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Logistic Support for the Armed Forces : A Review

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By

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"Logistics comprises the means and arrangements which work out the plans of strategy and tactics. Strategy decides where to act; logistics brings the troops to this point."

- Jomini: Precis de l' Art de la Guerre. (1838)

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General

The word 'logistics' is derived from the Greek adjective *logistikos* meaning, 'skilled in calculating'. In the present day, logistic refers to coordinating and moving resources, people, material, inventory and equipment from one place to another. It involves activities of purchase, the delivery of raw material, packaging, shipment and transportation of goods and provision of services within an organisation.

Military logistics is the discipline of planning and carrying out the movement and maintenance of military forces for impending operations. Besides above mentioned elements it also entails the following:

- Design, development, acquisition, storage, distribution, maintenance, evacuation, and disposition of materiel.
- Acquisition or construction, maintenance, operation, and disposition of facilities.
- Acquisition or furnishing of services.
- Medical and health service support.

Poor logistics have often resulted in failure on the battlefield, due to a mismatch between the operational plan and the logistics support plan.[i] Modern logistics therefore, requires a networked system, supported by improved forecasting, efficient supply chain management based on a good and secure communication network (road, rail, air, maritime and cyber) and adequate warehousing. Operations Research particularly Transportation Models enhances the efficiency and the effectiveness of the modern logistic models.

An efficient and effective logistic system needs to ensure timely supply of items as per specified timelines. It may consist of following elements:-

- Demand and supply planning.
- Management of in and out bound transport system and fleet management wherever required.
- Warehousing.
- Arrangements for material handling.
- Inventory management.

Indian Defence Services Logistics System

The Armed Forces have grown in the framework inherited from the British system which was in vogue till Independence. Indian Army (IA) has three services, namely Army Service Corps (ASC), Army Ordnance Corps (AOC), and Electronics & Mechanical Engineers (EME) for provision of logistics support. ASC also provides victual support to Indian Air Force (IAF) and to Indian Navy (IN) and to Para Military Forces (PMF) on as required basis. For repair and maintenance of equipment, IAF and IN depend on their respective systems. Military Engineer Services (MES) and Army Medical Corps (AMC) provide infrastructure support and the medical support respectively. Similarly for other logistic services, the three Services have their own systems and procedures. It is worth noting that the IA has three Services providing the logistic support with a system of certain coordination amongst them. On the contrary, the IN and the IAF have their respective combined logistic cadres.

While the above time tested system has its own merits, there is a need to graduate to a dedicated logistic cadre as has been done by the more advanced countries. The German and French armies also have a separate Armament Cadre.[ii] For the Indian Armed Forces, dependency for the supply of arms, ammunition and equipment is on the Ordnance Factory Board (OFB), Defence Public Sector Undertakings (DPSUs) and in a limited manner, on private industries which have started their military hardware production wings.

A military supply chain has three distinct chains: The first is the quick movement of light commodities like food, medicines and clothes. The second is the transportation of major weapon systems that require repair and maintenance over an extended period of time. The third is the deployment chain in which large bodies of troops are required to move in a short time frame.[iii] Unlike a commercial supply chain, a military supply chain also has reverse and lateral flows to move salvage stores and stores/troops transferred from one sector to another.

Efficiency of the supply chain can be enhanced by digitisation of the inventory, leveraging technology for better monitoring of the movement, repair and maintenance and outsourcing supply and repair/maintenance to exploit the strength of the growing market. More than 85% of all material moves on commercial transport but the supply chain in the field is heavily dependent on service transport due to nature of operations, difficult terrain and operational conditions including the condition of roads. The technology and resources available in civil sector need to be leveraged to reduce large fleet of Service transport. Also Border Roads Organisation (BRO) in tandem with MES and National Highway Authority of India need to improve infrastructure in the border areas by leveraging the revolutions in the domain of civil engineering.[iv]

Replenishment of ammunition, arms and equipment is done on highest priority based on a 'Push Model' and through a very well planned and fully developed infrastructure. For ensuring such a critical part of logistics, OFB, DPSUs, concerned AOC & ASC authorities and MES assume great importance.

Medical support to Armed Forces is based on BC Roy Committee Report in 1947. Positioning of medical units at nodal points, evacuation of casualty, supply of medicines and movement of doctors is all done on similar priority as that of ammunition.

Current Status

A comparative study reveals that the IN and the IAF are arguably far ahead of the IA in keeping pace with the advances in the domain of Revolutions in Military

Logistics (RML). The IAF is again arguably a hair breadth ahead in conventional logistics management and the IN is ahead in capital acquisition and weapon platform development.[v] IAF, through their computerised inventory management system IMMOLS (Integrated Material Management On-Line System), and the IN through their ILMS (Integrated Logistics Management System) have been able to achieve a very high degree of transparency, efficiency and economy in the domain of logistics management. The IA has also started on computerisation of their inventory through a system named CICP (Computerised Inventory Control Project), but it will take a while before it becomes fully functional.[vi] There are a large number of items in the respective inventories of the three Services which are common, which bespeaks of the need for a joint logistic system which could be attempted in a graduated manner.[vii] It is important to note that the Revolution in Military Affairs (RMA) views the battle field as an integrated and interoperable system with real time situational awareness by information fusion. Logistics resources too, therefore, must be congruent with the operations in its totality.[viii] Pooling of resources would enhance the capability of the logistic services to position material when required, thus providing a superior edge and making it a force multiplier. One of the aims of the formation of Integrated Defence Staff was to achieve this kind of coordination between the three services. In fact, the concept of Network Centric Operations has added a new dimension to logistics planning and will necessitate reengineering of the logistic support.

The National Logistics System (NLS) entails railways, road network, inland water transport (IWT), air transportation, shipping (last two modes particularly for islands) and communication. A major part of the military's requirements of clothing, web equipment, shoes/boots, rations, fuel-oil-lubricants (FOL), supplies, vehicles and repair (less field and specialised repairs), can be leveraged from the NLS, freeing the ordnance factories from this task and enabling the private sector.

The weapons, ammunition, equipment and clothing for the Armed Forces are procured largely from the defence public sector. A major portion of the defence

requirement is also procured from imports with the private sector contributing marginally.

The Defence Public Sector

At the time of independence, India had 18 ordnance factories. Post independence, 23 additional factories have been added of which two, one in Nalanda, Bihar and the other in Korwa, UP are in the project state.[ix] These are managed by the OFB, formed in 1979 under the Department of Defence Production (DDP). The OFB also has nine training institutes, four centres of safety and three marketing centres under it. It is engaged in research, development, production, testing, marketing and logistics of a comprehensive product range in the areas of air, land and sea systems. It has a total strength of 1,64,000 people[x] and generated revenue of $3 billion in 2015-16.[xi] It is arguably world's largest government operated production organisation and among the top 50 defence equipment manufacturer of the world.[xii] It does its own self certification for its product.

The relevance of having such a huge establishment in the public sector however needs to be debated as India now has fully developed industries and markets capable of supplying quality goods in an assured time frame to the military. Continued dependence on the public sector as the sole source of supply has led to critical shortages and questions being raised on the quality of the products being supplied by it. Some of these, as stated in the CAG report tabled in parliament in 2017 and Standing Committee on Defence (SCOD) are as under:

- Serious shortfalls exist in the holding of stocks of ammunition, all of which are sourced from OFs. This shortfall increased from 54.73% in 2009-13 to 64.95% in the period 2013-16 but no accountability has been fixed for the same. In addition, 14 types of ammunition were found below par, of which 59% pertained to just two types — ammunition for 81 mm mortar and 155 mm Bofors gun. Poor quality control has led to the rejection of ammunition worth Rs 17,000 crore, which included ammunition as basic as 7.62mm.[xiii]
- Slippages have also been observed in supply of basic items such as Boots High Ankle DVS. In the period 2009-10, against a demand of 4,87,444 boots, only 32,500 boots were supplied.[xiv]

- Quality control rests with the Quality Control Section of the concerned factory and subsequently with the DGQA. CAG observed that inadequate inspection at various stages, repeated rejection and frequent complaints are raising questions on the working of the OFB.[xv]
- OFB is working on self sufficiency in design and R&D. However indigenisation achieved till 2015-16 was only 87.30%.
- The machine down time is showing a rising trend, which points to a need to upgrade technology.
- Cost of production and over heads is very high in OFB as compared to the private sector.

Besides the OFBs, the nine DPSUs namely Hindustan Aeronautics Limited (HAL), Bharat Electronics Limited (BEL), Bharat Earth Movers Limited (BEML), Mishra Dhatu Nigam Limited (MIDHANI), Bharat Dynamics Limited (BDL), Mazagaon Dock Shipbuilders Limited (MDL), Goa Shipyard Limited (GSL), Hindustan Shipyard Limited (HSL) and Garden Reach Shipbuilders and Engineers Limited (GRSE), play an important role in trying to achieve self reliance. While OFB works in the low technology domain, the DPSUs cater for the strategic needs of the Armed Forces. The DPSUs were established to ensure that India achieves self sufficiency in the manufacture of advanced arms, equipment and other related accessories. However, it is still below 40%. In fact, share of DPSUs in capital acquisition had decreased from 45% in 1998-99 to 41% in 2006-07. The steadily increasing arms import bill indicates that the indigenous production is not keeping pace with the rising demand.[xvi] According to US Congressional Research Service, India with an import bill of $34 billion during 2008-15 has become second largest Arms importer.[xvii] As per Stockholm International Peace Research Institute (SIPRI), India remained the world's biggest arms importer over the five year period 2012-16, its share of global arms imports rising from 9.7% in 2007–11 to 12.8% in 2012–16.[xviii]

Another relevant issue is that the labour productivity of the DPSUs is 1/5 of the world average.[xix] Sector of defence production is very important as nearly $250 billion would be invested in the modernisation of Indian Armed Forces in next

decade.[xx] It is apparent that OFB and DPSUs together will not be able to meet the demands of the Armed Forces even with the revised FDI limit of 49% in DPSUs.

Recommendations : Logistic System

The logistic system must take into account present day realities of improved communication infrastructure, an advanced industrial base, technological upgradation and improved international cooperation. This would make possible the 'Just in Time' concept for assured supplies to forward troops in times of conflict. We need to learn from certain international experiences such as the use of Radio Frequency Identification (RFID) to track the movement of all containers using Global Positioning System (GPS) from the point of shipment to destination to give real time location.[xxi]

A common logistics philosophy at the level of the three Services and for the para military forces (Assam Rifles and Coast Guard) needs to be enunciated and implemented.

At organisational level, Armed Forces should be integrated in true spirit with the MoD. Certain appointments like JS (Aerospace), JS (Electronic Systems) and JS (Naval Systems) should be made tenable by the service officers in rotation. FICCI and CII should be associated with the DDP for better coordination between Industry and MoD. A data connectivity should be planned between DDP and the Service HQ for better user interface.[xxii]

International cooperation as evinced by the Logistics Exchange Memorandum of Agreement (LEMOA) with USA, which gives Indian Armed Forces access to the military logistics at any US Base across the world[xxiii] and the strategic pact signed with France providing for the use of each other's military facilities including opening of naval bases to warships for provision of logistics, supplies and services

during authorised port visits, joint exercises and joint training[xxiv] opens up vistas for similar cooperation with countries in the region to reduce logistic drag.

Recommendations : Defence Production

To leverage capacity available in the civil sector, defence production which currently is predominantly is an exclusive domain of the OFB and DPSUs should increasingly be opened up to the private sector as a part of the 'Make in India' initiative with a view to leverage their capacity and capability to have access to the latest in technology.

The focus of DRDO and DPSUs should be on highly classified and critical technologies and equipment. Mergers and acquisitions should be planned to make them more competitive.

Dependence on OFB for clothing, ammunition, vehicles and arms should be reduced by leveraging capacity available in the civil market with certain revised procedures for after sales service. Also, industry needs to be cultivated with certain assured orders for a mutually accepted period, which will enhance responsiveness of the OFB besides improving the supply position.

With a view to ensure optimisation of the resources, the private companies working for the defence sector could be given access to DRDO to carry out research. Users should be co-opted with the product development to improve the quality of the equipment supplied by the OFB.

The private sector could be coopted for the manufacture of ammunition for infantry weapon systems and for the artillery and mechanised forces, in conjunction with the OFB and DRDO.

The Naval model of forming project specific teams of users and making them part of the developmental process from qualitative requirement formulation to the final stage of the equipment getting introduced into service should be introduced in the IA and IAF.

An audit of the ordnance factories, DPSUs and DRDO must be carried out to determine efficiency and productivity of the work force and the need for technological upgradations in the manufacturing process to enable indigenisation.

Enhancement in the FDI limit should be considered from case to case basis in conjunction with CII and FICCI to encourage industry to take up defence production. Incentives like tax holiday and assured order placement for a fixed period should be introduced.

Access to DRDO by OFB/DPSUs/defence industry will help 'Buy' and 'Buy & Make' provisions of DPP more effective for development of futuristic weapon systems.

The system of self certification needs review.

Conclusion

Centrality of logistics in current operational scenario especially in Network Centric operations should be accepted. An integrated logistics system with an IT enabled inventory management system is the need of the hour. OFB, DPSUs and MES need to reinvent themselves in conjunction with DRDO and Academia to face the new technological challenges. Finally the burgeoning market and ever growing industry be associated to optimise the resources.

(*Maj. Gen. A.K. Chaturvedi retired as Addl DG (Personnel), Engineer–in-Chief's Branch, Army Headquarters.)

[i] Rear Admiral AP Revi, "Revolution in Military Logistics", published in Indian Defence Review, Issue Volume 23-3, Jul-Sep 2008 dated 14 Feb 2008.

[ii] IBID-11.

[iii] Published by SANKRIYA Operations and General Management Club, IIM Ranchi dated 27 Sep 2013 and uploaded on http://opsclubiimr.wordpress.com/2013/09/27/Supply-Chain-Logistics-Management-in-Indian Army

[iv] 'Military Logistics and Transportation-2017' dated 23 Aug 2018 uploaded on http://imrmedia.in/events/event.php?event_id=192

[v] IBID-11.

[vi] Personal discussion with a senior Ordnance Officer.

[vii] 'Joint Logistics: The Way Forward' by Brig S Bhalla, pub in the Journal of Defence Studies and uploaded on http://idsa.in/system/files/ids_3_3_sbhalla.pdf

[viii] IBID-17

[ix] Para-7.1.1.1 of CAG Report No 15 of 2017

[x] Trends in Defence Production: Case of Ordnance Factory Board retrieved on 02 Jul 2015

[xi] Ddpmod.gov.in retrieved 05 May 2017

[xii] "Archived Copy" 24 May 2011, retrieved 2012-05-13.

[xiii] Chapter 7 of the CAG Report No 15 of 2017

[xiv] Para 5.2 of Chapter 5 of CAG Report No 24 of 2013.

[xv] Para 7.1 of IBID-28.

[xvi] "India's Defence Public Sector Undertakings: A performance Analysis' by Laxman Behra uploaded on htpp://idsa.in>files>jds_3_4_lkb

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