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Integrated Logistics and its Potential in the Armed Forces



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Origin of logistics industry is traced to the defence forces when invading armies were faced with the option of carrying loads manpacked, on horseback or on carts. In those times, probably the civil industry did not have much application of logistics since most of the trade was on the barter system and localised. However, with industrialisation there came the need to carry raw materials and finished products within and across continents. Hence, the logistics gained prominence. In order to keep pace with highly demanding client needs, the logistics industry has transformed into an extremely innovative and integrated modern sector.

Overview of Indian Logistics Industry

In order to understand the concept of integrated logistics and its applicability in the armed forces, it would be prudent to get an idea of the current state of Indian logistics industry. Over the last three decades, the Indian logistics industry has transformed from a mere transportation agency in the nineties of the last century to an industry which has integrated transportation, warehousing and consignment

Key Points

1. The concept of logistics originated in the armed forces and was later adopted by the industry.
2. Logistics in the industry has transformed, over the years, into an innovative and integrated sector.
3. Requirement of supply chain, transportation and logistics in the army is unique and needs tailor-made, reliable and responsive solution.
4. Potential for integrating logistics within the army, amongst the three services and with the 'National Logistics and Infrastructure Grid' is immense.
 - Towards 'Single Point' accountability within the Army.
 - Prevent duplication amongst various services of the army and amongst the three services.
 - Synergise military and national infrastructure to achieve economy.
5. Key to integration amongst the three services lies in collective effort for transformation at the apex level.

The Centre for Land Warfare Studies (CLAWS), New Delhi, is an autonomous think-tank dealing with national security and conceptual aspects of land warfare, including conventional and sub-conventional conflict and terrorism. CLAWS conducts research that is futuristic in outlook and policy-oriented in approach.

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tracking through extensive digitisation. In order to concentrate on their core competency, the mainstream industry is outsourcing the logistics function to third parties known as Third Party Logistics (3 PL). The aim of outsourcing logistics is also to minimise the inventory and function on 'just-in-time logistics concept' without compromising on timely delivery and efficiency.

Indian logistics industry has been growing at a steady pace despite the upheavals in global economy and domestic slow down. In fact, logistics is a big contributor to Indian economy both directly and indirectly. Automobile and infrastructure sectors are intertwined with logistics and are mutually synergetic. Currently, Indian logistics industry is valued at approximately \$250 billion and is likely to cross \$350 billion by 2020 with a predicted growth of 12-14 percent up to 2020 as per KPMG study.

Key Drivers

Implementation of Goods and Services Tax (GST) will be a key driver which minimises waiting period for load carrying vehicles at interstate barriers thereby increasing the distance covered by a vehicle in a day and reduces fuel wastage. Enhanced development of infrastructure especially, the roads, dedicated rail freight corridors and infusion of technology such as internet of things and robotics will further give a push to efficient logistics sector. Logistics forms a key component of E-Commerce. With implementation of environmental provisions regarding backloading of packaging material and return of unsuitable goods, reverse logistics is adding another dimension to logistics.

As a result of enhanced emphasis on infrastructure development and simplification of customs and other clearances, India has climbed 19 places as per World Bank logistics performance report of 2016 over the previous report of 2014. India is now positioned at 35th place in Logistics Performance Index (LPI), with Germany topping the chart and China at 20th position.

Despite the above positives, India still has a large number of issues which require attention. We spend as much as 13 percent of our Gross Domestic Product (GDP) on logistics which is far more when compared to 8.20 percent by the United States. The primary reason is inefficiency of processes and comparatively underdeveloped infrastructure. Similarly, due to lack of standardisation, we carry just 54 percent of our logistics by containers, whereas the figures for China and United States are 73 and 70 percent, respectively. As per World Bank study, waterways are the cheapest means of mass transportation compared to rail and road. Consequently, road transport is the most expensive means of mass transport compared to the other two. Unfortunately, India carries 60 percent freight by road, 31 percent by rail and just eight percent by waterways compared to China which carries 46 percent by waterways, 30 percent by road and 23 percent by rail. Therefore, we need to balance our modal mix to make logistics economical. India had an extremely well-developed inland waterways system in northeast India, connecting the North East to Kolkata prior to partition in 1947 which became dysfunctional due to partition of Bengal and creation of East Pakistan.

Concept of Integrated Logistics

In the industry, the definition of integrated logistics is "planning, implementing and controlling the physical flow of goods, services and related information from points of origin to points of consumption to meet customer requirement with profit". The logistics service provider has to be so efficient that he/she does this job in such a manner that it is not only economical for the main industry that outsources the logistics function for reasons of economy and but the logistics service provider also makes a profit.

Industry adopts the concept of integrated logistics with the objective of rapid response, standardisation as to minimise inventory held at various echelons.

Consolidation of movement through multimodal or varying type of vehicles is another objective. Such a support is generally based on life cycle concept. In order to achieve the above, the process of integrated logistics involves:

- anticipating customer requirements,
- acquire the capital, materials, people, technologies and information necessary to meet them,
- optimising the goods or services producing a network to fulfil the client needs, and
- utilising the network for timely delivery.

Advantages

Logistics is a major cost element for the industry. Explosion in product variety/inventory necessitates specialised service which is best done through extensive use of info-technology. Some of the advantages of integrated logistics are:

- There is a visibility on orders, products and stock.
- Reliable service levels and lead time.
- Consolidation and load optimisation.
- Ensuring optimum goods flow.
- Standardised global practices.

Applicability in the Armed Forces

Having seen the meaning, processes, objectives and advantages of integrated logistics in the industry, it is important to assess and arrive at applicability of this concept in the armed forces. Integrated logistics concept in the armed forces can be viewed from the following points of view:

- **Integration within the Army:** Opportunities for integration within the army based on 'womb to tomb' or life cycle concept. This will prevent duplication and integrate multiple agencies both in the army and industry in a manner that single point accountability is fixed for an equipment/system.
- **Tri-Service Integration:** This would imply avoiding duplication and arriving at common procedures and processes for acquisition and inventory management at least for common use

items to begin with. We could have tri-service joint organisation staffed by all ranks of three services.

- **Integration with National Logistics Grid:** National and military logistics are generally mutually complementary. A coordinated approach amongst the two can ensure economy, efficiency and better response. The same is happening currently by default, it would be much more productive in case the process is institutionalised.

Perceived Weaknesses of the Current System

Present system of logistics support in the armed forces has functioned as a very versatile and effective system which has stood the test of time both during peace and war. However, it also needs to be accepted that logistics support in the army is still based on the British legacy and changes effected post-independence have been miniscule and incremental at best. Before recommending changes to the current system, it is important to understand the weaknesses in the existing logistics system. Some of these are:

- Divergence in procurement, stocking, inventory control and support functions of all three services.
- Service headquarters have limited control over the budget, thereby resulting in delays and cost overruns as most cases are required to be referred to the MoD.
- Absence of a single authority responsible for logistics support of military. Advanced armies like the United States and the United Kingdom have separate set ups in the form of Defence Logistics Agency (DLA) and Defence Logistics Organisation (DLO), respectively headed by defence officers which ensure single point functioning and accountability.
 - Absence of a joint logistics doctrine.
 - Lack of technological synergy between military and the industry.
 - Inadequate automation synergy between the three services.

Arun Singh Task Force on Defence Logistics constituted after the Kargil conflict stated “Enormous sums of money are being spent (and often wasted) on maintaining individual logistics support in common items among the services and also in developing management approaches (including computerisation). A DLA could be set up to standardise and integrate to the extent feasible. One of the new mandates given to the task force is to examine methods to bring about improvements in the procurement process and to ensure cost-effective management of defence.”

From the above, it clearly emerges that in order to achieve economy and efficiency without compromising effectiveness there is a need to develop joint logistics set up between the three services at least in common use items resulting in optimisation by preventing duplication.

Peculiarities of Indian Armed Forces Logistics

Unlike the industry or some western armed forces, the logistics support in the context of Indian military has some distinct peculiarities. The policymakers need to be cautious not to fall into the trap of force fitting a business/logistics model of a foreign military in our context. Some of the peculiarities of logistics in general and those pertaining to Indian context are:

- Western armies are part of an alliance like NATO having global commitments and are very rarely involved in combat in their neighbourhood/own soil. On the other hand, India has unsettled borders with two of her nuclear neighbours keeping the armed forces in a different state of readiness and commitment. We are geographically disadvantaged to be located in a very volatile subcontinent plagued with insurgency often supported by our neighbour/s.
- **Bullwhip Effect:** Unlike the industry where the consumption and demand are predictable, the consumption at tactical level can fluctuate immensely resulting in variation in demands. This is akin to concertina effect in drill squad moving in a column.

- Just-in-time logistics result in reduced inventory thereby economy in business, the high assurance levels expected at the unit/formation levels demand holding of reserves. Hence, we cannot have one solution which fits all.
- There is a thin line between ‘push and pull’ models which is demand driven. A military logistics system must be based on ‘sense and respond’ at the intermediate and strategic levels. It could be demand driven at the tactical level.
- The supply chain needs to be resilient to absorb additional/reduced demands both in terms of quantities and time.
- **In house/outourced:** Military establishments have certain logistics resources on their rolls which must be optimally utilised for them to be cost-effective and outsourcing should fill the voids or supplement the existing resources. Alternatively, in case it is felt that outsourcing can meet the requirement both during peace and war the resources held on the establishment must be optimised.
- **Indigenous/Ex-Import:** In a highly competitive global economic scenario, caution must be exercised while employing multinational firms in low-technology job. Encouragement must be given to indigenous players without compromising quality/price. We need to be vigilant that there is a growing protectionism in most economies of the world.
- **Quality Control and Reliability:** Quality and reliability in terms of timely delivery are sacrosanct which cannot be compromised.

Potential Areas of Interpretation

Integration of logistics within the army or in the interservices context can be explored in the following spheres:

- **Rations:** In station like Delhi, Mumbai, Chennai, each service has its own set up for the supply of rations. We could have a joint set up with representatives from all services who can manage procurement, operation of contracts

and issue of rations to units/establishment of all three services.

- **Clothing:** While the uniforms may be different for each service, a centralised contract which is operated in a decentralised manner would surely result in economy, standardisation and optimisation of manpower without compromising quality.
- **Vehicles:** Armed forces are currently holding a large inventory of vehicles and maintained by our workshops that lack specialisation due to HR and other issues. It would be a transformative step in case we procure, run and dispose off vehicles based on life cycle concept. The OEM should be responsible for transportation, delivery, warehousing and issue of vehicles at key locations as per the requirement of the services. This would shorten our supply chain and warehousing requirement to a great extent. The OEM can undertake maintenance of these vehicles by providing customised infrastructure and trained manpower and spares cover. For security reasons, the OEM could be asked to set up customised repair set up in the army workshops. Armed forces personnel should be involved in supervisory and quality control roles. This can result in optimisation of a large number of manpower which can be redeployed elsewhere.
- **Billeting:** We could have major projects/residential colonies constructed and maintained by professional agencies with maintenance undertaking for a considerable period instead of having a plethora of Military Engineer Services (MES) organisations. MES representatives along with the users should be involved in supervision to hold the outsourced agencies accountable.
- **Weapon Systems and Equipment:** A large number of weapons, equipment and systems such UAVs, air defence guns and missiles are common amongst more than one service. Their procurement and maintenance must be synchronised by adopting best practices amongst the services.

- **Single Point Logistics:** In order to arrive at single point logistics, it is advisable to merge various services with common or overlapping functions, that is, ASC and RVC can merge, EME and AOC can merge into one. Likewise, logistics policymakers DGOL must merge with QMG who executes the main operational logistics tasks during the war.
- Joint training for potential senior level logistics staff officers is a necessity.
- Contracts for maintenance of equipment and services can be on life cycle basis. Instead of provisioning for repair and maintenance of vehicles and equipment after procurement, the OEM could enter into an arrangement for supplying the equipment, its maintenance for the in service period and buy back once the service period is completed.

The opportunities for providing integrated logistics support in the armed forces are immense. However, there is a need for innovative and imaginative thinking to transform the system.

Road Map for Tri-Service Integration

Recommended road map for tri-service integration is as under:

- There is a need for unanimity at the apex level for transforming logistics in the three services.
- Model of logistics to be adopted by the three services needs to be tailor-made for Indian security environment.
- Create a defence logistics service for combined support to Indian Army, Indian Navy and Indian Air Force on the lines of DLA of the USA or DLO of the UK. It should take on integrated procurement and life cycle maintenance at least for common use items. Service-specific logistics may continue with each service. Emphasis must be on:
 - training of personnel at all levels including senior hierarchy,
 - establishing a centre for innovation in military logistics,

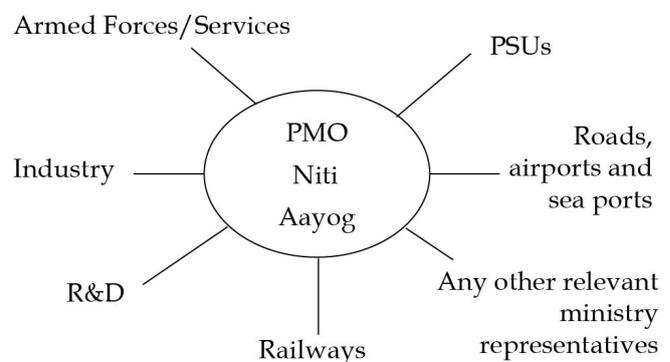
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- framing tri-service logistics doctrine,
- establishing seamless communication,
- reviewing existing organisation, processes and procedures of all three services,
- standardising common supply chain procedures include documentation and government forms,
- cutting out duplication amongst different services,
- identifying and addressing sensitivities of each service and arms/services within each service. The aim should be to achieve consensus and synergy and not use it as a turf building by one group or the other.
- planning a time-bound road map for integration, and
- create a head of logistics under whom all defence establishments such as OFB, Defence PSUs, DGQA, DRDO operate in order to create truly integrated, flexible responsive, efficient and effective logistics system.

Integration of Military Logistics with the National Logistics Grid

Development and logistics are synonymous be it within the military or as national assets. At present most of the development projects are driven by the respective ministries with little inter-ministerial coordination. In order to optimally utilise the limited budget available to each ministry that is, defence and other development related ministries, it is important

to coordinate strategic and developmental needs at the planning stage. Some countries, like China, always plan strategic projects with an economic outlook and vice versa. Some of the fields in which this can be achieved are rail/road/sea/air infrastructure, warehousing, automobile, research and development and communication besides some other dual-use technologies. A recommended set up under the PMO/Niti Aayog could be constituted as follows:



Conclusion

It is evident from the above that integration of logistics both assets and procedures is not only a functional necessity but a major synergy creator in a joint operational environment. National security and preparedness are no longer the sole services domains. Integration at the national level to get the best economic benefits will add not only to national security but also the cumulative national power.

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