIVERSITY OF DEFENCE TECHNOLOGY

The mainstay of military-industrial complexes of advanced nations is a very high standard of technical education specialising in various armament technologies. They are making spectacular advances in futuristic technologies such as Artificial Intelligence, cyber-warfare, robotics, etc. Most R&D is undertaken through collaboration between the armaments industry and leading universities.

The Indian Institute of Technology's (IITs) and engineering institutes offer only generalised technical education. We do not have any institution dedicated exclusively to defence technologies right from undergraduate and graduate levels all under one roof. For instance, China's Defence Technology University is among its only four seven-star universities and its students hold the distinction of developing one of China's most powerful supercomputers.

If we are to make rapid strides in the defence industry, we need to establish a university that offers Bachelor of Technology (BTech) and Master of Technology (MTech) degrees in various Defence Technology specialisations. Its alumni will find rewarding employment in Private Sector armament firms, Defence PSUs, and DRDO. It must also have customised programmes in Defence Technology applications for managers, service officers nearing retirement, MoD officials, and entrepreneurs.

Besides these colleges, the university should have "Centres of Excellence" in advanced technologies such as Artificial Intelligence, cyber warfare, drones, surveillance, opto-electronic devices, robotics, directed energy systems, and space applications.

Such a university would create a strong cadre of engineers, researchers, and entrepreneurs that would help accelerate our Defence Modernisation Mission. It will provide the critical mass for our resurgence as a self-sufficient nation in state-of-the-art weapon systems and advanced technologies. It will raise the scientific temper in the nation several notches and will have immense spin-offs for Small and Medium-sized Enterprises (SMEs) in defence ancillaries. Our veterans have immense experience in operating as well as in repair and maintenance of sophisticated weapon systems. They would be invaluable for employment and entrepreneurship in the defence industry.

In sum, a strong military-industrial complex is indispensable for all nations that aspire to be at the *Global High Table* and who want to be a significant player in a multipolar world. Not only would armament exports help resolve the severe budgetary constraints that are holding up "badly needed" defence modernisation, but JVs with foreign armament majors will also make up the technology gaps with leading nations.

The situation is dire as we lag behind our principal adversary by almost two decades. We have the requisite skills and can-do entrepreneurial zeal among our people. Do we have the necessary political will to nudge the recalcitrant bureaucracy into implementing urgently needed reforms that would help fulfil this mission?

CENTRE FOR LAND WARFARE STUDIES (CLAWS)
RPSO Complex, Parade Road, Delhi Cantt, New Delhi 110010
Tel.: +91-11-25691308, Fax: +91-11-25692347, Email: landwarfare@gmail.com
Website: www.claws.in
CLAWS Army No. 33098