

'Make in India' for Defence: A Roadmap

Laxman Kumar Behera

Laxman Kumar Behera is Research Fellow at the Institute for Defence Studies and Analyses (IDSA), New Delhi.



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Summary

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1. Establish a Defence Minister's Council on Production (DCMP) to prepare a long term roadmap and set a target for the defence industry, monitor progress, and, more importantly, bring all the stakeholders on one platform and subscribe to the vision of MII.
2. Convert the Long Term Integrated Perspective Plan (LTIPP) of the Indian armed forces into a defence manufacturing and R&D plan, to be executed by local entities.
3. Promote a certain degree of defence research and development outside the Defence Research and Development Organisation (DRDO).
4. Set up a dedicated defence technology university on the lines of the Indian Institute of Space Science and Technology to meet the vast human resource requirement of defence.
5. Treat the private sector as an equal partner and expedite big-ticket contracts to be awarded to them under the 'Make' and 'Buy and Make (Indian)' procurement categories.
6. Create a conducive financial framework that incentivises defence manufacturing by domestic industry.
7. Reform DRDO, Defence Public Sector Undertaking (DPSUs) and Ordnance Factories (OFs) along the lines suggested by past committees appointed by the Government.

Summary and Recommendations

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Introduction

India is probably the only large country in the world which is overwhelmingly dependent on external sources for its defence requirements. According to *Stockholm International Peace Research Institute (SIPRI)*, India is the world's largest arms importer, accounting for 14 per cent of global arms import during 2009-13. Replying to a question in the Rajya Sabha, the Union Defence Minister stated that India spent a whopping Rs. 83,458.31 crore on arms imports in a matter of three years ending 2013-14. This dependency on arms import is a stark reminder of how far India is from the objective of substantive self-reliance in defence production that it has aspired to since the early days of independence. However all is not lost. The 'Make in India' (MII) initiative launched by the National Democratic Alliance (NDA) government of Prime Minister Narendra Modi offers a ray of hope. Under the

initiative, 25 sectors including defence manufacturing have been identified to revive India's industrial growth and more importantly propel the nation as a global manufacturing hub. If the objectives of the MII are to be realised in the defence manufacturing sector, the government needs to address some pressing issues that have hindered India's drive for self-reliance.

Institutional Mechanism for Defence Manufacturing

The greatest weakness in India's defence manufacturing is the lack of a high-powered institution that can lay out a long term roadmap for the defence industry, set a target for the industry, monitor the progress, and more importantly bring all the stakeholders on one platform and commit to the common cause of MII or self-reliance. In the absence of such an institution, crucial decisions with far reaching implications are being pursued by various stakeholders in a piecemeal fashion, and often at cross-purposes. For instance, while the armed forces are interested in acquiring equipment in the shortest possible timeframe without being too concerned about where it is acquired from, the Defence Research and Development Organisation (DRDO), the premier R&D agency of the Ministry of Defence (MoD), seems content with endless design and development efforts, with scant respect to timelines and the sanctioned budget. For their part, the defence production agencies, major parts of which are owned by the government, appear to be happy manufacturing, while the technology for it is not in their control. Consequently, the focus of producing defence equipment in-house and achieving true self-reliance loses focus and India ultimately ends up importing.

Realising the importance of an institutional mechanism, the Group of Ministers (GOM) set up by the previous NDA government under Vajpayee, had recommended the creation of a Defence Minister's Council on Production (DMCP) under the leadership of the Defence Minister himself. To give the DCMP a dynamic outlook, and enable it to seek ideas and experience from other sectors, the GOM had recommended that the high powered body should draw members not only from the top leadership of the defence establishment but also from the departments of space, atomic energy and science and technology, as well as eminent industrialists from the private sector. As per the GOM's recommendations, the DCMP would, among other things, "lay down the broad objectives of the long term equipment policies and planning on production, simplification of procedures." However, as is the fate of key recommendations of many government-appointed committees, this crucial recommendation of creating a DMCP has so far been ignored. Interestingly, the government was quick to implement one of the GOM's recommendations that led to the creation of Defence Acquisition Council (DAC) under the chairmanship of the Defence Minister. However, as the name suggests, the DAC is geared towards addressing the short-term procurement-related hurdles rather than addressing the concerns of the domestic industry for achieving self-reliance in the long term. As a matter of fact, indigenisation is a mere by-product of the DAC's decisions rather than being the cornerstone. For the MII to

become a reality in the defence manufacturing sector and more importantly for the initiative to become a self-sustaining drive, the long existing culture of apathy towards indigenous defence manufacturing needs to change. A key requirement in this regard is the establishment of the DMCP at the earliest.

Defence Manufacturing and R&D Plan

The apathy towards in-house production of defence equipment is perhaps best exemplified in the way various defence plans are prepared and pursued. True, India has a well-articulated, if not the best, system of drawing defence plans that covers three distinct time periods: 15-year Long Term Integrated Perspective Plan (LTIPP), five-year Services Capital Acquisition Plan (SCAP) and two-year roll-on Annual Acquisition Plan (AAP). All these plans are prepared with a focus on 'acquiring' the best possible equipment available in the world. The DRDO and domestic industry are completely ignored in the planning process. To make matters worse, there is no channel for the armed forces to provide advance information to the domestic industry so as to enable the latter to come up with detailed financial, technological and industrial plans to meet the requirements in a timeframe that is acceptable to the armed forces. The Technological Perspective and Capability Roadmap (TPCR), announced in April 2013 as a means to bridge this gap, has been disappointing and regarded as completely useless by both industry and analysts for its lack of specificities and absence of any commitment from the government.

Consequently, when the acquisition process begins, it is often too late for the R&D and production agencies to offer a solution. To overcome this difficulty, the Economic Advisory Council to the Prime Minister, in a report of September 2013, had recommended that it would be useful to "convert the LTIPP into a defence manufacturing and R&D plan". More significantly, the advisory council had suggested that the conversion should be undertaken by a joint working group involving all important stakeholders including the Indian industry and R&D establishments. This vital recommendation does not seem to have received the required attention of the policy makers. Since much of the success of MII lies in translating the long term requirement of the armed forces into technological and industrial outputs, it is high time that the government comes out with a detailed plan for the industry and R&D agencies at the earliest. The plan, in order to be successful, must identify specific projects that would be executed by local agencies.

Research and Development: Looking beyond the DRDO

One of the unique features of India's defence industrialisation process has been the near monopoly enjoyed by the DRDO over defence research and development. This began with the establishment of the DRDO in 1958 and has been perpetuated ever since. The dependence on DRDO for technology has however not yielded the desired results. Despite having a large pool of scientists/engineers and over 50 labs and establishments, the DRDO has been beset with many a problem leading to failures and cost and time overruns in the

projects undertaken. This, combined with lack of R&D in industry and academia, has compelled the country to source technology from outside, leading to a vicious cycle where initial imports lead to further imports.

Compared to India, other advanced defence manufacturing countries encourage R&D at diverse sources that include dedicated research institutes, universities and industry. The model followed by many countries is one of R&D management, rather than limiting it to one agency. For instance, the *Defence Advanced Research Projects Agency* (DARPA) of the US, which has been at the heart of the several radical innovations including in the areas of stealth, internet, *Global Positioning System* (GPS) and Unmanned Aerial Vehicle (UAV), does not do R&D on its own. In fact, DARPA does not own a single lab of its own! Rather, it identifies talent and ideas from industry, academia, government laboratories and individuals, and awards R&D contracts to be executed in typical time scales of three-to-five years. DARPA's role is limited to shortlisting of projects and managing the programmes, which it does through 140-odd programme managers.

Among other countries which are successful in cutting-edge innovation, Israel offers another test case worth emulating. The giant strides that this small country has made are attributed to the Office of the Chief Scientist (OCS), which was set up in 1974 under the Ministry Industry, Trade and Labour. The OCS is responsible for executing the government's R&D policy to foster innovation and promote technological entrepreneurship. Like the DARPA, the OCS also awards R&D contracts to diverse sources and manages them with a small team that comprises of 30 full-time employees. OCA's core principle of R&D funding is not to subsidise R&D but to partially mitigate risks through government financial assistance. Interestingly, nearly one-fourth of the OCS budget (in 2011) came from the royalties paid back by companies that had successfully converted R&D funding into marketable products.

In order to expand its R&D base, India also needs to have an institution similar to DARPA or OCS. For this to happen there is need to look beyond the DRDO. The Scientific Advisor to Raksha Mantri (SA to RM) who is also Secretary, Defence Research & Development and Director General DRDO, should be relieved of his daily duties at the DRDO and given a role like that of the head of DARPA or OCS with a dedicated R&D fund at his disposal. This will not only create a healthy competition between DRDO labs and other agencies, but also lead to more innovation.

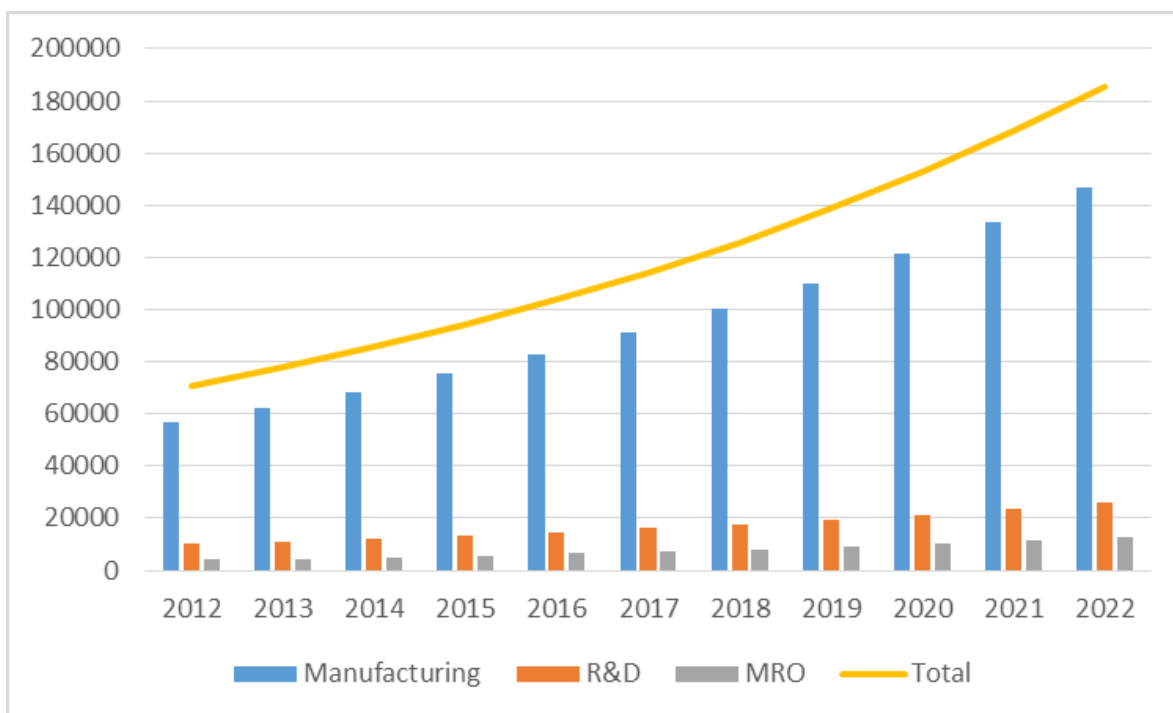
Human Resource Development

Unlike in most other sectors, defence industry requires a highly skilled labour force. Currently, there is hardly any thinking on how to create a robust human resource base both in terms of number and quality. Clear evidence to this effect is visible in the DRDO, which is the premier institution for India's defence innovation. The number of scientists at DRDO has not increased since 2001, although the number of projects has increased exponentially, with the organisation currently pursuing 44 major projects (each costing over Rs 100 crore) worth Rs. 39,560 crore.

Another equally disturbing facet of most of the scientific organisations like the DRDO is the low educational profile of the scientific workforce. The Rama Rao Committee, which reviewed the functioning of the DRDO and submitted a report to the government in February 2008, was greatly perturbed to see the predominance of first degree holders in the DRDO's scientific cadre. It had noted that only 10 per cent of the scientific manpower had higher qualification of Ph.D. To make matters worse, majority of the workforce was not trained in research, observed the Committee.

Low education and lack of training is also an aspect that is common to other high-end R&D organisations like the ISRO and atomic energy department, and even to manufacturing establishments such as Hindustan Aeronautics Ltd (HAL). A major reason for this is the class room teaching orientation of most Indian universities, which themselves are far behind their global peers (as per the *Times Higher Education World University Rankings 2013-2014*, not a single Indian university figures in the top 200). However, to overcome the quality constraints, organisations like ISRO and Atomic energy have devised their own methods. ISRO, for instance, runs a dedicated university, the Indian Institute of Space Science and Technology (IIST), that taps talent at a very early age and provides graduate, post-graduate and doctoral programmes in the areas of space science and technology. There is no such dedicated university for defence. According to one estimate, the aerospace industry in its three verticals – R&D, manufacturing, and maintenance, repair and overhaul (MRO) – alone will require an additional manpower of over 185,500 by 2022 (see Figure 1), justifying the necessity to set up a dedicated defence technology university.

Figure 1: Aerospace Industry: Human Resource Requirement



Source: National Skill Development Council

Private Sector as Equal Partner

Although the Indian defence industry was opened to the private sector in 2001, the latter is yet to contribute in any meaningful manner. The biggest hindrance in the private sector's participation so far has been mistrust. When it comes to big contracts, procedural hurdles come in the way, making it virtually impossible for the private sector to get into complex defence manufacturing. Moreover, single source procurement from the private sector is still considered a taboo, whereas import without competition is greatly admired.

For the MII to succeed, there is a need to change the mind-set and treat the private sector as an equal partner. This can only be demonstrated by awarding big contracts, preferably through the 'Make' and 'Buy and Make (Indian)' procurement categories, which hold the key to the success of the private sector's participation in defence production. For the government, it is imperative to announce a list of contracts which can be awarded under these two categories.

A Conducive Financial Framework

Defence is undoubtedly a strategic sector and countries all over the world accord special treatment to nurture and develop this vital sector. For instance, in the early phase of defence industrialisation in South Korea, the government provided a wide range of financial and fiscal incentives besides raising funds for the industry through a special defence tax (a 10 per cent income and surcharge tax) which remained in force for 15 years till 1990. Israel, a country which boasts of an advanced defence industry, continues to incentivise local enterprises through a 15 per cent price preference.

The Indian defence industry, however, operates in a hostile financial framework that tends to render it less competitive vis-à-vis foreign manufactures. It operates in a double-digit interest regime compared to the nearly zero interest rate system prevalent in Europe, US and many other countries. This increases the cost of working capital for the Indian industry which is reflected in the final products, making them uncompetitive vis-à-vis the products offered by foreign manufactures. The Indian industry also suffers on account of the variation in exchange rates. As per the MoD's Defence Procurement Procedures (DPP), local private companies winning contracts under the 'Buy (Indian)' category are required to bear all the risks associated with exchange rate variation (ERV). Non-protection against ERV has, however, led several companies to virtual bankruptcy due to a wide variation in exchange rates as has been witnessed in the recent past.

Apart from the above, Indian industry also suffers from prevailing taxes and duties, which offer virtually no incentive for any local company to undertake defence production. In fact, India follows an 'inverted structure' by which direct import is allowed free of duties whereas manufacturing the same product at home attracts several taxes and duties. What is surprising is that there is no realisation by the concerned authority that taxes and duties

can make or mar the local industry. As per several estimates, taxes and duties can raise the cost of local products by as much as 20 to 25 per cent. Considering that MII seriously seeks to promote local manufacturing, it is time to create a conducive financial framework for the local industry. Among others, the government may accord 'infrastructure status' to defence industry, which would not only take care of the taxes and duties concerns of industry but also incentivise new investments. It is also highly desirable that certain sales of the local industry may be given 'deemed export status' whenever such sales are likely to substitute direct import.

Reform DRDO, DPSUs and OFs

It is a fact that much of India's defence industrial woes are attributable to the inefficiency of the three major players - - DRDO, the Defence Public Sector Undertakings (DPSUs) and the Ordnance Factories (OFs) -- which, despite having a long presence in the sector, are yet to become globally competitive. Several efforts have been made in the past to reform these organisations but all have failed due to vested interests and lack of political will. Given that these are major players and their functioning will have a direct impact on the MII initiative, it is imperative to examine afresh the recommendations given by several past committees. Among others, the OFs should be corporatized and made more accountable for their functioning. All the unlisted DPSUs need to be listed in the stock exchanges to bring in transparency and enhance their corporate governance. The recommendations of the Rama Rao Committee on DRDO, especially the one for creation of a defence technology commission, should also be implemented at the earliest.

Conclusion

As per the official estimate of the MoD, India is likely to spend around \$130 billion on defence modernisation in the coming seven-to-eight years. While this makes India one of the largest defence markets in the world, the opportunity it offers should be fully exploited for the benefit of local industry. This will not only improve India's self-reliance in defence production but will have a multiplier effect on the wider economy. The government must ensure that the local industry is geared and incentivised enough to rise up to the expectations and make the government's 'Make in India' initiative a success story.