
# 'MAKE IN INDIA' MISSION
## AND DEFENCE INDUSTRY HUBS

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Prime Minister Modi's address at Aero India 2015 on 18 February 2015 was remarkable in two aspects. One, rather than boasting about India's shopping list (as has been the practice in the past), he regretted the fact that India had the reputation of being the largest importer of defence equipment in the world. "But, this is one area where we would not like to be Number One", he said ruefully.

Two, he talked of raising the percentage of domestic procurement of defence goods to 70 per cent in the next five years. He referred to the studies that show that even a 20 to 25 per cent reduction in imports could directly create an additional 1,00,000 to 1,20,000 highly skilled jobs in India. Stressing that the development of India's defence industry was at the heart of 'Make in India' programme, he envisioned India becoming a part of the global supply chain.

However, the objectives of mission 'Make in India' with respect to the defence industry cannot be achieved with the current structures, policies and procedures. They are outdated, unproductive and beyond redemption. Persistence with *status quo* will not deliver. India will have to introduce fundamental reforms and initiate several radical measures to kick-start the slothful defence industry. Establishment of defence industry hubs should be the first step.

Industry hubs are regions where specific types of businesses are clustered. In the US, Detroit houses auto industry. Silicon Valley is a well-known industry hub for high-tech businesses. Similarly, there are hubs for sporting-goods (Ogden), nanotechnology (Albany) and garment industry (Los Angeles).

Industry hubs are not new to India as well. Coimbatore is a major textile hub with more than 16,000 small, medium and large industries. Jalandhar and Ludhiana are equally famous for sports and woollen goods, respectively. India's thriving auto industry owes its growth to the evolution of three auto hubs (Pune, Chennai and National Capital Region). Having realised their criticality, Gujarat is also seeking to develop auto hubs through attractive incentives.

The story of Pune auto hub is educative. It started with the entry of Tata Motors and Bajaj Auto in the 1960s. A number of ancillary units came up to cater for the demands of the auto majors. Arrival of Mercedes-Benz, in a joint venture with the Tatas in the 1990s, marked the emergence of Pune as an attractive destination for the auto industry. Many global auto majors have since established their facilities at Pune, making it earn the epithet 'Detroit of India'. As expected, auto component industry is also flourishing – there are about 7,000 auto ancillary units. Close to one lakh engineers are working in and around Pune. More investments continue to pour in.

### Defence Needs Multiple Hubs

Learning from the success story of the auto industry, the defence industry should also aim at having industry hubs for different weapon systems and technologies. It is best to have all analogous and interdependent industries co-located. In other words, every hub must be skill and knowledge specific.

Industry hubs are distinctly different. Unlike industrial-parks / industrial-estates / economic-zones, they are not located in a demarcated area. Industry hubs are clusters of complementary industries that are located in functional geographic proximity. The spread of a hub depends on the nature of industry, availability of area and the infrastructure. Hubs provide the following distinctive advantages:

- Facilitate co-location of system integrators and component suppliers.
- Provide a fillip to ancillary industries.
- Promote small and medium sized industries through interfacing with large conglomerates.
- Provide favourable environment for innovations and technology upgradations.
- Nurture technical excellence through focused but competitive developments.
- Reduce costs through the co-location of laboratories and test facilities.
- Improve visibility of smaller players in getting noticed for their niche competence and get financial support from investors.
- Provide modern storage and transportation facilities to reduce per-business costs.
- Generate employment.

It is an accepted fact that innovations, both in technology and manufacturing processes, flourish in industry hubs. Concerned over decreasing manufacturing prowess of the US, President Obama, in the State of the Union address of February 2013, proposed the launch of a network of manufacturing hubs to develop and deploy new manufacturing technologies, to be anchored through collaborative R&D efforts between the industry, academia and government agencies.

### Prerequisites

However, for an industry hub to be able to deliver, it must have the following essential features:

- Ample availability of unskilled, skilled and managerial manpower. For that, close proximity of technical education institutes helps.
- Peaceful labour environment.
- Assured power, gas and water supply.
- Adequate open storage, warehousing and cargo-handling facilities, including containers.
- Necessary integrated infrastructure, to include roadways, railroad sidings, ports and high-end communication cables and high-volume gas lines.
- Easy accessibility of required raw material and convenient export of finished goods.
- Availability of facilities like palletisation, assembling, wrapping, packaging, repackaging, shrink wrapping and firefighting systems.
- Favourable climatic and weather conditions. For example, a dust free environment is preferable for electronic hubs.

As defence is a vast field transcending across many technologies, dedicated hubs would be required for different specialised fields. The government has to play a major role in making the concept succeed. In addition to developing necessary infrastructure, as mentioned above, it must facilitate acquisition of required land by the industry. Easy availability of funds at reasonable cost, tax incentives and purchase / price preference are some of the other measures that can make hubs attract newer investments. Feasibility of according infrastructure status and deemed-export status to eligible manufacturing units should also be considered.

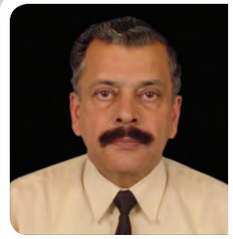
### Some Suggested Hubs

Indian defence industry is in a nascent stage. It is dominated by nine public sector enterprises (including four shipyards) and thirty nine ordnance factories. The private sector is a peripheral player. Giants like Hindustan Aeronautics Limited (HAL), Bharat Electronics Limited (BEL) and Bharat Earth Movers Limited (BEML) have multi-location manufacturing facilities. On the other hand, ordnance factories are located all over the country.

As stated above, hubs are industry specific. Therefore, it will be prudent to develop hubs in areas where defence laboratories and industrial units are already located. They should become the nucleus around which clusters should be developed by attracting newer enterprises of analogous business interests. It will be unwise either to relocate them or to duplicate the facilities. Based on the above criteria, some of the potential defence industry hubs are as follows:

***Armament and Combat Engineering Systems Hub.*** It should be located around Pune as three premier defence laboratories Armament Research and Development Establishment, Research and Development Establishment, Dighi and High Energy Materials Research Laboratory are already located here. Whereas Ammunition Factory and High Explosive Factory are situated in Khadki, Ordnance Factory, Dehu Road manufactures pyrotechnic products. In addition, Pune is industrially well developed with a number of supporting units. For example, Bharat Forge, the largest forging company in the world is located here.

***Aeronautical Systems Hub.*** Bangalore is the undisputed choice as the city is host to almost all major laboratories and industrial units associated with aeronautical systems. The laboratories include Aeronautical Development Establishment, Centre for Airborne Systems, Defence Avionics Research Establishment, Gas Turbine Research Establishment and Centre for Military Airworthiness



**Maj Gen Dr Mrinal Suman AVSM, VSM (Retd)**

The writer is India's foremost expert in myriad aspects of defence procurement procedures and offsets. He heads Defence Technical Assessment and Advisory Services Group of the Confederation of Indian Industry. A prolific writer, his articles are regularly translated in many languages and his views command immense respect in India and abroad.

and Certification. HAL, the colossus that straddles the Indian aerospace sector, has many facilities located in Bangalore. It has already developed a large vendor base and helped the growth of ancillary industries.

***Combat Vehicles Hub.*** Chennai is ideally suited for the purpose as it is already a major auto hub, accounting for 60 per cent of India's automotive exports. It houses companies like Ford, Hyundai, Renault, Mitsubishi, Nissan, BMW, Daimler and Datsun. The premier defence laboratory Combat Vehicles Research and Development Establishment is also located here. In addition, ordnance factories like Engine Factory and Heavy Vehicle Factory have their facilities nearby in Avadi.

***Missile Technologies Hub.*** Hyderabad is the obvious choice for this hub. Defence Research and Development Laboratory and Research Center Imarat are located here. In addition, Bharat Dynamics Ltd, the undisputed leader in the manufacture of anti-tank guided missiles, surface-to-air weapon systems, strategic weapons, launchers, underwater weapons, decoys and test equipment has its factories in Hyderabad. Equally significant is the presence of the BrahMos Integration Complex in Hyderabad. Requirement of super-alloys, titanium and other specialised metals can be sourced locally from Mishra Dhatu Nigam.

***Opto-electronics and Electronic Devices Hub.*** Due to the favourable climatic conditions and close proximity to Delhi, Dehradun lends itself for the hub. A number of important defence laboratories like Defence Electronics Application Laboratory and Instruments Research and Development Establishment are located at Dehradun. In addition, Opto Electronics Factory and Ordnance Factory Dehradun (manufacturer of binoculars, telescopes and night vision devices) have their manufacturing facilities in Dehradun. Laser Science and Technology Centre and Scientific Analysis Group are located at a short distance at Delhi.

***Communication and Computational Systems Hub.*** Bangalore is India's Silicon Valley and is ideally suited for such a hub. In addition to the presence of a large number of IT companies, two premier research establishments ie Centre for Artificial Intelligence and Robotics and Electronics and Radar Development Establishment are located here. BEL has large facilities (radars, electronic warfare systems, electro-optics and tank electronics) in Bangalore which can be seamlessly integrated. Favourable climate will be an added advantage.

***Defence Materials Hub.*** A cluster of defence manufacturing units exists in central India around Kanpur. They include Ordnance Clothing Factory Shahjahanpur, Ordnance Equipment Factory Kanpur, Ordnance Equipment Factory Hazratpur, Ordnance Factory Kanpur and Ordnance Parachute Factory. The proposed hub can also draw benefit from the Defence Materials and Stores R&D Establishment at Kanpur as well.

The above list is purely indicative in nature. It is neither exhaustive nor inflexible. Many more hubs would be required to cater for other defence products. The government will have to carry-out a technical *inter se* appraisal of all likely areas for various hubs and identify the ones that yield maximum benefits. In many fields, it may be prudent to have more than one hub in the country.

## The Way Forward

Unlike other sectors, defence industry requires highly focused and well-considered treatment for four primary reasons. One, initial investments are heavy and gestation periods are long. Two, cutting edge defence technologies suffer from rapid obsolescence, thereby needing sustained R&D. More so as key imported technologies are vulnerable to embargos by foreign governments.

Three, stringent quality control is of paramount importance as defence systems cannot fail in operations. In a way, national defence potential is dependent on the quality of equipment produced. Finally, market is highly restricted. Generally, government is the sole buyer and budgetary constraints can restrict its purchasing options. Therefore, vendors need to have adequate financial cushion to sustain them during the lean period.

**In case India wants to develop its defence industrial potential, it has to adopt the route of industrial hubs**

As is apparent, hubs are ideally suited to cater for the above mentioned attributes of the defence sector. In case India wants to develop its defence industrial potential, it has to adopt the route of industrial hubs. They can propel India towards the achievement of the status of a global manufacturing hub through the co-location of multiple systems integrators and component suppliers, thereby facilitating synergy of operations and generating competition.

Dismal state of the indigenous defence industry is a matter of serious security concern. Fortunately, it has been included in the list of 25 sectors identified for mission 'Make in India' to spur industrial growth. This golden opportunity should not be missed at any cost.

Finally, India should not be content with manufacturing prowess only. The litmus test of a nation's defence industry is its ability to innovate *ad infinitum* to develop newer technologies and weapon systems. Manufacturing hubs should ultimately graduate into innovation hubs, both at the product and production levels. Achievement of technological excellence should be the ultimate aim. It is only then that India can hope to reduce dependence on imports and ensure success of the ambitious 'Make in India' mission. DSA