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A FEW GREEN SHOTS FOR INDIA'S DOMESTIC ARMAMENTS INDUSTRY

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Introduction

India has had a system of Ordnance Factories (OFs) operating in the country since the eighteenth century[1]. These OFs were set up by the British Colonial Government to manufacture armaments and associated supplies that could not be easily imported from the UK[2]. Typical products included gunpowder and ammunition for small arms and a few types of personal weapons for infantry units. Heavy armament was in most cases not planned to be nor manufactured in India. Imports from British factories in the UK met needs for heavy armament, though a few items such as cannons were manufactured in India at a few OFs. In pursuit of independence from imports the Government of India (GoI) invested in expansion of the products manufactured at its OFs and also went on to set up new enterprises to take up manufacture of other weapons needed by independent India's armed forces. These indigenous efforts met only partial success. In most cases the products of India's indigenous armaments industry was unable to match the capability and quality of equivalent imported weapons. Importing weapons, over time, became the norm for India's armed forces. This system of import reliance continues till date[3]. However, in the recent past there have been several events that appear to presage a move towards the development of a more robust domestic armaments industry.

Recent Developments and Analysis

Manufacture of equipment designed in more advanced countries under license was identified as a means of bringing the domestic armaments industry closer to the global state of the art. This philosophy led to the manufacture of the British Percival Prentice trainer, Vampire jet fighter, Gnat light fighter, HS-748 light transport aircraft, Soviet MiG-21, etc. in India[4]. In addition several other pieces of equipment were also

manufactured in the country. These included the British Vickers Valiant Main battle tank (MBT) called the Vijayant in India, Soviet T-72 MBTs, and BMP armoured personnel carriers (APCs)[5]. The manufacture of these items was expected to lead to domestic engineers gaining an insight into the design techniques of the modern world's weapons to enable India's armaments industry to move towards independent design and manufacture. This path, however, failed to work for a variety of reasons that have been examined in several separate writings that are beyond the scope of this article. This situation resulted in India gaining the dubious distinction of being the world's largest importer of military equipment.

There have been a few notable exceptions where indigenous defence equipment was produced and used extensively by the country's armed forces. These include the HT-2 basic trainer that served the Indian air Force (IAF) for over 34 years[6], the HJT-16 "Kiran" jet trainer that was designed in the 1950s[7] and remains in use even today, several naval vessels designed and built in India, the 105 mm Indian Field Gun (IFG), the "Lakshya" pilotless target aircraft (PTA), "Nishant" remotely piloted aircraft (RPA)[8], Akash surface to air missile (SAM) system[9] to name a few. More complicated cutting edge equipment saw more troubled paths. The HF-24 "Marut" fighter failed to achieve its planned performance and so saw service in a mere three operational squadrons of IAF[10], the "Arjun" MBT continues to suffer from drawbacks that the army finds unacceptable[11] and several other weapons failed to see the light of day.

In this generally gloomy situation the recent participation of the indigenous Light Combat Aircraft (LCA) "Tejas" in the Bahrain air show is heartening. The LCA was on static display and also performed in the air. Media reports in the aviation journals are generally appreciative of the performance displayed by the LCA in Bahrain[12]. The professional aviation journals are known to be objective and unforgiving in their assessments as these journals cater to the very serious international aviation industry and users. These journals have a reputation to maintain. The universally appreciative reports about the LCA raise hopes for success of this aircraft in the international market once the aircraft, over the next few months, achieves its final operational clearance (FOC) and enters IAF operational service in larger numbers.

Over the next few months the LCA is expected to complete its weapon integration and AESA radar integration and trials and move towards gaining FOC. Other areas have also seen progress.

It has been widely reported in the media that since induction of the Swedish Bofors howitzer in the late 1980s, the army has not inducted any artillery system, leading to a major shortfall in its combat firepower. Of late the GoI has initiated its 'make in India' initiative. In this

context the OFs and Indian Army (IA) have tested the indigenously built "Dhanush" howitzer[13]. This howitzer is essentially an indigenised Bofors weapon that has been upgraded to give greater accuracy and range as compared to the original weapon. In addition private industry has entered the armaments industry with Larsen and Toubro (L&T) putting forward its K9 Vajra-T self-propelled artillery system for consideration by the IA[14]. This K-9 weapon system is essentially a modified South Korean weapon system that has been modified by L&T to suit Indian conditions and IA's requirements. IA has placed an order for British Aerospace Systems' (BAe Systems') F-777 ultra-lightweight howitzers to meet its mountain warfare requirements. BAe Systems has tied up with Mahindra and Mahindra of India to take up indigenous manufacture of these howitzers and their spare parts in India[15]. The IAF's Avro replacement program has seen Tata owned Tata Advanced Systems offering to manufacture the Airbus C-295 in India[16]. Hindustan Aeronautics Limited (HAL) is taking up manufacture of the Russian Kamov Ka-226T light utility helicopter[17] (LUH) while continuing to develop its light combat helicopter (LCH), its own LUH, amongst other indigenous projects. These initiatives and developments are reason to hope for a more robust and capable domestic armaments industry emerging n India over the next few years.

Such positive developments are likely to have multiple beneficial effects on the country. The design and manufacture of major weapon systems within India should lead to generation of manufacturing jobs in the country. Domestic armament companies should also help GDP growth through giving an impetus to domestic industry including small and medium scale industries supplying sub-components to the major weapons manufacturers. The Indian economy could gain on multiple fronts from these developments. Firstly, the outgo of foreign exchange on account of imports of weapons could be stemmed to a large extent. The same money could now end up being spent within the country with obvious beneficial effects on the economy. In future the export of weapons systems could support the foreign trade effort through generating a positive balance of trade in India's favour. More importantly reliance on domestically sourced equipment would lead to greater strategic freedom as reliance on foreign suppliers of equipment and spares support would be reduced or may not be there at all. The Indian armed forces are actively supporting this latest push for development of a viable domestic armaments industry to achieve the larger national interest while also ensuring that the armed forces' combat capability is not compromised.

Conclusion

India's domestic infrastructure to manufacture armaments, despite its having been in existence since the nineteenth century, has

been unable to meet the needs of the armed forces. This has forced the country to import most major weapon systems. In the recent past there appears to have been considerable progress in several domestic weapon systems approaching maturity. At the same time the GoI's "make in India" initiative and the entry of private industry into the armaments industry have come together to show progress in many different projects. These lead to a situation wherein there is hope of the domestic armaments industry gaining the required impetus to achieve desired standards. Such a development could be expected to have beneficial effects on the country on several fronts ranging from the purely military to economic.

(Disclaimer: The views and opinions expressed in this article are those of the author and do not necessarily reflect the position of the Centre for Air Power Studies [CAPS])

Notes

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[6] N-4

[7] N-4

[8] N-4

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[16] Vivek Raghuvanshi, "Airbus, Tata To Build Indian AF Transport", http://www.defensenews.com/story/defense/air-space/support/2015/05/15/india-hal-monopoly-

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