CHAPTER II: PERFORMANCE AUDIT ON THE INVENTORY MANAGEMENT OF NAVAL STORES, EQUIPMENT AND SPARE PARTS IN INDIAN NAVY

Executive Summary

2.1 Background

Indian Navy holds various types of material inventory at different Material Organisations. During the last decade many new platforms have been added to the fleet of Indian Navy. With the expanding fleet, the responsibility of satisfying the demand for the stores increased manifold and accordingly the size of inventory also increased. In order to provide the stores at the right place, time and cost, Indian Navy had to gear up their capability and needed to be equipped with the resources at the Material Organisations. During the last six years Indian Navy had incurred over ₹6,700 crore towards replenishment of their stores. The management of inventory is presently handled by Indian Navy using a fully automated Integrated Logistics Management System (ILMS).

A review on the inventory management in Indian Navy had appeared in the Audit Report No. 8A of 2002. Deficiencies found in the areas of replenishment provisioning, procurement, demand satisfaction, holding and disposal of inventory and inventory automation were mainly commented upon in the report along with suitable recommendations for improvement. The Ministry, in their ATN (April 2006), assured revamping of replenishment provisioning to make procurement procedure more effective, enhancement of demand satisfaction level, speedy disposal of surplus/non-moving inventory, addressing the deficiencies in ILMS and the connectivity of ILMS to all stake holders. Present Performance Audit was carried out with a view to assess the extent of implementation of the recommendations accepted by the Ministry and to assess the economy, efficiency and effectiveness in the provisioning, procurement, demand satisfaction, inventory holding and automation of material management by Indian Navy during the period from 2010-11 to 2015-16.

Audit Approach

Performance Audit (PA) reviewed four Material Organisations (MOs) on the management of the inventory in respect of Naval stores and Equipment and Spare Parts (E&SP) for the period from 2011 to 2016. Audit examination consisted of scrutiny of documents/ records at the various directorates at Integrated Headquarters of Ministry of Defence (Navy) and Material Organisations at Mumbai, Visakhapatnam, Kochi and Karwar. Audit also examined the data derived from ILMS related to various aspects of material management.

Key Findings

(i) Effectiveness of Provisioning Process and Selective Inventory Control Techniques

The automated system based replenishment provisioning process followed by Indian Navy in its inventory management had not achieved its desired objective of precise estimation of procurement quantities due to inbuilt error in provisioning formula. This had resulted in intervention by Provisioning Officers' Expert Review (POER) in all cases inevitably, defeating the very purpose of automation. Timelines prescribed for processing of indents were not adhered to leading to consequent delays in procurement. There was lack of efficient inventory control mechanism as Indian Navy failed to adhere to laid down norms of ABC categorisation of inventory management. It had consequent impact on review provisioning and assessment of Maximum and Minimum stock levels of inventory. Exercise of POER by professional officers while recommending procurement lacked justification as 21,497 items valuing ₹499 crore procured after intervention of POER were in stock in excess of the prescribed Upper Stock Level.

(Paragraphs 2.3.1, 2.3.2.2 and 2.3.3)

(ii) Efficiency and Effectiveness of Procurement

Percentage of items procured under Proprietary Article Certificate and Single Tender Enquiry was on higher side as compared to items procured under Tender Enquiry and Rate Contract which had led to reduced competition / monopolistic situation. Items worth ₹46.92 crore were procured after being

declared obsolete, indicating lack of due diligence from the material planners while making procurement decisions. There was abnormal delay in approval of indents by provisioning agencies resulting in cascading effect on placement of purchase orders. There was no substantial increase in the registration of new vendors resulting in poor vendor data base.

(Paragraphs 2.4.2.1, 2.4.2.2 and 2.4.5)

(iii) Demand Compliance

Only 7.65 to 10.13 *per cent* of total demands received from user units were vetted by material planners within laid down time indicating slow progress in vetting by Material Organisations (MOs) with eventual delay in authorisation and issue to users. Average demand compliance at MOs showed a marginal improvement in spite of automation of Naval inventory. The average compliance rate of Refit Planning Programme (RPP) demands in respect of 20 ships undergoing refit at ND Mumbai was below 60 *per cent* which contributed to delay in the scheduled completion of refits and eventual impact on the operational availability of ships.

(Paragraphs 2.5.1 and 2.5.3)

(iv) Inadequacies in Inventory Holding

Non-moving inventory held in Material Organisations (MOs) ranged between 54 and 98.29 *per cent*. Further, 30 *per cent* of the total inventory were in obsolete/ obsolescent condition. This indicated excess procurement made by MOs constraining the storage space and unhealthy inventory management. Apart from this, inventory worth ₹7,359.37 crore was held by MOs above the upper stock level which resulted in avoidable liability of inventory carrying cost of ₹588.75 crore per annum besides risk of deterioration and obsolescence of the store held. Large number of items in inventory were held at MOs below minimum stock level, thereby, increasing the risk of stock out situation. Several makes of equipment serving the same purpose and different items serving the same function existed in Naval inventory signifying that no efforts for standardisation of common equipment had been made by Indian Navy. This resulted in holding multiple inventories of similar types of equipment leading to issues relating to its provisioning and stocking.

(Paragraphs 2.6.1, 2.6.2.1, 2.6.3 and 2.6.7)

(v) Effectiveness of ILMS

There existed lack of adequate control mechanism for ensuring correctness and validation of data at data entry level. Existence of multiple vendor codes in the system caused hindrance to rationalisation of Naval inventory. Resources available in the ILMS were not optimally utilised which resulted in avoidable procurement of stores. Integration of ILMS with all stake holders such as MOs, Naval Dockyards, Technical Directorates at IHQ MoD (Navy), Indian Naval Ship Maintenance Authority, Warship Overseeing Teams and user units was not yet achieved resulting in lack of continuous flow of information and total asset visibility at all levels.

(Paragraphs 2.7.2, 2.7.4 and 2.7.5)

Recommendations

- ✓ *The provisioning formula adopted by Indian Navy requires modification to ensure more accurate projection of procurement quantity and less manual intervention.*
- ✓ *The high percentage of procurement made by MOs outside ARP should be discouraged and efforts should be made to bring all the procurements within ARP.*
- ✓ *Activities related to provisioning and management of inventory need to be streamlined by adopting effective classification of inventory in terms of their consumption and criticality to accomplish selective inventory controls as envisaged in Material Planning Manual.*
- ✓ *The Annual Consumption Limits and the existing values for A, B and C category of stores need a revision as the present limits were laid down in MPM-1995.*
- ✓ *Procurement activities need to be streamlined to ensure lesser internal lead time and healthy competition.*
- ✓ *While initiating procurement action, mechanism should be in place to ensure that no obsolete items are procured.*

- ✓ *Vendor management needs to be strengthened to increase the vendor base. Action needs to be taken to ensure that vendor registration is done locally by all the MOs in order to encourage competition. Multiple registrations of same vendors be avoided by allocating a unique vendor code.*
- ✓ *Timelines for various stages of demand compliance need to be laid down and to be strictly adhered to.*
- ✓ *Replenishment provisioning needs to be suitably streamlined to avoid over procurement of stores resulting in inflated inventory.*
- ✓ *Minimum stock levels of 'Vital' and 'Essential' items are to be maintained to avoid their stock out situation.*
- ✓ *Suitable controls/validations at all levels need to be incorporated into ILMS to ensure availability of correct data for better decision making.*

Introduction

2.2 Successful military logistics world over have one aspect in common 'precise inventory and its effective management'. Whether it is scheduled routine or breakdown maintenance, inventory management system should be resilient enough to pool in required spares in a reasonable time to minimise the platform downtime. This needs a concise inventory and a management system that is supported by well-designed forecasting review and provisioning system.

Types of Inventory

Indian Navy (IN) handles various types of inventory *viz.*, Naval stores[1], Equipment and Spare Parts (E&SP)[2], fuel and lubricants, clothing and victualling stores, medical stores, armament stores, weapon equipment and spare parts. Weapons and armament stores are stocked at Weapon Equipment

[1] Naval Stores- Naval stores include all stores used in the Indian Navy except those specifically listed in Para 2.2. Following are some of the important constituents of Naval stores: Yard materials, Hull and ship fittings, Portable fittings, Office equipment and stationery, Boats and boat stores, Diving stores, Hydrographic and Oceanographic stores, Meteorological and Oceanological stores.

[2] Equipment & Spare Parts (E&SP)- These include all equipment and spare parts manufactured or assembled in India, including those fitted on ships built indigenously and abroad and held in stock. Spare parts connote assemblies, sub-assemblies and components of equipment, excluding those components stocked as Naval stores.

Depots (WEDs) and Naval Armament Depots (NADs). The Naval stores and E&SP which are stocked and supplied by Material Organisations (MOs) were focus area of audit examination.

Inventory Management Philosophy

Inventory management and logistics planning of Indian Navy commence with a review of Naval inventory based on demands from the ships and establishments, forecast from Naval dockyards and requirements raised by directorates at IHQ MoD (Navy). This forms the basis for planning and raising of indents for the procurement of Naval stores, equipment and spare parts. Downtime of ships considerably affects force levels in the Indian Navy. Material support, thus, has the responsibility of ensuring force levels through a well sustained inventory management system that will minimise downtime during peace operations and result in efficient maintenance cycles. As 'stock outs' seriously impair capability, demand satisfaction level is an important criterion. At the same time, ships/submarines by itself constitute a major platform and non-availability of any store may cause downtime of many months which has serious implications.

Material Organisation

All Naval stores and E&SPs are stocked and supplied by MOs earlier known as Naval Stores Depots (NSD) at each Naval command *i.e.*, Western Naval Command, Mumbai {MO (MB)}[3], Eastern Naval Command, Visakhapatnam {MO (V)}, Southern Naval Command, Kochi {MO (K)}. In addition, there are MOs located at Karwar {MO (KW)} and Port Blair {MO (PB)}[4] to cater to requirements of Indian Navy ships/submarines and shore establishments.

Organisational Structure and store provisioning

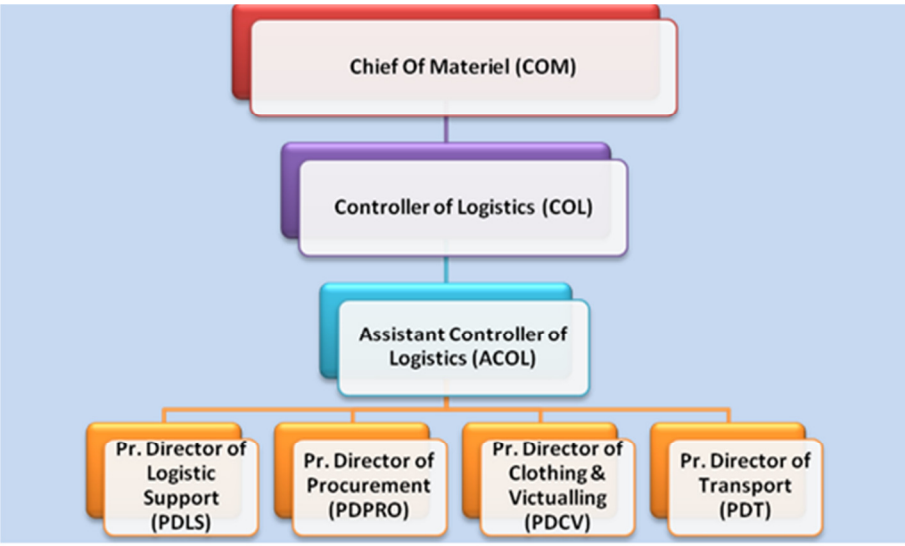
At Integrated Headquarters Ministry of Defence (Navy) {IHQ MoD (Navy)}, the Material Branch of Indian Navy is headed by the Chief of Materiel (COM). The Controller of Logistics (COL) in the rank of Vice Admiral functioning under COM is responsible for logistics management in the Indian Navy excluding air stores and weapons equipment, which are managed by

[3] MO (MB)- Material Organisation, Mumbai MO (K)- Material Organisation, Kochi
MO (V)- Material Organisation, Vishakhapatnam MO (KW)- Material Organisation, Karwar
[4] MO (PB)- A satellite Material Organisation at Port Blair stocks Naval Stores.

Directorate of Aircraft Logistics Support (DALS) under ACNS (Air Materiel) and Directorate of Weapon Equipment (DWE).

The COL is assisted by an Assistant Controller of Logistics (ACOL) in the rank of Rear Admiral, as indicated in the figure below:

Figure 2.1: Organisational Structure at IHQ MoD (Navy)

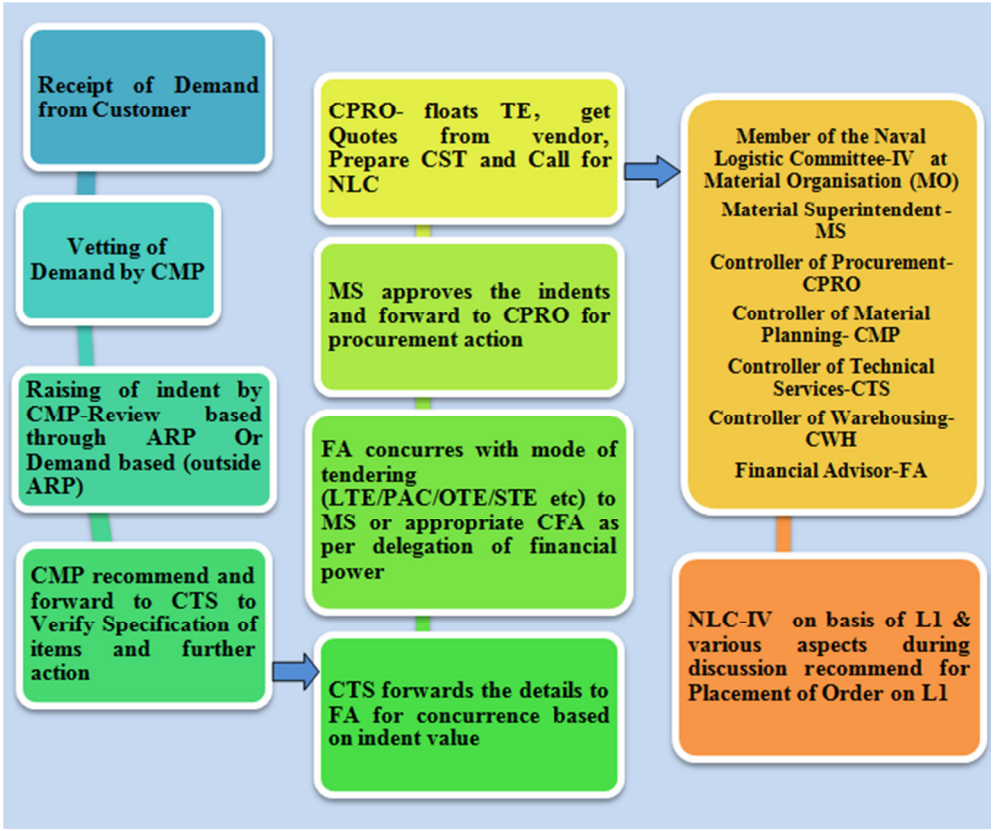


At Command Headquarters, the MOs are headed by Material Superintendents (MS) and are assisted by four Controller *viz.*, (i) Controller of Materiel Planning (CMP), responsible for overall materiel planning based on the automatic replenishment and demand from the users; (ii) Controller of Procurement (CPRO), responsible for procurement activities; (iii) Controller of Warehousing (CWH), is the stockist of all the inventories procured and is also responsible for receipt and issue to the users; and (iv) Controller of Technical Services (CTS), looks into the technical aspects *viz.*, specifications of items and repair of inventory. In addition, a System Administrator (SA), responsible for all aspects related to computerised inventory *i.e.*, Integrated Logistics Management System (ILMS) in posted in some MOs.

Stores provisioning entails working out of the requirement based on the demands and projecting it to various authorities for procurement action. The

flow chart relating to the process of provisioning and procurement finalisation by Naval Logistics Committee[5] is as follows:

Figure 2.2: Provisioning and Procurement Process Flow Chart

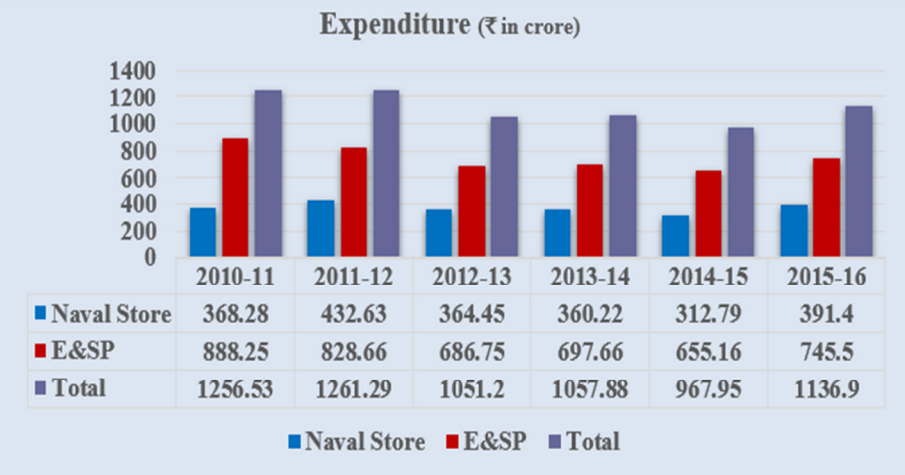


Financial Status

Total expenditure of ₹6,731.75 crore was incurred by Indian Navy under the Minor Head 110-Stores for the procurement of Naval Stores (NS) and Equipment and Spare Parts (E&SP) during the period from 2010-11 to 2015-16 as given below:

[5] Naval Logistics Committee- The chairmen of NLCs are Controller of Logistics (COL) for Level 1, ACOL for Level 2, CLOGO/CSO (P&A) at Command Level for Level 3 and Material Superintendent (MS) at Material Organisation for Level 4. The members of NLCs are: Financial Advisor (FA), Procurer (DPRO/CPRO), Technical member (CTS) and Indentor (CMP). The chairman takes procurement decisions normally with the concurrence of the members of the NLC. However, in case of difference of opinion between the Chairman and other members of the NLCs, the decision of the Chairman is final.

Figure 2.3: Expenditure Details



Source: Information provided by DLS/IHQ MoD (Navy)

Audit objectives

The Performance Audit was taken up with the following audit objectives:

- Whether the remedial action agreed in the Ministry's Action Taken Notes (ATNs) (April 2006) on the Audit Report No. 8A of 2002 have been implemented in so far as the scope covered in the current audit?
- Whether the procedures for provisioning of spares have been streamlined?
- Whether the existing procurement procedure is effective?
- Whether the demand satisfaction level is optimum?
- Whether management of inventory holding is satisfactory?
- To assess the adequacy of the Integrated Logistics Management System (ILMS).

Scope of Audit

The present Performance Audit (PA) covered the period 2010-11 to 2015-16 on management of inventory related to Naval stores, Equipment and Spare Parts with focus on the provisioning under revenue procurement. An audit review on the Inventory Management of Indian Navy was included in the CAG's Audit Report No. 8A of 2002. The status of recommendations made in the ATN on Report No. 8A of 2002 have been covered in the present PA. All MOs, except MO (PB), being newly created, were selected for audit.

The Directorate of Logistics Support (DLS) and Directorate of Procurement (DPRO) at IHQ MoD (Navy) involved in the planning and procurement of Naval inventory were also selected.

Audit Criteria

- The Ministry's ATN (April 2006) on the Audit Report No. 8A of 2002.
- Orders/guidelines on provisioning, procurement and holding of Naval stores/equipment.
- Defence Procurement Manual (DPM)-2009 and relevant Defence Procurement Procedures (DPPs).
- Material Planning Manual (MPM)-1995.
- Integrated Logistics Management System Manual.
- Material Management Manual and Procurement Manual.
- The Navy Instruction- NI 1/S/2006.
- Guidelines on Ranging and Scaling of Base & Depot (B&D) spares-2005, (INBR-622)
- Confidential Navy Order on Ops-cum-Refit cycles of Indian Navy ships and submarines
- INBR-12 (Naval Stores)

Audit Methodology

An Entry conference was held on 10 July 2015 with officials of the Ministry of Defence (MoD) and IHQ MoD (Navy). The scope, objectives and methodology of audit was discussed and criteria were agreed upon.

The introduction of the automated management of inventory *i.e.*, Integrated Logistics Management System (ILMS) at all MOs was examined in detail with reference to data on total inventory/stock position, purchase orders, indents raised, annual reviews and demand compliance. Apart from this, a direct access to the front window of ILMS was also provided to the audit team for examination and verification. The data was analysed using Computer Assisted

Audit Techniques (CAATs) *viz.*, MS Excel, IDEA and Tableau[6] for arriving at audit conclusions.

Field audit was carried out in the MOs between June 2015 and October 2016 to evaluate the performance against the audit criteria by way of examination of records, collection of information through issue of audit memos and questionnaires. Audit also analysed data extracted from the computerised packages used at the MOs. The Ministry's reply as well as the Exit Conference was still pending (March 2017).

Acknowledgement

We acknowledge the support extended by Integrated Headquarters of Ministry of Defence (Navy), Material Organisations at Mumbai, Visakhapatnam, Kochi and Karwar in furnishing the requisite documents, information and replies to the Audit queries raised during the course of the Performance Audit.

Audit Findings

2.3 Provisioning

The term 'Provisioning' in the Naval material management context, stands for the authorisation to acquire an item through indenting; Initial Provisioning is a process aimed at catering to the needs of ships On Board Spares (OBS) and Base and Depot (B&D) spares (for five years) at the time of commissioning, which are basically covered under capital procurement. Replenishment provisioning is a process for determining requirements for the ships and establishments on a year-to-year basis to maintain three years' average consumption as stock. Audit focused on the Replenishment Provisioning dealt under the revenue procurement.

Under the Replenishment Provisioning, a review process of Naval inventory on annual basis, as per approved Annual Review Programme (ARP), is initiated, taking into account various parameters such as stock available, Dues-in[7], Dues-out[8], Annual Consumption Level (ACL), Consumption

[6] MS Excel-Microsoft Excel for data analysis;
IDEA-Interactive Data Extraction and Analysis used as Audit tool;
Tableau- An advanced tool used for better graphical representation of data analysis

[7] Dues-in: Expected supplies against earlier purchase orders.

[8] Dues-out: Pending demands from customer/users yet to materialise.

Forecast, criticality of the item, value of the item, Lead Time[9] and shelf life, while arriving at Procurement Quantity (PQ) of any given item. After the review is processed on system, the requirements are finalised and the Provisioning Officer (PO) raises a request for procurement called "Indent". The policy for system based reviews is promulgated by DLS, IHQ MoD (Navy) in the form of Annual Review Programme (ARP).

2.3.1 Analysis of Provisioning formula

In Replenishment Provisioning, the determination of requirement is carried out through an automated formula based process, *i.e.*, through ILMS. Thereafter, additions or subtractions are made based on the Provisioning Officer's Expert Reviews (POER) on how the future consumption is likely to differ from past consumption. The formula for working out the requirement as Provisional Procurement Quantity (PPQ) and Final Procurement Quantity (FPQ) is explained in Annexure-I.

Audit observed that the procurement quantity generated by the system based provisioning formula was on the higher side and was projecting quantities equivalent to three to six years' annual consumption requirements due to an algebraic anomaly in the existing formula as explained in Annexure-II.

Thus, instead of maintaining the levels of stock between minimum and upper stock, the system generated excess procurement quantities in contravention to the provisions of Material Planning Manual-1995, which stipulates that FPQ should not normally exceed three years' annual consumption except in exceptional cases where provisioning officers have to record reasons for catering to more than three years' annual consumption requirements.

Modification of PPQ to FPQ by adding or subtracting POER is a deliberate step which must be recorded by the Provisioning Officer using the relevant codes *i.e.*, R, F, N, O[10] wherein POERs enhance the quantities using codes- R, F and N while only code- O has been provided to reduce the quantity. Any other type of reduction in PPQ by the Planning Officers is not authorised as

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[9] Lead time represents the estimated average period, in months, which elapses between the date of placing of demand by the provisioning authority and the physical receipt of stores in the consignee establishment.

[10] R-Refit Forecast that is considered reasonable, F-scheduled future routines, N-New items and O-Obsolescence anticipation

per Material Planning Manual (MPM)-1995. Audit observed that POERs were exercising a large degree of manual intervention to reduce the system generated PPQ to arrive at FPQ as enumerated in succeeding para.

MPM-1995 provides that FPQ= PPQ + POER, where POER is applied by EV and EV Consolidator[11]. EV is the evaluation code for enhancing or reducing the PPQ. Thus, addition/deletion in PPQ is being carried out by POER in two stages; at first stage the quantity EV is enhanced or reduced by the PO, *i.e.*, the Controller of Material Planning (CMP) at MOs and thereafter at the second stage, change made is put up to the CFA for final approval *i.e.*, MS at MOs or Director of Logistics Support (DLS), IHQ MoD (Navy).

Audit analysed (September 2015/January 2016) one review from each MOs and it was noticed that PPQs were either reduced or enhanced at first and second stages by applying EV and EV Consolidator as explained in Annexure-III.

The data of review carried out on ILMS for replenishment provisioning during the calendar years 2009 to 2014[12] was analysed in Audit and the summary of percentage of culmination of PPQ in FPQ (inventory type-wise) is tabulated below:

Table 2.1: Summary of culmination of PPQ into FPQ

Name of MO	Range of percentage of PPQ culminated into FPQ		
	Naval Stores (NS)	**E&SP[13] (Non-Russian)**	**E&SP (Russian)**
MO (MB)	3.43 to 48.40	4.85 to 25.44	0.39 to 42.60
MO (V)	1.13 to 30.37	6.83 to 23.67	0.22 to 34.32
MO (K)	0.02 to 36.11	2.52 to 28.71	Nil
MO (KW)	5.80 to 80.21	5.63 to 51.47	Nil

Source: ILMS data provided by IHQ MoD (Navy)

Lower percentage of culmination of system generated PPQ into FPQ, as evident from the table above, indicates that the ILMS based on Annual

[11] Expert Valuer (EV), in this case is Controller of Material Planning (CMP)
EV Consolidator- the Competent Financial Authority (CFA) in this case is Material Superintendent (MS) at MO and DLS, IHQ MoD (Navy), who consolidate the final provisioning requirements.

[12] The reviews carried out in a year take time for materialisation. With this consideration, the ARPs *vis à vis* the years 2009-10 to 2014-15 were reviewed so as to reconcile with the period covered in this PA.

[13] E&SP- Equipment and Spare Parts

Review Programmes (ARPs) were not serving as an effective tool for accurate estimation of provisioning requirements and effectiveness of automatic Replenishment Provisioning system was unsatisfactory.

Automated system based replenishment provisioning process which was liable to generate more precise requirements of procurement, warranting minimum intervention of POERs, had not achieved its desired purpose due to inbuilt error in provisioning formula which works out to three to six years' annual requirements, thereby making the intervention by POER in all cases inevitable and hence defeating the very purpose of computerisation and automation. Further, in absence of guidelines/lack of any policy for full manual intervention, no accountability of the PO could be fixed and the data generated in ILMS is on the conscious call of POERs.

In response to the audit findings, IHQ MoD (Navy) accepted (September 2016) the high degree of manual intervention/existence of error in the present PQ formula and agreed for revision of the existing provisioning formula. Hence, provisions of MPM-1995 needs a fresh look and amendments thereof.

2.3.2 Replenishment Provisioning through Annual Review Programme

Annual Review Programme (ARP) is the mainstay of the replenishment provisioning. In order to establish its effectiveness and efficiency, Audit examined the quantum of procurement made within and outside ARP and the time taken to translate reviewed items into indents. Details are discussed in the succeeding paragraphs.

2.3.2.1 Procurement within and outside the ARP[14]

Procurement outside ARP are carried out by MOs/IHQ MoD (Navy) by raising indents based on specific demands received from customers, B-Form[15] and forecast based demands.

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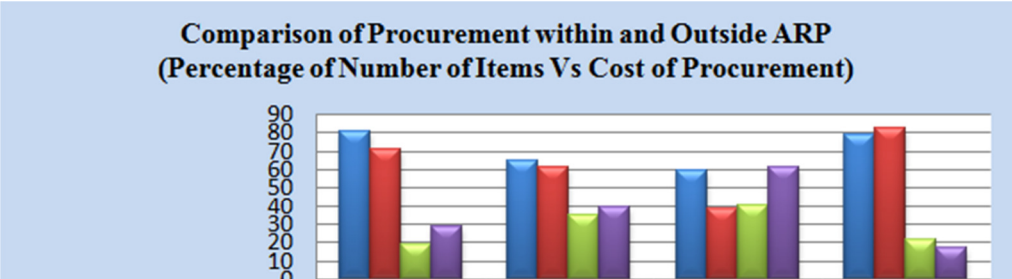
[14] This para needs to be read in conjunction with the excess inventory held above USL at MOs (Para 2.6.2.1) as Audit had restricted access to the ILMS system to ascertain the linkage between excess inventory held *vis à vis* quantum of procurement made outside ARP.

[15] B-Form are initiated by professional directorates for procurement of equipment and spare parts.

Audit, in its Report of 2002 had commented on the appreciable procurement being made outside the ARP, wherein quantum of procurement (*i.e.*, volume of items) outside ARP for MO (MB) and MO (V) was 44 *per cent* and 28 *per cent* respectively during the period 1998-99 to 2000-01. In response, Indian Navy had then stated that as a result of progressive data refinement on the ILMS, steps have been taken to reduce procurements outside the ARP. However, ATN of Ministry (2006) was silent on the issue. Audit analysed (December 2015/November 2016) the quantum of procurement (*i.e.*, volume and cost of items) within and outside ARP by MOs from 2010-11 to 2015-16 as enumerated below:

Figure-2.4: Comparison of procurement within and outside ARP



	MO (MB)	MO(V)	MO(K)	MO (KW)
Within ARP % Items	80.52	64.62	59.51	78.61
Within ARP % Cost	70.81	61	38.19	82.79
Outside ARP % Items	19.48	35.38	40.49	21.39
Outside ARP % Cost	29.19	39	61.81	17.21

Source: ILMS data provided by IHQ MoD (Navy)

A comparison of data in Figure-2.4 *vis à vis* the Audit Report of 2002 reveals that MO (MB) had reduced (19.48 *per cent*) procurement outside ARP, whereas MO (V) had contrarily increased (35.38 *per cent*). Further, procurement outside ARP by MO (K) was higher (40.49 *per cent*) whereas the performance of MO (KW) was relatively better (21.39 *per cent*).

While agreeing to the Audit findings, MO (MB) stated (December 2016) that general/low cost items were procured on the basis of review/ACL/MSL[16] quantity. However, high value items are procured against demand and hence

[16] ACL- Annual Consumption Limit; MSL-Minimum Stock Level below which the stock of an item should not fall.

percentage cost of procurements outside ARP is high. MO (K) accepted the audit findings and stated (January 2016) that high value nature items are provisioned to materialise the existing Dues-out and to maintain the ACL/MSL. Further, MO (K) undertook ad hoc procurements outside review like ABER[17], FCL, critical spares as directed by administrative authorities and provisioned against demand based indents outside ARP which cannot be performed within the ARP. As these items are generally of high value nature, they constitute for 64.50 *per cent* of total procurement cost. However, the fact remains that the trend adopted by the MO (K) to procure the items outside ARP is not a healthy practice.

The replies of other two MOs were awaited (March 2017).

2.3.2.2 Time taken for completion of indenting

ARP calendar lays down specific timeline of one month for completion of indenting from date of consolidation. Considering the size of the Naval inventory, the reviews are undertaken in groups, in a staggered manner, with prescribed frequency. As per ARP calendar, four reviews for Naval Stores, two reviews for Non-Russian Stores (NR) and one review for Russian Stores (RS) with some exception for additional special reviews are carried out on ILMS system every year along with the date of completion for consolidation and indenting of the items reviewed under ARP.

Audit analysed (July 2016) the Annual Review Calendar promulgated by DLS/ IHQ MoD (Navy) for review of Naval inventory on ILMS, in the form of ARP *vis à vis* its actual implementation furnished by the MOs. The details are as discussed below:

- **MO (KW):** Though the ARP calendar stipulates 30 days, the time taken for raising of indent ranged from 3 to 18 months.
- **MO (MB):** There was a delay of more than two months in each case with respect to the timelines laid down in ARP.

Thus, timelines prescribed in the ARP for raising of indents were not adhered to, leading to consequent delays in procurement. In respect of MO (V) and MO (K), response was awaited (March 2017).

[17] ABER-Anticipated Beyond Economical Repairs.

2.3.3 Enhancement of procurement quantity in excess of requirement

As per provisions contained in MPM-1995, POER is a deliberate step to be exercised by the Provisioning Officer (PO) to change the PPQ and change must be recorded by POER using the specific evaluation code (EV code) in an indent.

Audit observed (September 2015 to January 2016)[18] that items valuing ₹499.19 crore were procured by MOs after enhancement of PPQ by adding POER and these items were held in stock in excess of USL. Out of these, items valuing ₹184 crore were procured after adding POER without recording specific EV codes as detailed in Table-2.2 below:

Table-2.2: Enhancement of procurement quantity by POERs

Name of MO	Items procured from 01 April 10 to 31 March 16 and lying in stock in excess of USL as on November 2016		Procurements made against Reviews carried out from 2010-11 to 2014-15[19] after adding POER and lying in stock in excess of USL (November 2016)		Out of Column 4, procurement made after adding POER without indicating EV code and held in stock in excess of USL	
	No. of items	Value (₹ in crore)	No. of items	Value (₹ in crore)	No. of items	Value (₹ in crore)
1	2	3	4	5	6	7
MO (MB)	28,091	1,221.84	9,350	348.23	1,049	65.97
MO (V)	34,907	3,041.34	5,793	95.25	892	10.33
MO (K)	11,052	99.24	1,752	13.77	4,575	79.74
MO (KW)	10,309	118.35	4,602	41.94	2,595	27.97
Total	**84,359**	**4,480.76**	**21,497**	**499.19**	**9,111**	**184.00**

Source: ILMS data provided IHQ MoD (Navy)

In response to the audit observation, MO (K) stated (November 2015) that EV code was recorded wherever possible. MO (KW) stated (December 2015) that EV codes were used only for E&SP and their use for Naval stores was not completely applicable. Contention of MOs is not tenable since as per IHQ MoD (Navy)'s directives issued in February 2001, it is mandatory to exercise EV codes whenever there is a change in PPQ made through professional evaluation, moreover, EV codes are also to be exercised in respect of Naval stores as per MPM-1995. At MO (MB) modification of PPQ to FPQ was done

[18] Procurement details updated up to 31 March 2016 and stock position updated as on November 2016 after the issue of audit observation.

[19] Cases of Reviews carried out during 2015-16 not taken into account as their indenting and provisioning requires time therefore being at premature stage to comment upon.

(August 2016) by professional officer and where EV codes were not mentioned, remarks had been updated in 'Remark Local Field' in ILMS. The reply is not tenable being in deviation from the laid down procedure.

The procurement of items by applying POER lacks justification since 21,497 items were still lying in stock (November 2016) in excess of USL. Further, in violation of the laid down norms, no EV code was indicated in respect of inventory worth ₹184 crore which were held in stock.

2.3.4 Lack of selective Inventory Control Mechanism

The classification of Naval inventory into ABC/VED category forms the basis for provisioning and procurement. ABC is a system of inventory classification based on annual consumption whereas VED is a system of inventory classification based on criticality of items *i.e.*, Vital (V), Essential (E) and Desirable (D). ABC analysis (Selective Inventory Control) is an inventory categorisation technique for identifying stock that requires stringent control on high value items thereby impacting overall inventory cost. In inventory analysis, the criteria which make a significant level of control important for any item is based on two factors (i) usage rate *i.e.*, Annual Consumption Limit and (ii) unit value. These two factors can be multiplied to give total Annual Consumption Value.

The classification of ABC in Naval inventory as per MPM-1995 is as under:

- A- annual consumption value above ₹5 lakh;
- B- annual consumption value between ₹0.5 lakh and ₹5 lakh; and
- C- annual consumption value below ₹0.5 lakh

2.3.4.1 Non-revision of ABC classification

Audit analysed (September 2015/August 2016) serviceable moving inventory where last purchase prices as well as the three years' average consumption value were available across the MOs. The details of ABC categorisation of inventory at MOs are given in Annexure-IV. The summary of items not falling in their respective ABC category and breaching into other categories based on

annual consumption, as per norms laid down in MPM-1995, is given in the Table-2.3 below:

Table-2.3: Status of ABC categorisation of Naval inventory

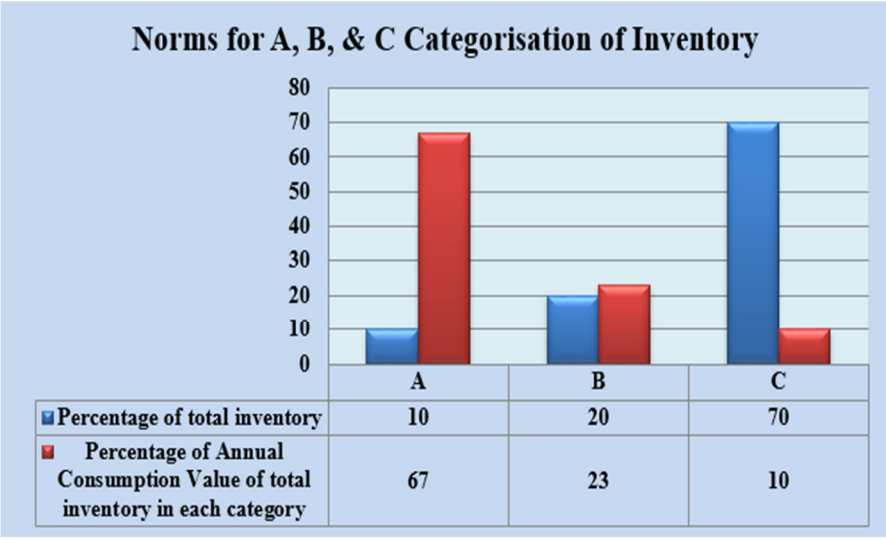
MO	No. of Cat A items breaching into other categories		No. of Cat B items breaching into other categories		No. of Cat C items breaching into other categories	
	Cat B	Cat C	Cat A	Cat C	Cat A	Cat B
MO (MB)	1,087	1,188	195	4,708	1,531	5,784
MO (V)	650	983	482	7,195	3,009	9,482
MO (K)	304	333	32	1,565	369	1,821
MO (KW)	400	973	218	1,928	406	2,301

Source: ILMS data provided by IHQ MoD (Navy)

Above Table-2.3 reveals that items which should have been in category A are spread out in category B and C and *vice versa*. This is indicative of the fact that a dynamic review of categorisation of inventory into A, B and C categories was not as per the laid down norms and, therefore, depicts an incorrect portrait of the inventory holding.

Further, IHQ MoD (Navy) issued (July 2010/January 2011) guidelines for classifying the items into A, B and C categories in terms of percentage of total inventory *vis à vis* the Annual Consumption Value.

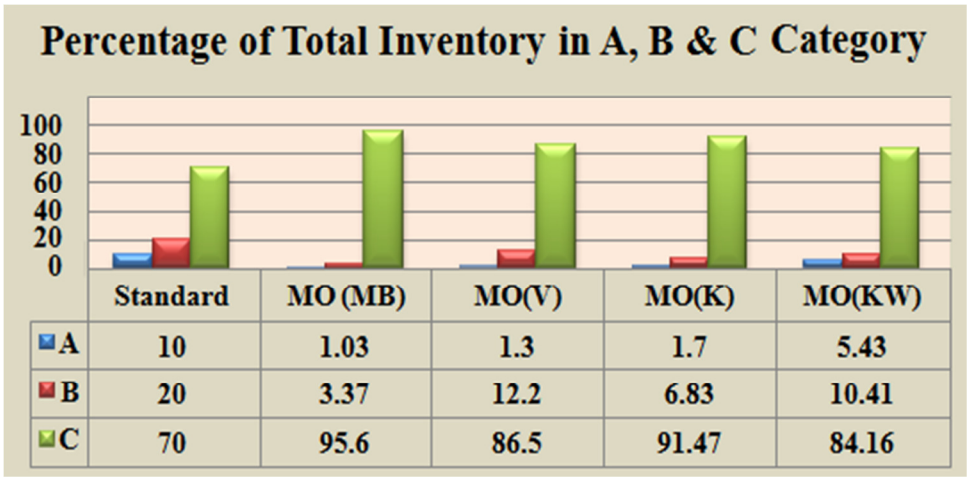
Figure-2.5: Norms of ABC categorisation



Source: Information provided by IHQ MoD (Navy)

An analysis (August 2016) of the total inventory held in A, B and C categories against the prescribed norms is given in Annexure-V and the same is summarised below:

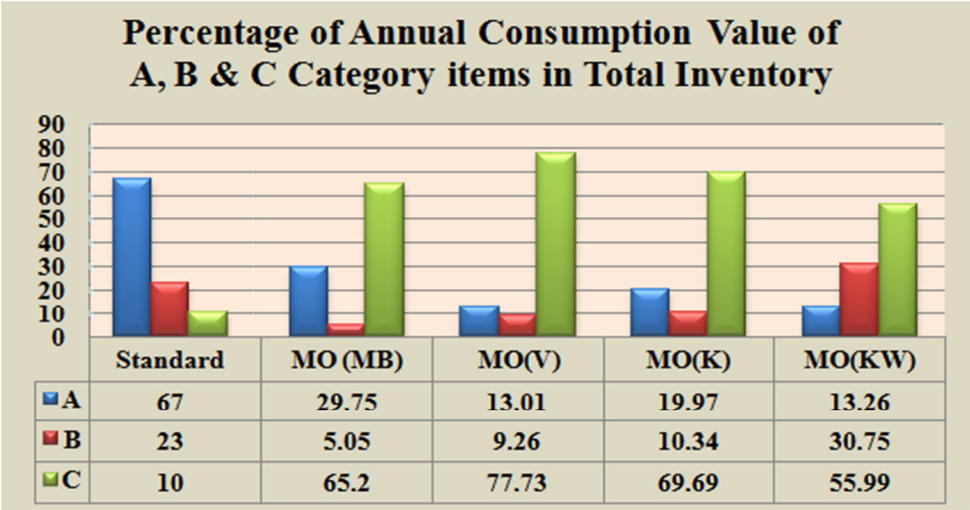
Figure-2.6: Percentage of total inventory in ABC category as on 31 July 2016



	Standard	MO (MB)	MO(V)	MO(K)	MO(KW)
A	10	1.03	1.3	1.7	5.43
B	20	3.37	12.2	6.83	10.41
C	70	95.6	86.5	91.47	84.16

Source: ILMS data provided by IHQ MoD (Navy)

Figure-2.7: Percentage of annual consumption in ABC category from August 2015 to August 2016



	Standard	MO (MB)	MO(V)	MO(K)	MO(KW)
A	67	29.75	13.01	19.97	13.26
B	23	5.05	9.26	10.34	30.75
C	10	65.2	77.73	69.69	55.99

Source: ILMS data provided by IHQ MoD (Navy)

The above facts indicate that in MOs, the laid down percentage of holding of items in A, B and C categories with reference to the total serviceable inventory *vis à vis* the annual consumption value was not adhered to and it showed abnormal pattern of ABC categorisation.

Thus, there was lack of selective inventory control mechanism impacting other aspects of inventory control *viz.*, PPQ through review provisioning, Minimum Stock Level (MSL) and Upper Stock Level (USL) as referred in Annexure-I.

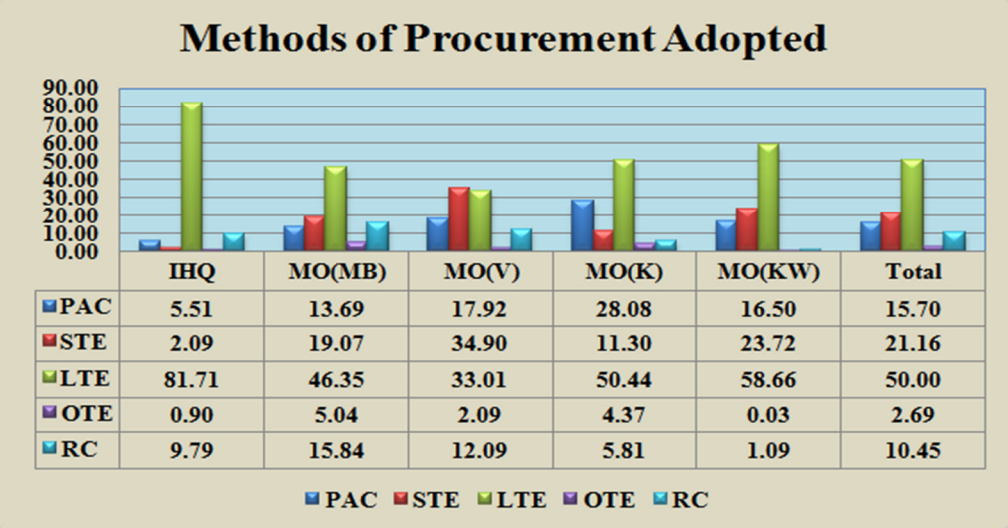
2.4 Procurement

Audit examined various aspects relating to procurement such as its method, adherence to internal lead time, procurement of obsolete items, reasonabilities of accepted rates and vendor management. The details are discussed in the succeeding paragraph.

2.4.1 Methods of procurement followed by MOs

Audit examined (March 2016)[20] the purchase orders placed between 2010-11 and 2015-16 with reference to the methods of procurement adopted by the IHQ MoD (Navy) and MOs as given below:

Figure-2.8: Methods of procurement



	IHQ	MO(MB)	MO(V)	MO(K)	MO(KW)	Total
PAC	5.51	13.69	17.92	28.08	16.50	15.70
STE	2.09	19.07	34.90	11.30	23.72	21.16
LTE	81.71	46.35	33.01	50.44	58.66	50.00
OTE	0.90	5.04	2.09	4.37	0.03	2.69
RC	9.79	15.84	12.09	5.81	1.09	10.45

Source: ILMS data provided by IHQ MoD (Navy)

It was seen that percentage of purchase orders concluded on PAC, STE and LTE[21] basis were 15.70, 21.16 and 50.00 respectively whereas the percentage of purchase orders concluded on OTE and RC[22] were only 2.69 and 10.45

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[20] Figures updated as on 31 March 2016

[21] PAC- Proprietary Article Certificate STE-Single Tender Enquiry
LTE- Limited Tender Enquiry

[22] OTE-Open Tender Enquiry RC-Rate Contract

respectively. Procurement based on PAC, STE and LTE leads to reduced competition/monopolistic situation and resultant higher rates.

Indian Navy cited (August 2016) the limited source of supply, specific requirement for Indian Navy, non-disclosure of part numbers by Russians etc. as reasons for resorting to PAC/LTE. The contention of Indian Navy is not agreed to, as PAC and LTE methods were resorted to for procurement of the same item, which indicates granting of PAC status to a particular firm lacked rationale.

2.4.2 Internal Lead Time[23] from indent to procurement

As per Defence Procurement Manual (DPM-2009), the time prescribed for procurement under single and two bid systems, for activities starting from vetting and registration of indents up to placement of purchase orders (Internal Lead Time) is 19 and 23 weeks respectively. Audit observed that there were delays in approval of indents from the vetting and registration stage. Besides, delays were also observed in placement of the purchase order after approval of the indents.

2.4.2.1 Delay in approval of indents

The DPM prescribes one week for vetting and registration of indent. However, Audit found that there was considerable delay in approval of indents by IHQ MoD (Navy)/MOs as indicated below:

Table-2.4: Time taken for approval of indents

Time taken for approval of indents	Indents raised from 01-04-2010 to 31-03-2015[24]						Percentage of Total indents
	MO (MB)	MO (V)	MO (K)	MO (KW)	IHQ, MoD	Total	
within 1 week	434	1,146	506	692	28	2,806	18.08
2 to 23 weeks	3,550	4,181	1,140	1,476	160	10,507	67.68
Beyond 23 weeks	635	325	182	36	25	1,203	7.75
Yet to be approved	245	599	126	13	24	1,007	6.49
Total	**4,864**	**6,251**	**1,954**	**2,217**	**237**	**15,523**	

Source: ILMS data provided by IHQ MoD (Navy)

Only 18.08 *per cent* indents were approved within the prescribed time limit of one week, whereas 7.75 *per cent* indents were approved after 23 weeks, which

[23] Internal Lead Time is the time taken between date of indent and date of purchase order

[24] Indents raised during 2015-16 not taken into account as its approvals will be delayed beyond the year 2015-16

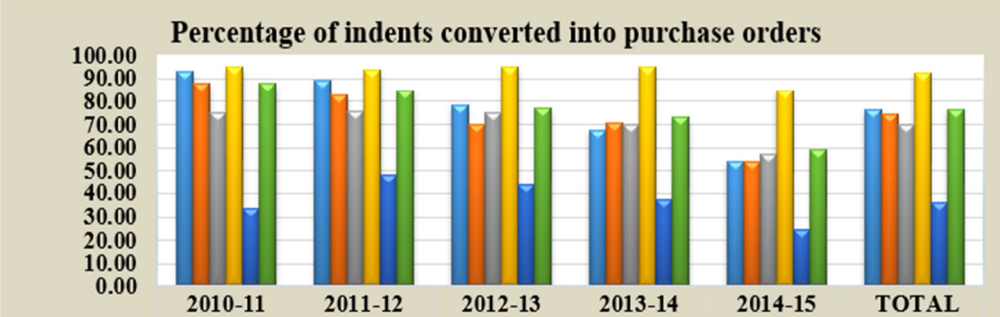
is actually the time prescribed for completion of all activities till placement of order. Thus, excessive delays in approval of indents by the provisioning agencies resulted in consequent delays in placement of purchase order.

Audit observations (September 2015/December 2015) on the issue were not addressed by MO (MB)/IHQ MoD (Navy) in their reply (October 2015/August 2016).

2.4.2.2 Delay in placement of purchase orders

Audit observed (September 2015 to December 2015) that out of 15,523 indents raised by IHQ MoD (Navy)/MOs from April 2010 to March 2015[25], only 11,886 (76.57 *per cent*) indents could be converted into purchase orders till 31 March 2016 as given below:

Figure-2.9: Total indents conversion into purchase orders (in percentage)



	2010-11	2011-12	2012-13	2013-14	2014-15	TOTAL
MO(MB)	92.91	89.43	78.68	67.56	54.29	76.62
MO(V)	88.16	83.12	70.18	70.70	53.86	74.39
MO(K)	75.31	75.62	75.49	70.35	57.30	70.21
MO(KW)	94.87	93.82	95.11	95.21	85.08	92.51
IHQ	33.82	48.48	43.59	37.50	24.49	36.29
Total	87.89	85.09	77.24	72.99	59.14	76.57

Source: ILMS data provided by IHQ MoD (Navy)

From the above, it is evident that as on March 2016, out of total indents approved during the year 2014-15, the conversion of indents into purchase orders ranged from 24.50 to 85.00 *per cent* whereas during the year 2010-11, conversion of indents into purchase orders ranged from 33.80 to

[25] Cases/indents initiated in 2015-16 not taken into account as its conversion to purchase orders require time.

94.90 *per cent*. This indicates that in subsequent years, more time was taken to convert indents into purchase orders.

Delay in conversion of indents into purchase orders placed as on 31March 2016 by IHQ MoD (Navy)/MOs *vis à vis* 11,886 indents is tabulated below:

Table-2.5: Delay in conversion of indents into purchase orders

Period within which indents were converted into purchase orders	Indents raised from 1 April 2010 to 31 March 2015						Percentage of Total indents
	IHQ MoD (Navy)	MO (MB)	MO (V)	MO (K)	MO (KW)	Total	
Within 23 weeks	17	1,145	2,054	423	1,112	4,751	39.97
24 weeks to above 3 years	69	2,582	2,596	949	939	7,135	60.03
Total	**86**	**3,727**	**4,650**	**1,372**	**2,051**	**11,886**	

Source: ILMS data provided by IHQ MoD (Navy)

The above table reveals that 60.03 *per cent* of the indents were converted into purchase orders after the prescribed time limit of 23 weeks, which indicates that indents raised with definite purposes were unable to meet the indented objective due to weakness in procurement system. In response to audit query, MO (MB)/IHQ MoD (Navy) acknowledged the delays and stated (October 2015/August 2016) that the actual materialisation within 23 weeks was 42.19 *per cent*. Further, IHQ MoD (Navy) attributed the delays to cancellation of indents, difficulty in sourcing from Russian firms, exaggerated pricing, expiry of Proprietary Article Certificate (PAC) etc. and stated that adhering to the timelines provided in DPM was not feasible.

The reply is not acceptable as the status worked out by Indian Navy is as of August 2016 whereas the status worked out by Audit is as of March 2016. The fact remains that timelines for procurement activities are prescribed in the DPM and are thus sanguine and Indian Navy's inability to meet the prescribed timeliness is indicative of adverse impact on meeting the requirements timely.

2.4.3 Procurement of common use items of Naval store

Ministry of Defence, in its ATN (April 2006) had stated that OTE was being progressively adopted for common use items[26] having general specifications. Audit noticed (November 2016) that out of 497 cases for procurement of common use items by MOs, only 11 cases were processed under OTE and 189 cases under RC. This indicates that the quantum of procurement of common use items made on OTE and RC basis was only 40.24 *per cent* which shows that assurance made in the ATN had not been implemented.

2.4.4 Procurement of obsolete[27] items

An equipment/store for which approval has been given for its withdrawal from service is referred to as obsolete whereas the equipment/store, for which no further provision will be made but the existing stocks, if any, will be used till these are exhausted are considered as obsolescent. Anticipation and appropriate response to Naval inventory becoming obsolete/obsolescent[28] is a major responsibility of material planners, so that obsolete/obsolescent stock is kept to the minimum. The obsolete/obsolescent equipment are to be appropriately flagged on ILMS so that no further review is undertaken and all procurement activities are discontinued.

Audit found (November 2016) that:

- An item convertor was declared obsolete in the year 1999. An import indent was raised by MO (V) in June 2008 for the convertor. Contract was concluded (May 2010) by CPRO (V) with M/s SME, Russia costing $66,244.50 (₹1.19 crore) for procurement of four convertors which were held in stock as of October 2016.
- An indent raised by MO (V) in June 2008 contained three items *viz.*, set of bushes for motor HP pump, ball bearing and V ring, which were subsequently declared obsolete between June 2009 and January 2010.

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[26] Example of common use items are soaps (toilet/laundry), varnish paints, Soda ash, various types of paints, polythene bags, computer papers, bleaching powder, acids, naphthalene balls, scrubbing brush, cotton rags etc.

[27] Obsolete- an equipment/store for which approval has been given for its withdrawal from service.

[28] Obsolescent- An equipment/store, for which no further provision will be made but the existing stocks, if any, will be used till these are exhausted.

However, the purchase order was placed in April 2010 by MO (V) at a total cost of ₹75.49 lakh. These items were lying in stock (November 2016) without issue.

Further, Audit examination revealed that from 2010-11 to 2015-16, 1,463 items were purchased at a cost of ₹46.92 crore after being declared obsolete as tabulated below:

Table-2.6: Details of procurement of obsolete items

MO/IHQ	No. of items	Value (₹ in crore)
IHQ	539	19.94
MO (MB)	260	7.56
MO (V)	354	12.65
MO (K)	167	4.95
MO (KW)	143	1.82
Total	1,463	46.92

Source: ILMS data provided by IHQ MoD (Navy)

The procurement is indicative of lack of due diligence from the material planners while making procurement decisions. In response, Indian Navy accepted the Audit's view stating that suitable provisions/remedies will be adopted to minimise the above situation in the ILMS version 2.0[29].

2.4.5 Vendor management

Developing adequate vendor data base is significant in procurement process of inventory because of its peculiarity. Audit had recommended in its previous report that vendor base needs improvement and a time bound plan be implemented to link all the items in the inventory with the vendors. Though Indian Navy agreed that the system needed to be strengthened, the Ministry's ATN (April 2006) was silent on the issue.

An analysis of vendor database and year-wise registration of vendors (December 2015) maintained by MOs and IHQ MoD (Navy) is tabulated below:

[29] Integrated Logistics Management System (ILMs) presently being used by Indian Navy is Version 1. Indian Navy is planning to upgrade it to ILMS Version 2.0 in order to bring all the stakeholders *viz.*, Naval Dockyard, Ships, WOTs etc. on to a single platform in order to bring total asset visibility.

Table 2.7: Details of vendor registration

Year	Origin of vendor registered		Total	MO wise vendor Registration Figures				
	Indigenous	Foreign		IHQ MoD (Navy)	MO (MB)	MO (V)	MO (K)	MO (KW)
2009	323	28	351	0	331	0	1	19
2010	308	18	326	0	322	0	0	4
2011	183	69	252	0	252	0	0	0
2012	159	22	181	0	181	0	0	0
2013	98	29	127	1	126	0	0	0
2014	120	6	126	0	126	0	0	0
2015	59	1	60	0	60	0	0	0

Source: ILMS data provided by IHQ MoD (Navy)

It is evident from the above that the process of vendor registration is showing a decreasing trend indicating that process of widening the vendor database is slow. This may lead to delay in finding out eligible vendors and converting of indents to tenders, since vendors had to be identified through *ad hoc* methods.

Among the four MOs, more than 99 *per cent* of the vendor registration done from 2009 onwards has been done by MO (MB). Audit further noticed that out of 17,524 vendors existing in ILMS, 13,575 vendors were approved prior to the year 2000 and 10,061 vendor were classified[30] as class 'F', 56 vendors as class 'M', 5,990 vendors as class 'E' 1,303 vendors as class 'D', 11 vendors as class 'B' and 56 vendors as class 'A'. Only 7,463 vendors were, therefore available in business category with MOs, out of which many vendors had multiple registration with Indian Navy.

In response, Indian Navy stated (February 2016) that prior to migration to ILMS single server, each MO had its own vendor database. Indian Navy further stated (February 2016) that ILMS did not have an option to allocate unique vendor code with multiple address option for local area identification and that the issues brought out by audit were noted for implementation under version-2.0 of ILMS.

The system of vendor management therefore allowed the same vendor to get registered with different procurement agencies *i.e.*, MOs and IHQ MoD (Navy) as a result of which, the same vendor existed in the vendor database

[30] Class of Vendor: Class 'F'- Unsuitable vendors, Class 'M'- Manufacturers, Class 'E'- New Traders, Class 'D'-New OEM/Distributers, Class 'B'-OEMs/Distributers and Class 'A'-OEMs/Distributers self-certified OK.

under multiple vendor codes. Further, flaw in ILMS post migration to ILMS single server relating to non-allocation of unique vendor code irrespective of different addresses still persists (March 2017).

2.5 Demand Compliance

Demand compliance is defined as the percentage of demands against which issues could be made within that year. Demands raised by ships, establishments, repair agencies and other Naval formation are vetted before the issue of stores. Thereafter, stores for issue is authorised by CMP.

Demands are broadly categorised in two parts as mentioned below:

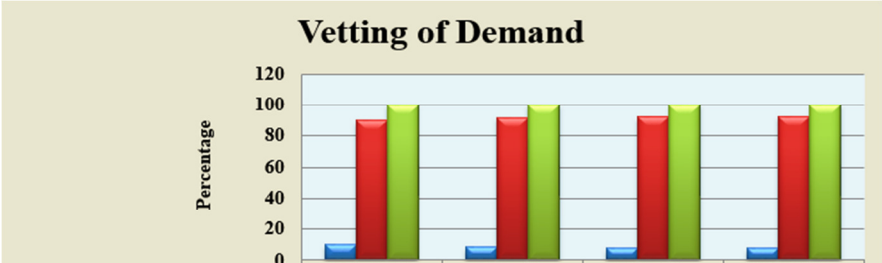
1) User Raised Demand: these demands are raised by user units, in the form of
   - Normal Demand- are raised to fulfill the requirement against the laid down allowances for user.
   - Urgent Demand- are raised to meet genuine urgency.
   - Operational Demand-are raised to meet an operational requirement of ships.
   - Refit Planning Procedure (RPP) Demand are raised by repair agency (Naval dockyards) 58 weeks and 30 weeks for Medium Refit (MR)/Normal Refit (NR) and Short Refit (SR) respectively, before commencement of refit, to be activated during the refit.
2) Raised in Office (RIO) Demand: these demands are raised by MOs to meet requirements *viz.*, operational turn around, automatic replenishment, initial issue and Inter Depot Transfer (IDT).

Audit had recommended in the previous Audit Report (2002) that standards for demand satisfaction should be clearly laid down, time in which demands are to be met should also be prescribed as an indicator. The Ministry in its ATN (April 2006) had stated that it was not practical to set standard for demand satisfaction, however, demand compliance within a specified period for the available stores/spares had been prescribed. Audit observed that no such time limit had been prescribed. However, Audit assessed the time taken in various processes of demand compliance which are discussed in succeeding paragraphs.

2.5.1 Time taken in Vetting of Demands and Issue Authorisation

As per Material Planning Manual-1995, Demands are to be vetted within five days of receipt with vetting remarks by CMP. Audit analysed (October 2015) the time taken for vetting of demand which are indicated below:

Figure-2.10: Vetting of Demands for the period 2011 to 2015



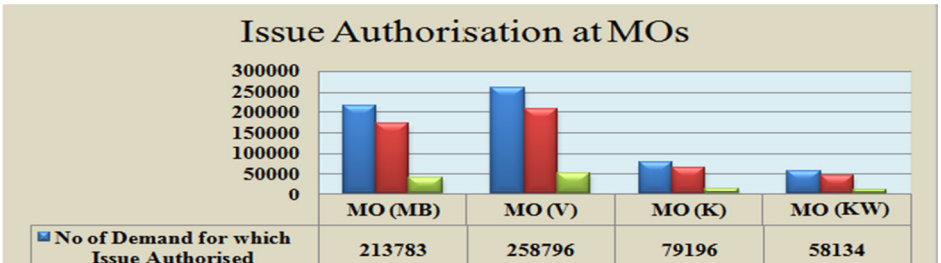
	MO (MB)	MO (V)	MO (K)	MO (KW)
Percentage of demand vetted within 3-5 days	10.13	8.41	7.73	7.65
Percentage of demand vetted after 5 days	89.87	91.59	92.27	92.35
Total	100	100	100	100

Source: ILMS data provided by IHQ MoD (Navy)

From the above, it is evident that only 7.65 to 10.13 *per cent* of demands were vetted at MOs within laid down timeline indicating slow progress in vetting by CMP.

Since norms have not been laid down for the time frame within which authorisation should be issued or an item delivered, audit could not figure out the delays in the process. However, audit analysed (August 2016) the time taken for issue of authorisation by the CMP as indicated below:

Figure-2.11: Issue authorisation status as on 31 March 2016



	MO (MB)	MO (V)	MO (K)	MO (KW)
No of Demand for which Issue Authorised	213783	258796	79196	58134
Issue Authorised within 15 days	172784	206163	65878	45503
Total Issue authorised beyond 15 days	40999	52633	13318	12631

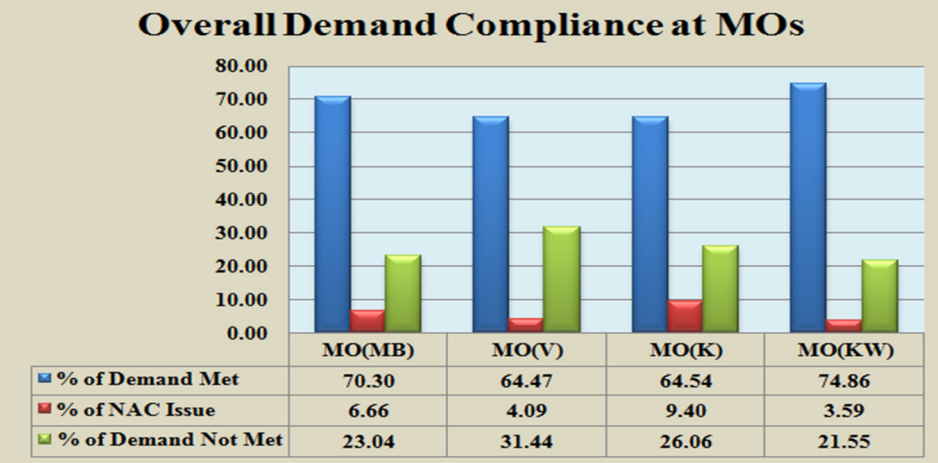
Source: ILMS data provided by IHQ MoD (Navy)

From the above it is clear that 21.73 *per cent* issues were authorised beyond 15 days.

2.5.2 Overall Demand Compliance

Audit Report of 2002 pointed out that the average demand satisfaction was 60 *per cent* in all the MOs. The ATN (2006) was silent on the issue. The results of audit examination (August 2016) of demand compliance from 2010-11 to 2015-16 at MOs is given below:

Figure-2.12: Overall demand compliance as on 31 March 2016



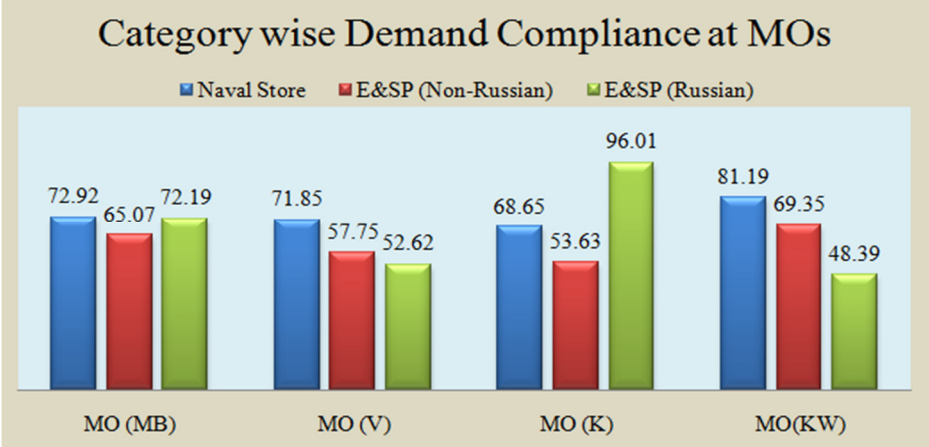
	MO(MB)	MO(V)	MO(K)	MO(KW)
% of Demand Met	70.30	64.47	64.54	74.86
% of NAC Issue	6.66	4.09	9.40	3.59
% of Demand Not Met	23.04	31.44	26.06	21.55

Source: ILMS data provided by IHQ MoD (Navy)

From the above, it is evident that demand compliance at MOs averaged at 70 *per cent.*

Audit further analysed the demand satisfaction with reference to different categories of stores and the details are given below:

Figure-2.13: Category-wise demand compliance as on 31 March 2016



Source: ILMS data provided by IHQ MoD (Navy)

From the above, it may be seen that the demand compliance in respect of Equipment and Spare Parts (E&SP) stores which is a critical factor[31] invariably ranged from 53.63 to 69.35 *per cent* for non-Russian stores and from 48.39 to 96.01 *per cent* in case of Russian stores. This affects the availability of ships/submarines, eventually impacting operational preparedness of the Indian Navy.

2.5.3 Refit Forecast Compliance

Forecast List (FCL)[32] demand satisfaction signifies the quantity of spares supplied by the MOs in response to demands for spares placed by the refitting yards in FCL. It is an important indicator of performance of the agency that procures spares and is vital for timely completion of all refits. For ensuring timely availability of spares, Refit Planning Programme (RPP) stipulates that the refitting yards have to forward Standard Forecast List (FCL) of spares, determined on the basis of standard work package, to MOs 58 weeks and 30 weeks before the MR/NR and SR[33] respectively. In case of MR/NR, the MOs have to intimate the yards regarding the expected date of supply (EDS) of items and also a list of items which are not likely to be available before 20 weeks of Dockyard Starting Date (DSD[34]). Thereafter, the refitting yards forward 18 weeks in advance, the firm demands to MOs. Similarly, the list of Post Defectation Demands (PDDs)[35] for defects other than of routine type are forwarded to MOs 13 weeks and eight weeks before commencement of MR/NR and SR respectively. The ratio of 'Demanded Spares' available and issued to 'valid Forecast Compliance List (FCL) demands' is the basis on which percentage of compliance of FCL demand is calculated by MOs.

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[31] E&SP are critical since non-availability of this can affect the operational capability of the ships as compared to Naval store.

[32] Forecast List (FCL): This includes spares required for refit of ship based on forecast approved by Naval Dockyard

[33] MR- Medium Refit, NR- Normal Refit, SR- Short Refit

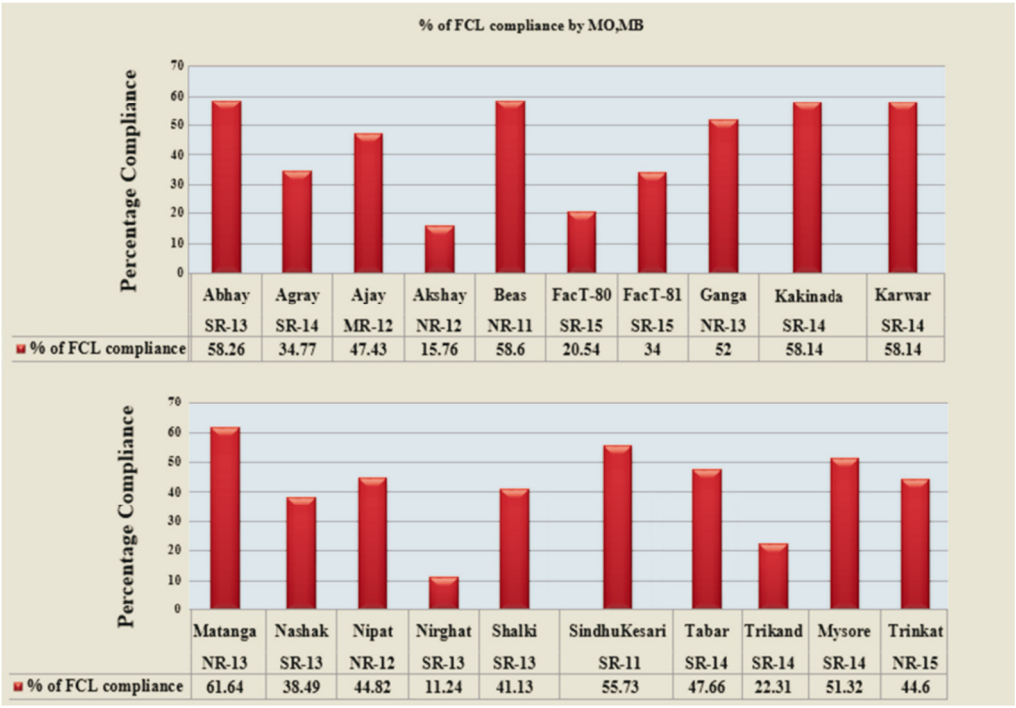
[34] DSD (Dockyard Starting Date)- the date indicating commencement of refit.

[35] Post Defectation Demand- Spares required for refit, need for which is evident only after opening of equipment/systems.

Audit Report (2002) had highlighted that compliance rate for supply of equipment and spares had been abysmally low, with overall compliance for ships refitted at Naval Dockyard, Mumbai from 1997 to 2000 ranging between 44 and 51 *per cent* only. The Ministry's ATN (April 2006) was silent on the issue.

Audit observed (July 2016) that percentage of refit forecast compliance of selected ships undertaken at Naval Dockyard (ND), Mumbai from 2010-11 to 2014-15[36] is as follows:

Figure-2.14: Refit FCL Compliance



Source: ILMS data provided by Naval Dockyard (MB)

The figure: 2.14 above reveals that percentage of FCL compliance in respect of refits of 20 ships was below 60 *per cent*. In case of four Naval Ships, audit observed that the refit forecast compliance was around 20 *per cent.* Low compliance affects completion of refits/routines which in turn impacts the operational availability of ships/submarines and defence preparedness of Indian Navy.

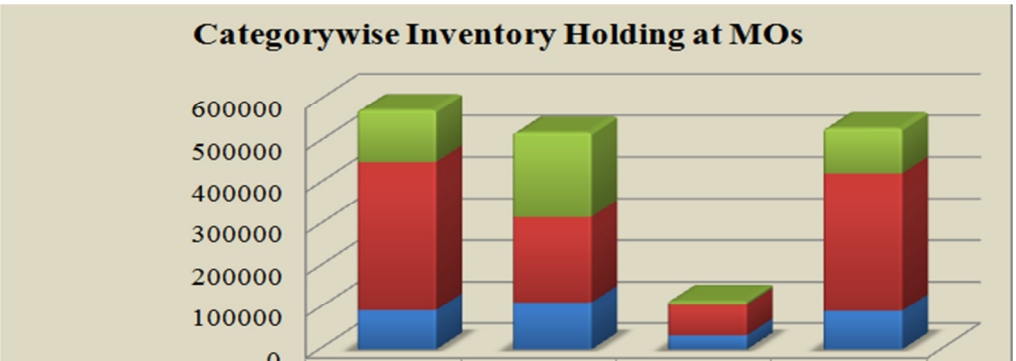
[36] Refits of 20 ships were selected for detailed audit, 2015-16 was not taken into account as it would be premature to comment before the commencement and completion of refits.

In response, Indian Navy [MO (MB)] stated (September 2016) that ratio of 'Demanded Spares' which had been issued and available to 'Total number of valid uncancelled FCL demands' is the basis on which percentage of compliance of FCL demands is reckoned and it ranged between 71 and 97 *per cent*. Contention of Indian Navy is not tenable as it was not supported with documentary evidence.

2.6 Inventory Holding

Inventory in the Indian Navy is accounted for in terms of number of items without any reference to the value, volume or weight of the inventories held[37]. Status of moving and non-moving items at MOs as of March 2016 is indicated below.

Figure-2.15: Inventory Holding at MOs as on 31 March 2016



	MO(MB)	MO (V)	MO(K)	MO(KW)
E& SP (Russian)	124842	202836	8589	108333
E& SP (Non-Russian)	356621	205361	74079	330766
Naval Store	94524	113324	33705	92788

Source: ILMS data provided by IHQ MoD (Navy)

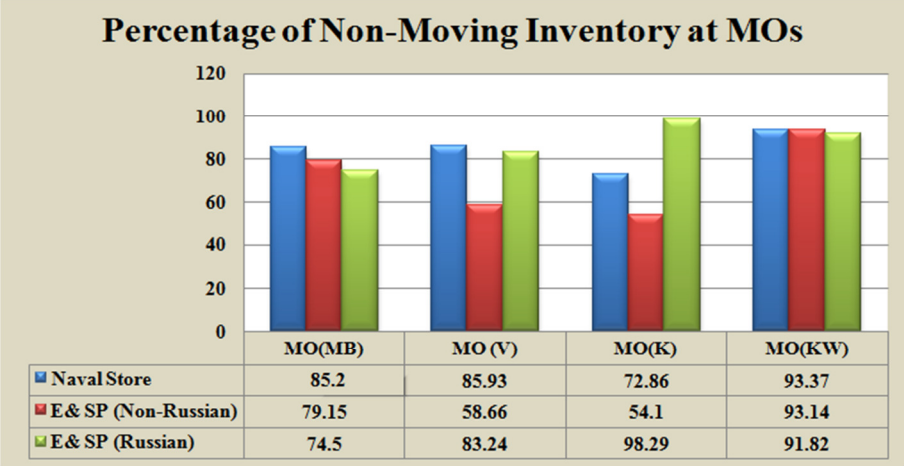
[37] The above mentioned inventory data, though stated to be in number of items, actually referred to number of ledger pages (number of records in the item table in ILMS) for the following reasons:
(I) A Large number of items have no stock, and also, have had no transaction for long periods and are hence, notional.
(II) Many items shown in the inventory belong to decommissioned ships/aircraft but are awaiting action for segregation and disposal
(III) Many of the items surveyed back to the depots as repairable/scraps etc., are lying without further action.

2.6.1 Analysis of Moving and non-moving Inventory

The inventories are classified as moving[38] (which includes fast moving and slow moving items) and non-moving inventory[39]. Audit Report (2002) had highlighted large non-moving inventory at over 65 *per cent* and recommended that its reduction must be a 'high focus area'. The Ministry in its ATN (April 2006) had stated that segregation of surplus stores was continuously being progressed.

Audit noticed (October 2015/August 2016) that non-moving inventory across all MOs varied from 72.86 to 93.87 *per cent* (Naval Stores), 54 to 93 *per cent* (E&SP non-Russian) and 74.50 to 98.29 *per cent* (Russian) as reflected in the chart below:

Figure-2.16: Non-moving inventory at MOs as on 31 March 2016



Source: ILMS data provided by IHQ MoD (Navy)

The response of Indian Navy to the audit observation (August 2016) was awaited (March 2017).

Thus, the level of percentage of non-moving inventory has increased *vis à vis* its holding observed in the Audit Report (2002). This is indicative of surplus procurement constraining the storage space and unhealthy inventory management.

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[38] Fast moving item means movement of stores within last two years; slow moving item means movement of stores within last 2 to 5 years.

[39] Non-moving means non-movement of stores within last 5 years.

2.6.2 Serviceable Surplus Stores (SSS[40])

A large number of Serviceable Surplus Stores (SSS) has been accumulated in the Indian Navy today principally because of inadequate disposal rate in the past. Serviceable Stores Surplus are unavoidable because of the need to maintain insurance stocks[41] and war reserves[42] in a fighting service and the inability to forecast their obsolescence adequately in advance. Stores also become surplus due to excessive initial provisioning, excessive projections in user-compiled lists, wrong Annual Consumption Limit (ACL) calculation, multiple accounting and stocking, and use of faulty provisioning formula.

The MPM stipulates that stock of an item should be between Minimum Stock Level (MSL) and Upper Stock Level (USL), as per the category of the item and its ACL.

The analysis of stock level of items at the MOs revealed that MPM's stipulations were not adhered to and a sizeable number of moving items were above USL and below MSL as discussed in the subsequent paragraph.

2.6.2.1 Inventory held as surplus

Material Planning Manual-1995 stipulates saving in material management through maintaining lean inventories as with calculation of cost of money at 16 *per cent* and inflation at 8 *per cent* per year, e.g., net annual carrying cost of inventory worth ₹1,000 crore is ₹80 crore.

Audit observed (October 2015/August 2016) that there was accumulation of large quantum of items in MOs in excess of USL contributing towards serviceable surplus stores worth ₹7,359.37 crore as indicated in Table 2.8 below:

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[40] Serviceable Surplus Stores-These are materiel in serviceable condition for which there is no foreseeable requirement in the Indian Navy. Even if an item is still in use, that quantity of it which cannot be used in the Navy within its shelf-life and non-insurance item, cannot be within the next 7 years may be treated as surplus.

[41] Insurance Stock- These are the stock required to maintain and repair a ship during the first five years of commission as a part of base and depot spares. Insurance spares are to be procured as B&D spares.

[42] War Reserve- These are stocks of materiel which an MO is required to maintain to meet the needs of operations. These are to be held additional to MSL.

Table-2.8: Total Inventory[43] above USL as on 31 March 2016

Name of Stock holding Authority	Stocked Inventory Held (by type)	No of serviceable items having Positive Stock balance	Total No of Item above USL out of column 3	Cost of the quantity held in excess of USL (₹ in crore)	%age of the item in excess of USL (%age of Column 4 wrt Column 3)
1	2	3	4	5	6
MO (MB)	4,77,899	2,74,446	2,51,755	3,925.21	91.73
MO (V)	3,42,992	2,09,464	1,85,299	2,886.59	88.46
MO (K)	77,316	47,846	42,984	216.86	89.84
MO (KW)	47,073	28,653	23,001	330.71	80.27
Total				**7,359.37**	

Source: ILMS data provided by IHQ MoD (Navy)

For the excess inventory above USL worth ₹7,359.37 crore, the inventory carrying cost works out to ₹588.75 crore per annum. Out of the above, moving inventory worth ₹2,100.7 crore were held above the prescribed USL as indicated in Table 2.9 below:

Table-2.9: Moving Inventory above USL as on 31 March 2016

Sl. No.	Name of MO	Total Inventory (No of Item by Type)	Total Moving Inventory	Moving Inventory Over and Above USL	%age of Excess moving Inventory Over and above USL with respect to total moving Inventory	Cost of Moving Inventory over and Above USL (₹ in Crore)
1	**MO (MB)**	**4,77,899**	**93,135**	**26,762**	**28.74**	**1,006.08**
2	**MO (V)**	**3,42,992**	**93,814**	**26,952**	**28.73**	**973.63**
3	**MO (K)**	**77,316**	**20,909**	**6,885**	**32.93**	**61.12**
4	**MO (KW)**	**47,073**	**24,584**	**5,904**	**24.02**	**59.87**
Total						**2,100.70**

Source: ILMS data provided by IHQ MoD (Navy)

A large inventory requires more storage space, more staff, additional transportation and handling costs as well as high risk of deterioration and obsolescence of the stock held. This creates extra burden on exchequer in management of inventory.

An analysis of items held above USL at MOs revealed that at current ACL, the existing stock would be utilised over a period of more than 100 years as indicated in the Table 2.10 below:

[43] This includes both moving and non-moving inventory

Table-2.10: Utilisation of inventory above USL as on 31 March 2016

Years to Last	No of Items at MO (MB)	Total cost (₹ in crore)	No of Items at MO (V)	Total cost (₹ in crore)	No of Items at MO (K)	Total cost (₹ in crore)	No of Items at MO (KW)	Total cost (₹ in crore)
more than 100 years	2,641	1,47.2	1631	363.61	258	5.68	164	**4.60**
50 to 100 years	2,347	90.16	1,902	62.37	407	4.35	191	**7.05**
5 to 50 years	14,641	491.36	14,502	404.2	3,891	37.91	2,819	**32.67**
up to 5 years	8,617	110.72	10,635	143.45	3,017	15.26	2,761	**15.55**
Total	**28,246**	**839.44**	**28,670**	**973.63**	**7,573**	**63.2**	**5,935**	**59.87**

Source: ILMS data provided by IHQ MoD (Navy)

Holding of huge inventory with no potential utilisation in near future, constrains the storage space with the MOs apart from the liability of inventory carrying cost[44].

MO (V) accepted (January 2016) the audit finding and stated that 1.75 lakh items worth ₹3,003 crore were held above USL and are accounted as B&D spares. MO (MB) stated (August 2016) that the inventory accumulated was inclusive of B&D spares received for the ships (including ships that had been decommissioned/transferred to other commands) and confirmed the existence of ground stock of 2,35,149 items worth ₹5,526 crore above USL, of which 1,79,363 items worth ₹3,364 crore were B&D spares. MO (MB) further added that procurement of spares for the equipment being phased out, change of base port of ships, transfer to other MOs, items projected by Naval Dockyards without raising demand etc., contributed to the above scenario.

The accumulation of moving inventory worth ₹2,100.70 crore indicates lack of diligence in ranging and scaling of stores at the time of initial provisioning; excess projection in user complied list[45] of spares coupled with flaw in the provisioning methodology/error prone PQ formula applied by the Indian Navy in inventory automation.

[44] Inventory Carrying Cost- It is the financial cost incurred from the time payment is made to the supplier to the time the item is issued or disposed off. This is primarily the cost of blocked money.

[45] User complied list- It consists of forecast demands for mandatory and anticipatory spares for ships under refit projected by Naval dockyards to Material organisations

2.6.3 Non-maintenance of Minimum Stock Level

Minimum Stock Level (MSL) is the level beyond which stock of any items should not be allowed to fall. Audit observed (September/November 2015) that stock level of large number of items pertaining to the part of moving inventory *i.e.* (ACL>0) were below MSL as indicated below:

Table-2.11: Detail of inventory below MSL as on 30 November 2015

Name of MO	Total Inventory (No. of Item by Type)	Total Moving Inventory	No. of Items below MSL			
			Vital (V)	Essential (E)	Desirable (D)	Total
MO (MB)	4,77,899	93,135	6,098	13,140	12,008	31,246
MO (V)	3,42,992	93,814	3,955	9,825	16,981	30,761
MO (K)	77,316	20,909	1,623	2,149	4,506	8,278
MO (KW)	47,073	24,584	2,955	4,923	4,659	12,537

Source: ILMS data provided by IHQ MoD (Navy)

Items stocked below MSL means that necessary safety stock is not being maintained and chances of stock out are higher, which is a cause of concern for the inventory management. The fact remains that non-maintenance of MSL defeats its very purpose besides being indicative of a lack of systematic control of inventory management.

2.6.4 Status of Obsolete/Obsolescent[46] Inventory

As per guidelines, obsolete/obsolescent stock is to be kept down to minimum and such equipment are to be appropriately flagged on ILMS so that no further review is undertaken and all procurement activities are to be discontinued as mentioned in Para 2.4.4 of this report.

Audit noticed (November 2016) that a substantial part of stock held by all MOs was either in obsolete or obsolescent condition as given below:

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[46] Obsolete- These are items of Naval stores and spares which can no longer be used for any cost-effective purpose in the Indian Navy.

Obsolescent- Naval stores become obsolescent when their function disappears or when they are substituted by new items. Spares, both equipment and spare parts, become obsolescent when it is decided to phase out that equipment for which no further provision will be made but the existing stocks, if any, will be used till these are exhausted.

Table-2.12: Details of holding of Obsolete/Obsolescent items as on 31 March 2016

Details of Inventory		Name of Material Organisation				Total
		MO (MB)	MO (V)	MO (K)	MO (KW)	
Total serviceable Inventory with net stock (stock held +dues in – dues out)>0	1	2,61,626	1,98,256	44,814	30,525	5,35,221
Out of 1 above, total Inventory which are either obsolete or obsolescent (INCAT-N) (Nos)	2	91,447	59,478	7,352	2,877	1,61,154
Percentage of INCAT N Inventory to total Inventory {Sl.NO.(2/1)*100}	3	34.95	30.00	16.41	9.43	30.11
Out of 2 above, Number of item which are obsolete	4	10,171	16,501	2,914	686	30,272
Percentage of obsolete Inventory to total Inventory- {(4/1)*100}	5	3.89	8.32	6.50	2.25	5.66

Source: ILMS data provided by IHQ MoD (Navy)

It is evident from the Table 2.12 that the percentage of obsolete/obsolescent items lying in stock at all MOs was almost 30 *per cent* of the total inventory. Out of this, 5.60 *per cent* are obsolete occupying scarce space despite utility value being negligible. Indian Navy accepted the contention and agreed for the adoption of suitable provision/remedies to minimise the above scenario.

2.6.5 Holding of Shelf Life Expired Items

Material Planning Manual stipulates avoidance of shelf life expired items. Audit observed (August 2016) that MOs were holding shelf life expired items as of June 2016 as mentioned below:

Table-2.13: Status of Life expired items as on 30 June 2016

Name of MO	No. of life expired item (By type)	Cost of life expired items (₹ in crore)
MO (MB)	391	3.70
MO (V)	95	3.75
MO (K)	891	7.83
MO (KW)	114	1.49
Total	1,491	16.77

Source: ILMS data provided by IHQ MoD (Navy)

Audit observed that the life expired items though to be disposed off expeditiously were lying as non-moving without segregation awaiting disposal. The response from Indian Navy addressing these issues was awaited (March 2017).

2.6.6 Disposal of Inventory

Inventory identification and weeding out of unnecessary items as Serviceable Surplus Stores (SSS) is of prime importance to maintain a lean inventory. The origin of problem of non-moving inventory lies in the ineffective functioning of these processes *viz.*, Identification and Disposal of SSS items.

The Audit Report of 2002 had highlighted that disposal of all categories of disposable items was low and recommended setting up of an empowered organisation on the lines of Special Surplus Stores Disposal Committee (SSSDC) in the Army for expeditious disposal actions. Ministry, in their ATN (April 2006), intimated that a proposal for creation of SSSDC under the Chief of Integrated Defence Staff (CIDS) was under the consideration of the Ministry. In response to audit questionnaire (July 2015), IHQ MoD (Navy) intimated (December 2015) that no committee had been formed, however, Serviceable Surplus Stores were being identified and would be disposed of as per IHQ MoD (Navy)'s policy letters in vogue.

Disposal of stores from 2010-11 to 2015-16 as intimated by MO (MB) and MO (V) is indicated in the table below:

Table-2.14: Status of Disposal as on 31 March 2016

Year	MO (MB)[47]		MO (V)[48]	
	No of Items Disposed off	Value realised (₹ in Lakh)	No of Items Disposed Off	Value realised (₹ in Lakh)
2010-11	6,480	50.32	2,781	1,477.86
2011-12	3,239	71.76	1,400	1,325.16
2012-13	9,928	32.75	25,579	1,301.53
2013-14	8,402	131.85	7,826	1,351.06
2014-15	1,872	79.11	50,538	725.83
2015-16	35	4.00	1,240	1,012.81

Source: Information provided by MOs

[47] In respect of MO (MB), disposed off items contains only 'SS' *i.e.*, Surplus Serviceable items.

[48] In respect of MO (V), disposed off items contained 'SS' *i.e.*, Surplus Serviceable, BER, contaminated Lub/Sullage Oil.

MO (K) intimated (August 2016) audit no disposal of surplus items identified (*i.e.*, 830 items since 2010) was carried out between 2010-11 and 2015-16.
From Table 2.14, it is clear that in respect of MO (MB) and MO (V) disposal activities were regularly being carried out, whereas MO (K) lagged behind in disposal action.

2.6.7 Standardisation of Equipment

Material Planning Manual stipulates that there are many 'stand-alone' equipment, particularly of Indian Origin which serve identical purpose and the multiplicity of which causes problems in provisioning and procurement. Many of these equipment can be standardised without causing unaffordable redundancy of existing stocks. Proposals for such standardisation must emerge from MOs.

Audit in its Report (2002) had pointed out wide diversity in equipment fit on board in case of very common items even with respect to ships of the same class, recommending that policies for systematic equipment selection and standardisation need to be evolved and implemented particularly in indigenous shipbuilding projects. The Ministry's ATN (April 2006) was silent on the issue.

Audit noticed that the Logistics Management committee in its report (2010) had pointed out that absence of a clear policy in the Indian Navy as the main reason for lack of standardisation. In response to audit query (July 2015) regarding the efforts made by Indian Navy towards standardisation carried out since 2002, IHQ MoD (Navy) furnished (December 2015) a list of 22 equipment/ assemblies/sub-assemblies that were stated to be standardised.

Audit however, observed (August 2016) from ILMS that Indian Navy still had a wide diversity in very common items onboard for instance in 39 type of HP Air Compressor, 16 types of Fresh and Feed Water Pump, eight types of Fire Pump, 30 types of Heat Exchanger, three types of Water Desalination RO Plants, 38 types of Sea Water Pump, 62 types of Pump, 19 types of Compressor, seven types of Servo Air Compressor, six types of Domestic Fresh Water Pump etc.

There were several makes of equipment which serve the same purpose and different items serving the same function. As a result, MOs continues to face difficulties in managing the inventories. The response of the IHQ MoD (Navy) was awaited (March 2017).

2.6.8 Stock Verification

Stock verification of inventory facilitates reconciliation of differences between store held on ground and the ledger balances so as to detect short and excess holdings, identify wrongly accounted items, confirm physical locations, rationalisation of storage, identification of items needing preservation, noting change in conditions and identification of disposable stores. In the existing system, the stock verifier generates verification pick up list of stock quantity which consists of mandatory basis information of an item. Then the quantity of stock is physically verified with the pick list quantity. The details of discrepancies are then recorded.

General Financial Rules (GFR)-2005, prescribes that physical verification of all the consumable goods and material should be undertaken at least once in a year and discrepancies, if any, should be recorded in the stock register for appropriate action by the competent authority. Valuable and attractive items shall be mustered once a quarter and their correctness should be ensured.

The discrepancies found between physical and ledger balance at MO (MB), MO (V) and MO (K) except MO (KW) from 2010-11 to 2015-16 are given below:

Table-2.15: Status of Stock Verification at MOs during the period 2010-11 to 2015-16

Name of MO	Category of Stores	Total inventory	Period (cycle) as on Mar 16	Total discrepancies	No. of discrepancies settled (mismatch)	Balance discrepancies yet to be settled
MO (MB)	NS	1,00,110	2015-16	0	0	0
	E&SP (NR)	1,34,534	2014-16	326	0	326
	E&SP(R)	1,86,724	2014-16	6,056	0	6,056
MO (V)	NS	35,102	2016-17	193	65	128
	E&SP (NR)	1,32,364	2015-17	516	42	474
	E&SP(R)	1,00,504	2015-17[49]	450	53	397
MO (K)	NS	21,415	2015-16	0	0	0
	E&SP (NR)	38,510	2014-16	905	120	785

Source: Stock verification report of MOs

Note- There is no uniformity in cycle of verification of stock, hence figures taken as available in report/return etc.

It is evident from the above table that the number of items with discrepancies in E&SP (R) category at MO (MB) was considerably higher and no appreciable progress had been achieved to reconcile the same. The progress of settling discrepancies at MOs were not satisfactory in Equipment and Spare Parts (E&SP) as compared to Naval Stores. Further, it was also noticed that there was no uniformity in the cycles of verification of stock across all the MOs and the quantum of stock to be verified during the particular period differed. Thus, annual stock verification, which is an effective tool of inventory management, is not applied effectively in the MOs.

In response to audit observation (July 2016), Indian Navy stated (August 2016) that settlement of mismatch was still in progress, however, it was consuming long time for reconciliation of transaction being of vintage. The Indian Navy also stated that since last two years approximately 1800 mismatch cases were physically verified which were being linked and were under process.

[49] Since no uniform cycle for stock verification has been promulgated across all the MOs. Hence each MO do it independently as per the cycle of that MO only. The updated position of stock verification was mentioned, therefore 2017 comes in case of MO (V) for 2015-17 cycle.

This strengthens the audit contention that there were discrepancies/mismatch between physical balance and ledger balance thereby affecting the status of stock balance.

2.6.8.1 Discrepancy in Stock Verification

Audit observed (November 2014/ August 2016) discrepancy in cyclic stock verification which is illustrated by way of an instance as discussed below:

Two pumps received at the MO (MB) in January 2013 based on an order placed in January 2012 were not issued to INS Viraat and had been lying in the stock since then. Further, four pumps received in March 1995 were held in stock of MO (MB), which identified (December 2012) these pumps as circulating type and took them on charge under a specific item code. Two of these pumps were issued (December 2012) to INS Viraat and remaining two pumps were in stock in January 2013, when additional two pumps costing ₹1.68 crore were received by MO (MB) under a purchase order placed in January 2012. In all, four pumps were lying in stock (August 2016). MO (MB) stated (December 2014) that the pumps received in March 1995 as Sea Water Pump for distilling plant module had NIL pattern number and thus, could not be accounted for in ILMS introduced in 1997 due to incorrect description. These pumps were later identified in December 2012 as pump circulating type and were accounted against the same item code of the later purchase and taken on charge.

Thus, inability of the Indian Navy to identify the item despite cyclic stock verification of the stores held in their store depot, resulted in the item costing ₹1.68 crore remaining in stock for 17 years.

2.7 Integrated Logistics Management System

Integrated Logistics Management System (ILMS) was introduced in 1993 to integrate and rationalise the provisioning procedures in Inventory Management System in Indian Navy. It assists in reducing the inventory holding and also the carrying cost of inventory. ILMS envisages reduction in manual interventions, which are “time consuming” and “error prone” by appropriate re-engineering of processes. Thus, smooth functioning of ILMS is

of critical importance for effective delivery of logistics support to ships/submarines and establishments of Indian Navy.

The Ministry in its ATN (April 2006) had stated that efforts were a foot to address the deficiency in the data base. Significant progress had been made in data refinement. Further, issues such as better hardware, improved connectivity between the depots as well as with the ships etc., were being addressed so as to make the system more robust for efficient and cost effective inventory management. Audit, however, noticed (November 2015) infirmities in ILMS as discussed in succeeding paragraphs.

2.7.1 Weakness in ILMS

Audit observed (November 2015) instances of mismatch of data, existence of multiple item codes for same items and multiple vendor code for same vendor etc., which are indicative of lacuna/flaws in the present version of ILMS as mentioned below:

Table-2.16: Discrepancy in ILMS as on 31 March 2016

Sl. No.	Nature of problem	Impact
1	The purchase quantity and rate indicated in the purchase order file and that as per ILMS was different.	Incorrect data is allowed to be entered in ILMS
2	The stock values indicated in a module {indent item transaction for IFA (Navy)} of ILMS are different from the actual stock balance	Incorrectness of ILMS data due to non-updating of transactions in ILMS.
3	Multiple vendor codes exists for the same vendor in ILMS and same items being procured from different vendors exists in ILMS under different item codes.	Vendor code is an integral part of item code allocated to the items. The flaw in the vendor registration will lead to duplication of inventory, multiple accounting and stocking and hence notional increase in size of inventory holding.

MO (MB) stated (February 2016) that the details of quantity and rate indicated in the system may be disregarded as these are available in the purchase orders kept in the file, which is authentic. This substantiates the audit finding that incorrect data was allowed to enter in the ILMS.

As regards the query raised relating to multiple vendor codes for the same vendor, MO (MB) stated (February 2016) that items had been introduced at different intervals against various authorities wherein some of them were obsolete and having substitute linkage also. The contention of Indian Navy is not tenable since existence of multiple vendor code and same item under different item codes indicate inflated inventory thereby causing hindrance in rationalisation of Naval Inventory. As regards query relating to stock values indicated in a module, the response was awaited (March 2017).

2.7.2 Inadequacy of Control Mechanism in ILMS

Relational Database Management System (RDBMS) on which ILMS is based, envisages the need to ensure correctness and completeness from the stage of data preparation itself. No system based control can check against the entering of meaningless data in the system. The refinement at the time of entry itself is very critical. Inadequacies of central mechanism are discussed below:

(A) The basis on which an indent is raised is indicated as 'indent choice' in ILMS, under various codes. Audit noticed (September 2015) that out of 5729 indents raised by MO (MB) during the period from 2010-11 to 2015-16, the indent choice was not indicated in 345 indents. In response, MO (MB) stated (February 2016) that certain types of indent do not fall under promulgated 'indent choice' category e.g. indents raised against RC, PAC, Repeat Order (RO) and Option Clause (OC). This is not agreed to as RC, PAC, RO and OC etc. are only methods of procurements whereas the choice of indents reflects the basis of the type of demand raised by customers/users. Hence, indication of 'indent choice' code in ILMS is indispensable. Further, as per MPM, no procurement can be initiated without an indent.

The acceptance of indents without ascertaining the 'indent choice' code i.e. the basis on which demands are raised by customers, is indicative of lack of control mechanism at data entry level in the ILMS.

(B) Specific codes are provided in ILMS to indicate the condition of items in stock. Audit observed (September 2015) that codes not provided were also entered in ILMS as condition codes. Moreover, codes were entered in any number of combinations of capital and small letters *e.g.*, code "New" as per ILMS system was entered in the formats NEW and New, code 'Uns' was entered as 'uns', 'Uns' and 'UNS'. Even special characters such as apostrophes were entered as condition code.

In response, MO (MB) stated (October 2015) that five codes had been filled between 2006 and 2009 during the pre-migration phase and post-migration these checks had been incorporated in the system for a better appreciation of the data.

Contention of Indian Navy is not tenable as wrong codes were still existing which is indicative of a lack of control mechanism in ILMS at data entry level.

(C) Specific codes are provided in ILMS to indicating the basis of modification of PPQ by POER. However, Audit found (September 2015 to January 2016) that modifications made in PPQ without indicating EV codes, were also accepted in ILMS, indicating lack of controls in input of data in ILMS.

2.7.3 Holding of items with multiple specifications

It was highlighted in the previous Audit Report (2002) that progress of having the items specifications on the system was tardy. Indian Navy while agreeing to recommendation made by audit stated (2002) that items' specifications were being progressively compiled by interaction with various agencies and making them available on the ILMS. The Ministry's ATN (April 2006) was silent on the issue.

Audit observed (September 2015/March 2016) that Controller of Logistics (COL) had directed (January 2012) action towards reducing the multiple

specifications in respect of 12,464 items obtained through the ILMS. Further, though Indian Navy attempted to resolve the issue since January 2012, the progress achieved in this regard was not made available to audit (March 2017).

2.7.4 Sub-optimal utilisation of a resource available in ILMS

(A) ILMS provides the material planner a window of free (i.e., available for issue against fresh demands) stock position of a particular item across all the MOs, where planner can ascertain whether the existing stock position at some other MOs are available in surplus/excess and that can be gainfully utilised through Inter-Depot Transfer (IDT) in place of going in for a fresh procurement.

Audit found (October 2016) that 12 Magnetrons were held in stock at MO (MB) since August 2010. Further, four Magnetrons were procured (October 2011) by MO (V) at ₹3 crore. The stock at MO (MB) was subsequently transferred (April 2012) to MO (V) and 16 Magnetrons were held in stock (October 2016) at MO (V). Even though Magnetrons were held in stock at MO (MB), MO (V) failed to gainfully utilise the resources available in ILMS and procured the item at ₹3 crore which could have been avoided.

In reply, MO (V) stated that IDT was not sought prior placement of order as the subject equipment was still in service at Western Naval Command (WNC). This is not tenable in audit as the WNC could not assess the requirement of this item at the appropriate time resulting in the procurement of the item by MO (V). Had this item been transferred to the MO (V), procurement of this item worth ₹3 crore could have been avoided.

(B) ILMS as an automated inventory management system is supposed to provide meaningful and reliable information to the managers and users.

Audit found (November 2016) that IHQ MoD (Navy) was concluding contracts and purchase orders were placed manually and the details of these purchase orders were entered into the ILMS at a later date at the

time of receipt of the item. As a result of not entering such details into the ILMS, vital information such as 'Dues-In', Last Purchase Price (LPP), etc., which is crucial for making provisioning and procurement decision was not available in the system.

2.7.5 Non-integration of users, MOs and other agencies

Integration of ILMS with all stake holders ensures seamless flow of information and total asset visibility at all levels. Audit had highlighted in its previous Audit Report of 2002 that there was no linkage between MOs, users, other agencies and systems within the Indian Navy, in ILMS. In its ATN (April 2006), the Ministry stated that the planned upgradation of ILMS would be undertaken with wider consultation on all concerns. As a starter, web based connectivity had been given to Dockyards and Command Headquarters. Connectivity to ships was also on the anvil. Audit found (July 2015/December 2015) that the integration of ILMS with all Commands, Dockyards, Technical Directorates, Indian Naval Ship Maintenance Authority (INSMA), Warship Overseeing Teams (WOTs) and user units was not yet achieved by the Indian Navy.

2.8 Conclusion

An appropriate inventory management system supported by well-designed forecasting, provisioning, review system is required for effective inventory management and to minimise downtime and stock out situations. An amount of ₹6,731.75 crore was incurred by Indian Navy for procurement of Naval Stores, Equipment and Spare Parts from 2010-11 to 2015-16 *i.e.*, the period covered in the PA. The ILMS based replenishment provisioning followed by Indian Navy is expected to generate more precise requirement projections with minimum manual intervention. However, the provisioning formula presently followed by the Indian Navy generated excess provisioning quantity due to an inbuilt error, thereby necessitating full manual intervention. Indian Navy was not following the selective inventory control methods in conformity with the laid down norms. The procurement methods followed were not in conformity with the assurance made by the Ministry in its ATN (April 2006). Indian Navy

routinely resorted to procurement of obsolete items against laid down guidelines. There were considerable delays at various stages of procurement *vis à vis* the lead time prescribed. No time limits were prescribed for assessment of demand compliance and various demand related activities. Huge quantities of non-moving inventory were held in stock across all MOs, adding to the inventory carrying cost. On the other hand, minimum required stock levels of vital and essential stores were not being maintained by all the MOs. Errors and omissions continued to afflict the stock verifications being conducted at MOs. The Integrated Logistics Management System (ILMS) which was introduced in 1993 has been running with data integrity issues, master data cleaning requirement and lack of networking across MOs and users.

The matter was referred to the Ministry (November 2016); their reply was awaited (March 2017).