

# PROPOSAL FOR A LEAN COMMODITY MANAGEMENT PROCESS FOR THE SOUTH AFRICAN NAVY

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## **Abstract**

Commodity Managers (CMs) within the South African Navy (SAN) need new and innovative ways to achieve effective supply support to their customers. A look at international trends and what other organisations are doing, presents supply support options that will help in formulating an effective commodity management process. The survey, although not an exhaustive benchmarking exercise, does conclude that the process must be clearly defined, visible and comprehensible.

Recommended options are presented within four category levels due to the level at which the change or decision can be authorised:

- ? The national strategic level – Automatic Inventory Replenishment (AIR) and Cost Centre Accounting (CCA).
- ? The military strategic level – Transportable logistic support and standard containerisation.
- ? The operational level – Anticipated service life, commercial equipment supportability and outsourcing.
- ? The tactical level – Repair as a source of supply, Life Cycle Costing (LCC) and critical replenishment procedure.

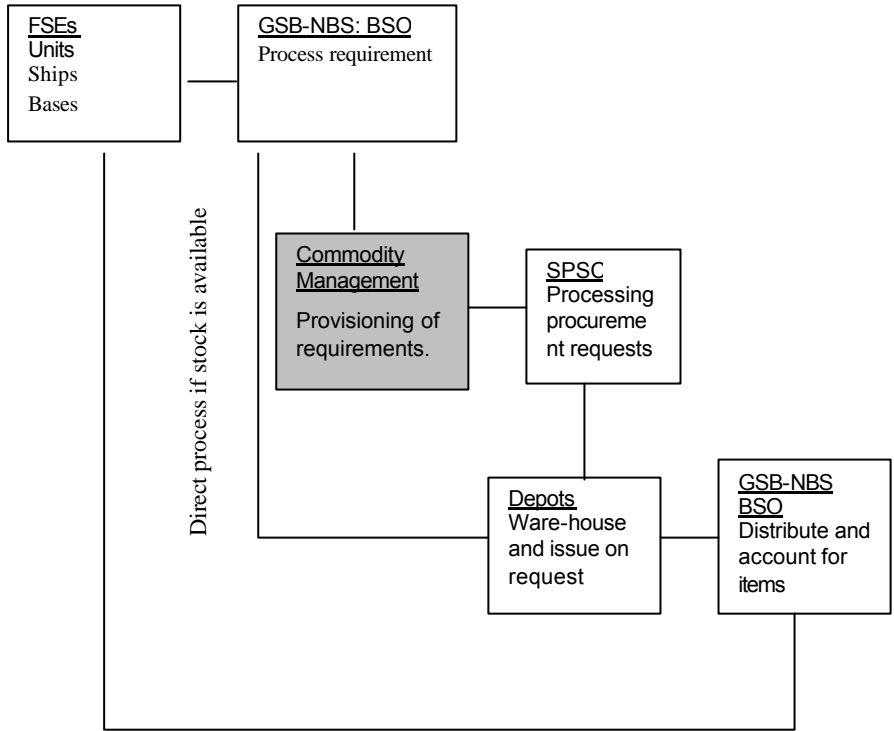
The implementation of any of the recommendations proposed should enhance the supply support activities carried out by CMs. A combination of approved recommendations promises to lead to the formulation of an effective commodity management process that will enhance end-user service delivery, utilising fewer funds and with a reduced staff requirement.

## **Introduction**

Since the transformation of the SAN's organisational structure from 2000/2001 to date, the Commodity Management subsection has not formulated a clear process in which to execute newly required functions. The “old way” of provisioning, which involved spending enormous amounts of money on maintaining high stock levels and running supply processes through an overly large staff component, is over. The ‘new Navy’ will have to survive with less funds and fewer staff. This changed circumstance calls for a more efficient and effective provisioning process. The lack of a clearly defined process is currently causing considerable confusion and frustration and is impacting on end-users who are not being adequately supported.

## **Background**

The SAN supply chain process, as graphically represented in Figure 1.1, starts with the end-users (ships and maintenance units) who are known as Force Structure Elements (FSEs). These FSEs submit their requirements to the Base Supply Organisation (BSO) of the General Support Base – Naval Base Simon’s Town (GSB-NBS), which processes the requirement on the computerised supply-chain data-management system. If stock is available, then a direct issue is made from the depots to the BSO for distribution to the FSE requesting the item.



**Figure 1: SAN's supply chain process**

If no stock is available, then the request is registered as a “dues out” and prints a Provisioning Advice (PA) notification at the Commodity Management subsection. This PA is then processed and passed to the Simon’s Town Procurement Service Centre (SPSC) in the form of a “procurement package”, which usually indicates the items requested as well as additional depot stock. The SPSC then advertises the requirement, receives and adjudicates the quotations and awards a Government Order (GO) to the company with the lowest price to the required specification. A delivery date is indicated and the company awarded the GO has until that date to deliver the item/s to the depot indicated. The depot receives the item/s, checks for quality and quantity, places the item/s in the store and updates the computer system. The “dues out” is then issued against the requested quantity and delivered to the BSO for distribution to the FSE.

Although the SAN transformed to a new structure in 2000, the provisioning section merely went from being managed by Replenishment Officers to being managed by CMs. Transformation was nothing more than a name change and a change in the command structure. The method of provisioning, however, has not changed and CMs are doing the same old thing but in a new structure. The only guidelines available to CMs are laid down in SANGPID (South African Navy, 2000: 27-28) and they are as follows:

- ? Establishing, maintaining and managing Supply Support Plans based on the supply support requirements and the Logistic Support Analysis (LSA) records for their allocated product system.
- ? Managing the most cost effective supply support for these product systems. This entails setting specifications, identifying and codifying the required items and disposing of items at the end of their life cycle.
- ? Managing the materiel requirement plans in order to ensure that requirements are satisfied on time.
- ? Conducting inventory control, and initiating and monitoring procurement action of items for the allocated product systems.

These guidelines indicate what the CMs must do, but do not direct them regarding how to achieve their required goals.

### **Real change is required**

In order to implement a real customer-based service, process changes are required and these processes must be clearly defined and documented so that they are visible and understood by the FSE customers. Van Weele (2000:9) states that “companies increasingly are organising their activities around processes, which are relevant for their customers, rather than their functions.” From a military perspective even militaries in the Developed World have to embrace change. Vice-Admiral Sir Jeremy Blackham (2002:62), the UK Deputy Chief of the Defence Staff stated that the acquisition process must offer “greater value for the customer, greater certainty for the supplier, more effective capability for the frontline.” He contends that there needs to be a fresh way of doing things which is compatible with current needs and responsive to the challenges of current circumstances; and that this demands new understanding, new mindsets, new approaches and new tools.

## **Government practice and levels of authority**

Dobler and Burt (1996: 746) believe that procurement in not-for-profit institutions and governments is similar in many ways to procurement in industrial organisations. They state that “the fundamental objectives are to identify sources of needed materials and to acquire those items when needed, as economically as possible within accepted standards of quality. The function must be able to react quickly, effectively and efficiently to requirements and policies and procedures must conform to sound business practice.”

Notwithstanding the similarities, procurement in not-for-profit institutions and governments differs from procurement in industry in several respects. Most significantly, procurement in the not-for-profit and governmental sectors, such as the South African National Defence Force (SANDF), is a stewardship function, as the SANDF spends funds derived from national taxes in support of activities that the Government has decided to provide on behalf of its people. Consequently the supply support functions within the SANDF have become regulated, defined and controlled by innumerable laws, rules and regulations, and policies into which the Commodity Management subsections must integrate and operate in order to satisfy taxpayers that their money is being well spent. The SANDF, however, should achieve a balance between restrictive regulations and the provision of an effective user-friendly commodity management process for operators and end user FSEs.

A look at international trends and what other organisations are doing will help in formulating effective supply support activities leading to an effective commodity process. This will be presented in the four levels of authority:

- ? National strategic level: These are recommendations that have a long term impact and affect the national framework. These recommendations can only be approved at Ministerial level.
- ? Military strategic level: These are recommendations that impact all Arms of Service (AoS). The SAN must thus interface with the other AoS. These recommendations can only be approved at Department of Defence level.
- ? Operational level: These recommendations affect only the SAN and can be approved at Navy Office level.
- ? Tactical level: These recommendations only affect the Fleet Logistics supply support infrastructure and can be approved by the Director of Fleet Logistics for implementation.

## **National strategic level recommendations**

### ***Automatic Inventory Replenishment (AIR)***

Hughes, Ralf and Michels (1998:106) contend that inventory management for multi-use, low-value items should be provisioned on an Automatic Inventory Replenishment (AIR) system where the supplier holds the stock and is linked into the computer system of the organisation. They state that “the aim is to improve efficiency in the ordering and replenishment process and provide the supplier with more freedom to respond directly to the purchaser’s requirements.”

This system presents an effective opportunity in supply support for CMs, as it involves the supplier being responsible for the holding and supply of stock at a fixed price over the contracted period. It further reduces the need for large internal stock levels. This will free up funds for more effective usage and prevent funds being tied up in stock. It will further reduce large write off costs, should the items become obsolete. This system holds enormous advantages in cost saving and staff optimisation.

Approval for this system will have to be obtained at Ministerial level as it will involve a deviation from stock holding and procurement practices.

### ***Cost Centre Accounting (CCA)***

An interview with Mr D. Steyn, Material Manager for the City of Cape Town, revealed that his organisation uses Cost Centre Accounting (CCA). A cost centre is a section with a budget responsibility, and all stores issued are reflected against the cost centre requiring them. According to Steyn (2003), stock items required by users are drawn from the store against a “Reservation” form. There are no restrictions regarding what users can draw from the store, or what quantities they may request, but all items issued are registered against a cost centre.

The Cost Centre Manager (CCM) is responsible for whatever is ordered and used. The cost centre works on the basis that at the beginning of each year the CCM gets an allocated budget, which is divided into different commodity groups. Every time an item is supplied to this centre, the cost is deducted from the total allocated. The manager is responsible for keeping within the budget.

This approach is very different to central Government accounting where managers must budget three years in advance for specific requirements and must then expend the funds against a central accounting process. Currently managers have

enormous processes to overcome should they require budgeted funds for alternative needs. These processes are very time consuming and labour intensive. The other challenge regarding centralised control is that allowances have to be monitored constantly and then amended when deviations are required. The cost centre approach gives managers greater freedom with fewer administrative processes, but still holds them accountable. It is recommended that due to the advantages of CCA the National Treasury should consider the implementation of this accounting system within all sections of the SANDF.

### **Military strategic level recommendations**

#### ***Transportable logistic support***

The SAN currently stores certain critical items in portable containers known as Transportable Logistic Support (TLS). The purpose of logistics support, according to British Maritime Doctrine (United Kingdom; Ministry of Defence, 1999:146), is to ensure the provision, sustainability and recovery of forces at the required level for the duration of operations. CMs will in future be required to interface with the SANDF joint operational planning staff in order to supply vessels that may be deployed as part of a SANDF task force. Currently no SANDF doctrine is available for joint operations, but the following principles stated in the British Maritime Doctrine (United Kingdom; Ministry of Defence, 1999:147) apply:

- ? Foresight: Planning to ensure that the right supplies are delivered to the right place at the right time.
- ? Economy: Logistical resources will usually be in short supply and sufficiency should be the objective of the logistician. It is possible to over-plan as well as under-plan logistical requirements. In the case of over-planning, it can consume resources that could have been better devoted to combat forces.
- ? Flexibility: A logistics plan must be flexible and capable of responding to inevitable changes in the operational plan.

To achieve maximisation of these principles a transportable on site store with an online accounting system will greatly enhance alongside service delivery and operational support.

The challenge with the current SAN TLS is that the items in stock are not linked to the depot accounting system, and issues against the TLS are not calculated within the main depot accounting system. Thus turnover data is not calculated within the reorder point. This means that the items within this store are not being

effectively utilised and CMs are not getting insight into long-term usage. Furthermore, the supply depot is currently situated at Wingfield in Goodwood. This places the depot about 35 km from the end users in Simon's Town. This means that even fast-moving items, of which ample stock may be available, cannot be issued immediately as they have to be packed in a truck and delivered to the Simon's Town distribution centre.

A transportable on site store with online accounting will enable end users to obtain items of supply simply by walking into the store with the necessary documentation and immediately signing for the required items. This will also enhance control, as the possibility of breakages during transit will be eliminated and transport costs will be reduced.

### ***Standard containerisation for operational sustainment***

Standard containerisation ties in closely with logistic support. The importance of sustained reach in terms of the British Maritime Doctrine (United Kingdom; Ministry of Defence, 1999:154) is that good forward support ability gives forces the capability of carrying out sustained operations at great distances from their home bases. This is achieved by:

- ? Replenishment by Fleet Support Vessels. This option is however, expensive and is only feasible in the case of larger maritime nations. The RSA only has one vessel capable of contributing to this task, the *SAS Drakensberg*. However, no vessel can remain at sea indefinitely and the vessel will have to be taken out of service at regular intervals for upkeep and maintenance.
- ? Ships Taken Up From Trade (STUFT). The option of chartering a civilian vessel provides a useful alternative, and it is far less costly to charter a ship for a limited period than to run a ship continuously. There are, however, a few disadvantages in that ships' operators and crew are unlikely to take their vessels into a combat environment. This option works best for strategic sealift where equipment and supplies are put ashore in a host nation's port. Supplies are then moved into the theatre of operation.
- ? Host Nation Support (HNS). This is a strategic partnership arranged at political level for the sustained support of forces operating far from home bases.



The New Zealand Defence Force (New Zealand; Ministry of Defence, 2000:77-83), in an analysis of its sealift capabilities, conducted an exercise to determine the most economical application of this strategic requirement. They concluded that due to the expense chartering would only be used in conjunction with other nation operations, where 'lead nation' (US or British) capabilities would be used. The other aspect that this investigation highlighted is that RO-RO ships (ships with ramps that allow containerised cargo to be driven on and off) were the most useful for military operations. Container ships offered a slower and less flexible capability.

Thus the standardised containerisation of a transportable store with a purpose built transport system will be deployable by any of the forward support options. This is particularly important in the current situation where the SANDF is being called upon to participate in African peace support operations.

## **Operational level recommendations**

### *Anticipated service life*

The United States of America (US) Department of Defense (1997) has published a handbook that acts as a guide to the military supply chain process and provides doctrine needed to support their supply chain process. The handbook is titled the *Department of Defence Handbook, Acquisition Logistics, MIL-HDBK-502*. One of the relevant topics that can benefit the SAN is Anticipated Service Life. MIL-HDBK-502 (1997:5-5) states that “[m]aintaining a support capability for outdated technology is expensive and limits opportunities to use contractor support because the number of sources that can support the older technology reduce dramatically as it is replaced with new technology.”

It must be noted that support to outdated equipment is difficult. Haub (1997:1) supports this by stating that “[d]iminishing Manufacturing Sources and Material Shortages (DMSMS) have been confronting program managers, logisticians and item managers in the US Department of Defense and private industry for more than 20 years.” DMSMS is defined as “the loss of, or impending loss of, the last known supplier of an item or raw material.”

A proactive approach to this problem is therefore needed and the solutions, according to Haub (1997:3), may include reclamation, redesign, reverse engineering and life of type buying. The only option affordable to the SAN is reclamation. This involves placing certain systems aside for cannibalisation of

spares. It is recommended that the SAN considers the aspect of anticipated service life and opts for reclamation as a possible solution.

### ***Commercial equipment supportability***

The MIL-HDBK-502 (1997:6-22) indicates that the US Department of Defense is adopting new business practices and that it is shifting away from development and towards commercial procurement. The reason for this is that off-the-shelf items developed for the commercial market frequently meet the needs of the Department of Defense. The challenge with this, however, is that the long-term supportability of these items is much more problematic. “Since commercial items will probably be used in harsher environments than those for which they were developed, kept in service longer than intended by the commercial developer, and required to interface with other systems, the logistical implications of using commercial items need careful scrutiny.”

This statement indicates the importance of obtaining a balance between military items and commercial items. The SAN is better suited to commercial-off-the-shelf (COTS) items as the organisation does not have the financial power to support purpose-designed equipment and many off-the-shelf items developed for commercial use do meet the needs of the Department of Defence. COTS items are also cheaper and more readily available.

### ***Outsourcing***

Outsourcing occurs when specialist suppliers are used to perform activities within the supply chain. The result can be a faster reaction to needs or lower costs with higher value added. Johnson (1997:13) states that “around the world, companies of all shapes and sizes and all types of industries are coming to terms with new ways of doing business of which outsourcing is an ever-increasing part.” Johnson lists several beneficial reasons for outsourcing. Two of his reasons, which can contribute value to the SAN, are that it:

- ? Reduces operating costs; implying that others may have the structures to perform the job more effectively.)
- ? Make capital funds available; i.e. it reduces the need to invest capital funds in non-core business functions. This makes capital funds more available for core areas.

Outsourcing should therefore be considered as an enhancement option for the Commodity Management subsection, as there are certain functions that could be better performed by outside contractors.

Johnson (1997:2-4) however warns: “Make sure that whoever you are dealing with in the outsourcing business understands clearly your definitions otherwise major confusion can arise.” He further warns that one should “never sign an outsourcing agreement without considering carefully the longer term implications – too many have, to their regret.”

### **Tactical level recommendations**

#### ***Repair as source of supply***

The Royal Australian Navy runs a logistics support doctrine similar to the SAN, which is called Readiness Based Sparing (RBS). According to Sanders (1992:61), RBS focuses on equipment readiness and the initial project has been used in support of its Seahawk programme. RBS aims at achieving stock level maintenance at each of the depot facilities in the supply and maintenance hierarchy, in order to satisfy the target operational availability set for the Seahawk. These stock levels include items at the organisational level, for immediate removal and replacement, items of spares for the repair lines and items at the depot level to minimise the risk of stock-outs.

The driving philosophy behind RBS, according to Sanders (1992:64), is that “repair is the preferred source of replenishment”, because procurement is more costly and time-consuming. This applies to larger repairable items and the shorter the turnaround time (time from non-availability to availability), the shorter the average logistics delay will become. The challenge, however, is that if there are no spare parts for these indentured items, the turnaround time for the item will increase and ultimately the readiness of the aircraft is reduced.

The SAN doctrine regarding the level of maintenance and repair is currently not specified. It is clear from the RBS approach that more weight needs to be allocated to the repair process as a means of provisioning as this will ensure a higher level of readiness. RBS links closely to the aspect of mission frequency, but is more commodity-focused, as it includes items that can be repaired as a source of supply. RBS can achieve great cost savings to the SAN, which is important in today’s financially restricted environment.

It is recommended that the repair authority should be part of the CMs' domain. This will enable CMs to give greater attention to repair items as a source of supply.

### ***Life Cycle Costing***

Life Cycle Costing (LCC) provides a useful tool in the planning of provisioning as it involves "Womb to Tomb" costing, which takes the full cost into consideration. This involves pre-acquisition costs, acquisitions costs, operating costs, maintenance costs, downtime costs and disposal costs.

Chadwick and Rajagopal (1995:75) believe that "from nuclear power stations to humble photocopiers, owners have discovered that no procurement decision should be taken on purchase price alone." From their statement, one realises that the total LCC must be considered right from purchase to sustainability to disposal of the equipment. The Minister of State for the British Armed Forces, Adam Ingram (2002:58) „supports this sentiment by stating that it must be plain that affordability is not simply about buying equipment with the lowest up-front cost. Rather, the focus must be on the true cost of the equipment, which includes the cost of, for example, logistics support, training and maintenance support over the equipment's whole in-service life. He further states that "whole-life costing gives the Ministry of Defence understanding of the full cost of owning and supporting equipment to inform our decision-making process."

CMs need to adjust their mindset to evaluating the whole-life cost of commodities and not just the initial lowest up front cost. This has an enormous impact on the decision-making function of striking a balance between quality, total cost, timeliness, control and accountability.

### ***Critical replenishment procedure***

Van Rensburg (2003), when interviewed, stated that P&O Nedlloyd makes use of a critical replenishment procedure. Critical replenishment takes place when a spare is not kept onboard, but is urgently required. The ship forwards the purchase order request to head office, stating the part number indicated in the onboard manual. The head office technical team verifies the requirement and authorises the procurement. The sourcing of the item will be as wide as possible (global), and may even involve it being obtained from a competitor or other intermediaries if not available at the manufacturer.

The required item is then air freighted to the next port where the vessel is to dock. The local operations office of P&O Nedlloyd is informed of the incoming item along with any special transport or lifting requirements. The local operations office will collect the item from the airport and deliver it to the vessel. The items are normally custom-cleared prior to arrival. The required transport and handling equipment, for example, a flat bed truck, cranes, and forklifts will be hired. The current delivery time from Cape Town International Airport to the dock is 45 minutes. If the ship is at anchor then additional special transport and lifting equipment, such as a launch and a helicopter, may be required.

According to Cupido (2004) of the BSO, the SAN currently has no approved and documented procedure in place to deal with urgent requirements above the petty cash limit. He believes that there should be some form of a Standard Operating Procedure in place to accommodate the many emergency requirements above the petty cash limit. A crisis management system to deal with stock-outs over the petty cash limit will greatly benefit the SAN as stock levels are constantly reducing due to financial constraints. This means that more and more stock out situations will occur in the future. As the provisioning process, using the routine cycle, takes many months to fulfil, end users must be provided with, and trained on, a standing procedure to notify CMs of the importance of particular requirements. CMs will then be able to process the request using the emergency purchase channel.

## **Conclusion**

SAN CMs need new and innovative ways of achieving effective supply support to their customers. A look at international trends and what other organisations are doing, presents supply support options that can help in formulating an effective commodity management process. This process must be clearly defined, visible and comprehensible.

Commodity management options should be divided into four categories: the national strategic level; the military strategic level; the operational level; and the tactical level. The reason for this is due to the level at which the change or decision can be authorised.

The implementation of any of the proposed recommendations promises to lead to an enhancement in the supply support activities carried out by CMs. A combination of approved recommendations should lead to the formulation of an

effective commodity management process that will enhance end-user service delivery, utilising less funds and with a reduced staff requirement.

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