

PARADIGMS OF CMF FOR DEFENCE R&D AND PRODUCTION ECO SYSTEM : CREATING LEVEL PLAYING FIELD FOR PRIVATE SECTOR

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The edifice of national power lies in strength of vibrant economy, effective diplomacy and credible military deterrence. Countries that are heavily dependent on import of weapon and equipment are vulnerable due to prospects of non supply when needed the most, besides political linkages attached to the it. Moreover, it siphons out national financial resources which can be better utilized to enhance structural strength of the country. India in face of two adversaries with inimical designs, unstable periphery and presence of extra regional powers in seas pace needs to be self reliant as regards to her security structures. Therefore, **cutting edge technology and a vibrant defence production eco systems are essential for ensuring high national strategic pull.**

India, as on date, is the fifth largest military spender after the US, China, Russia and Saudi Arab accounting for 9.5 % of global sales of military hardware¹below¹. We have spent more than \$ 100 billion in arms deal over last 15 to 16 years. The major arms suppliers to India are Russia(49%), France 18%, US (15%), Israel (11%) and few others². 60% of weapons and platforms continue to be of Russian origin and that too of old technology that needs replacement with state of art weaponry. Major arms importers during 2017-2021 are India, Saudi Arab, Egypt, Australia and China. On other hand the major arms exporters have been US, Russia, France, Germany and China.³

India has missed out on nurturing the indigenous defence production industry despite availability of all the requisite ingredients within the country. **The basic fault lines can be traced to the policy of restricting the private sector due to security reasons.** In consequence, monopoly of the government controlled R&D establishments have failed to deliver to the expected levels. In that, the scientific community, despite adequate facilities and high skill human resources, could not come up with cutting edge technologies which could be leveraged to cut down the import of weapon systems. **While there have been success stories in the field of space, missile and mechanized equipment technologies, the overall output has not been optimal when compared to innovative streak of Indian scientists working in foreign countries.**

One of the reasons attributed to this state is restrictive serpentine bureaucratic procedures to clear the projects and finances. Accordingly, **environmental freedom for innovation and exploration, a much needed tenet for research has been missing leading to 'sarkari' culture in R&D establishments.** It resulted into an unending cycle of imports in absence of seriousness and sensitivity of the organizations and individuals mandated to keep the armed forces in fine fettle.

Given our dependence on imports of almost 65 % of our military hardware, it is essential to build up own military industrial base so as to minimize dependence on outsiders. The **Atmanirbhar/Make in India initiative** by the present political dispensation has brought in some hope to inject much needed dynamism in the defence production sector. Looking at the sensitivity of the matter, the government is trying to bring in a paradigm shift by way of **pragmatic approach to achieve a long term vision** to enhance national power in all its manifestations. The team leaders have **reset and reposition the national priorities to exploit the in-house leverages to boost the defence production and affiliated industries.**

While world over it is the private sector which is the main stay of the defence production, it is not so in India due to deep set security concerns. Moreover, lack of strategic culture and concomitant politico-military synergies, have not taken national security with the kind of seriousness

it deserves. In consequence, **defence technology inadequacy has resulted in strategic vulnerabilities in absence of accountability of institutions and individuals entrusted with providing with structural strength to the armed forces.** Hence, **there is a need to involve the private sector and create a level playing field** to beat the competition from well entrenched public sector as well as foreign OEMs.

It is a **function of financial viability** of the private enterprise through cutting edge technology, assured long term demand, optimal purchase commitments, industry friendly procurement procedure and flexibility to operate in open national as well as international markets. **It would require an enabling eco system and encouraging leadership to make the private sector a viable participant in the nation building alongside well experienced public sector.** To do that, defence technology is the essential denominator of the national power in order to retain our strategic autonomy and we must remove all the stops to acquire it.

In western countries the major part of research is done through the academic institutions wherein the private industry as well as the government provides the funding for the research work. This model has been proved to be a success story, hence need to be implemented in our country also. In this model, the research problem is spelled out by the industry to number of technology institutions, who then give the task to the domain experts and the research scholars. The research scholars are granted higher degrees for such industrial research work as an incentive. The public sector R&D establishments may also like to outsource part of their research work to the academia instead of hiring scientists on permanent basis, thereby increase their research base and at the same time infuse competition.

The Defence Research and Development Organisation (DRDO), Ordnance Factory Board (OFB) and Defence Public Sector Units (DPSUs) have well established laboratories and affiliated infrastructure for R&D. These may be made available to the private sector, university research scholars and even individual scientists under certain terms and conditions. The armed forces ranges and government test facilities

may also be made available for trials and quality assurance of the equipment being developed by the private industry. The DRDO, OFB and DPSUs may also share their R&D work and functional designs with the selected private companies who have essential infrastructure as their manufacturing partners.

Government may help selected universities in establishing R&D centres. These centres may employ retired armed forces officers and scientists from DRDO as advisors to the research scholars. Few scientists(NRIs) from foreign countries who have worked in the defence industry may also be considered as professors and advisors. These **universities may be designated as nodes of excellence for certain specific scientific fields with requisite laboratories and test facilities for better focus.** Taking the idea of such R&D research centres further, establishing a national university exclusively for defence R&D may be considered by the government.

The concept of startups is yet another emerging layer which is proving to be a source of transformation in the field of scientific research arena. The defence industry is a reasonably unexplored domain with possibilities of providing opportunities to give expression to the creativity of young minds **The startups are normally focused on creating smaller supportive technologies and products required for fabrication of the weapon systems and platforms.** Therefore, the ancillary units would be the biggest beneficiary of the startups as they have potential to provide technology and consultancy to meet their industry objectives. The startups also have a potential for substituting import of expansive technologies from the foreign countries.

The private sector with its higher operating flexibility has even larger scope to exploit the potential of the startups for their research and manufacturing needs. Large number of startups in closer vicinity of defence industrial hubs and defence corridors especially in Bangalore, Chennai, Hyderabad, Pune, Nagpur etc are testimony of success of this phenomenon. The central and state governments have schemes with lucrative incentives to encourage innovation including part compensation of the costs involved.

The current procurement policy stipulates transfer of technology as a preconditions for arms purchases from foreign Original Equipment Manufacturers (OEMs). Whereas, it is unlikely to be given by them easily as it would impact on their own future businesses. In consequence, the concept of '**Make for India**' as prompted by few visiting foreign dignitaries **may encourage the foreign OEMs to set up their global manufacturing hubs in India** with freedom of operations, management and marketing of their products world over. **To be fair to foreign OEMs, even they need to have a reasonable degree of confidence in Indian systems and their own profitability prior to transferring the technologies.** It is also a fact that that there are shades of grey in the business of arms production and sales. Hence, need of utmost caution in proceeding ahead with schemes.

India in such an arrangement would be benefitted by cutting down expenditure on weapons due to competition and also reduction in logistics and after sale services costs. Moreover, eventually the technology and techniques would be known to Indian workforce over period of time. In addition, large number of ancillary units would also come up as supporting mechanism to produce sub systems and also take care of the offset obligations. **Having acquired adequate experience and skills to absorb the new technologies, the Indian industry would be in a position to achieve higher degree of self reliance.** China, from a net weapon importer has become fifth largest weapon exporter as on date with this concept. In 2017-21, China accounted for 4.6 per cent of global arms exports. However, 47 per cent of China's exports during 2017-21 went to Pakistan⁴. Therefore, it is worth looking at this model suitably modified in Indian context.

The government is encouraging selected big Indian business houses to start joint ventures especially big ticket weapons, platforms and support systems. Reliance, TATA, Mahindra & Mahindra, L&T, Bharat Forge etc are leading companies known to have entered into partnership with foreign manufacturing giants. These companies have defence verticals that have started manufacturing of combat vehicles, optronics, radars, air frames, ships, sub marines, missiles, artillery guns and the like.

Reliance Naval and Engineering Limited (RNaval) is into building warships. RNaval operates India's largest integrated shipbuilding facility with 662 M x 65 M Dry dock. TATA companies are manufacturing large number of transportation equipment like troop carriers, combat support platforms, Infantry combat support vehicles etc. Mahindra defence systems is also into combat vehicles besides manufacture of naval equipment. L&T is manufacturing land and naval weapons, air defence and artillery platforms, fire-control systems, combat engineering systems, communication, avionics, and missile systems. Bharat Forge is manufacturing armoured vehicles, artillery and air defence guns. There are large number of private companies that have shown interest in the field of defence production.

Since it is the public sector that have experience and structural facilities for defence production, it would be better to **club them with selected private companies as partners**. It would optimize capabilities of public as well as private sectors as regards to infrastructure, engineering support, skilled manpower, finances, market dynamics and managerial interface of the enterprises. The government has opened up few manufacturing fields exclusively for private sectors depending on their domain specialties and capabilities.

Manufacturing of high technology, high secrecy big ticket strategic equipment certainly needs government interface in Indian context, wherein public sector companies along with private partners would be better bet than leaving it purely to the private enterprise. Such an arrangement may **also take care of security concerns of foreign countries as regards to transfer of their cutting edge technology as Government of India would be one of the stake holders**.

Unlike government financed and protected public sector, the **focus of private sector is profit maximization for which they invest, innovate and struggle to create a niche for their product so as to survive in the dynamics of open market**. Unless there is a reasonably assured market and optimal profit generation, they are unlikely to venture out in a new business line. **It is therefore, essential for government to facilitate fair market conditions for private players to enter in the defence production**.

The government needs to create opportunities for private sector for higher participation. To do that, products available in the open market at competitive rates may be purchased exclusively from the private enterprises instead of PSUs. The Ordnance factories producing such products may then be **gradually repositioned to produce different products of importance** to utilize their structural capabilities and skilled manpower. Subsequently, **Permitting private companies also to export the surplus production** after fulfilling laid down internal obligations would be a big incentive to the private sector in this model.

India enjoys reasonably high economic buoyancy as on date and it is time to relieve the government from the responsibility of running the businesses which is best avoided. Therefore, **privatizing selected DPSUs and ordinance factories would be an appropriate step to infuse better management practices to draw economies of scale.** Another option is to go in for **Government owned and corporate operated (GOCO) concept** which is a hybrid business management model to involve private sector with minimal financial liabilities. This has already been introduced in running the **Army Base Work Shops** dealing with repair and recovery of sensitive defence equipment.

The present **procurement procedure is too complex and complicated** and does not infuse confidence amongst private sector and foreign vendors who are used to fast track procedures. It needs to be simplified for **'ease of doing business'** by aligning it with corporate sector practices. The concept similar to **"Single Window Clearance"** already in vogue in other sectors may be looked at with appropriate changes as regards to special requirements of the defence industry.

There are **hardly any secrets which are not known world over as regards to weapon sales** and their operational connotations in the global digital environment. Therefore, **present day information transparency when hyphenated with our obsession with security concerns prompts a reality check of our restrictive policies.** Moreover, there are far too many sequential procedures alongside checks and balances which make the system very lengthy with high degree of uncertainty. There exists a scope of simplifying the entire procurement mechanism thereby facilitating a level playing field in sync with international practices.

What we have as on date is primarily a defensive military structure with substantial percentage of weapon and platforms of vintage variety. The disputes with both China and Pakistan happen to be in the mountainous terrain, where as India does not have offensive capability in these sectors. The Indian offensive content is designed against Pakistan and that too in areas of settled international borders. These doctrinal and structural mismatches need to be corrected without further delay. The ongoing coercive Chinese build up in Laddakh has amply highlighted this structural short coming.

The air force is short of combat squadrons as against authorized strength of 42 that too with low tech vintage equipment in number of units. There is an urgent need to replace older generation aircrafts so as to enhance offensive capability in the aerospace domain. The naval power is barely sufficient for defence of marine territories with limited power projection capability with only one carrier group. The emerging threat in Indo pacific warrants additional carrier groups for domination and power projection in our areas of interests. Besides this, the security structures are also required in cyber, space and other non contact hybrid war domains. Winning wars is a function of technological edge which comes at a high cost and not to forget that technology is changing very fast.

The defence budget needs to cater for these national security essentials, organizations, weapon platforms and support systems. Yes, it possibly cannot be done in one budget looking at other national priorities, but the time for acquisitions and their absorption need to be shortened. Accordingly, **the finances for defence establishment need to be delinked from precedence centric model to operational capability synthesis.** There is also a **need to remove the camouflage of expenditure on pay & pensions of civil service personnel** which is reasonably high and cuts into availability for capital expenditures.

There is an allocation of Rs 525166.15 crore for the defence budget which is Rs 47000 crore more than the last year's allocation of 4.78 lac crore⁵ With these figures, it would be possible to spare more funds for capital purchases as compared to last year. **The union budget 2022-23 has stipulated that 68% of capital procurements would be from Indian companies.** Besides this, **25 % of R&D budget (11981 cr) has**

been earmarked for private sector, academia and start ups⁶. India spends 6% of defence budget on R&D which is far less than US and China that spend around 20% on research. Moreover, their defence budget is much higher than Indian budget, hence there is a lot to catch up to come at par with their capabilities. Another positive move is to permit the private sector to use the government testing facilities so as to create a level playing field.

During last three years there have been RFPs worth Rs 2,475,75 lac cr to be procured from Indian vendors. In that, 121 contracts out of total of 191 contracts were signed with Indian companies during this period. The positive indigenization list now stands at more than 2800 items which cannot be imported. There have been exports worth Rs 13000cr last year which is 50% higher than the previous year. The government has targeted a turnover of Rs 1.75 lakh crore in defence manufacturing, including Rs 35,000 crore from exports in aerospace, and defence goods and services by 2025⁷. **FDI has been increased to 74% for automatic route and upto 100% in case of selected equipments⁸**

History is a reckoner that it is technology that has been the biggest battle winning factor. While government policies to create better eco system for R&D is a welcome step, it would take decades before it can produce some tangible results. Moreover, there is always a probability of slippages especially the way technologies and the concepts of weaponry are changing. Therefore, it would be most sensible and cost effective to acquire proven technologies at any cost, if we are serious to push our agenda. **It warrants removing all the stops to motivate the foreign OEMs to either sell their technology, or establish their units in India. The terms of business should be so attractive that it becomes difficult to refuse.**

Let us understand one point very clear that India has no choice but to confront the adversaries from position of strength. That **strength will only come with building a modern defence industry and support structures duly backed with sufficient budgetary allocations.** To do that, the entire political dispensation needs to be on the same page as **we need to shift from a perceived soft state to a hard power with**

credible deterrence. It needs inculcate strategic culture amongst the decision makers in order to sanitize the nation from inimical afflictions impeding rise of India as a world economy.

Self reliance in defence production is essential to offset out existing political fault lines impacting on our strategic pull. Hence, need of wholehearted involvement of the leadership, institutions and individuals to synergize their act to achieve national security objectives in right earnest. While the government is trying to play its role as a facilitator, what matters is the commitment of the industry to play their part in the nation building. Let us take this national mission forward as a matter of utmost priority.

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Endnotes

1. Pandit Rajat (16 March 2021), "India's weapon imports", Times Of India, page 1
<https://timesofindia.indiatimes.com/india/indias-weapon-imports-fell-by-33-in-last-five-years-but-remains-worlds-second-largest-arms-importer/articleshow/81516403.cms>
2. Ibid
3. Singh Suchet,(15 March 2022), " India biggest importer of arms", The Print, page 1, <https://theprint.in/defence/india-biggest-importer-of-arms-in-2017-2021-but-atmanirbharta-push-sees-volume-fall-by-21/872896/>
4. Ibid
5. "Defence Budget 2022-23, securing India", (01 Feb 2022), ORF, page 1, <https://www.orfonline.org/expert-speak/defence-budget-2022-23/>
6. Union budget 2022-23,01 Feb 2022, PIB, Government of India, <https://pib.gov.in/PressReleasePage.aspx?PRID=1794415>
7. PIB Govt of India, "Rakha Mantri Exhorts Indian Defence industry" dated 27 Sep2022,<https://pib.gov.in/PressReleaselframePage.aspx?PRID=1862541>
8. Nagial BS, (02 May 2022), " Atmanirbhar Bharat and selfreliance in defence", Times of India,