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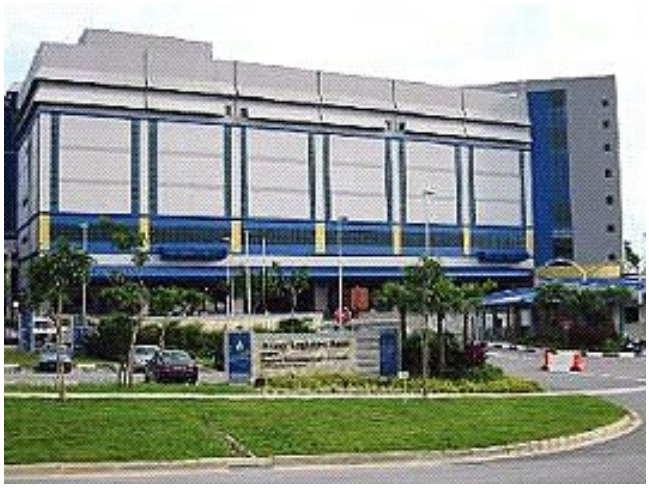
Factsheet – Information on the Army Logistics Base (ALB)



Introduction

The ALB is part of the SAF's efforts to commercialise supply management and develop a seamlessly integrated supply chain. ALB was conceptualised to enhance supply-chain management through the centralisation of warehouses, fine-tuning of our contracting approach and investment in a modern warehouse handling and IT support systems.

Journey to ALB

The humble beginnings of the ALB began with the supply bases that were left behind by the British forces. These warehouses occupied large areas of land and were scattered all over Singapore. The supply bases were taken over in late 1960s by SAF units like the General Equipment Base.

With the expansion of the SAF's capabilities combined with the tight Singapore labour market in Singapore in the 1980s, commercialisation of warehousing and other non-core logistics functions was considered as one of the strategic options for the SAF to fund critical operational areas and maintain a higher teeth-to-tail ratio.

Logistics commercialisation began with the first Ordnance Supply Depot at Woodlands in 1982. The success of this saw broad implementation of warehouse commercialisation of the remaining Ordnance Supply Depots of the Ordnance Supply Base by 1992. Chartered Material Services (CMS) took over the functions of the SAF General Supply Base in Keat Hong in 1993 followed by the Medical Supply Depot at Sembawang in 1994.

In 1998, the idea of a centralised Army Logistics warehouse was conceptualised with the following principal considerations:

a. The need to further optimise the use of land space and manpower.

b. The need to improve operational logistics efficiency by deploying modern warehouse technology with latest state-of-the-art IT system together with improved processes, and

c. The desire to extend the close collaboration between the SAF and the commercial contractor beyond supply-chain management to include demand management for further value maximisation.

In 1999, Singapore Technologies Logistics Pte Ltd (STL) was awarded the contract to Design, Building and subsequently Operate the ALB.

Building Infrastructure

The ALB's design is based on the latest multi-storey commercial warehousing architecture focussed on maximising the efficiency of land-use. The ALB also incorporates innovative energy conservation features. Large sloping canopies with extended meshes facilitate ventilation and capitalise on the windy site conditions. Translucent roofing sheets are interspersed with the metal roofing to exploit natural lighting. To conserve water the ALB is installed with rainwater collection system for WC flushing and vehicle washing.

Warehousing Technology

Occupying a gross built-in floor area of approximately 60,000 square metres, ALB is equipped with a modern warehouse handling system that boosts the efficiency of materiel handling. Some of the key features are as follows:

a. Automated Storage and Retrieval System (ASRS). A fully computerised system, the ASRS provides a high storage density of 13,600 pallet locations and 29,850 bin locations. The ASRS can also be accessed and operated from different floors within ALB.

b. Mobile Racking & Shelving system. This modern vertical and very narrow aisles (VNA) storage system optimises storage space for fast moving items. Super flat floors complement the operation of VNA trucks. These trucks are equipped with RF terminals to carry out real time picking and updating of inventory for storing in operations. This system gives the ALB a storage capacity of approximately 22,900 pallets.

c. Automatic Guided Vehicles. The new generation AGV forklifts boast a laser-guided system and has full flexibility to change travelling routes. The AGV allows unsupervised movement of goods both horizontally and vertically. The AGV is interfaced with the 4-ton cargo lifts to enable it to transport pallet loads from floor to floor automatically through the lifts.

d. Vertical Carousels. Vertical Carousels house items in rotating shelves for storage and retrieval. It optimises warehouse height usage especially for stores requiring air conditioning and dehumidification. The vertical carousel system has altogether 5,578 tote boxes for the storage of small light load items.

e. Automatic Stretch Wrap Machine. This machine facilitates speedy and efficient wrapping of palletised goods before storage or their issuing out.Altogether, the technology investment has freed up about 70 people in the warehousing area, representing a labour productivity improvement of at least 25%. This has also allowed the ALB to occupy a site area of 9.5ha and as compared to the previous combined total site area of 43.2 ha from the 5 old warehouses thus freeing up about 33.7 hectares of land or an equivalent of 45 football fields for other developmental purposes.Despite the savings in manpower, logistics operational readiness has also been improved. Simulation and modelling tools have resulted in an optimised loading and traffic circulation system in the ALB. This has reduced the average collection time of General Equipment, Rations, Spares and Medical Stores during mobilisation by up to 5 times.

Information Technology Capabilities of ALB

To complement the infrastructure, a state-of-the-art warehouse management IT system is being implemented to augment the current electronic data interface between the Army and ST Logistics. The ALB IT system is supported by a state-of the-art track-and-trace wireless radio frequency identity system that helps to control all warehousing and distribution management functions for ALB operations. The intelligent system, besides providing asset visibility, can track consumption patterns and combined with real-time inventory updates, will trigger off top-up buys thereby minimising stock levels. Other features include:a. Reducing turn-around-time in order to satisfy the SAF's requirementb. Tracking consumption patterns and thereby facilitating minimal inventory stock to meet demands.c. Wireless technology incorporating the most advance radio frequency wireless system, allowing inventory information to be updated instantly as materials are being picked up or stored away.

The Design, Build and Operate (DBO) Concept

Besides the innovative facilities and IT infrastructure, the methodology by which the ALB is built and operates is also a novel one. The key initiative is the Design, Build and Operate or DBO concept. An extension of the GOCO system, under DBO, the ALB commercial contractor is responsible for the overall design, construction, acceptance and subsequent operation of ALB for a fixed guaranteed period. Besides greater efficiencies in supply-chain management from better integration and leveraging on the experience and technical expertise of best-practice commercial operators, the DBO model is yielding about 25% savings in

annual warehouse management fees for the SAF that will be used to service the bank repayment loans.

The Future of Supply-Chain Management for the SAF

The SAF will continue to invest heavily in the modernising of its supply-chain management capabilities thereby transforming the way our forces are sustained and bringing us closer to the goal of achieving seamless delivery of quality materiel, services and engineering solutions across space and time.

To achieve total value maximisation, we will need to extend the close collaboration beyond supply-chain management to include demand management. The SAF also intends to participate fully in the government's move to help Singapore transform its logistics industry into a leading supply-chain management hub. To that end, the SAF will be exploring the following:

a. Implementing an Enterprise Resource Planning system and integrating it with the World Wide Web. This will see even further logistics integration and new channel designs between the SAF and its contractors.

b. Working with supply-chain research institutes, industry, the Singapore Economic Development Board and the Infocomm Development Authority of Singapore (IDA) on the development of deployable track-and-trace technologies and demand forecasting and modelling instruments so as to maximise value for all parties concerned.