Report of the
Comptroller and Auditor General of India

for the year ended March 2016

Union Government (Defence Services)
Army and Ordnance Factories
Report No.15 of 2017

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PREFACE

This Report for the year ended March 2016 has been prepared for submission to the President of India under Article 151 of the Constitution of India.

This Report of the Comptroller and Auditor General of India contains the results of audit of the financial transactions and performance reviews of projects/schemes of Ministry of Defence pertaining to Army, Ordnance Factories, Department of Defence, Department of Defence Production, Defence Research and Development Organisation, Military Engineer Services and Border Roads Organisation in 2015-16. The matters arising from the Finance and Appropriation Accounts of the Defence Services for 2015-16 have been included in Audit Report No. 34 of 2016 (Financial Audit).

The instances mentioned in this Report are those, which came to notice in the course of test audit for the period 2015-16 as well as those which came to notice in earlier years, but could not be reported in the previous Audit Reports; matters relating to the period subsequent to 2015-16 have also been included, wherever necessary.

The audit has been conducted in conformity with the Auditing Standards issued by the Comptroller and Auditor General of India.

OVERVIEW

This Report contains the results of audit of the financial transactions for the year ended March 2016 and performance reviews of projects/schemes of Ministry of Defence pertaining to Army, Ordnance Factories, Department of Defence, Department of Defence Production, Defence Research and Development Organisation, Military Engineer Services and Border Roads Organisation.

The significant audit findings as brought out in the report are summarised as follows:

Functioning of Directorate General Married Accommodation Project (MAP)

Directorate General Married Accommodation Project (DG MAP) was created as a special organisation, to construct deficit married accommodation for the defence services personnel in an expeditious and time bound manner. Audit of the Directorate revealed that only 80,692 Dwelling Units (DUs) were constructed up to March 2016 against a target of 1,98,881 DUs, which were to be constructed in four phases of four years each from 2002 onwards. Incorrect prioritisation of stations, inaccurate assessment of deficiency and construction of accommodation beyond authorisation accentuated the impact of shortfall.

(Paragraph 2.1)

Loss in procurement of Jelly Filled Cable

Lack of clear direction from Director General Quality Assurance (DGQA) regarding conduct of the tests for which they do not have their own facility led to inordinate delay of 15 months in completion of evaluation of Jelly Filled Cables. As a result, commercial offer was revised by the vendor culminating in loss of ₹1.28 crore to the Government in procurement of 3000 Km Jelly Filled Cable.

(Paragraph 2.2)

Overhauling and procurement of microlite aircraft

In deviation from the extant policy, 34 engines of existing microlite aircraft were contracted for overhaul at a cost exceeding 50 *per cent* of the cost of a new engine by the Director General, National Cadet Corps (DG NCC).

Further, additional 110 microlite aircraft were procured at a cost of ₹52.91 crore despite low utilisation of the existing fleet.

(Paragraph 2.3)

Management of Defence owned Railway Wagons / Coaches

In audit of management of Defence owned Railway Wagons/Coaches, various deficiencies were noticed such as excess scaling of 17 AC Coaches/Military Langars (₹ 50 crore), loss of interest on advance payment (₹23.87 crore), excess payment due to non- uniformity in cost calculation of Military Special Trains (₹30.44 crore), non monitoring of Additional Rail Facilities (ARF) projects and non adjustment of ₹356 crore paid to Railway on account of ARF projects. Despite these deficiencies there is no mechanism in Army HQ to check commercial exploitation of Defence owned Railway Wagons/Coaches by the Railways.

(Paragraph 3.1)

Ammunition Management in Army – Follow up Audit

" For the contents of this paragraph/report, printed version of the relevant report may be referred to"

(Paragraph 3.2)

Loss due to non-recovery of rent and premium in respect of Mobile Towers installed in a military station.

13 mobile towers of private telephone companies were installed at Chandimandir Military Station without the requisite approval of the Ministry of Defence, leading to loss of ₹4.33 crore on account of non-recovery of rent and premium.

(Paragraph 3.4)

Wasteful expenditure on procurement of incompatible equipment

Outboard Motors (OBM) costing ₹1.26 crore, which were procured by invoking Army Commander Special Financial Powers to meet immediate requirement in Northern Command, could not be utilised. 46 out of 50 OBMs have been used for less than 10 hours in seven years. User units attributed low utilisation of the motors to lack of compatibility with the boats held and to absence of scope for training in the available terrain.

(Paragraph 3.5)

Unnecessary expenditure on cattle perimeter fencing

General Officer Commanding (GOC), Headquarters Delhi Area sanctioned jobs in piecemeal for construction of cattle perimeter fencing around Officers married accommodation in Delhi Cantonment although perimeter wall around complexes was already existing. This had resulted in unnecessary expenditure of ₹3.42 crore.

(Paragraph 3.6)

Loss due to procurement of defective equipment

In procurement of 20 numbers of Photowrite Systems, Director General Military Intelligence had accepted separate Performance Bond and warranty bonds of each system by violating the contract provisions. Eleven systems became non functional within 3 to 22 months of procurement resulting in loss of ₹ 21.28 crore. Despite poor performance of the firm during delivery and warranty period of the systems, warranty bonds were allowed to lapse without encashment

(Paragraph 3.7)

Unfruitful expenditure of ₹4.46 crore on part construction of security walls at Central Ordnance Depot, Agra and along the eastern boundaries of Cantonment area at Dehradun

Failure to ensure availability of site resulted in part construction of security walls thereby impinging on security of Central Ordnance Depot, Agra and Cantonment area of Dehradun besides an unfruitful expenditure of ₹4.46 crore.

(Paragraphs 4.2 and 4.4)

Unwarranted expenditure on execution of work

Against the requirement of cantilever type racks on First-in-First-Out system of operation, 2000 racks were constructed for ₹5.88 crore at Central Ordnance Depot, Jabalpur with Last-in-First-Out system of operation. This had resulted in unfruitful expenditure of ₹5.88 crore. Further, an over payment of ₹ 1.57 crore had been made to the contractor by giving an unwarranted deviation order.

(Paragraph 4.3)

Excess payment of electricity charges amounting to ₹ 32.13 crore

Maharashtra State Electricity Distribution Company (MSEDCL) introduced, in August 2012, a new tariff for consumers providing public services, which also included defence establishments. MSEDCL further introduced separate tariff, in June 2015, for government educational Institutes & hospitals and other Defence establishments falling under the category of public services. However, seven Garrison Engineers, who received electricity in bulk from MSEDCL for supply to defence educational institutes, hospitals and other defence establishments, failed to exercise checks on the correctness of tariff applied before making payment to MSEDCL, resulting in excess payment of ₹32.13 crore.

(Paragraph 4.5)

Non utilization of assets

Failure of Chief Engineer, Bareilly to make clear provision of bypass road in drawings and to incorporate the complete scope of work in the contract had resulted in non-completion of the road. As a result, Explosive Dump constructed in May 2014 at a cost of ₹7.65 crore could not be utilized.

(Paragraph 4.6)

Avoidable extra expenditure

Failure of Director General, Border Roads in accepting tenders within the validity period and inadequacies in tender documents resulted in retendering and avoidable extra expenditure of ₹6.47 crore.

(Paragraph 5.1)

Development of an Integrated Aerostat Surveillance System

Import of a balloon costing ₹ 6.20 crore by a DRDO's lab under a project for development of aerostat surveillance system lacks rationale. Further, the project itself did not achieve its objectives despite an expenditure of ₹49.50 crore.

(Paragraph 6.1)

Irregular sanction and expenditure of ₹5.20 crore on construction of vehicle testing ground after completion of the project

Director General, Research & Development accorded sanction for construction of Vehicle Testing Ground at Vehicle Research & Development Establishment, Ahmednagar (VRDE) at a cost of ₹5.20 crore in April 2009 based on VRDE's proposal of March 2005 to meet the specific requirement of testing the Unmanned Ground Vehicle (UGV) being developed on 2.5 Ton 'B' vehicle. However, by then UGV Project was closed. The expenditure is rendered infructuous because the Testing Ground cannot be gainfully utilized as Army's requirement is of a 50 Kg UGV for which existing VRDE Test Tracks would suffice.

(Paragraph 6.2)

Infructuous expenditure of ₹19.53 crore

To demonstrate the missile in the range of 1200M and 1500M as stipulated by the Army, Combat Vehicles Research & Development Establishment (CVRDE), Avadi procured 20 LAHAT missiles in spite of reservation of the foreign supplier due to technical constraints related to stability of the missile. During demonstration trials, the missiles failed to achieve the stipulated criteria/range of 1200M to 1500M. Army refused to accept the missile, thereby the payment of ₹19.53 crore made to the supplier was rendered infructuous.

(Paragraph 6.3)

ORDNANCE FACTORY ORGANISATION

Performance of Ordnance Factory Board

Ordnance Factories: 41 in number divided under five operating groups produce a range of arms, ammunition, equipment, clothing *etc.* primarily for the Armed Forces of the country. The factories function under the Ordnance Factory Board.

The Board received budgetary grant of ₹14,750 crore and ₹687 crore in 2015-16 to meet its revenue expenditure and capital expenditure respectively. During the last five years, both revenue and capital expenditure have shown increasing trends.

During 2015-16, the Cost of Production at the Board was ₹18,294 crore with the share of Stores, Labour, Direct Expenses and Overhead costs at 57 *per cent*, 11 *per cent, 2 per cent* and 30 *per cent* respectively. Cost of Production showed 11 *per cent* increase over the figures of 2014-15. Over the period 2011-16, the average overhead charges per annum was ₹4674 crore which constituted around 28 per cent of the average annual Cost of Production (₹16,462 crore) of Ordnance Factories Organisation. Major elements of the overheads are supervision charges and indirect labour cost which together registered 60 to 70 per cent of total overhead cost during 2011-12 to 2015-16.

Value of issues increased by 12 per cent from ₹16,664 crore in 2014-15 to ₹18,624 crore in 2015-16.The Army is the major indentor for the products of the Ordnance Factories, accounting for nearly 80 *per cent* of the total issues during the year 2015-16. Deficit incurred in respect of issues to the Army was ₹128 crore in 2015-16 against surplus of ₹161 crore in 2014-15. Though, total Defence issues reported a deficit of ₹91 crore in 2015-16, losses in their issue, are offset by surplus generated by the IFD factories (₹227 crore) resulting in an overall profit of ₹167 crore in 2015-16.

(Paragraph 7.1)

Management of Import Contract in Ordnance Factories

Ordnance Factories import crucial part of its stores and plants & machineries. Audit examination of selected import contracts concluded by the five factories during 2012-15 revealed that there were deficiencies in management of the contracts at pre-contract as well as post-contract stages.

Audit found that undue time was taken in negotiations and approval of supply orders as only 2 out of 28 test checked supply orders had been placed within the stipulated time frame. Provision for constitution of collegiate committee, as instructed by the Ministry with a view to reduce the time taken in negotiation and approval, had not been incorporated in the procurement manual. Further, owing to non-inclusion of clause relating to 'Liquidated Damages' with cost implications in two orders, Factories were rendered weak in enforcing timely delivery of stores from the supplier.

There were also delays in supplies ranging from 2 to 17 months: in eight cases due to delay in conduct of Pre-Despatch Inspection (PDI)/ opening of Letter of Credit (LC) by the Factories and in balance cases, on the part of suppliers. We also noticed instances of delay both in referring quality claims by the Factories and subsequent resolution of the same by the suppliers resulting in quality claims worth ₹2.24 crore remaining pending for settlement from seven to ten months. Ordnance Factory Board may consider including a provision of Liquidated damage (LD) for delayed supply as well as delay against quality claims.

(Paragraph 7.2)

Non-revision of Labour Estimates after introduction of CNC machines and incorrect payment of Piece Work Profit

Ordnance Factories are required to revise the Labour Estimates after introduction of Computer Numerically Controlled (CNC) machines. The Estimate quantifies the unit labour cost for each item of production and serves as the template for labour planning, deployment and control on costs. But in three-fourth of the sampled cases examined, the selected four Factories did not revise the labour estimates.

In deviation from the norms laid down by the Board, two Factories over-estimated the labour hours (SMH) required for meeting production targets in 2013-14 and 2014-15. All the four Factories under-estimated the available SMH in eight out of 10 instances by applying incorrect norms during 2012-15. The Target SMH and Available SMH figures being unreliable, labour planning in the Factories was deficient to that extent. At Metal & Steel Factory (MSF) Ishapore, actual output SMH was less than those reported in three production shops in 99 out of 102 instances. This resulted in excess payment of Piece Work Profit (PWP) aggregating ₹2.60 crore to direct Industrial Employees (IEs). Further, payments of PWP to indirect workers (not eligible for PWP) were also noticed in all the four Factories.

Despite outsourcing, the in-house IEs were paid on the basis of Estimates from which the outsourcing element (in the form of SMH) had not been deducted. This led to excess payment of ₹10.94 crore made to the IEs in two Factories for sampled items during 2012-13 to 2014-15.

(Paragraph 7.3)

Management of Manufacture Warrants

Manufacture Warrant is the authority of the Ordnance Factory Management to the production shops for deployment of labour to undertake work placed on the Factory. It records the number of authorised Standard Man hours (SMH) required to manufacture the order quantity based on estimate.

Keeping the warrants open for unduly long periods beyond the stipulated six months of its issue is fraught with risk of allowing unauthorised adjustments. Only 189 (27 *per cent)* of 693 warrants sampled in Audit and issued between 2012-13 and 2014-15 were closed within the six-month period across the four sampled Factories. While 403 (80 *per cent*) of the remaining warrants were closed after the stipulated period, 101 warrants (15 *per cent*) were still open and awaiting closure (March 2015). Open warrants provided an opportunity to the Factories to spread rejections across warrants (in order to keep it within the normal rejection limits) or transfer excess material or excess labour drawn to other warrant through Transfer Vouchers. Transfer Vouchers were being used in the Factories without following the relevant internal controls.

(Paragraph 7.4)

Procurement of defective Radiators

Heavy Vehicles Factory (HVF), Avadi placed an order for Radiators to be fitted in T-90 tanks on a firm which had no prior experience of manufacturing required Radiators. The Factory accepted Radiators worth ₹2.78 crore which did not conform to the stipulated technical requirements and rendered T-90 tanks fitted with such Radiators unacceptable to Army.

(Paragraph 7.5)

Avoidable loss of ₹31.32 crore towards rejection of empty Fuze A-670M due to delay in defect investigation

Despite repeated failure in production of Empty Fuze A-670M in two Factories since 2008-09 onwards, OF Board constituted Joint team only in April 2014 which could give its recommendation in July 2016. Meanwhile, the production continued and empty Fuze A-670M valuing ₹31.32 crore were lying as rejected in two Factories as of July 2016.

(Paragraph 7.6)

Avoidable rejection due to failure to diagnose exact causes of earlier rejections

Failure of Ordnance Factories and the Quality Assurance Establishments in identifying exact causes of rejection resulted in continued rejection of lots of 105mm HE ammunition valuing ₹10.02 crore during 2013-16

(Paragraph 7.7)

Under utilisation of costly machines

Two tooled-up CNC machines were purchased at a total cost of ₹9.32 crore by Rifle Factory Ishapore despite the existing capacity to meet the targets. One tooled-up machine is non-functional since July 2014 for want of special purpose tools (as of April 2016) and the prospect of utilization of the other machine engaged in production of two components is also bleak in view of procurement of these components from trade at a much cheaper rate.

(Paragraph 7.8)

Delay in production of BLT variant of Tank T-72

As per Indent, T-72 Bridge Laying Tanks (BLT) variants were scheduled to be delivered by HVF, Avadi in a phased manner during 2012-2017. On account of delays in execution of infrastructure projects and frequent changes in the sealed design of T-72 BLT, HVF was yet to commence issue of T-72 BLT variant and the advancing tank column of the Armoured Regiments, therefore, remained incomplete to that extent.

(Paragraph 7.9)

CHAPTER I: INTRODUCTION

1.1 Profile of the audited entities

This report relates to matters arising from the compliance audit of transactions of the Ministry of Defence (MoD) and the following organisation under its administrative control:

- Army,
- Inter Services Organisations,
- Defence Research and Development Organisation and its laboratories dedicated primarily to Army and Ordnance Factories,
- Border Roads Organisation,
- Defence Accounts Department,
- Ordnance Factories

Ministry of Defence, at the apex level, frames policies on all Defence related matters. It is divided into four departments, namely, Department of Defence, Department of Defence Production, Department of Research and Development and Department of Ex-Servicemen Welfare. Each department is headed by a Secretary. The Defence Secretary who is the Head of the Department of Defence also coordinates the activities of other departments.

Indian Army is mandated to safeguard National Interests from External Aggression and Internal Subversion. Army is primarily responsible for the Defence of the country against external aggression and safeguarding the territorial integrity of the nation. It also renders aid to the civil authorities at the time of natural calamities and internal disturbances. It is, therefore, incumbent upon the Army to suitably equip, modernize and train itself to meet these challenges

The Inter Services Organisations, such as Armed Forces Medical Services, Military Engineer Services (MES), Defence Estates, Quality Assurance, *etc*., serve the Defence forces in the three wings of the Army, Navy and Air Force. They are responsible for development and maintenance of common resources for optimising cost-effective services. They function directly under Ministry of Defence.

Defence Research & Development Organisation (DRDO) works under Department of Defence Research and Development of Ministry of Defence. DRDO dedicatedly working towards enhancing self-reliance in Defence Systems and undertakes design & development leading to production of world class weapon systems and equipment in accordance with the expressed needs and the qualitative requirements laid down by the three services. DRDO, through its chain of laboratories, is engaged in research and development, primarily to promote self-reliance in Indian Defence sector. It undertakes research and development in areas like aeronautics, armaments, combat vehicles, electronics, instrumentation, engineering systems, missiles, materials, naval systems, advanced computing, simulation and life sciences.

Border Roads Organisation (BRO) headed by Director General of Border Road (DGBR), is responsible for construction, development, improvement and maintenance of roads in border areas. BRO functions under Border Roads Development Board (BRDB) in the MoD which is headed by Raksha Rajya Mantri (RRM).

Ordnance Factory Board (OFB) functions under the administrative control of the Department of Defence Production and is headed by Director General, Ordnance Factories. Forty one factories are responsible for production and supply of ordnance stores to the armed forces.

1.2 Authority for audit

The authority for our audit is derived from Articles 149 and 151 of the Constitution of India and the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) (DPC) Act, 1971. We conduct audit of Ministries/Departments of the Government of India under Section 13 of the CAG's (DPC) Act. Major Cantonment Boards are audited under Section 14 of the said Act. Principles and methodology of compliance audit are prescribed in the "Regulations of Audit and Accounts, 2007".

1.3 Audit methodology and procedure

Audit is prioritised through an analysis and evaluation of risks so as to assess their criticality in key operating units. Expenditure incurred, operational significance, past audit results and strength of internal controls are amongst the main factors which determine the severity of the risks. An annual audit plan is formulated to conduct audit on the basis of risk assessment.

Audit findings of an audited entity are communicated through Local Test Audit Reports/Statement of Cases. The response from the audited entity is considered which may result in either settlement of the audit observation or referral to the next audit cycle for compliance. Serious irregularities are processed as draft paragraphs for inclusion in the Audit Reports which are submitted to the President of India under Article 151 of the Constitution of India, for laying them before each House of Parliament. Performance Audits are done through structured exercise by defining scope of audit, holding entry conference, sampling of units, exit conference, inclusion of feedback on draft report and issuance of final report.

1.4 Structure of the Report

This report contains seven chapters comprising six performance reviews and 22 audit paragraphs based on the audit of financial transactions of Ministry of Defence pertaining to Army, Inter Services Organisations, Border Roads Organisation, Defence Research and Development Organisation, Defence Accounts Department, Ordnance Factories.

1.5 Financial aspects and Budgetary Management

1.5.1 Introduction

The budgetary allocations for 2015-16 of the Ministry of Defence are contained under eight Demands for Grants of which six Grants are included under Defence Service Estimates (DSE) and two under Civil Grants.

- Two Civil Grants are Demand No. 21 - Ministry of Defence (Civil) and Demand No. 22 - Defence Pensions.

- Six Grants of Defence Service Estimates (DSE), which include the following:
  Demand No.23, Defence Services - Army
  Demand No. 24, Defence Services - Navy
  Demand No. 25, Defence Services - Air Force
  Demand No. 26, Defence Ordnance Factories
  Demand No. 27, Defence Services - Research & Development
  Demand No.28, Capital Outlay on Defence Services -Includes All Services and Departments other than those covered by the Demands for Grants of Ministry of Defence (Civil)

- The budgetary requirements for the Border Roads Organisation are provided under Ministry of Defence (Civil) Grant No. 21 from the FY 2015 onwards.

The above mentioned Grants are broadly categorized into Revenue and Capital expenditure.

- **Revenue Expenditure:** This includes expenditure on Pay & Allowances, Transportation, Revenue Stores (like Ordnance stores, supplies by Ordnance Factories, Rations, Petrol, Oil and Lubricants, Spares, *etc.*), Revenue Works (which include maintenance of Buildings, water and electricity charges, rents, rates and taxes, *etc.*) and other miscellaneous expenditure.

- **Capital Expenditure:** This includes expenditure on Land, Acquisition of new weapon and ammunitions, Modernization of Services, Construction Works, Plant and Machinery, Equipment, Tanks, Naval Vessels, Aircraft and Aero-engines, Dockyards, *etc.*

Approval of Parliament[1] is taken for the Gross expenditure provision under different Demands for Grants. Receipts and Recoveries, which include items like sale proceeds of surplus/obsolete stores, receipts on account of services rendered to State Governments/other Ministries, *etc*. and other miscellaneous items are deducted from the gross expenditure to arrive at the net expenditure on Defence Services for the six Demands, *viz*. Demands Nos. 23 to 28. A brief analysis of these grants is given below except Grant No. 24, Defence Services-Navy and Grant No.25, Defence Services-Air Force which are commented upon in separate reports.

1.5.2 Grant No.21 & 22- Expenditure from Civil Grants

1.5.2.1 Grant No. 21- Expenditure of Ministry of Defence (Civil)

The Budgetary Provision and actual expenditure including Revenue and Capital for the FY 2015-16 under Demand No. 21 is shown in **Table-1** below:

Table -1: Budgetary allocation and actual expenditure: MoD (Civil)

(₹ in crore)

BE	RE	Actual Expenditure
23877	23190	23324

This included expenditure of ₹19,606 crore under Revenue heads and ₹3,718 crore under Capital head. Major components of these expenditures are shown in the **Table-2**:

Table -2: Table showing major components of Revenue and Capital expenditure

Revenue Expenditure		Capital Expenditure	
Name of Department	**₹ in crore**	**Name of Department**	**₹ in crore**
Canteen Stores Departments (CSD)	14213	Customs-CGO	1517
Defence Accounts Department (DAD)	1166	DEO-Other Building	18
Defence Accounts Department (DAD)- Office/Residential Building	31	DAD-Other Building	6
Department of Defence	121	DAD- Residential Building	9
Coast Guard Organisation (CGO)	1517	Border Roads Organisation	2166
Jammu & Kashmir Light Infantry (JAK LI)	988		
Defence Estate Organisation (DEO)	346		
Border Roads Organisation	1172		
Other Departments	52	Other Departments	2
Total	**19606**		**3718**

[1] Report No.20 of Standing Committee on Defence (2012-13, Fifteenth Lok Sabha)

1.5.2.2 Grant No. 22 - Defence Pensions

Defence Pensions, under Ministry of Defence, provides for pensionary charges in respect of retired Defence personnel (including Defence Civilian employees) of the three services, *viz.* Army, Navy and Air Force, and of employees of Ordnance Factories, *etc*. It covers payments of service pension, gratuity, family pension, disability pension, commuted value of pension, leave encashment, *etc*.

The position of budgetary allocation and expenditure for the year 2015-16 under this Grant is as under:

Table- 3: Budgetary allocation and Actual Expenditure

(₹in crore)

Budget Estimates	Revised Estimates	Actual Expenditure
54,500	60,238	60,238

The persistent excess expenditure under this demand for Defence Pension Grant has always been a cause of concern for audit. However, during the financial year 2014-15 the excess of nearly ₹ 9435.90 crore was incurred after closer of financial year i.e. in November 2015. The appropriation accounts were revised on the ground that the pension payment scrolls lying under Suspense Head which had been booked in the financial year 2015-16 were to be adjusted in the accounts of financial year 2014-15 itself. The erroneous estimation of budget preparation of this grant was commented under Para 4.14 of C&AG's Financial Audit Report No. 50 of 2015. Further, the expenditure booked under PSB Suspense not shown as actual expenditure has been reimbursed by the RBI to the Banks on behalf of MoD.

1.6 Grant No. 23 to 28 – Defence Services Estimates

1.6.1 At a glance

The overall Defence Budget (Grant No. 23 to 28) allocation and actual expenditure (Voted & Charged) for the period 2011-12 to 2015-16 are given in **Table-4.**

Table-4: Total Defence Budget allocation and Actual expenditure

(₹in crore)

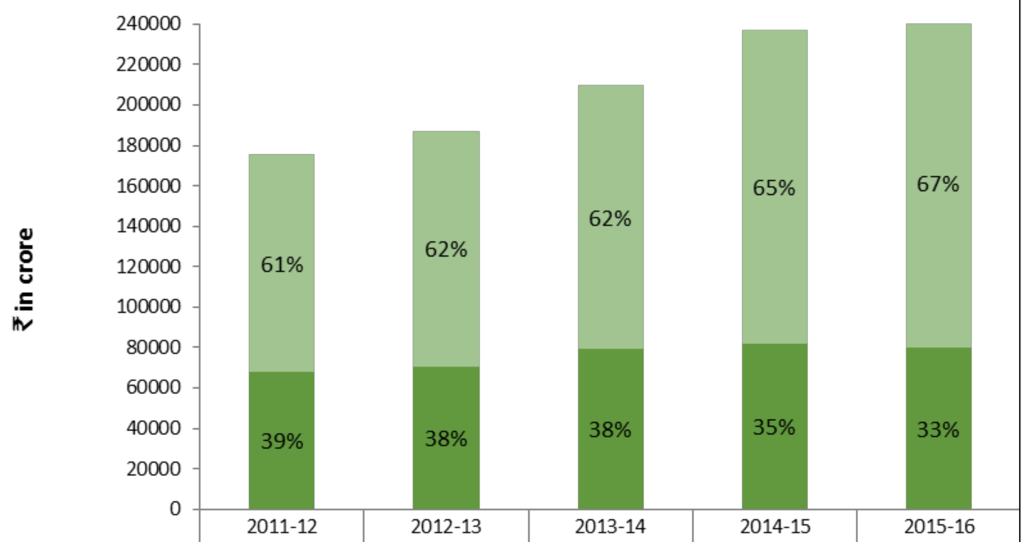
Year	Budget Provision	Actual Expenditure
2011-12	1,78,891	1,75,898
2012-13	1,98,526	1,87,469
2013-14	2,17,649	2,09,789
2014-15	2,54,000	2,37,394
2015-16	2,64,142	2,43,534

The data relating to actual Defence expenditure in 2015-16shows an increase in expenditure by 2.59 *per cent* over the previous year and overall increase of 38.45 *per cent* since 2011-12.

1.6.2 Revenue expenditure vs. Capital expenditure in Defence Services

Capital and Revenue expenditure (voted) for the period 2011-12 to 2015-16 is given in **Chart - 1** below:

Chart - 1: Revenue expenditure vs. Capital expenditure (Voted)



	2011-12	2012-13	2013-14	2014-15	2015-16
Revenue Expenditure (Voted)	107961	116708	130482	155168	163483
Capital Expenditure (Voted)	67844	70483	79093	81742	79802

The above data shows that the proportion of Voted Capital and Revenue expenditure as a percentage of total Defence expenditure (voted) has remained between 33and 39 *per cent* during the period 2011-12 to 2015-16. However, there was an increase of two *per cent* in revenue expenditure over the previous year in 2015-16, whereas Capital Expenditure decreased by two *per cent*.

1.7 Break-up of Expenditure (voted) relating to Army, Ordnance Factories & R&D (Capital & Revenue) – Grant No. 23, 26, 27 and 28[2]

A detailed analysis of the expenditure (voted) for the period 2011-12 to 2015-16 relating to Army, Ordnance Factories and R & D showing Revenue and Capital expenditure is given in **Table-5** below.

[2] Grant No. 24 – Navy and Grant No. 25 – Air Force are analysed in the respective Audit Reports of the Union Government (Defence Services) Air Force and Navy

Table-5: Expenditure (voted) of Army, Ordnance Factories & R&D

(₹ in crore)

Description of Grant	Components of Expenditure	Year 2011-12	2012-13	2013-14	2014-15	2015-16
Army	Actual	86,776	94,274	1,02,139	1,17,700	1,26,686
	Revenue	71,833 (82.78)	79,517 (84.35)	87,720 (85.88)	99,139 (84.23)	1,06,021 (83.69)
	Capital	14,943 (17.22)	14,757 (15.65)	14,419 (14.12)	18,561 (15.77)	20,665 (16.31)
Ordnance Factory	Actual	1,704	2,103	3,964	13,576	14,779
	Revenue	1,428 (83.79)	1,754 (82.88)	3,499 (88.26)	12,830 (94.50)	14,120 (95.54)
	Capital	276 (16.21)	349 (16.60)	465 (11.74)	746 (5.50)	659 (4.46)
R&D	Actual	9,932	9,860	10,929	13,635	13,646
	Revenue	5,321 (53.58)	5,218 (52.92)	5,696 (52.12)	6,236 (45.74)	6,183 (45.31)
	Capital	4,611 (46.43)	4,642 (47.08)	5,233 (47.88)	7,399 (54.26)	7,463 (54.69)

Note: Figure in the brackets represents the Revenue/Capital expenditure as a percentage of the total Actual expenditure

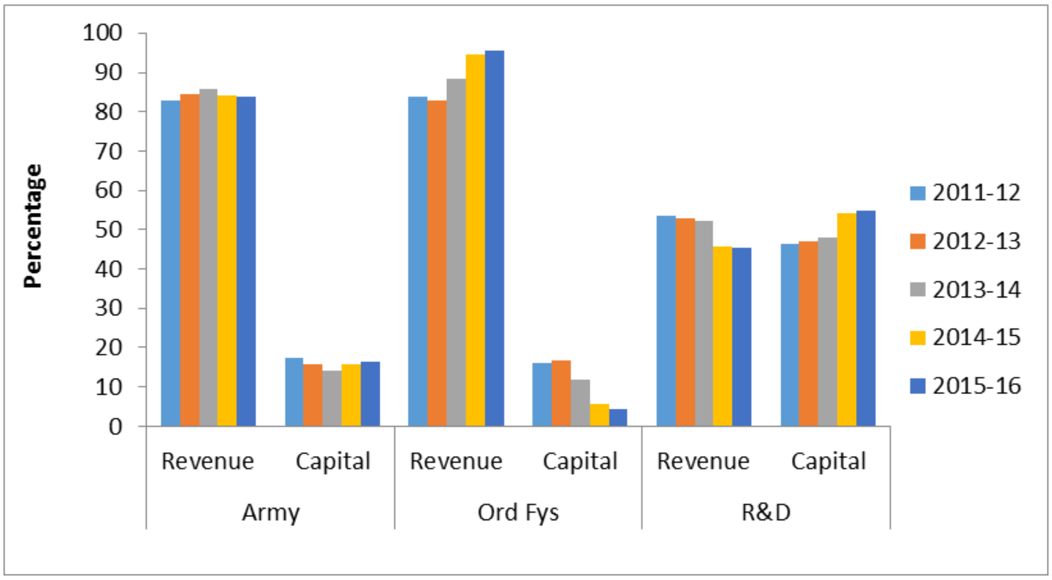
- The total Army expenditure during 2015-16 has registered an increase of 7.63 *per cent* over the previous year with the Revenue expenditure registering an increase of 6.94 *per cent* and the Capital expenditure recording an increase of 11.34 *per cent.* Since 2011-12, the components of expenditure have increased by 45.99 *per cent*, 47.59 *per cent* and 38.29 *per cent* respectively.

- The total Ordnance Factory (OF) expenditure has registered an increase of 8.86 *per cent* over the previous year with the Revenue expenditure registering an increase of 10.05 *per cent* and the Capital expenditure recording a decrease of 11.66 *per cent*. Since 2011-12, the components of expenditure have increased by 767.31 *per cent*, 888.80 *per cent* and 138.77 *per cent* respectively, mainly due to change in the process of obtaining of budget provision from Parliament from earlier 'Net basis' to 'Gross basis' w.e.f. 2014-15.

- The total R&D expenditure during 2015-16, has recorded an increase of 0.08 *per cent* over the previous year with Revenue expenditure decreasing by 0.85 *per cent* and the Capital expenditure registering an increase of 0.86 *per cent*. Since 2011-12, the components of expenditure have increased by 37.39 *per cent*, 16.20 *per cent* and 61.85 *per cent* respectively.

- Trend of Revenue and Capital Expenditure as a percentage of the total expenditure at a glance is depicted in Chart-2.

Chart-2: Trend of Revenue and Capital Expenditure as a percentage of the total expenditure



1.8 Trend of major components of Revenue expenditure (Voted)

1.8.1 Army (Voted)

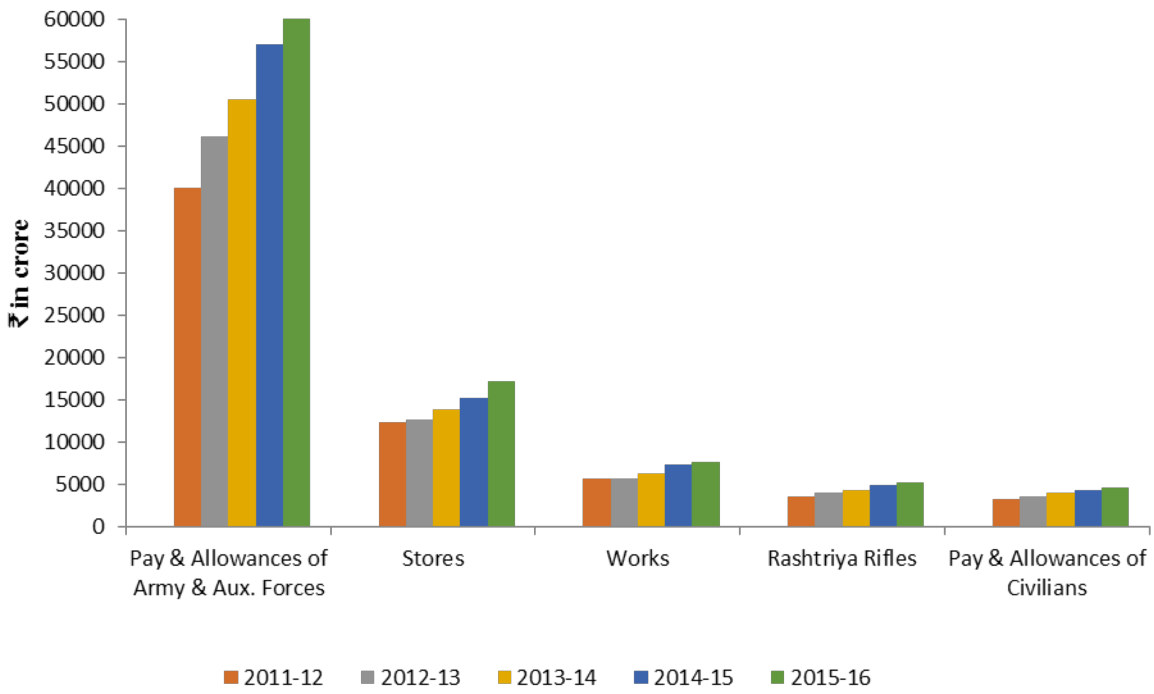
During the period 2011-12 to 2015-16 maximum Revenue expenditure was incurred under five Minor Heads (MH) of the Army as given in **Table-6** and in the **Chart-3** below:

Table-6: Details of major components of Revenue expenditure of Army

(₹ in crore)

Components of Expenditure	Year				
	2011-12	2012-13	2013-14	2014-15	2015-16
Pay & Allowances (MH-101& 103)	39,996	46,057	50,533	56,997	60,687
Stores (MH-110)	12,442	12,750	13,954	15,324	17,166
Works (MH-111)	5,709	5,769	6,384	7,399	7,658
Rashtriya Rifles (MH-112)	3,585	4,076	4,436	4,967	5,239
Pay & allow. of Civilians (MH-104)	3,361	3,674	4,056	4,422	4,640

Chart-3: Major components of Revenue expenditure of Army



- Against a seven *per cent* annual increase in the revenue expenditure of Army in 2015-16, overall increase in five Minor Heads ranged between three and 12 *percent.*

1.8.2 Ordnance Factories (voted)

During the period 2011-12 to 2015-16 maximum Revenue expenditure incurred under five MH of the Ordnance Factories are shown in **Table-7** and in the **Chart-4** below:

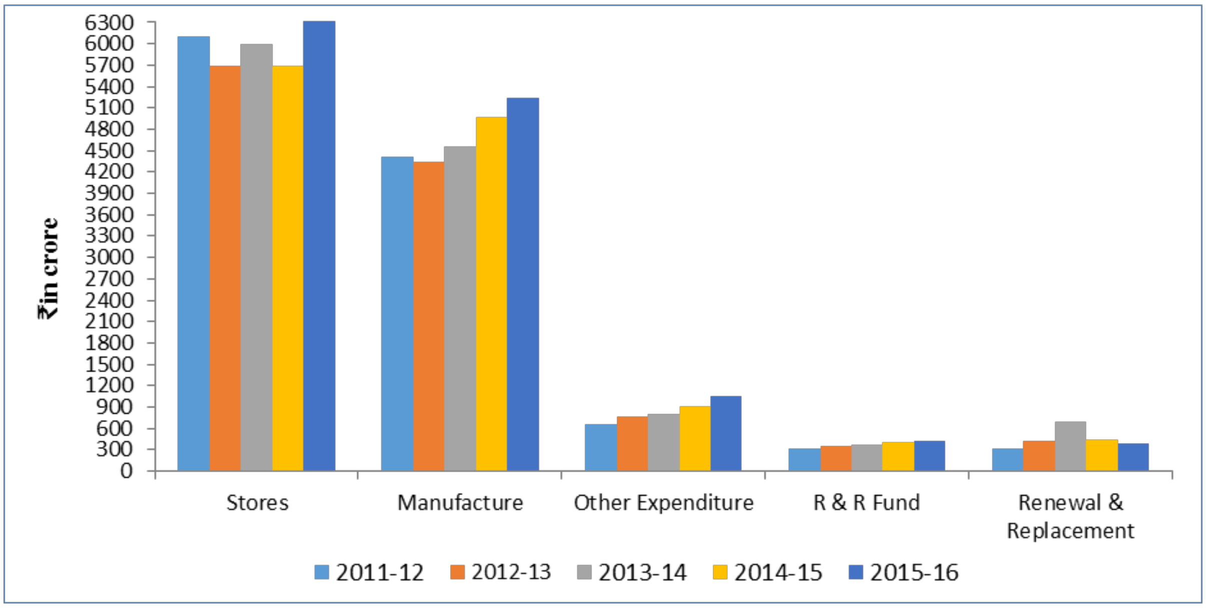
Table-7: Major components of Revenue expenditure of Ordnance Factories

(₹in crore)

Components of Expenditure	Year				
	2011-12	2012-13	2013-14	2014-15	2015-16
Stores MH-110	6,101	5,692	5,990	5,686	6,522
Manufacture- MH-054	4,415	4,336	4,563	4,961	5,234
Renewal& Reserve (R&R) Fund MH-797	325	350	375	400	425
Renewal & Replacement MH-106	310	416	697	442	386
Other expenditure MH-800	650	768	795	911	1055

- Against a 10 *percent* annual increase in the revenue expenditure of Ordnance Factories in 2015-16, overall increase in four Minor Heads having highest expenditure *viz.* Stores, Manufacture, Renewal & Reserve (R&R) Fund and Other Expenditure ranged between five and 16 *percent.* However, there is decrease in one Minor Head – Renewal & Replacement by 13 *per cent* over the previous year.

Chart 4: Major components of Revenue expenditure of Ordnance Factories



1.8.3 Research & Development (voted)

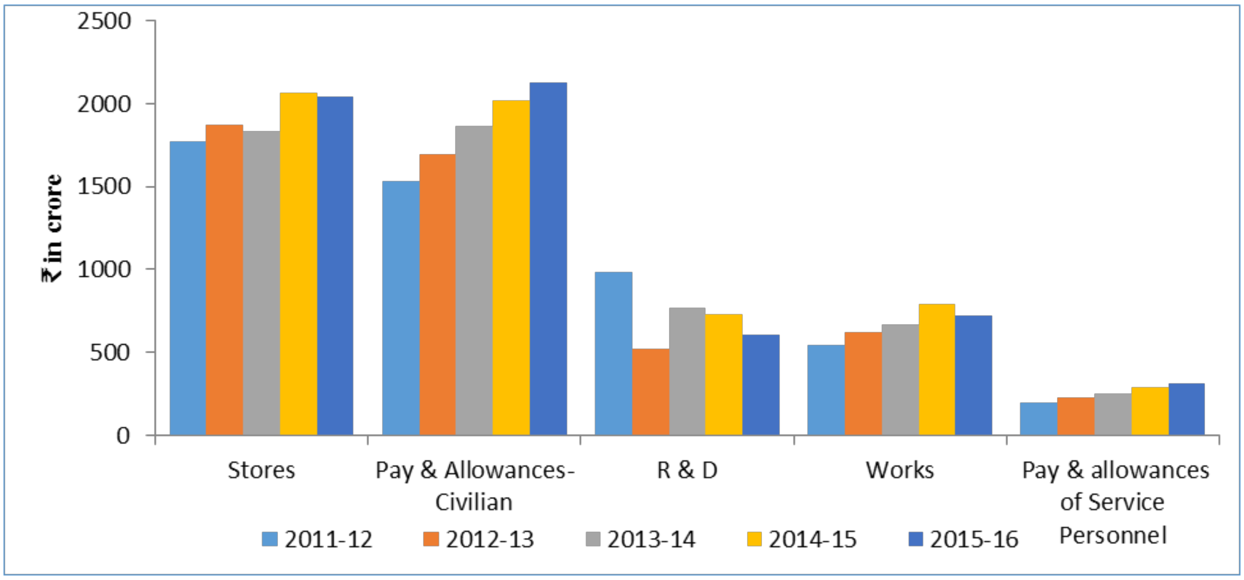
During the period 2011-12 to 2015-16 maximum Revenue expenditure incurred under five Minor Heads (MH) of the R&D are given in **Table-8** and **Chart-5** below:

Table-8: Major components of Revenue expenditure of Research &Development

(₹in crore)

Components of Expenditure	Year				
	2011-12	2012-13	2013-14	2014-15	2015-16
Stores MH-110	1,774	1,870	1,837	2,063	2,041
Pay &Allowances-Civilian MH-102	1,535	1,694	1,865	2,021	2,129
R&D MH-004	984	517	765	733	605
Works MH-111	543	621	669	790	721
Pay & Allowances of Service Personnel MH-101	198	226	251	285	309

Chart 5: Major components of Revenue expenditure of Research &Development



- Against a 8.5 *percent* annual increase in the revenue expenditure of Research & Development in 2015-16, overall increase in two Minor Heads having highest expenditure *viz*. Pay & Allowances-Civilian and Pay & Allowances of Service Personnel ranged between five and eight *percent*. However, there were decreases in three Minor Head – Stores, R&D and Works which ranged between one and 17 *per cent* over the previous year.

1.9 Trend of Capital expenditure - Major Head-4076-Grant No. 28-Capital Outlay on Defence Services

1.9.1 Components of Capital expenditure

There are eight Sub Major Heads (SMH) under this Grant, *viz*. Sub Major Head 01- Army, Sub Major Head 02 - Navy, Sub Major Head 03- Air Force, Sub Major Head 04- Ordnance Factories, Sub Major Head 05 - R&D, Sub Major Head 06 - Inspection Organisation, Sub Major Head 07 - Special Metal and Super Alloys Projects and Sub Major Head 08- Technology Development.

1.9.2 Trend analysis of Capital expenditure[3] (voted) of Army, Ordnance Factories and R&D

The details of Capital expenditure of Army, Ordnance Factories and R&D during the period 2011-12 to 2015-16 are given in **Table-9** below:

[3] SMH-02 and SMH-03 are analysed separately in the respective Audit Reports of Union Government (Defence Services) of Navy and Air Force. In respect of SMH-06 and SMH-08 total expenditure for the period 2011-12 to 2015-16 was ₹40 crore and ₹58 crore respectively. In respect of SMH-07 the expenditure during these years was Nil.

Table-9: Total Capital Expenditure (Defence Services) Vs Army, Ordnance Factories and R&D

(₹in crore)

Capital Expenditure	Year				
	2011-12	**2012-13**	**2013-14**	**2014-15**	**2015-16**
Defence Services	67,844	70,483	79,093	81,742	79,802
Army	14,943	14,757	14,419	18,561	20,665
Ordnance Factories	276	349	465	746	659
Research &Development	4,611	4,642	5,233	7,399	7,463

- **Capital Expenditure of Defence Services**: Capital expenditure of Defence Services has recorded decrease of 2.37 *per cent* in 2015-16 over the previous year. In case of Army and R&D the annual increase was however, 11 and 0.86 *per cent* respectively. Ordnance Factories has recorded decrease of 12 *per cent*.

- For the period from 2011-12 to 2015-16 against the overall increase 18 *per cent* in the Capital Expenditure of Defence Services, the increase in expenditure under Army, OF and R&D was 38, 139 and 62 *per cent* respectively.

1.9.3 Trend of Saving/Excess in Capital expenditure (voted)

The trend of 'Saving' and 'Excess' in Capital Expenditure for the period 2011-12 to 2015-16 is given in **Table-10** below:

Table-10: Trend of Saving/Excess in Capital Expenditure

Year	Total Grant (Voted)	Total Expenditure	Under Total Capital Grant	
			Saving(-)	**Excess (+)**
2011-12	69,148.01	67,843.96	1,304.05 **(1.89%)**	-
2012-13	79,526.99	70,483.32	9,043.67 **(11.37%)**	-
2013-14	86,685.31	79,092.91	7,592.40 **(8.76%)**	-
2014-15	94,257.01	81,741.90	12,515.11 **(13.28%)**	-
2015-16	94,451.52	79,801.95	14,649.57 **(15.51%)**	-

Note: Figure in brackets represents the saving (-)/excess (+) as a percentage of Total Grant (Voted).

- It is evident from the above Table that during 2011-12 to 2015-16 there were persistent 'Savings' from 1.89 *per cent* to 15.51 *per cent*.

- Increase in 'Savings' was noticed from ₹ 12515.11 crore (13.28 *per cent*) during 2014-15 to ₹ 14649.57 crore (15.51 *per cent*) in the year 2015-16. However, funds amounting to ₹ 15122.13 crore (16 *per cent*) were surrendered on the last working day of the financial year 2015-16 which was more than savings.

1.10 Recoveries/Savings and adjustment in accounts at the instance of Audit

Based on audit observations, the audited entities[4] had recovered ₹ 4.86 crore on account of overpaid pay and allowances, sundry charges, training charges, LTC claims, rent & allied charges, electricity charges, cancelled irregular works sanctions of ₹ 5.08 crore and amended annual accounts to the extent of ₹ 48.70 crore having a net effect of ₹58.64 crore as per **Annexure-I, II** and **III**.

1.11 Response of the Ministry/Department to Draft Audit Paragraphs

On the recommendations of the Public Accounts Committee, Ministry of Finance (Department of Expenditure) issued directions to all Ministries in June 1960 to send their response to the Draft Audit Paragraphs proposed for inclusion in the Report of the Comptroller and Auditor General of India within six weeks.

The Draft Paragraphs are forwarded to the Secretaries of the Ministry/ departments concerned drawing their attention to the audit findings and requesting them to send their response within six weeks. It is brought to their personal attention that in view of likely inclusion of such Paragraphs in the Audit Reports of the Comptroller and Auditor General of India, which are placed before Parliament, it would be desirable to include their comments in the matter.

Draft paragraphs proposed for inclusion in this Report were forwarded to the Secretaries concerned between August 2016 and February 2017 through letters addressed to them personally.

The Ministry of Defence did not send replies (January/February 2017) to 20 paragraphs out of 28 Paragraphs featured in Chapters II to VII.

[4] Except Ordnance Factories cases of which are discussed in Para 7.1.4

1.12 Action taken on earlier Audit Paragraphs

With a view to enforcing accountability of the Executive in respect of all issues dealt with in various Audit Reports, the Public Accounts Committee desired that Action Taken Notes (ATNs) on all paragraphs pertaining to the Audit Reports for the year ended 31 March 1996 onwards be submitted to them duly vetted by Audit within four months from the date of laying of the Reports in Parliament.

Review of ATNs relating to the Army as of January 2017 indicated that ATNs on 73 paragraphs included in the Audit Reports up to the year ended March 2015 remained outstanding, of which the Ministry had not submitted even the initial ATNs in respect of 26 Paragraphs and 11 ATNs (Sl. No.1 to 11) are outstanding for more than 10 years as shown in **Annexure-IV**.

CHAPTER II : MINISTRY OF DEFENCE

2.1 Functioning of Directorate General Married Accommodation Project (MAP)

DG MAP was created as a special organisation, to construct deficit married accommodation for the defence services personnel in an expeditious and time bound manner. Audit of the Directorate revealed that only 80,692 Dwelling Units (DUs) were constructed up to March 2016 against a target of 1,98,881 DUs, which were to be constructed in four phases of four years each from 2002 onwards. Incorrect prioritisation of stations, inaccurate assessment of deficiency and construction of accommodation beyond authorisation accentuated the impact of shortfall.

2.1.1 Introduction

2.1.1.1 Works Projects for Defence services are generally entrusted to Military Engineer Services (MES) which plans and executes the same following Defence Works Procedure 1986/2007. However, with the existing role and responsibilities, MES had a limited capacity to undertake new construction of married accommodation only up to ₹500 crore per year, which was far too less to meet the huge shortfall of accommodation for the Service personnel. Considering the deficiency in the availability and the limited construction capacity of MES, it was felt by Ministry of Defence (MoD) that MES would take more than 30 years to make up the shortfall. Hence, in order to provide the Dwelling Units (DU) and make up the deficiencies in a time bound manner, MoD issued a sanction in May 2002 for setting up a Directorate General for Married Accommodation Project (DG MAP), to specifically undertake the construction of DUs for the Armed Forces. The DG MAP organisation was created through re-location, re-alignment and re-distribution of MES resources. Based on the assessment by the Service Headquarters, the requirement of accommodation was approved by Cabinet Committee on Security (CCS) in September 2002 as 1,98,881DUs, after excluding 48,119 DUs in some areas of J&K and North East. The allotment and expenditure for the last 10 years (up to March 2016) is shown below:

Table-11: Allotment and expenditure for the last 10 years (up to March 2016)

(₹ in crore)

Year	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Total
Allotment	1391	1504	913	455	1213	1283	1325	1372	1969	2744	14169
Expenditure	1390	1482	901	457	1248	1168	1308	1326	1924	2737	13941

2.1.1.2 Structure of DG MAP, role and responsibilities

Directorate General Married Accommodation Project (DG MAP), with Headquarters in Delhi and as a part of Engineer- in- Chief's branch (E-in -C's) in Army HQ, was headed by an Additional Director General of Works. Technical officers were provided by internal adjustment with the E-in-C's branch/ MES. The administrative control over the functioning of DGMAP was exercised through the following three empowered Committees constituted by the MoD in May 2002.

(a) Apex Steering Committee (ASC), headed by Defence Secretary.

(b) Vice Chief's Committee (VCC), headed by Vice Chief of respective Services.

(c) Command Committee (CC), headed by Commandant (of the rank of Lt. General or equivalent).

The acceptance of necessity, based on the requirements projected by Service HQ, for the number of DUs to be constructed at each station and allotment of works for execution was the role of ASC. This Committee was also responsible for appointment of Consultants and monitoring of the progress of work. Administrative Approvals for the works based on the Detailed Project Reports (DPR) prepared by concerned executing agencies, was issued by these empowered committees within the following delegated financial powers:

Table -12: Delegated Financial Powers of the Committees

S No	Competent Financial Committee	Delegated Powers
1.	Apex Steering Committee (ASC)	Full powers
2.	Vice Chief's Committee (VCC)	Up to ₹50 crore
3.	Command Committee (CC)	Up to ₹20 crore

Construction of the DUs in MAP was planned in 2002, four phases, with each phase to be completed in four years. While the planning was further reviewed and priority of the stations reassessed, based on the inputs from Command Headquarters, we observed that the subsequent phases could not be taken up within the four years time frame fixed for each Phase. **Table 13** below shows the distribution of DUs separately for Phase I and II and by clubbing Phases III and IV, as finalised in September 2010.

Table-13: Phase wise distribution of DUs

SERVICE	PHASE-I	PHASE-II	PHASE-III & IV	TOTAL
ARMY	47,383	58,915	69,767	1,76,065
NAVY	2,687	3,994	-	6,681
AIR FORCE	7,805	7,067	1,263	16,135
TOTAL	57,875	69,976	71,030	1,98,881

In execution of MAP works, Station Commanders perform a key role. They are responsible to review the Zonal plans, correctly compute the deficiency of married accommodation at the station, identify appropriate land and plan housing in a holistic manner. The Station Commanders are also required to closely associate themselves in planning, execution and taking over of DUs after completion.

2.1.1.3 MAP Works Procedure

DGMAP was established to complete and execute the work in a time bound manner, therefore a separate Works Procedure for MAP was evolved for smooth and timely completion of the project. The MAP Works procedure-2003 enumerated the procedures for projection, planning, sanction, contract action, execution, material and financial management of work services as a decentralized system of decision making. DG MAP was to engage Project Consultancy with the approval of ASC after open competitive tendering with pre-qualification criteria. The project consultant was to carry out the survey, site investigation, preparation of design, structural/architectural drawings, preparation of bill of quantities, cost estimates, tender documents and evaluation of quoted bids. The consultancy services also included construction management and assistance to Project Manager (PM), a departmental representative of DG MAP for supervision and documentation during the execution stage of Project. PM was responsible for execution of works as per drawings and specifications as well as for quality control checks, technical checks of bills for payment & maintenance of site documents.

Audit Findings

2.1.2 Slow progress of Work

As per the sanctions accorded by the Ministry in May 2002 and June 2008, the provision of married accommodation was to be made on four yearly basis. Phase I of the project was therefore to be completed by March 2006. Phase II of the project which was to be initiated within four years of Phase I, was delayed by two years and sanctioned in 2008. Phase II was to be completed by March 2012. With the completion of first two phases by March 2012, it was envisaged that 1,27,851 DUs would be ready for use by the Services. We however observed that as of March 2016*i.e*, even after four years of the scheduled completion date of Phase II, only 80692 DUs (63 *per cent*) had been completed under the two Phases. The balance 47,159 DUs, were still under various stages of construction (March 2016). The combined Phase III and IV of the project, which should have ideally been sanctioned by 2010, is still under planning (March 2016). Hence, against the target of 1,98,881 DUs, which were to be constructed in four phases of four year each from 2002 onwards, only 80,692 DUs (41 *per cent*) were actually constructed under the project MAP, during the 13 years so far. The Defence services personnel, as end users, therefore continued to remain partially deprived of the facility.

2.1.3 Assessment of deficiency

The scope of the Project as approved by the Cabinet Committee on Security, in September 2002, was to take care of deficient married accommodation for Defence services personnel. Further, as per the Scales of Accommodation for Defence Services (SOA), the number of married quarters authorised at any station was to be determined on the basis of sanctioned strength of personnel and the authorised percentage fixed for each rank as laid down therein. The SOA however qualifies that the existence of a scale neither constitutes evidence of need nor is an authority for construction of new accommodation or for making improvements to the existing buildings. The requirement for a work service and its scope needs to be properly examined and justified before sanction is accorded by the competent financial authority. The SOA therefore emphasises that while authorisation is the maximum limit up to which number of DUs can be constructed, the need for examining the actual requirement, based on the men-in-position, should form a criteria for realistic assessment of the deficiency of DUs in view of the persistent deficiency of the officers in the Armed Forces. Hence the net deficiency should have been worked out with reference to the actual requirement since a large number of existing married quarters were also already lying vacant for a long period.

We came across instances wherein the requirement of DUs for construction under MAP had not been assessed on the basis of actual need by the Services and the accommodation constructed was either in excess of authorisation or beyond the laid down scope of MAP as discussed in the following paragraphs for the sample station:

2.1.3.1 Construction of 93 DUs despite continued availability of vacant quarters

At Military Stations Bathinda, Mamun and New Amritsar Military Station (NAMS), the existing DUs for officers were already lying vacant for a long time. Despite this, the Apex Steering Committee approved the construction of additional DUs for Officers based on the sanctioned strength of the station, without considering the state of already vacant accommodation. As a result an additional accommodation for 93 officers costing ₹ 17.17 crore was constructed, which remained unutilised. The cases are described as follows;

Case-I Military Station Bathinda

At Military Station Bathinda, 484 DUs (260 Major and above +224 Captain) were available for officers (Captain and above) prior to MAP. Under phase I of MAP, 341 DUs for officers (299 Major and above and 42 Captain) were constructed based on the requirement assessed by Station authorities, as per Key Location Plan (KLP)[5] Matrix. The construction of these DUs was completed in February 2009. We however, observed that even before the additional DUs under MAP were constructed, 48 existing captain quarters were lying vacant since 2008. Further, in the absence of any demand, 36 out of the 42 newly constructed Captain DUs were also re-appropriated from September 2010. Given the continued non-utilisation of 84 Captains quarters (48 old and 36 new), the construction of 42 quarters under MAP at the contracted cost of ₹ 5.71 crore was unwarranted.

Case-II Military Station Mamun

Against the KLP authorisation of 398 DUs for Captains, 174 DUs already existed at Military station Mamun. Though there was a deficiency of 224 DUs against the KLP yet 25 of the 174 DUs held were already lying vacant in October 2006, with no waiting list. Despite the continued holding of vacant accommodation, 16 additional DUs for Captain were sanctioned by the Apex Steering Committee and constructed in June 2008 under MAP Phase-I at Mamun. We observed that as of June 2015, 48 DUs for Captain were lying vacant, which included nine for more than 10 years and 20 for more than five years. Further, 39 DUs had been re-appropriated for other than the married accommodation purposes. Hence, the construction of 16 additional DUs for Captains at an average contracted cost of ₹ 2.29 crore under MAP was not as per actual requirement of the station.

Case-III Military Station New Amritsar Military Station

Construction of 35 DUs for Major & above at NAMS was sanctioned by Apex Steering Committee in December 2009 under MAP Phase-II. DGMAP concluded a contract for construction of these DUs in February 2011. However, after conclusion of contract, Station HQ NAMS intimated (June 2011) the Corps HQ that since 67 officers DUs (43 Captain and 24 Major& above) were already lying vacant and hence there was no further requirement for the station. It was, therefore, recommended by the Station HQ NAMS that the project for construction of married accommodation at the station be cancelled. We observed that incidentally the contract concluded for the project did not pick up and the contract was eventually cancelled at two *per cent* progress in March 2013 due to slow progress of work by the contractor. Despite the recommendation of the Station Commander (June 2011) for cancellation of their portion of work and the window for the same offered by the cancellation of the contract in March 2013, we found that the requirement

[5]KLP gives the list of formations, units, sub-units to be located in a station on permanent basis. Permanent accommodation for KLP units only can be constructed in a station.

of 35 DUs costing ₹ 9.17 crore was again included in the scope of risk and cost contract concluded by DGMAP in February 2014. This led to provisioning of surplus accommodation for Officers at the station.

We observed (June 2015) that 23 existing DUs for Major & above were lying vacant at NAMS for the last five years (June 2015) and therefore the possibility of usage of additional 35 DUs being constructed at a cost of ₹ 9.17 crore was remote. The position remains the same as of March 2016.

Ministry in its reply (July 2016) accepted the audit's contention in general but stated that issues such as less than expected inductions, the dynamic nature of deployment, present unpopular nature of some stations, which could alter in future besides long term requirement should be given consideration. It was however further stated that services will be advised to verify requirements with greater precision in future.

Audit is of the view that since the non-utilization of existing officers DUs was already well known, construction of new 93 DUs costing ₹17.17 crore could have been avoided or deferred till the demand improved.

2.1.3.2 Construction of DUs beyond the authorisation

The scope of the Project was only to construct deficit married accommodation for the Services. We however observed that at Faizabad and NAMS stations 85 DUs for Junior Commissioned Officers (JCOs) and 45 DUs for Other Ranks (ORs) were constructed in excess of the authorisation. Further at New Delhi station 533 DUs for Officers were constructed in excess of authorisation for the station. The total cost of these DUs constructed at the three stations at proportionate contract cost worked out to ₹ 155.08 crore. The details are summarised in **Table 14** below:

Table –14: Summary showing DUs constructed in excess of authorisation

<table>
<tr><th>Station</th><th>Category</th><th>Authorised strength as per KLP</th><th>Percentage authorisation</th><th colspan="2">No. of DUs authorised</th><th>DUs Held</th><th>Deficiency/Surplus (5-6)</th><th>DUs constructed under MAP</th><th>Excess construction of DUs (8-7)</th></tr>
<tr><th>1</th><th>2</th><th>3</th><th>4</th><th colspan="2">5</th><th>6</th><th>7</th><th>8</th><th>9</th></tr>
<tr><td rowspan="4">Faizabad</td><td>JCOs</td><td>253</td><td>75</td><td colspan="2">190</td><td>114</td><td>76</td><td>98 (PH-II)</td><td>22</td></tr>
<tr><td>ORs (ASC/AOC/AEC/EME)</td><td>2685</td><td>35</td><td>940</td><td rowspan="3">1186</td><td>645</td><td>541</td><td>586(PH-II)</td><td>45</td></tr>
<tr><td>Hav (AOC/ASC/AEC/EME)</td><td>57</td><td>100</td><td>57</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Hav (other)</td><td>539</td><td>35</td><td>189</td><td></td><td></td><td></td><td></td></tr>
</table>

Station	Category	Authorised strength as per KLP	Percentage authorisation	No. of DUs authorised	DUs Held	Deficiency/Surplus (5-6)	DUs constructed under MAP	Excess construction of DUs (8-7)
1	2	3	4	5	6	7	8	9
NAMS	JCOs	501	75	376	316	60	60(PH-I) 63(PH-II) Total 123	63
New Delhi	Major and above	3175	100	3175	2418	757	890(PH-I) 400(PH-II) Total 1290	533

- At Faizabad, though the deficiency against KLP for JCOs and ORs was of 76 and 541 DUs, yet the ASC had sanctioned 98 and 586 DUs respectively under Phase II of MAP. Station Headquarter in response to the audit query about the excess provisioning stated that the surplus accommodation was due to inclusion of separate family accommodation, though the same was not recommended by the Board of Officers. Since provision of Separated family accommodation[6] was not covered in the approved scope of MAP, sanctioning of excess number of 22 DUs for JCOs and 45 DUs for ORs was not in order.

- Against the deficiency of 60DUs for JCOs at NAMS, 123 DUs were constructed under Phases I and II of MAP at the station. We observed that the Station HQ NAMS had also included ILP (Interim Location Plan[7]) units, while projecting the requirement, which resulted in excess provisioning. In reply Station HQ stated that the case for approval of ILP units in the KLP of the Station has been taken up with higher formation in August 2015. However, as no permanent accommodation can be constructed for ILP units in the station, provisioning for ILP units was not authorised.

- Allotment of accommodation for Defence Services officers, including Army, Navy and Air Force, at New Delhi is made from the Chief Administrative Officer (CAO) pool, which consist of accommodation from MES as well as CPWD. Against the authorisation of 3175 DUs (Major and above), 2418 DUs were held in the CAO pool, prior to introduction of MAP. This holding included 1930 DUs of MES and 488 DUs of Central Public Works Department. We observed that against the deficiency of 757 DUs, 890 DUs were constructed under MAP Phase-I resulting in a surplus of 133 DUs. Despite this surplus, another 400 DUs were sanctioned under MAP Phase-II in December 2009 thus resulting in an overall excess of 533 DUs, constructed at a cost of ₹ 129.98 crore.

[6] Separated family accommodation is provided at peace stations to the families of defence personnel posted in field area.

[7] ILP includes the list of formations, units; sub-units though not listed in KLP of the station but are physically located due to administrative/operational reasons for short duration. No permanent accommodation can be constructed for such units in the station.

Ministry in its reply (July 2016) admitted the audit contention as far as Faizabad Station is concerned & stated that the 66 excess DUs are being reduced from the scope of work through amendment to the contract.

- As far as excess construction of officers DUs at Delhi Station is concerned it was stated that the DUs constructed under MAP was based on over all deficiency of respective services and not against the deficiency of CAO Pool. But the same has not been contested with the actual authorisation as per Peace Establishment (PE) as against the authorised PE of 3175 brought out by Audit. Moreover, all the accommodations i.e 3708 DUs including 1290 constructed under MAP are under the disposal of CAO Pool only.

2.1.3.3 Use of newly constructed DUs under MAP for other than intended purpose indicating improper assessment of the requirement of married accommodation

Audit observed that instead of using the units constructed for married accommodation, a good number of DUs constructed under MAP were put to other than the intended use at various stations. Cases observed in a sample check are discussed below:

(i) Conversion of accommodation constructed under MAP Phase-I

57 DUs for Officers and 06 for ORs constructed under MAP Phase-I at Mamun, Yol, Danapur, Chennai and Bathinda were re-appropriated into single living accommodation. The period of re-appropriation for seven DUs for officers was more than three years. Similarly, 15 DUs for JCOs constructed in at Chennai were being used after being re-appropriated as Army Primary School since 2010.

(ii) Conversion of Accommodation constructed under MAP Phase-II

16 DUs for JCOs and 62 DUs for ORs constructed under Phase-II at a cost of ₹5.99 crore at Mamun and Bikaner stations were being used for single living accommodation, Bank, Unit Run Canteen, Cyber Cafe, complaint cell *etc*.

Ministry broadly admitted (July 2016) the above cases of re-appropriation stated that re-appropriation has arisen due to the combination of DUs remaining vacant on one hand on account of their being more than requirement and on other hand there being deficiency in other kinds of authorised accommodation at the stations. However, it was further emphasized by the Ministry that authority will be advised to undertake a comprehensive examination of all cases of re-appropriation and where not justified revert the same to its original use.

2.1.4 Execution of Works

2.1.4.1 Provision of mobilization advance at very low interest rate

As per the conditions of the contract interest bearing Mobilization Advance up to 15 *per cent* of the contract value could be availed by the contractors, if they so desired. The interest on such advances was eight and ten *per cent*. When compared with the SBI Prime lending rate (PLR) of 14.75 *per* cent, these rates of interest formed an additional incentive to the contractors for effective mobilization of resources and timely completion of the work.

We observed that after conclusion of contracts major construction companies *viz*. Omaxe Infra Project Limited, Indu Projects Limited, Apex Encon Project Private Limited, DSC Limited, KRR Infra Project Limited, Dhoot Developers Limited, Supreme Infrastructure India Limited, Janapriya Engineers Syndicate Limited M/S Marg Ltd, Vishal Infra Structure Ltd and Mfar Construction Pvt Ltd did not take diligent interest in the execution of projects undertaken by them. These defaulting contractors, failed to progress the work even after taking the Mobilization Advance of ₹ 510.65 crore.

Ministry in its reply (July 2016) stated that basic purpose of the mobilisation advance is to extend financial assistance within the term of contract to the contractor to mobilise the man and material resources for timely and smooth take off of the project.

The Ministry also stated that the interest-bearing advance has been paid and subsequently recovered in accordance with the CVC guidelines after ensuring requisite safeguard. The reply is not acceptable as a proper safeguard mechanism was not in place under the terms of contract as per CVC guidelines issued in April 2007 which states that mobilization advance should preferably be given in instalments and subsequent instalment should be released after getting satisfactory utilization Certificate from the contractor for the earlier instalment. The absence of proper safeguard mechanism helped the contractors to avail the huge amount of mobilisation advance despite non-achievement of desired progress in the work. However, Audit will follow up on the Ministry's admission in its reply (July 2016) stating that further improvements in provisions for payment of mobilization advance was being contemplated in Phase-III.

2.1.4.2 Non- Recovery of ₹ 1057.25 crore from the defaulting Contractors

For execution of works related to construction of 69,976 DUs sanctioned under Phase II of MAP, DG MAP had concluded 62 contracts between March 2010 and December 2012. We however observed that 31 out the 62 contracts were cancelled between March 2012 and March 2016. Only six contracts were fully completed, that too with delays. Cancellation of contracts was mainly due to slow progress of work by the contractors. The progress in the 10 of remaining 25 contracts was below 50 *per cent*.

Consequent upon the cancellation of 31 original contracts in respect of projects under Phase II of MAP, risk and cost contracts were concluded by DG MAP to complete the balance work. As per contract conditions the extra expenditure incurred on completion of left over work was to be recovered from the defaulting contractor. DG MAP however informed Audit that in all cases of cancellation the original contractors have invoked Arbitration against cancellation & these cases are under various stages of litigation. Further a sum of ₹1057.25 crore was due in respect of 22 contracts i.e. difference between the rates quoted by the original contractors and the risk and cost contractors to complete the balance work, whereas the amount in respect of nine cases was yet to be worked out (March 2016).

As far as matter of recovery from defaulting contractors is concerned, it was stated that Bank Guarantee Bond (BGB) of the contractors worth ₹140.38 crore have been encashed and the balance will be recovered as per law of the land. Ministry stated (July 2016) that recoveries are subject to judicial proceedings, which are being diligently pursued.

2.1.4.3 Substandard construction

Quality Assurance of all works was to be done by the PM and the Contractor. The PM and the Station Commanders were to monitor the quality of work being executed at the site.

Major problems of quality control especially leakage/seepage, efflorescence, defective sewage system, damaged transformers, termite infestation *etc* were noticed in the DUs constructed by various executing agencies at NAMS, Bathinda, Suratgarh, Bhopal, Shahjahanpur, Shillong, Ahmedabad, Jodhpur, Jaipur and Delhi. The executing agencies were not responsive towards rectification of the defects.

A few instances observed in audit of selected DUs are explained as under:

- 208 DUs for ORs were constructed under MAP Phase-I at Khetarpal Enclave at NAMS by CPWD in June 2011. Station HQ NAMS convened a meeting of the Board of Officers in March 2011 to take over the accommodation. Garrison Engineer (GE) NAMS however refused to take over the accommodation due to various defects in construction including leakage/seepage. The Station Headquarter however ignored the issues brought out by the Garrison Engineer and allotted the DUs directly to the users in November 2011 and February 2012.

In April 2015 Station HQ NAMS approached HQ 15 Infantry Div to direct MES to take over these 208 DUs on 'as is where is basis' and cover them under extensive repairs programme. GE NAMS, however, observed that even Sewage System constructed for these DUs was faulty leading to blockage and overflowing through manholes. In May 2015, GE NAMS estimated the cost of repairs at ₹ 1.35 crore to make the buildings habitable. However, the MES had not taken over these DUs from Central Public Works Department till March 2016.

DGMAP in its reply (April 2016) stated that DUs are in use and problems stated have not rendered them unusable. It was further stated that special repair has been proposed after usage of DUs for four years and holding CPWD responsible at this stage will not be appropriate. The reply is not convincing because quality issues in the construction pointed out by the GE should have been got addressed by the executing agency.

- 2,222 DUs (138 Major & above, 248 JCOs and 1836 ORs) constructed by DG MAP under Phase-I at Lucknow were handed over to the MES between December 2008 and June 2012. After taking over the accommodation, extensive leakage/seepage was noticed in DUs constructed in seven pockets. However, these defects could not be got rectified by the contractor during the defect liability period *of two years*. The GE Lucknow intimated (June 2015) that 953 DUs were having the problems of leakage/seepage had prepared an estimate of ₹ 3.15 crore for rectification of these defects. The work is yet to be sanctioned (March-2016) and the issue is being addressed through normal day to day maintenance works by the MES.

  DGMAP in its reply stated that all the defects noticed during the handing/taking over were notified to the contractor during the defect liability period and all defects were rectified to the satisfaction of the users. The reply is however not tenable as the GE has proposed an estimate of ₹3.15 crore for rectification of leakage/seepage.

  Ministry in its reply (July 2016) stated that DGMAP has been advised to take more concerted action on quality aspects in both ongoing as well as future works.

2.1.5 Under-deployment of manpower by consultant contractors

DG MAP concluded a number of contracts for consultancy *viz*. Detailed Engineering & Project Management Consultant (DEPMC) at various stations for preparing tender documents, evaluating the tenders, submitting its recommendations to DG MAP for final approval for conclusion and execution of contracts. These consultancy contracts are concluded at a fixed percentage, ranging from 1.5 to 2.5 *per cent*, of the total project cost. The consultant contractors are required to deploy such number of Engineers as specified in the contract for project management. In case of non-deployment of the stipulated manpower, recovery was to be made from DEPMC contractor at the monthly rates mentioned in the contract agreement.

Examination of the records of concerned PMs at various stations revealed that the DEPMC contractors had not deployed the full complement of manpower as required under the provisions of the contract for project management. As a result not only was the purpose of engaging these contractors defeated but the recovery for the under deployed staff was not also not fully made. Recovery of ₹27.76 lakh was outstanding at the following stations on this account;

Table-15: Outstanding recovery from DEPMC contractors (March 2016)

Sl.No	Station	Name of the contractor	Amount (₹`in lakh)
1	Amritsar	Wadia Techno-Engg Services Ltd	7.50
2	Faizabad	GPM_ ACID JV	7.48
3	Agra	Hospitech Management Consultant Pvt Ltd	12.78
	Total		27.76

In reply Ministry stated that depletion in deployment of manpower by the DEPMCs was mainly due to slow progress of work at site by the building contractors or suspension of work. Notwithstanding the reasons, the recovery on account of under deployment had to be made from the running account payments made to the contractors. A recovery of ₹ 15.72 lakh is stated to have been made so far from the two contractors at Amritsar and Agra.

Conclusions

In order to meet the critical shortages in the married accommodation of defence services personnel, DG MAP was created, as a special organisation, with a clear cut task to meet the construction targets expeditiously and in a time bound manner. DG MAP has only met 41 *per cent* of the targets in the 14 years period. Against the target of 1,98,881 DUs, to be constructed in four phases of four year each from 2002 onwards i.e. up to 2018, only 80,692 DUs have been constructed so far (March 2016). This led to non-fulfilment of accommodation needs of the defence personnel to that extent. Besides, there were instances of construction of DUs despite availability of vacant quarters at the station, inaccurate assessment of deficiency, construction of accommodation beyond authorisation and undue benefit to contractors by release of mobilization advance without utilization certificates for earlier releases.

Recommendations

- ❖ Actual posted strength of Officers in the Armed Forces and the position of vacancy of DUs should be taken into account while assessing the requirement of DUs instead of purely assessing on the basis of authorised strength besides taking into cognizance of the status of waiting list for the married quarters at the station. The requirement of DUs at various stations for Phase-III & IV may be reassessed on realistic basis as these phases are yet to start.

- ❖ Ministry may consider a reasonable increase in Performance Security amount from the contractor to act as a deterrent for the defaulting contractors. Further, the mobilization advance may be given in instalments and subsequent instalments may be released only after getting satisfactory utilisation certificate from the contractor for the previous instalment and verification of the same. All the defaulting contractors involved in the work related to MAP may be debarred from taking further contracts/works.

- ❖ A suitable mechanism to ensure monitoring and timely rectification of quality issues during construction of DUs should be put in place.

2.2 Loss in procurement of Jelly Filled Cable

Lack of clear direction from Director General Quality Assurance (DGQA) regarding conduct of the tests for which they do not have their own facility led to inordinate delay of 15 months in completion of evaluation of Jelly Filled Cables. As a result, commercial offer was revised by the vendor culminating in loss of ₹1.28 crore to the Government in procurement of 3000 Km Jelly Filled Cable.

Time frame given in Defence Procurement Procedure stipulates a period of six to twelve months for trials of weapons and equipment under capital procurement. Further, as per the directives issued by Army HQ (November 2008) for the trials of Jelly Filled Cable, users trials and evaluations were not to exceed 30 days under normal circumstances.

We noticed that despite the above directives, undue delay in completion of trials and evaluation by Army HQ led to revision of commercial offer by the vendor resulting in loss to the Government in procurement of Jelly Filled Cable (JFC). The case is discussed in succeeding paragraphs:

Army HQ initiated a case (April 2006) for procurement of 3000 Km Jelly Filled Cable (JFC) along with accessories at an estimated cost of ₹21.00 crore to meet the operational requirement of the Army. Acceptance of Necessity (AON) for the same was accorded by the Ministry in August 2006 and techno-commercial offer was issued in March 2008. In technical evaluation (October 2008), JFC offered by two vendors *viz*. M/s Ordnance Cable Factory (OCF), Chandigarh and M/s Pair cables, Bangalore were found compliant and were recommended for trials.

The trials were to be conducted in two phases (a) User trials and (b) Controllerate of Quality Assurance (Electronics) (CQAL) Evaluation. User trials were completed by August 2009 and CQAL evaluation by March 2010. Though both the vendors were found successful in users' trial, cable of OCF, Chandigarh was not found compliant in Oxidation Induction Test (OIT)[8] . However, during staff evaluation (November 2010), it was decided to conduct OIT for both the vendors at a common laboratory. Accordingly, in February 2011, it was decided by Director General Quality Assurance (DGQA) to conduct the OIT at Component Approval Centre for Telecommunication (CACT), Bangalore in which OCF, Chandigarh didn't participate and thus, declared non-compliant. OIT was completed in March 2011 at CACT, Bangalore and JFC submitted by M/s Pair Cables passed the test.

Meanwhile, commercial offers of the vendors which were valid for 18 month from the date of opening of bid (June 2008) expired in December 2009 and vendors were asked to extend the same up to December, 2010 or submit fresh commercial offer with validity up to December 2010. In response, OCF extended the commercial offer up to December 2010 whereas M/s Pair cables submitted their revised commercial offer (₹48.70 crore) with validity up to December 2010 which was further extended up to March 2011. As the staff evaluation was yet to be completed (March 2011), M/s Pair cable Ltd again revised their commercial quote to ₹57.47 crore, with validity up to March 2012.

Subsequent to completion of staff evaluation in October 2011, Commercial Negotiation Committee (CNC) finalised the total price as ₹ 49.98 crore which was approved by CFA in March 2012. Accordingly, a contract was concluded with M/s Pair Cables (March 2012) at a total cost of ₹ 49.98 crore for supply of 3000 km JFC.

Audit scrutiny of the case revealed that CQAL did not have facility for some tests including OIT. These tests were conducted in two different private laboratories. JFC offered by M/s Pair cables, Bangalore was tested at M/s UM

[8] In OIT, which was the part of CQAL evaluation, the life of insulation of the outer sheath as well as the inner legs of JFC was tested.

Cable Ltd Silvassa (May 2009) and that of OCF Chandigarh was tested at Sri Ram Institute of Industrial Research, New Delhi (February- March 2010). As JFC of OCF, Chandigarh was declared unsuccessful in OIT, OCF did not agree with the result and requested for conduct of OIT at another laboratory *viz*. Central Institute of Plastic Engg and Technology (CIPET), Hyderabad which was not accepted by DGQA. However, as discussed above, with a view to provide level playing field to both the vendors, during staff evaluation it was decided to conduct the test at CACT, Bangalore.

To an Audit query seeking reasons for conducting the test at CACT and not at CIPET as requested by the OCF, DGQA stated that CACT was accredited by NABL where as CIPET did not have the accreditation. We, however, found that the two private laboratories where the tests were conducted earlier also did not have NABL accreditation. DGQA further stated (September 2016) that vendors were asked to produce results for the tests for which facilities were not available at CQAL. The vendors chose the lab on their own to conduct the test and DGQA representatives were detailed to witness the test.

Evidently, a clear direction regarding conduct of the tests for which DGQA do not have their own facility was not in place. Lack of direction by DGQA for such trials led to delay of more than 15 months in completion of trials and evaluation. As a result, commercial offer, which was valid up to December 2010, was further revised by the vendor which culminated into loss of ₹1.28 crore to the Government.

The case was referred to the Ministry (October 2016), their reply was awaited (January 2017).

2.3 Overhauling and procurement of microlite aircraft

In deviation from the extant policy, 34 engines of existing microlite aircraft were contracted for overhaul at a cost exceeding 50 *per cent* of the cost of a new engine by the Director General, National Cadet Corps (DG NCC). Further, additional 110 microlite aircrafts were procured at a cost of ₹52.91crore despite low utilisation of the existing fleet.

The mandate of the Air Wing of National Cadet Corps (NCC) is to impart flying training to create aviation consciousness among the cadets. The training is imparted through gliders/microlites (MLs) aircraft authorized for the purpose. Responsibility for maintenance and overhauling of the microlites (MLs) aircraft rests with the DG, NCC, who had reiterated (August 2008) to the central aviation support depot (CASD) that Cat 'D' items whose repair cost exceeds 50 *per cent* of cost of the equipment may be declared beyond economical repair (BER).

Audit noticed (September 2016) that DG NCC solicited quotation (February 2012) from M/s Varman Aviation Private Ltd (VAPL) on PAC[9] basis for overhaul of 34 engines (of microlite aircraft) which were due for overhaul as per their calendar life in September 2013.The price was negotiated (March 2013) to ₹7,96,041/engine, which was more than 50 *per cent* of the cost of a new engine *i.e.* ₹15.84 lakh. DG NCC approached (April 2013) Ministry of Defence (MoD) for 'in principle' approval, which was accorded (November 2013). However, offer of M/s VAPL had expired in June 2013.

The overhaul price of ₹8,60,585/engine negotiated (April 2014) under the revised offer (January 2014) of M/s VAPL, was higher by₹64,544/engine vis-à-vis the previous price of March 2013. Overhaul order for 34 engines was placed on M/s VAPL in October 2014 with completion scheduled by August 2015. However, four of the engines were yet (September 2016) to be overhauled.

Audit further noticed that between 2011-12 to 2014-15, 45 MLs were utilised for 7,028 hours (19.5 *per cent*) of flying training against the required 36,000 hours (45 ML x 4 years x 200 hours). Inspite of low utilisation of the existing fleet, DG NCC projected requirement to the Ministry of additional 110 MLs for 48 NCC squadrons as per authorisation of four MLs/gliders for each squadron as they were holding 82MLs/gliders. The requirement of deficient 110 MLs was accepted in Annual Provisioning Review (APR) Committee of MoD. Accordingly, the Ministry contracted (October 2015) for 110 MLs[10] for DG NCC at Euro 70,25,984.44 (₹52.91 crore) with delivery between 12 to 48 months.

Audit thus observed (September 2016) that keeping in view less utilisation (19.5 *per cent*) of existing MLs, procurement of additional 110 MLs at ₹52.91 crore lacked justification.

Audit also observed (September 2016) that overhauling of 34 engines instead of declaring them beyond economical repair, was in deviation from the extant policy on repair of Cat 'D' items as reiterated by the DG NCC, itself, besides resulting in extra expenditure of ₹21.94 lakh (₹64544 x 34 nos.)

In reply, DG NCC stated (October 2016) that shortfall in flying activity was due to accident of one ML on 06 October 2013 which was resume only on 02 December 2014 after conclusion of Court of Inquiry. Further, the reply of DG NCC was silent on overhaul of engines in deviation from the extant policy and extra expenditure of ₹21.94 lakh.

[9] PAC: Proprietary Article Certificate

[10] 14 Microlite aircraft have been received by the DG NCC as on 27 February 2017 (DG NCC's letter No.7153/AO/Gen/DGNCC/LGS(Air)/120 dated 27.02.2017

The reply is not agreed to as even after discounting the period as stated by DG NCC during which there was no flying, utilisation of microlite was 26 *per cent* only. Further, the fact of low utilisation of the existing fleet was not appraised to the competent authority while seeking approval for procurement of additional 110 MLs costing ₹52.91 crore, which thus lacks rationale.

The matter had been referred to the Ministry in October 2016; their reply was awaited (January 2017).

CHAPTER III : ARMY

3.1 Management of Defence owned Railway Wagons / Coaches

In audit of management of Defence owned Railway Wagons/Coaches, various deficiencies were noticed such as excess scaling of 17 AC Coaches/Military Langars (₹50 crore), loss of interest on advance payment (₹23.87 crore), excess payment due to non- uniformity in cost calculation of Military Special Trains (₹30.44 crore), non monitoring of Additional Rail Facilities (ARF) projects and non adjustment of ₹ 356 crore paid to Railway on account of ARF projects. Despite these deficiencies there is no mechanism in Army HQ to check commercial exploitation of Defence owned Railway Wagons/Coaches by the Railways.

3.1.1 Introduction

Railway wagons and coaches were introduced in Army in 1972 to carry personnel and weapons for operational mobilisation in war time and training, field firing& exercises during peace time.

To execute operational move during war time, trains are planned as per Operational Rail Move Plan (ORMP) to enable formations to reach intended area of operations at the earliest.

During peace time, trains are run every month to execute permanent moves of Indian Army units, for training, field firing and exercise purposes.

Movement of goods/stores and personnel through railway wagons and coaches both during war and peace time is a challenging task since it has a direct bearing on the operational requirement.

Specialized railway wagons called Critical Rolling Stock (CRS) are owned by Defence to carry different types of weapons and equipment as indicated below:

- Military Bogie Well Type (MBWT) - for carrying Tanks and specialised Signals equipment.
- Bogie Open Military (BOM)-for carrying Infantry Combat Vehicle (ICV), Self-propelled guns, tractors, *etc*.
- Bogie Railway Special (BRS)- for movement of Tank transport trailer.

- Bogie Flat Arjun Transportation (BFAT) - specially designed for movement of T-90 and MBT Arjun Tanks.

Besides, different types of coaches are also owned by Defence for facilitating movement of Defence Personnel.

3.1.2 Excess scaling of coaches

Government of India, Ministry of Defence, in June 2014, approved scaling of Defence owned railway coaches as 55 numbers of AC 2 Tier, 203 AC 3 Tier and 59 Military Langar Coaches. Railways undertakes the task of Periodic Over Hauling (POH) of defence owned coaches/wagons through affiliated Railway workshops. MoD while approving the scale of coaches/langar had taken into account 34 additional coaches for requirement of periodic overhauling (POH)/maintenance undertaken by Railways based on average time of two to three months for overhauling of one coach. We however, noticed that average time taken by Railways for POH of one coach was only 27 days. In this regard a query was made and in reply the same calculation done at the time of scaling was provided. Further, when we specifically asked to indicate the time period involved in inward and outward transit, Additional Director General (Strategic Movement) (ADG (SM)) stated (February 2017) that no record in this regard is maintained. In the absence of such record, while calculating the requirement for scaling, the time required for POH taken as two to three months lacks justification. As such keeping in view the inward and outward time line for transit the total time provided is on higher side, which can be reckoned to one to one and half months. This led to excess scaling of 17 AC coaches/ Langars for POH, which were procured at a total cost of ₹ 50.50 crore and was avoidable.

3.1.3 Capital Procurement of Wagons and Coaches

In Army, procurement of all equipment valuing ₹15 lakh each or more with a life of seven years or more is called capital procurement. Capital procurements are made as per the provisions contained in the Defence Procurement Procedure (DPP). All capital procurements are processed in two stages *viz*. pre-contract management and post contract management.

Capital procurement is initiated by the user's directorate in Army HQ with formulation of Qualitative Requirements and seeking Acceptance of Necessity (AON) of Defence Acquisition Council (DAC)/Defence Procurement Board (DPB) of the Ministry. Once approved by the Ministry, the same are processed in stages by Acquisition Wing in the Ministry and Weapon and Equipment (WE) Directorate in Army HQ till conclusion of the contract.

Post conclusion of the contract, execution of the same, including payment of advances and other payments, delivery, installation, commissioning, *etc*. is to be carried out as per terms and conditions indicated in the contract.

3.1.3.1 Delay in conclusion of contracts

During the period covered in audit *i.e.* 2011-12 to 2015-16, total five capital contracts valuing ₹1048.06 crore were concluded for procurement of Critical Rolling Stock (CRS) and Coaches. The details of all contracts with their present supply position are shown in **Table-16** below:

Table 16: Details of contracts concluded with their present supply position

Sl. No	Details of CRS/Coaches	Contract/ Indent date	Vendor	Qty	Cost (₹ in crore)	PDC	Supply Position as on 31.08.16
1.	CRS-Bogie Open Military (BOM) (	30.9.14	M/s Modern Industries	445	169.94	March 2016	445
2.	CRS-Military Bogie Well Type (MBWT)	30.9.14	M/s Texmaco Rail & Engineering Ltd	974	387.04	September 2016	912
3.	AC 2 Tier Coaches (Inter Ministry proc)	12.2.15	Integral Coach Factory (ICF) Chennai	40	249.64	2015-16=20 2016-17=20	30
4.	Military Langer Coaches (Inter Ministry proc)			32		2015-16=16 2016-17=16	Nil
5.	AC 3 Tier Coaches (Inter Ministry proc)	12.2.15	RCF (Rail Coach Factory) Kapurthala	90	241.44	2015-16=30 2016-17=30 2017-18=30	Nil
Total (in ₹)					**1048.06**		

Procurement of CRS and Coaches were made based on scaling approved in October 2011 and June 2014 respectively. We noticed instances of delay in pre-contract stages of procurement of the CRS and Coaches with reference to stipulated timelines in DPP.

Against the envisaged time of 48 to 60 weeks in multi vendor situation (without trial), the procurement took 208 weeks in case of wagons and 135 weeks in case of coaches respectively. As per DPP, Request for Proposal (RFP) should be issued within 08 weeks and contract should be signed within 48 to 60 weeks of AON, however, it took 63 weeks and 208 weeks respectively in case of CRS and 113 weeks and 135 weeks respectively in case of Coaches.

Further, in case of BRS, AON was accorded in October 2010, despite approval of Competent Financial Authority (CFA) post finalisation of CNC, contract was yet (August 2016) to be concluded. In reply to an audit query seeking the reasons as to why contract for procurement of BRS was not concluded, Army HQ stated (August 2016) that, the case file is under progress with MoD. The reply, however, did not indicate the exact reasons for not signing the contract despite lapse of more than three years of CFA approval.

3.1.3.2 Irregularity in advance payment in procurement of Rail Coaches and Military Langar

Ministry accorded AoN in February 2014 for procurement of 40 AC-2, 90 AC-3 Tier coaches and 32 Military Langar (ML) under Buy (Indian) Category through Inter-Ministerial route. Indents were to be placed on Railway Board and payment modalities as per terms mutually agreed between Ministry of Defence and Railways post AON.

As advised by the Railway Board, Ministry of Defence placed (February 2015) two indents directly on Production Units of Railways *viz*. Rail Coach Factory, Kapurthala (RCF) for 90 AC-3 Tier Coaches and Integral Coach Factory Chennai (ICF) for 40 AC-2Tier Coaches and 32 Military Langar.

As per Indent placed on RCF, 30 AC 3 Tier coaches each were to be delivered in 2015-16, 2016-17 and 2017-18 and 100 *per cent* advance for manufacturing of coaches for respective year was to be made.

As per Indent on ICF, delivery of 20 AC 2 Tier and 16 Military Langer was to be made in 2015-16 and 20 AC 2 Tier and 16 Military Langer was to be made in 2016-17 against 100 *per cent* advance payment.

We found that in case of RCF, advance payment was to be made against supply of respective financial year whereas in case of ICF, provision for 100 *per cent* advance payment for all coaches was made in the indent. Audit scrutiny revealed that ICF in their commercial bid had quoted for advance payment for manufacture of respective year. Despite this, provision for complete advance payment was made in the indent and the payment of ₹249.64 crore was made within a month of indent i.e. in March 2015. Thus advance payment amounting to ₹124.82 crore pertaining to manufacture of the period 2016-2017 was irregular.

Further, despite payment of ₹ 325.52 crore (including ₹ 75.88 crore to RCF) to both the Railway Production Units in March 2015, no supplies except 30 numbers of AC 2 Tier coaches were made till August 2016. As a result, Army HQ not only suffered by delay in receipt of coaches/Langers but also had a loss of ₹ 23.87 crore on account of interest on irregular advance.

In reply to an audit query (August 2016) regarding why two different yard-sticks were applied in payment terms, Army HQ stated (August 2016) that, payment terms were made based on the requirements forwarded by respective Production Units. The reply is not correct as ICF Chennai in their bid did not seek advance payment for the entire supply. Further, 100 *per cent* advance payment for the entire supply is also violation of DPP provision.

Above matter was referred to Railway audit in September 2016 for examination at ICF Chennai and in their reply (January 2017) Railway audit stated that ICF wanted advance payment in two instalments only whereas the Ministry of Defence had paid the entire amount in one instalment and ICF had kept advance payments received in the suspense head of account subject to adjustments.

3.1.4 Excess/Irregular payments to Railways

3.1.4.1 Infringement Charges- Every railway zone fixes its standard movement dimensions for a consignment depending upon bridges and stations enroute. A consignment, which exceeds the standard movement dimensions is termed Over Dimensional Consignment (ODC). Depending upon height, width, clearance from the top, *etc*. of the consignment, ODC is classified in to A, B & C and accordingly Infringement charges[11] towards ODC are levied by Railway authorities.

We noticed that Railways levied infringement charges for 28 wagons of a Military Special train having 23 Open Wagons and five Bogie Covered Wagons (BCN) which were admitted by the Movement Control Office (MCO), Allahabad in May 2016. As infringement charges should not be applicable to BCN wagons, payment of infringement charges ₹ 3.80 lakh for five BCN wagons was made in excess. In reply (November 2016) ADG (SM) stated that the actual amount is calculated as per Railway Board letter, circulars and distance calculated in automated manner by Centre for Railway Information System (CRIS). Reply is not convincing as infringement charges should not be levied on a covered wagon and the ADG(SM) should have pointed out this fact to Railways.

***3.1.4.2 Overpayment of Additional Surcharge* -** As per Railway Board Rate circular No. 32 of 2014 additional surcharge should be levied @ 20 *per cent* on actually used/supplied Railway owned wagons to Defence. We noticed that Railways Charged additional surcharge on Defence owned wagons also. This had resulted in overpayment of ₹ 33.49 lakh to Railways. In reply (November 2016) ADG (SM) accepted the overpayment and forwarded the case to Railways for consideration.

[11] The rate for the year 2016-17, 2015-16 & 2014-15 of Infringement (ODC) charges applicable were ODC "A"-₹50, ₹45 & ₹40 Per Km, ODC-"B"- ₹75, ₹65 & ₹60 Per km and ODC -"C"-₹380, ₹340 & ₹310 Per Km respectively.

***3.1.4.3 Overpayment of Passenger Fare Tax* -** As per Railway Board Rate Circular 32 of 2014, Passenger Fare Tax is not applicable for Military Special Trains, However it was noticed that the same have been charged by North Central Railway and Northern Railway resulting in overpayment of ₹7.66 lakh**.** In reply (November 2016) ADG (SM) agreed with the audit contention and accepted the issue of variable charging of prices by different zonal railways and different implementation of orders/circulars.

***3.1.4.4 Irregular payment of Service Tax*-**Defence or Military equipment is exempted from service tax vide Government of India , Ministry of Railways, Railways Board, New Delhi circular No. 7 of 2015 dt. 08/04/2015. Service Tax were charged by Railways on Military equipment resulting in overpayment of ₹75.55 lakh. In reply (November 2016) ADG (SM) accepted the audit contention and stated that the issue was raised with the railways. It was also stated that while, the railway authorities of particular zone/ division apply rules, the army personnel can object but not over rule the railway authorities. Reply is not tenable because Government of India, Ministry of Finance in June 2012 exempted service tax on "Defence and Military equipment" Services by way of transportation in Rail, but due to failure of ADG (SM) the case was never taken up with the Ministry of Finance/Railway, resulting in avoidable payment of ₹75.55 lakh on account of service tax to Railways from June 2012.

***3.1.4.5 Excess payment of Siding and Shunting Charges*-** Government of India, Ministry of Railway, Railway Board has fixed All India Engine Hour Cost (AIEHC) for siding and shunting charges w.e.f. 1st April 2006.

- We noticed in HQ MC Group, Secunderabad that siding charges were continuously being paid at old rates since April 2006, resulting in excess payment of ₹ 28.11 crore to South Central Railway. In reply (November 2016), ADG (SM) stated that the matter was taken up with Railways for recovery/adjustment of excess payment on old rates.
- We also noticed that Southern Railways had used Diesel Engine between Avadi and PTMS for shunting purposes, but charged partly for Electric Engine and partly for Diesel Engine, which had resulted in excess payment of ₹ 6.88 lakh**.** In reply (September 2016), Embarkation Hqrs Chennai accepted the audit contention and sought for clarification from the Hqrs Southern Railways, Chennai for actual shunting charges.

***3.1.4.6 Discrepancy in Distance*-**We noticed at HQ MC Group, Jhansi that the distances charged for Military Special Train, were more than the actual distance covered, resulting in excess payment of ₹ 64.46 lakhs to Railways. In reply (November 2016), ADG (SM) accepted the overpayment and agreed to initiate action for recovery of mentioned Passenger Vans (VPs).

3.1.4.7 Busy Season Charges and Development Charges- We noticed at Embarkation HQ, Chennai that Busy Season charges, and Development Charges of ₹ 7.09 lakh levied on Military Special Trains by Southern Railway for all outgoing Passenger Vans (VPs). However, Busy Season Charges and Development Charges were nowhere laid down by the Railway Board for charging on Defence. In reply (November 2016) ADG (SM) accepted the audit point and agreed to initiate action for the recovery of overpayment.

3.1.4.8 Over Payment due to discrepancy in calculation - We noticed at Embarkation HQ, Chennai that in respect of a Military Special Trains (VP 487) move, excess charges of ₹ 33.43 lakh were charged owing to calculation errors. On pointing out the excess charging, Embarkation HQ intimated 152 MC Gp Firozpur & 169 MC/MF Det Pathankot to take up the matter with Railways. In reply (November 2016) ADG (SM) agreed to ascertain overcharging and initiate action for recovery of excess amount paid.

In reply (January 2017) to all the above eight cases, ADG (SM) stated that the matter is being taken up with Railways for reconciliation/adjustments.

3.1.4.9 We also noticed instances of excess payments made to Railways against Railway Warrants and credit notes:

- In respect of Vouchers submitted by Nothern Railway Zone an amount of ₹4.04 crore was adjusted in March 2015 by PCA (Fys), Kolkata against Bank Advice of November 2012 with NIL objection. On scrutiny of the above bill it was noticed that excess payment of ₹10.45 lakh on account of Infringement (ODC) charges had been made to the Railways. On pointing out by audit, the PCA (Fys), Kolkata agreed to take necessary action.

- Similarly, we noticed that Railways overcharged carriage bill of ₹53 lakh in Bank Advice of April 2015 of ₹6.64 crore against which no objection was raised by PCA (Fys) Kolkata. On raising the issue by audit, PCA (Fys) Kolkata agreed to recover an amount of ₹ 53 lakh from Railways.

- We pointed out excess payment to Railways on account of Passenger Fare Tax, Overflow charges and Additional Surcharge. PCA (Fys), Kolkata accepted excess payment of ₹24.57 lakh to Railways towards Passenger Fare Tax, Overflow charges and Additional Surcharge awaiting for refund from Railways.

CGDA stated (January 2017) that as pointed out by the Audit, the matter was referred to concerned Railway Zone to reconcile and intimate the applicability of these charges on Military Tariff.

3.1.4.10 Non receipt of the proceeds of Condemnation of Wagons

We noticed at MCO Jhansi, that credit to MoD for 291.33 MT Defence Scrap disposed off by Railways for ₹72.60 lakh was pending since August 2014. On raising the issue with MCO, it was replied that Railways agreed to give credit to Defence account which was awaited as of November 2016.

Further ADG (SM) stated (January 2017) that matter has been continuously pursued with the DRM Jhansi.

3.1.5 Upkeep and maintenance of wagons and coaches

As per the stabling plan the stock of CRS are to be kept at various locations for operational use. Stabling of this stock at various locations would be of no value, if the stock is not maintained in a fit state. For verification of track worthiness, CRSs are to be moved at least 100 to 200 Kms distance every three months. We noticed at three MCOs, one MC Group HQ and Embarkation HQ, that the CRS stock held since its receipt were lying without movement. In response to audit query it was replied that no specific movement of CRS were undertaken by the Railways to keep them track worthy but CRS were moved only when they were due for POH or for use in Military Special Trains. Non-movement of CRS would affect operational use of these wagons, even though maintenance charges were paid for the same. ADG (SM) replied (January 2017) that the regular movement of all rolling stock, though desirable, is not mandatory to ensure their track-worthiness. Reply is not acceptable as Army HQ, in 1990 issued a letter to all Zonal Railways indicating that every three month the stabled rolling stock should be moved at least 100 to 200 KMs distance for verification of its road worthiness under advice to the directorate in Army HQ and MCO but the same was not done.

3.1.6 Commercial exploitation of Defence Wagons by Railways

During scrutiny of documents at MCOs, we noticed instances of commercial exploitation of Defence owned Wagons by Railways without the knowledge of defence authorities. For instance two wagons lifted by Railways in April 2014 for periodical overhaul from Defence siding at Allahabad were extensively used by Railways for movement of oil tankers for two years. Similarly, the extensive use of 32 Defence wagons by Railways for commercial freight operation was reported from Jhansi for which no credit had been given to MoD.

These instances indicate that there is no mechanism with the Army to check such commercial exploitation of the Defence Wagons and Coaches by Railways for its operations. ADG (SM) replied (January 2017) that the misuse of Army’s rolling stock was reported by MCOs across the country and all steps were taken by the Directorate suo-moto.

3.1.7 No physical verification of existing wagons and coaches by the Army

The Indian Army owns a number of Wagons and coaches which are located in the Railway network of the country. No physical verification of the stock was conducted by the Army during last five years except in January 2016. The census carried out in the year 2016 indicated a deficiency of 428 Wagons and seven coaches valuing ₹ 170 crore. In reply (November 2016) to audit query, ADG (SM) stated that Army owned rolling stocks are temporarily untraceable. Reply is indicative of the possible use of their CRS stock by Railways for commercial purpose without due knowledge of Army.

Further, in January 2017 ADG (SM) clarified that it would be impossible for Army to regulate the CRS on daily basis as these are held in custody of Railways, yet physical verification being an enduring activity, is still continuing. The reply is not convincing because audit had highlighted the lack of periodical physical verification.

3.1.8 Delay in creation of Additional Rail Facilities (ARF)/Military Sidings

Additional Rail Facilities (ARF)/Military Sidings are created for defence at various Railway stations on Defence/Railway land for handling military traffic during peace and war. These facilities though created out of defence fund remain on the charge of Railways. Necessity for creating an ARF is identified by Army with approval of ADG (SM). Once the project for creation of ARF is included in Army Major Works Programme, money is released for construction of the project to the Railways as a deposit work.

Audit noticed that out of 14 projects of ARF at various locations which were approved from 2004 to 2013 at a cost of ₹ 258.01 crore, none of them was completed as of November 2016. Out of 14, only three projects had been completed by 60 *per cent,* 70 *per cent* &76 *per cent* and balance 11 projects were yet to be commenced. The cost overrun of eight projects was of ₹101.12 crore, which included two of the above three completed projects. In the balance six projects, the cost was to be revised and hence cost overrun was yet to be arrived at. Thus the delay in creation of the ARFs had resulted in cost escalation of the projects.

In reply (January 2017) ADG (SM) stated that delay in creation of ARF is a worrisome trend and is a result of differing priority of the Railways.

3.1.9 Non adjustment of MoD funds by Railways

In 2003, a proposal for gauge conversion of Sakri Laukhabazar – Nirmali and Saharsa – Forbesganj as alternate route to north east states through Bharat – Nepal border, was initiated by the then Minister for Railways for development under strategic consideration. In principle agreement to this proposal was accorded by the then Defence Minister and the project was to be practically funded by the Ministry of Defence amounting to ₹ 356.01 crore in five years. In February 2006, Ministry of Defence, backed out from funding this project as the project was not of a strategic importance and suggested to Railways to take up a project *viz* Rangiya-Murkongselek-Pasighat being the project having a strategic importance. Accordingly, Ministry of Defence (MoD) provided to Railways ₹ 356 crore between 2005-06 and 2009-10 on quid pro quo basis. Subsequently, in February 2009, the Rangiya – Murkongselek project was declared as a "National Project" and as such, the money provided by MoD of ₹356 crore was to be refunded / adjusted for carrying out some other ARF works.

In reply (January 2017) ADG (SM) stated that further details regarding execution of any quid-pro-quo work in lieu of Sakri Laukhabazar – Nirmali and Saharsa – Forbesganj are being ascertained from Ministry of Railways.

Thus the amount of ₹356 crore paid to Railways by MoD long back was neither refunded to MoD nor adjusted in other ARF projects.

3.1.10 Non Serviceability of Military Sidings

During audit it was noticed that none of the three Defence Railway sidings at Allahabad were functional. The railway track network of COD Chheoki was completely worn out and declared unfit for movement since January 2015. The Military siding at OD Fort was last operated in April 2008. Similarly, Khusrobagh military siding was not being used due to the approach road leading to the Defence Railway sidings being unsuitable for movement of heavy vehicles and Guns. In spite of non-functioning of various Defence Railway sidings at Allahabad, annual maintenance charges of ₹31.58 lakh had been paid to the Railways for the period from 2011-12 to 2013-14.

In reply (January 2017) ADG (SM) stated that whether a siding is used or not the yearly interest and maintenance charges of a siding is due to Railways as long as the siding is serviceable. The reply is not accepted as the audit had pointed out about the unserviceability of railway sidings which was confirmed by ADG (SM) in February 2017 and hence the payment of ₹ 31.58 lakh made to Railways was irregular.

Conclusions

- Due to excess scaling of AC coaches/Military Langars (ML) against Periodical Over Hauling (POH) requirement, procurement of 17 AC coaches/ML for ₹ 50 crore was avoidable.

  (Para 3.1.2)

- Against the provision of advance payment of 15 *percent* in Defence Procurement Procedure (DPP), Army HQ made 100% advance payment of ₹325.52 crore in March 2015 to Integral Coach Factory (ICF) Chennai and Rail Coach Factory, Kapurthala for procurement of AC coaches and Militray Langars. Moreover both the production units could not deliver the coaches/Military Langars in stipulated time, which had resulted in loss of interest to the tune of ₹ 23.87 crore on advance paid.

(Para 3.1.3.2)

- Due to non-uniformity in cost calculation of Railway Charges for Military Special Trains at various MCOs, an excess/irregular payment of ₹30.44 crore had been made to the Railways on account of Infringement charges, Additional Surcharge, Passenger Fare Tax, Service Tax, Railways Siding and Shunting Charges, Busy Season/Development Charges *etc*.

(Para 3.1.4.1)

- Against Bank Advices of ₹49.59 crore from January 2016 to September 2016, bills of ₹ 39.64 crore were not received from six Railway Zones by the PCA (Fys), Kolkata as of September 2016. Further, due to lack of proper scrutiny of vouchers by PCA (Fys), an overpayment of ₹ 88.02 lakhs had been made to the Railways.

(Para 3.1.4.9)

- Army has no mechanism to check the commercial use of its Railway wagons/coaches by Railways. As a result 34 defence owned wagons were extensively used by the Railways for commercial use but no credit was given to MoD. This happened due to lack of regular physical verification of its wagons by the Army. When physical verification was done by the Army in 2016, a deficiency of 428 wagons and 7 coaches costing to ₹170 crore was found.

(Para 3.1.6 and 3.1.7)

- Out of 14 ARF projects approved from 2004 to 2013 at a cost of ₹258.01 crore, no project was completed as of November 2016. This had not only resulted in cost overrun of the projects by ₹ 101.12 crore but also had adversely affected the operational requirement of the Army.

(Para 3.1.8)

- An amount of ₹ 356 crore paid to the Railways by Ministry of Defence for construction of Additional Railway Facilities (ARF) which were subsequently declared national project in 2009, was neither refunded to

Ministry of Defence nor adjusted in other ARF Projects as of November 2016.

(Para 3.1.9)

- Annual maintenance charges of ₹ 31.58 lakh were paid to the Railways even for Non-functioning Military Railway Sidings at Allahabad

(Para 3.1.10)

Recommendations

- Scaling of the wagons/coaches should be done as per actual requirement.
- Procurement process of wagons/coaches including payment of advance should be as per DPP provisions.
- Railway charges for Military Special Trains should be admitted as per orders of the Ministry of Railways and should be properly checked by the concerned MCOs as well as PCA (Fys) Kolkata. All such payments for the last 5 years may be reviewed by the PCA (Fys), Kolkata.
- Physical verification of wagons and coaches to be conducted annually/at regular intervals to check commercial use of the Defence owned Railway Wagons/Coaches by the Railways.
- Ministry of Defence/ADG (SM) should monitor the progress of the ARFs projects for its early completion and take immediate action for refund/adjustment of the amount paid to the Railways.
- In case of staggered delivery period spanning beyond a year, periodical quantum of supplies should be indicated clearly in the Indent to avoid paved lee-way to Production Units for supply according to their own convenience.

The matter was referred to the Ministry of Defence in December 2016; their reply was awaited (January 2017).

3.2 Ammunition Management in Army-Follow up Audit

"For the contents of this paragraph/report, printed version of the relevant report may be referred to"

3.3 Extra expenditure due to non-placement of order within validity of the offer

Non- acceptance of an offer within its validity led to procurement of 85259 Bicat Strip at an extra expenditure of ₹90.26 lakh, which was avoidable.

Bicat strips are practice munitions comprising of safety fuse inserted with crackers at strategic intervals which simulate gun fire when ignited.

Army HQ floated request for proposal (RFP) for procurement of 85259 numbers of Bicat Strips to five firms in March 2013 wherein bids were to be valid till 02 November 2013.The lone bid submitted by M/s Ganesh Explosives Pvt. Ltd. Coimbatore was opened on 02 May 2013 with validity of the bid as prescribed in the RFP. Tender Evaluation Committee (TEC) in May 2013 decided for capacity verification of the firm and post-verification (December 2013) through Controllerate of Quality Assurance (CQA), Kirkee, Pune, the commercial bid was opened on 30 January 2014. Since the quoted price of ₹643.26 per item was much more than the benchmarked price of ₹226.33 arrived at by Commercial Negotiation Committee (CNC) in December 2013, the price was negotiated (February 2014) by CNC to ₹295.90 per unit. Meanwhile, validity of the offer was extended by the firm thrice from 02 November 2013 to 02 January 2014, 02 March 2014 and finally to 31 March 2014. The case forwarded to Integrated Financial Advisor (IFA), Army on 7 March, 2014 was concurred by him on 13 March 2014.No supply order was placed till validity of the offer which was 31 March 2014. Subsequently, Competent Financial Authority (CFA) accorded approval for re-tendering in June 2014 and procured 85,259 numbers of Bicat Stripsat a unit price of ₹401.77 under supply orders placed in September 2015 on two different firms, other than the firm to whom supply order was not placed within its validity till 31 March 2014.

On being pointed out by Audit (May 2016), Army HQ stated (July 2016) that this did not result in any loss as the earlier bidder being new one, had reduced his price drastically and could have refused to supply even after placement of supply order.

The reply is an afterthought as negotiation with the lone bidder was carried out only after assessing his capability to supply the store and the negotiated price of ₹295.90 per unit despite drastic reduction as stated, was still higher than the benchmarked price of ₹226.33 per unit.

Thus, Army HQ failed to place the supply order on the firm with which negotiations were conducted within the validity period despite multiple extensions of validity of offer by the firm. Subsequently procurement was made from another firm after re-tendering which resulted in avoidable extra expenditure of ₹90.26 lakh.

The matter was referred to the Ministry of Defence in September 2016; their reply was awaited (January 2017).

3.4 Loss due to non-recovery of rent and premium in respect of Mobile Towers installed in a military station.

13 mobile towers of private telephone companies were installed at Chandimandir Military Station without the requisite approval of the Ministry of Defence, leading to loss of ₹4.33 crore on account of non-recovery of rent and premium.

Government of India, Ministry of Defence (GoI, MoD) decided in September 2008 that the Public Sector and Independent Infrastructure Providers (IP-I), who have been granted license by the Department of Telecommunications (DoT) to build, operate and maintain various services, such as Unified Access Services, Basic Services and Cellular Mobile Services *etc*, may be considered for allotment of Defence land on leasehold basis, to lay the Optical Fibre Cables and set up/construct shared communication towers on Defence land at Military Stations/Cantonments on certain terms and conditions including the following:-

i. The land may be allotted at the commercial lease rent i.e. four times the residential rent, based on the current STR/market rate of the area with one time premium at 10 times the annual rent.

ii. The Authority competent to grant the lease of land to communication operators would be the MoD or the authority to whom such powers may be delegated not below the General Officer Commanding -in- Chief (GOC-in-C) of the Command and its equivalent in other services.

The MoD in April 2012, clarified that it had not issued any order for delegation of these powers and the authority to grant leases of land to communication operators was with MoD only. In terms of the Regulations for Military Engineer Service (RMES), the Garrison Engineer (GE) is responsible for making demands for payment of all revenue and for taking steps for its prompt realisation.

During audit of GE Chandimandir (May 2016) and Station Headquarters Chandimandir (July 2016), Audit noticed (May & July 2016) that 13 mobile towers had been installed between March 2006 and June 2013 by the private telephone companies at Chandimandir military station without sanction of the competent authority i.e. MoD. Further, though recoveries of electricity bills were being effected by the GE Chandimandir, no recovery towards rent/one time premium had been made for 13 Mobile towers thereby resulting into loss of rent of ₹1.56 crore and one time premium of ₹2.78 crore till July 2016.

In reply to an audit query, Defence Estates Office (DEO), Chandigarh intimated (June 2016) that no information/record regarding installation of Mobile/Telephone towers was held by that office. Station HQrs Chandimandir replied (July 2016) that no rent was being charged as no rent agreement was concluded with mobile company by them.

HQrs Western Command (WC) stated (December 2016) that the process of getting sanction from the MoD under the 2008 policy is a laborious process and a case taken up in 2008 for establishment of mobile towers at Chandimandir military station has still not seen the light of the day. Hence, a conscious decision was taken to provide temporary relief to troops purely as welfare measures. It was further intimated that no agreement was concluded except electricity charges being paid as per actual usage.

Thus, case reveals that 13 mobile towers have been installed at Chandimandir military station without approval of the competent Authority i.e. MoD. Further, no rent agreement was concluded in violation of the policy of September 2008 thereby causing a loss of rent of ₹1.56 crore and one time premium of ₹2.78 crore till July 2016.

The case was referred to the Ministry (October 2016), their reply was awaited (January 2017).

3.5 Wasteful expenditure on procurement of incompatible equipment

Outboard Motors (OBM) costing ₹1.26 crore, which were procured by invoking Army Commander Special Financial Powers to meet immediate requirement in Northern Command, could not be utilised. 46 out of 50 OBMs have been used for less than 10 hours in seven years. User units attributed low utilisation of the motors to lack of compatibility with the boats held and to absence of scope for training in the available terrain.

To obviate non availability becoming a constraint in counter insurgency and internal security duties and to meet immediate operational requirements, special financial powers have been delegated to Army Commanders for incurring expenditure on procurement of equipment and stores to supplement the availability through central source. These powers can also be invoked for purchasing stores and equipment which have not been introduced in Army {Non Standard Pattern (NSP)} but which are perceived by Army Commanders to be necessary for operational reasons in their command areas. The procurement of NSP items would however be only need based. It means that procurement of stores/ equipment for training, and flood relief operations *etc* was not authorised under the ACSFP.

Engineer units in Northern Command (NC) are authorised Outboard Motors (OBMs[16]). Against an authorisation of 100 OBMs, the units in NC had a deficiency of 48 OBMs of 30 horsepower (HP) in 2007. HQNC initiated a proposal in November 2007 for procurement of 50 OBMs of higher HP *viz* 90 to 100 HP, under the Army Commander's Special financial powers (ACSFP) on the plea that OBMs of 90 to 100 HP would be more effective in rivers in the NC theatre for carrying out training and in flood relief operations.

Notwithstanding the defined purpose of the delegation, HQ NC accepted the necessity and procured 50 OBMs at a total cost of ₹1.26 crore in March 2009 under the ACSFP. These OBMs were released in April 2009 to three Corps HQ (Corps 'A', 'B' and 'C') and Command Engineer Units including Combat Engineer Training Camp (CETC)[17]under the Northern Command. The OBMs were received by March 2010.

Audit examined the receipt and utilisation of these OBMs and observed that even before the actual receipt, Corps 'A' ordered (May 2009) the transfer of 12 out of its 15 allotted OBMs to the CETC. Similarly three OBMs released to the Command Engineer Unit were also transferred to the CETC in February 2013, as the Engineer unit could not utilise the same due to non-availability of power boats. These 15 OBMs along with the six released to the CETC were held (April 2016) with the training unit and none of these OBMs had been used for more than 10 hours ever since their procurement in 2009. In respect of the OBMs issued to other two Corps, Audit observed that the total hours run by each of them was also in single digits, except for four OBMs held by one Engineer unit under Corps 'C', where the usage was between 32 to 34 hours. Overall state of holding and utilisation of the 50 OBMs procured is summarised in the **Table-24** below:

[16] OBM- A propulsion system for boats consisting of a self-contained unit that includes engine, gear box and propeller and can be easily removed for storage or repairs.

[17]CETC- Engineer Training unit meant to provide assistance to Engineer Regiments of North Command in terms of stores for Training, Flood Relief and CI Operations.

Table-24

Formation/ Unit	Number of OBMs released	Unit-wise sub allocation		Present state of holding		Total hours run (April 2016)
		Unit	No	Unit	Since (As per Command Release Order)	
Corps 'A'	15	Corps HQ	10	CETC	April 2009	1.5 to 9.5 hrs
		Corps ER	03	Corps ER	April 2009	-
		Corps ER	02	CETC	Jan 2010	Less than 8 hours
Corps 'B'	09	Corps ER	09	Corps ER	April 2009	Not run – Equipment not found successful by the formation
Corps 'C'	12	Corps ER	03	Corps ER	April 2009	4 hrs
		Corps ER	05	Corps ER	April 2009	Not run
		Corps ER	04	Corps ER	April 2009	32 to 34 hrs
Command Engr. Unit	03	Command ER	03	CETC	Feb 2013	Less than 2 hrs
CETC	06	CETC	06	CETC	April 2009	Less than 10 hours
Engineer Park	05	EP	05	Engr. Park as reserve	April 2009	

It is evident from the above details that none of the 50 OBMs procured at a total cost of ₹1.26 crore, as an NSP item to meet immediate operational requirements, by invoking ACSFP were used by the Units in NC. The reasons for non-utilisation as stated by the holding units were:

- OBMs not found successful due to non-availability of power boats
- High power of the OBMs topple the boats held
- Non availability of compatible power boats for the OBM
- Absence of scope for training in the available terrain

Audit further observed (October 2016) that out of 21 OBMs held by CETC, six were already declared unserviceable (in July 2016) and deposited as salvage. Again, 39 OBMs had been issued on loan to other Commands from February 2015 to October 2016. Thus as of October 2016, the NC was holding only five OBMs in serviceable condition.

The insignificant utilization of OBMs since their receipt in March 2010 clearly indicates that (i) the requirement for procurement of the OBMs was not for immediate operational purposes and (ii) higher horsepower OBMs were procured disregarding their compatibility with the available boats. Thus, the special delegation of financial powers made on the Army Commander was injudiciously used, resulting in wasteful expenditure of ₹1.26 crore.

The matter was referred to the Ministry in October 2016; their reply was awaited (January 2017)

3.6 Unnecessary expenditure on cattle perimeter fencing

General Officer Commanding (GOC), Headquarters Delhi Area sanctioned jobs in piecemeal for construction of cattle perimeter fencing around Officers married accommodation in Delhi Cantonment although perimeter wall around complexes was already existing. This had resulted in unnecessary expenditure of ₹3.42 crore.

Scales of Accommodation, Defence Services- 2009 stipulates that perimeter and boundary wall of 1.3 M high may be provided around living accommodation complex as considered necessary to prevent trespassing and occupation by unauthorized settlers. Further, Defence Works Procedure (DWP) 2007 prescribes that no project or work services will be split up to bring it within the powers of a CFA at a lower level.

Audit noticed (December 2015 & October 2016) that Head Quarters (HQ) Delhi Area accorded 21 administrative approvals (A/A) between November 2013 and December 2015 totalling ₹ 3.12 crore for provision of cattle perimeter fencing for officers married accommodation, which had perimeter/boundary wall. The amount of each A/A was kept below ₹ 15 lakh i.e. within the powers of HQ Delhi Area by way of splitting up the works in contravention of the provisions in DWP-2007. For execution of the jobs, 13 contracts were concluded by two Garrison Engineers (GEs) and one Commander Works Engineer (CWE) between December 2013 and June 2016. Out of 21 jobs, 15 were completed between March 2014 and July 2016 at a cost of ₹ 2.41 crore.

In reply to audit queries, the concerned GEs stated (August/September 2016) that no quarters/dwelling units were outside the existing perimeter wall of the objected area. Chief Engineer Delhi Zone (CEDZ) in July 2016, admitted that as per scales, fencing to a dwelling unit was not authorized wherever the perimeter wall exists, while stating that the case shall be taken up with the Ministry of Defence through proper channel for change in scales of accommodation and that no more work of this nature shall be undertaken till the scales are modified or the work would be sanctioned as a special item of work by the competent authority.

Audit, however, noticed (November2016) that another two such works totalling to ₹0.30 crore had been sanctioned by HQ Delhi Area and as such in backdrop of the quoted responses of the Military Engineers Service, solicited justification for the sanctions from HQ Delhi Area.

HQ Delhi Area responded (December 2016) by referring to a similar audit observation of December 2015 which was settled in view of response of the

GE and stated that if audit authorities now have different interpretation then the same is noted for future compliance, wherein the work will be sanctioned as a special work.

The justification of HQ Delhi Area about settlement of the audit observation is not factually correct as the settlement was driven out of the GE's response that did not reveal the fact of existence of the perimeter/boundary wall around the married accommodation complexes/works questioned in the observation.

Thus, sanction/construction of cattle fencing around officer's married accommodation complex having the existing perimeter wall was unnecessary, resulting in sanction/expenditure of ₹ 3.42 crore for infructuous work. Further, sanctioning of such work as a special work would not make the work fruitful and would introduce a new practice thereby being violative of the codal provision.

The matter was referred to the Ministry in October 2016; their reply was awaited (January 2017).

3.7 Loss due to procurement of defective equipment

In procurement of 20 numbers of Photowrite Systems, Director General Military Intelligence had accepted separate Performance Bond and warranty bonds of each system by violating the contract provisions. Eleven systems became non-functional within 3 to 22 months of procurement resulting in loss of ₹ 21.28 crore. Despite poor performance of the firm during delivery and warranty period of the systems, warranty bonds were allowed to lapse without encashment.

The Photowrite Systems are authorised to all the Imagery Interpretation Teams (IIT) at Army Command, Corps and Divisional Headquarters level. The equipment is used for generation of large format hard print from digital data of Satellites/Aerial Imageries for interpretation purpose. The Director General Military Intelligence (DGMI) is responsible for acquisition of the equipment.

A total of 20 Photowrite Systems had been procured by DGMI between 1996 and 2000 from M/s Speck Systems Limited (firm). After completion of in-service life of the equipment, DGMI, in February 2009, proposed to replace the existing 20 systems with Large Format Photowrite System to be procured as a repeat order from the firm. The proposal was approved by Defence Procurement Board in December 2009. DGMI in August 2010 concluded a contract with M/s Speck Systems Limited, Hyderabad (firm) for the supply of 20 equipment at a cost of ₹33.0 crore. The delivery schedule of the equipment was in three phases *i.e.* 10 equipment by February 2011, 05 equipment by May 2011 and balance 05 by August 2011. Pre Dispatch Inspection (PDI), commissioning and Acceptance Test Procedure (ATP) of the equipment were to be completed within 12 months of the effective date of contract. Payments were to be made in stages *i.e*. 15 *per cent* in advance, 70 *per cent* on delivery of the equipment in batches and remaining 15 *per cent* on successful completion of ATP.

However, the firm failed to supply even a single equipment within delivery schedule. In view of lackadaisical attitude of the firm, DGMI had initiated the case for termination of the contract twice- first in March 2011 and subsequently in December 2012. However, on the advice of Principal Integrated Financial Advisor (PIFA-Army) on both occasions extension in the delivery period was granted culminating into effective extension of 24 months from the original delivery schedule.

PDI of all equipment was completed between May 2012 and August 2013. The installation/commissioning of 20 systems were carried out between June 2012 and May 2014 but ATP of 19 equipment was completed up to February 2014 and of balance one is yet (May 2016) to be completed. Payment of ₹38.68 crore (including taxes) had been made to the firm as of April 2014.

Audit scrutiny of the case revealed the following:-

(a) As per Article 14 and 15 of the contract, warranty period of the system was 18 months from the date of acceptance or the date of installation and commissioning whichever is later. Against this, the firm had given a warranty bond in the form of BG equal to 5 *per cent* of the total value of the contact *i.e*. ₹ 1.65 crore with validity up to 3 months after the ATP and acceptance of consignment warranty period. Further, the warranty bond was subject to encashment by the buyer in case conditions regarding warranty and settlement of claims in the contract are not fulfilled by the firm.

    We noticed that performance of the firm towards maintenance of the systems was unsatisfactory as ATP of one system was yet to be completed (May 2016) and as of December 2015, 10 systems had become non functional within 03 months to 22 months from their acceptance. Out of them seven systems, became non-functional during the warranty period for which no action had been taken by the firm to repair or replace them. Although, the warranty of non functional systems was to be extended, the firm did not extend the warranty period. We noticed that despite inaction on the part of the firm towards maintenance and warranty extension, encashment of BGs towards warranty bonds was not initiated by DGMI and BGs against five systems amounting to ₹41.25 lakh were allowed to lapse.

(b) As per the Article 4 of the contract, the firm was to give a Bank Guarantee (BG) equal to five *per cent* of the total value of the contract *i.e.* ₹1.65 crore towards performance bond with validity up to 90 days after the Acceptance Test Procedure (ATP) and acceptance of last consignment at site. However, deviating from the contractual provision, separate performance bonds of ₹8.25 lakh for each system were accepted from the firm and they were allowed to expire within 90 days of the ATP of the respective system. As a result, DGMI failed to take punitive action by means of recovery of performance BG which otherwise would not have been lapsed since ATP of one system is yet to be completed (May 2016). Thus, splitting the performance bond with different validity periods defeated the very purpose of taking performance BG from the supplier.

(c) We further observed that Defence Procurement Manual (DPM), which contains guidelines for revenue procurement, stipulates performance BG amounting to 10 *per cent* of the contract value where as in Defence Procurement Procedure (DPP) for capital procurement the provision is for 5 *per cent* of total contract value. Provision for 5 *per cent* BG in capital procurement is not only insufficient to safeguard government interest but also indicate the incongruity in taking performance guarantee from the vendor in defence procurements.

It was noticed that Vice Chief of Army Staff (VCOAS) had ordered (March 2016) to fix accountability of the respective Project Officer/dealing Officer for lapse of the BGs and apprised CGDA office to initiate the disciplinary action regarding involvement/ improbity of PIFA in rendition of advise for extension in the delivery period. Though the firm was blacklisted by the Ministry in May 2016, response to audit query seeking status of inquiries against erring officers was awaited. (January 2017).

In light of the above case Audit recommendations are following:-

- Provision regarding quantum of the performance BG in DPP should be reviewed keeping in view the provision of DPM.

- Splitting of performance BG by the firm should not be allowed as it defeats the very purpose of securing interest of the government pertaining to the whole of procurement order.

- Court of Inquiry against the erring officers as ordered by VCOAS should be expedited so as to ascertain as to what went wrong and what lessons could be learnt for future.

The matter was referred to the Ministry in September 2016; their reply was awaited (January 2017).

CHAPTER IV: WORKS AND MILITARY ENGINEER SERVICES

4.1 Unnecessary payment of consultancy fee

Deviation from the terms of payment to consultant as envisaged in the Cabinet Committee on Security's approval/tripartite agreement, led to asynchronous payments and unnecessary liability of ₹34.48 crore on account of consultancy fee to the consultants, M/s MECON.

Cabinet committee on security (CCS) approved (March 2007) the modernization of Central Ordnance Depots (COD) Agra and Jabalpur at ₹751.89 crore which was to be completed within 45 months i.e.by December 2010.

A tripartite agreement was executed in March 2008 between Ministry of Defence (MOD), Defence Research and Development Organisation (DRDO)/Military Engineer Services (MES) and M/s Metallurgical and Engineering Consultants (India) Limited (M/s MECON) for consultancy and engineering services for modernization of the CODs.

Audit observed (December 2016) that:

(i) As per the CCS approval, consultancy fee was to be paid on firm and fixed basis for a time frame of 45 months for both the CODs. In tripartite agreement, consultancy fee @ 4 *per cent* (₹30.07crore) of the approved project cost of ₹751.89 crore was catered for. The agreement however, provided that in case actual cost exceeds/ falls short of the approved cost, consultancy fee would be @ 4 *per cent* of the actual completion cost of the project. Due to delay in execution of the project, the cost of the project was revised to ₹1518.11crore with consultancy fee at ₹64.55 crore (i.e. @ 4 *per cent* of the revised cost). Thus instead of firm and fixed consultancy fee payable to M/s MECON as per the CCS approval, liability of ₹34.48 (₹64.55 - ₹30.07) crore on account of consultancy fee was created due to incorrect provision in the tripartite agreement.

Chief construction engineer (CCE) (COD)'s reply (January 2017) was silent on the Audit observation (December 2016).

(ii) As per tripartite agreement (March 2008), M/s MECON was to be paid as per the progress made regarding pre and post contract planning including reporting thereon to take corrective measures for timely completion of works.

The consultant was paid ₹30.01crore up to March 2012, by then only seven (19 *per cent*) out of 37 contracts concluded so far were completed and the overall progress of work as of November 2016 was 42 *per cent*. Thus, payment of ₹30.01crore made to the consultant by March 2012 was indicative of not being in synchronisation with the progress of works.

CCE (COD) replied (January 2017) that payment to M/s MECON had been made as per the tripartite agreement.

The reply is not acceptable as no details/evidence of payment linked with the progress of the work was furnished. Thus, Audit could not verify the payment *vis-a-vis* the provisions in the tripartite agreement.

The matter was referred to the Ministry of Defence in December 2016; their reply was awaited (January 2017).

4.2 Unfruitful expenditure of ₹2.51 crore on part construction of security wall at Central Ordnance Depot, Agra

Failure to ensure availability of site resulted in part construction of wall thereby impinging on security of a Central Ordnance Depot, besides an unfruitful expenditure of ₹2.51 crore.

Military Engineer Services Manual on Contracts 2007 prescribes that before tender is accepted, the Garrison Engineer has to furnish a certificate stating that the site was available for work and was free from all kind of encumbrances.

A contract for construction of security wall, patrolling roads, watch towers, VIP gate office *etc* at Central Ordnance Depot (COD) Agra was concluded by the Chief Construction Engineer (CCE) COD, in January 2010 for ₹9.77 crore. At 25 *per cent* progress (April 2014), the work was foreclosed due to non availability of site. The payment of ₹2.51 crore for the executed work was made on 07 December 2015.The work was at stand still as of July 2016.

Audit observed (August 2016) that there was failure to ensure availability of site, leading to foreclosure of work. Further, by execution of only 25 *percent* of work, the very purpose of security of the Depot could not be fulfilled. As such expenditure of ₹2.51 crore on part execution of the work was rendered unfruitful.

CCE (COD) replied that certificate relating to availability of site was not traceable and the assets created under this work were being utilized by the users for security of COD Agra.

The reply is not tenable as there was failure to ensure availability of site, leading to foreclosure of work. Consequently, by part-constructing the security wall to the extent of only 25 *per cent*, the intended purpose of security of the user was not achieved and expenditure of ₹2.51 crore on execution of the work was rendered unfruitful.

The matter was referred to the Ministry of Defence in December 2016; their reply was awaited (January 2017).

4.3 Unwarranted expenditure on execution of work

Against the requirement of cantilever type racks on First-in-First-Out system of operation, 2000 racks were constructed for ₹5.88 crore with Last-in-First-Out system of operation. This had resulted in unfruitful expenditure of ₹5.88 crore. Further, an over payment of ₹ 1.57 crore had been made to the contractor by giving an unwarranted deviation order.

Chief Construction Engineer (COD) concluded (May 2012) a contract with a private firm for design, engineering, manufacturing/fabrication, assembly, shop testing, painting, supply, erection, testing & commissioning of integrated storage system at Central Ordnance Depot (COD) Jabalpur for ₹24.49 crore. Audit scrutiny of the contract revealed following irregularities:-

i) As per approved Detailed Project Report (DPR) for modernisation of COD Jabalpur, cantilever type heavy duty industrial racks were to be provided for storage of Gun barrels with First-in-First-Out (FIFO) system of operation, as prescribed in Director General Ordnance Services, Technical Instruction.

Against the requirement of 2000 numbers cantilever type racks (dunnage blocks), 2000 numbers pallets type racks were constructed for ₹5.88 crore which were based on Last-in-First-Out (LIFO) system of operation. While shifting of Gun barrels by user, it was not possible to remove the Gun Barrels at lower layers without removing Gun barrels in top two layers. Same problem was faced while placing the barrels on the dunnage blocks. Due to changed design the storage of barrels in all three layers is cumbersome process and their maintenance and issue at later stage will result in multiple handling at all stages. The design & storage does not allow FIFO principle without multiple handling and as such the construction of 2000 numbers dunnage blocks had resulted in unfruitful expenditure of ₹5.88 crore.

In reply CCE (COD) stated (September 2016) that design of dunnage blocks was based on the principle that similar type and size of Gun barrels would be kept in the three tiers. The top tier would be retrieved first followed by the second tier and so on as per requirement. The design is based on LIFO and not on the basis of FIFO as no mention of FIFO concept of storage of barrel was made in the DPR.

The reply is incorrect as in the DPR it was clearly mentioned that for storage of gun barrels, cantilever type racks based on FIFO system of operation is recommended. Further, dunnage system was provided on LIFO system and due to faulty design of dunnage blocks the user is facing problems in handling of the Gun barrels and this design is not allowing the FIFO principle without multiple handling, which is against the norms of inventory management as prescribed in DGOS Technical Instruction.

ii) As per the contract (May 2012), dunnage blocks were to be provided for storage of gun barrels with a diameter of 300 to 500 mm. Weight of dunnage block was to be indicated by the contractor in the tender itself. However, the contractor did not indicate the weight of dunnage block in their quoted tender.

Audit observed (August 2016) that contractor had quoted ₹22,500 per unit for 2000 dunnage blocks without indicating the weight of dunnage blocks as required in the invitation of tender. The dunnage blocks were installed by the contractor. However, plus deviation order of ₹1.57 crore was approved in April 2013 by the accepting officer on account of increase in weight of dunnage block, which was irregular as the dunnage blocks were to be provided by the contractor irrespective of weight. Hence an overpayment of ₹ 1.57 crore had been made to the contractor, which was unwarranted.

The CCE (COD) replied (January 2017) that due to non availability of structural steel ISMC- 250 with 30.4 Kg / RM with the manufacturer as stipulated in the contract, there was no alternative but to procure the ISMC-250 with 34.2 Kg / RM, due to which weight of dunnage blocks had increased and accordingly paid to the contractor.

The reply is not tenable as weight of the dunnage blocks was not indicated in the quoted tender/contract. Hence, extra payment of ₹1.57 crore on account of additional weight of steel was irregular as the dunnage blocks were to be provided by the contractor irrespective of weight.

The matter was referred to the Ministry of Defence in December 2016; their reply was awaited (January 2017).

4.4 Unfruitful expenditure on construction of Security Wall

Chief Engineer, Bareilly awarded contract to a firm for construction of security wall in Cantonment area, Dehradun without correct alignment and demarcation of land. Resultantly, the firm could construct about 40 *per cent* of security wall with an expenditure of ₹1.95 crore, which proved unfruitful.

In the light of delays in execution of contracted works owing to non-availability of the land free of encumbrances, Headquarters Central Command (HQCC) in August 2009 had directed that process of making the land free of any encumbrance will commence immediately after inclusion of a work in Annual Major Works Programme (AMWP) by the Government. As per the directions of HQCC, it would be incumbent on all Commanders at users' levels to ensure availability of site free of encumbrances and issuance of tender will be contingent upon the site being fully ready for commencement of work.

We noticed that despite the directions of HQCC, a contract for construction of security wall around Defence land was concluded without availability of the site free from encumbrances leading to unfruitful expenditure of ₹1.95 crore. The case is discussed below:

The provision of Security wall along the eastern boundary of Cantonment area from Bindal Bridge to New Cantt road at Dehradun was included in AMWP 2011-12. A Board of Officer (Board) for feasibility study and project documents, held in April 2011, recommended construction of security wall with an overall length of 4300 Metre and height of 3.00 Metre to safeguard the security of Cantonment and to avoid any further encroachment of defence land. Accordingly, HQCC accorded administrative approval in March 2012 for provision of Security wall at an estimated cost of ₹ 4.23 crore.

After receipt of confirmation on availability of site free from all encumbrances from Garrison Engineer (Project), Dehradun (GE(P)), Chief Engineer Bareilly concluded (September 2012) a contract for construction of security wall at a lump sum cost of ₹ 3.29 crore with scheduled commencement and completion as 19 October 2012 and 18 April 2014 respectively.

However, the work could not be commenced as complete alignment of the wall had not been finalised by the Project Management Group (PMG). On confirmation of alignment from PMG in November 2013, construction was started. In February 2014 when the progress of the work was 32 *per cent*, Commander Works Engineer instructed the contractor to stop the work as exact alignment for the security wall was not finalised by the PMG. Subsequently the work pertaining to sentry post, columns concreting above ground level and mid beam started in April 2014 on some stretches without exact alignment as the dispute between Defence and Civil authorities on the exact boundary still persisted. Further, Irrigation Department (State Government, Uttarakhand) also opined that the construction of wall may lead to threat to human lives adjacently staying along the river during floods. To resolve the dispute, joint survey and demarcation of defence land was carried out (June 2014) by Defence Estate Officer (DEO) along with Civil Revenue Officers but the issue remained unresolved till yet (April 2016).

Owing to persisting dispute with civil authorities and frequent disturbances from local people, contractor after completing the work of 1664 Metre in stretches (1379 Metre in river bed and 285 Metre in other than river bed) stopped the work in September 2015 after getting total payment of ₹ 1.95 crore and filed a writ petition in "High Court Nainital" on 03 March 2016 seeking arbitration for extra payment of ₹1.50 crore. In April 2016, HQ Uttarakhand Sub Area decided to restrict total length of the security wall as 2663 Metre, as construction on balance length was found not possible as per site condition. It was proposed to HQ CC to foreclose the balance work stating that the balance amount of the contract i.e. ₹2.28 crore can be utilised for remaining work after getting clearance of exact alignment and demarcation of land from DEO and State Revenue Department. However, neither the work of 2663 Metre was completed by the contractor nor the proposal for foreclosure was approved.

As stated by the Chief Engineer, Bareilly Zone (April 2016), stone crating work, which was necessary to hold the pressure of water and reduce the speed of water flow, was not done by the contractor on stretches of wall constructed in the middle of river bed. In the absence of stone crating work, there was risk of wall being washed away during floods and there was threat to human life as well.

Thus, conclusion of the work contract without correct alignment/demarcation of site and assessment of requirement of work, ignoring the instructions of HQ Central Command, had resulted in unfruitful expenditure of ₹1.95 crore as major portion (61 *per cent)* of security wall originally approved remained incomplete. The main purpose of safeguarding the security of Cantonment and to avoid encroachment of defence land was defeated due to non-completion of work. Besides, the contractor had claimed additional amount of ₹1.50 crore through Court of law due to abnormal delay in execution of work on the part of the department.

The matter was referred to the Ministry of Defence in August 2016; their reply was awaited (January 2017).

4.5 Excess payment of electricity charges amounting to ₹ 32.13 crore

Maharashtra State Electricity Distribution Company (MSEDCL) introduced, in August 2012, a new tariff for consumers providing public services, which also included defence establishments. MSEDCL further introduced separate tariff, in June 2015, for government educational Institutes & hospitals and other Defence establishments falling under the category of public services. However, seven Garrison Engineers, who received electricity in bulk from MSEDCL for supply to defence educational institutes, hospitals and other defence establishments, failed to exercise checks on the correctness of tariff applied before making payment to MSEDCL, resulting in excess payment of ₹ 32.13 crore.

Garrison Engineers (GEs) are responsible to enforce pre-check on the electricity bills before making payments to State Electricity Supply Agency (SESA).

The Comptroller & Auditor General's Audit Reports have recurrently reported about overpayments made by Garrison Engineers (GEs) to the SESA. In its Action Taken Note (ATN) of August 2006, the Ministry of Defence (MOD) had stated that instructions had been issued to the concerned staff to be more careful and scrutinize the electricity bills thoroughly before making payment to the SESA in future. In another ATN (July 2014), MoD had stated about disciplinary action initiated against erring officials.

Audit however noticed that seven Garrison Engineers (GE) made excess payment of ₹32.13 crore towards electricity charges due to incorrect application of tariff as discussed in succeeding paras.

Maharashtra State Electricity Distribution Company (MSEDCL) introduced, in August 2012, a new tariff for consumers providing public services, which also included defence establishments. MSEDCL further introduced separate tariff, in June 2015, for government educational Institutes & hospitals and other Defence establishments falling under the category of public services.

(i) GE (South) Pune receives electricity from MSEDCL and further supplies to two hospitals *viz* Command Hospital (CH) and Military Hospital, Cardio Thoracic Centre (MH CTC) and one educational institute *viz* Armed Forces Medical College (AFMC) through separate connections. GE (MH), Kirkee supplies electricity to MH, Kirkee through two connections.

Audit scrutiny (March 2016) of the paid electricity bills at GE(S) and GE(MH) revealed that in respect of CH and AFMC, MSEDCL had been billing the electricity charges at the rate applicable to 'commercial' category from September 2012 onwards. In respect of MH CTC and MH Kirkee, the rate applied by MSEDCL from June 2015 was at rates other than the applicable category for government hospitals and educational Institutes. Thus, both the GEs had made payments without verifying the correctness of the rate applied by MSEDCL.

On being pointed out(March 2016) in audit, GE(S) took up the matter with MSEDCL, who agreed(March 2016) to carry out site verification to assess the actual purpose of usage of electricity so that appropriate tariff could be imposed. GE (MH), Kirkee stated (March 2016) that MSEDCL was being approached to get the refund. This resulted in excess payment of ₹ 13.02 crore at GE(S) and ₹ 1.19 crore at GE (MH) Kirkee up to November 2016, by when the issue had not been finalized.

(ii) Audit examined the case at two other GEs which supply electricity to educational institutes *viz* National Defence Academy (NDA), Khadakwasla and Defence Institute of Advanced Technology (DIAT), a deemed University.

NDA, Khadakwasla receives electricity, including for its residential area, from GE (NDA) through single connection. 65 *per cent* of the consumption was billed at residential rate. However, the balance 35 *per cent* was billed at other than the applicable category for government hospitals and educational institutes. The excess payment worked out to ₹1.17 crore from June 2015 to November 2016.

GE (R&D), Girinagar caters for electricity supply to DIAT, including its residential area. Audit noticed that the electricity consumed by DIAT for educational purpose was billed at commercial rate.

On pointing out in Audit, GE (R&D) Girinagar took up (August 2016) the case with MSEDCL , response was awaited as of November 2016till when an excess payment of ₹ 2.03 crore had been caused.

(iii) Audit also noticed that four GEs[18] who supply electricity to various defence establishments other than educational institutes/hospitals, paid electricity bills under 'commercial' category since August 2012/June 2015 respectively, resulting in excess payment of ₹14.72 crore till November 2016.

In reply, Chief engineer, Pune Zone (CE PZ), Pune stated(November 2016) that military hospital (MH) is not defined under the category 'public services-government hospitals' and that MH provides services to military troops only and not to public. It was also stated that MSEDCL recognizes only one tariff category for defence establishments and they are unwilling to give any further concession stating that the criteria had already been fixed for defence establishments. CE PZ, however, stated that they were continuing to put

[18]GE R&D, Girinagar, GE(North), Pune, GE(Central), Kirkee and GE, Deolali

pressure on MSEDCL to offer further benefit by changing tariff category, wherever feasible.

The reply is not tenable, as the tariff as per the MSEDCL order of re-categorisation of its consumers made in June 2015, is equally applicable to all central government educational institutes and hospitals and as all the MHs and defence educational institutes are functioning under the MoD, which comes under the central government, the tariff category is also applicable to all these consumers.

The case was referred to the Ministry (October 2016), their reply was awaited (January 2017).

4.6 Non utilization of assets

Failure of Chief Engineer, Bareilly to make clear provision of bypass road in drawings and to incorporate the complete scope of work in the contract had resulted in non-completion of the road. As a result, Explosive Dump constructed in May 2014 at a cost of ₹7.65 crore could not be utilized.

Manual of Contracts 2007 stipulates that the complete, fully detailed and exact scope of work required to be done under the lump sum contract[19] is laid down by way of drawings and specifications incorporated into tender documents. Further as per para 408 of Regulations for the Military Engineer Services (RMES), 2006, when contract is to be based on drawings and specifications, special care is necessary that the drawings and specifications are complete in every particular.

We noticed during the audit of Chief Engineer, Bareilly Zone, Bareilly (CE) (August 2016) that non incorporation of work relating to the construction of a road by-passing the site of ammunition dump in the drawings of the contract had resulted in non-utilization of assets created at the cost of ₹7.65 crore. The case is discussed below:-

In order to shift the explosive from temporary shelters of a unit close to civil area, a Board of Officers (BOO) for the purpose of reconnaissance, siting and costing held in August 2010 recommended for construction of Explosive Dump for Bengal Engineer Group (BEG) & Centre, Roorkee along with single living accommodation of guards/sentries and shifting of existing approach road to villages, passing through the site to maintain Outer Quantity Distance (OQD), of 280 metre. The length and width of bypass road to be shifted was

[19]In lump sum contract, the contractor undertakes to carry out the work to completion for a fixed sum.

assessed as 1000 metre and 3.75 metre respectively with culvert as per site condition.

Based on the recommendation of the BOO, Integrated Headquarter of Ministry of Defence (IHQ, MoD) in March 2011 accorded sanction for provision of explosive dump at an estimated cost of ₹8.48 crore. Accordingly contract was accepted (October 2012) by the CE for lump sum of ₹7.65 crore. The work commenced in November 2012 and was to be completed by May 2014.

During progress of the work, the contractor noticed that while there was requirement to provide a bypass road to the work site for connecting nearby villages, this provision had not been catered for in the drawings of the contract agreement. As intimated (April 2013) by the contractor to the CE, construction of the bypass road entailed extra works, *viz*. small bridge over the huge nala, earth filling in the low lying areas to bring up the levels to 1.20 metre high and some measures to retain the earth. Commander Works Engineers (CWE) (Hills) Dehradun accepted (June 2013) that the bypass road was erroneously not shown in the drawing and not accounted correctly in the contract. As the estimate for these works was worked out to be ₹62.43 lakh, which was beyond the prescribed limit of the deviation (10 *per cent)* of the contract, the Chief Engineer delegated (January 2014) an amount of ₹22.51 lakh to CWE for construction of culverts, toe wall & drain and filling of soil in low lying area, to be executed through a separate contract. Balance work, *viz*, surfacing of the bypass road was to be carried out through running contract. Accordingly, CWE in May 2014, concluded the separate contract with another firm and the work was to be completed by November 2014. These works were completed by December 2015 at a cost of ₹23.55 lakh.

For balance work of road surfacing, when GE Roorkee asked the contractor of the main project to procure requisite materials, the contractor requested (June 2014) for issue of completion certificate stating that all works within the scope of the contract had been completed by May 2014 and construction of by pass road was beyond the scope of the contract. The claim of the contractor was refuted by the GE (July 2014) stating that road works including some other works had not been executed by the contractor. But the contractor submitted the final bill on 16 August 2014. MoD went for arbitration against the alleged completion which is still pending for final disposal. The contractor submitted the final bill in August 2014 which was returned by the GE, Roorkee. The contractor appealed in the High Court, Uttarakhand and the Arbitrator was appointed by the High Court in December 2014. Since then, the case is in arbitration awaiting finalisation (December 2016).

As of December 2016, total expenditure of ₹7.65 crore had been booked against the job. In the absence of bypass road, utilization of assets so created was not possible (August 2016) due to non-diversion of civil traffic from the existing road passing through the ammunition dump area.

CE, in their reply to audit, stated that road work is always variable service under various ground factors and marking of the road on the drawings was nearly impossible. The reply is not acceptable as the regulations clearly stipulate that the drawings and specifications should be complete in every particular in case of such contract. Further, the omission of the road from the drawing was also accepted by CWE based on which separate contract under delegated powers was sanctioned.

Thus, the case revealed that CE had failed to include the work of bypass road in the drawings of the tender documents and to incorporate the correct scope of work pertaining to construction of the bypass road in the contract. As a result, construction of bypass road could not be completed leading to non-utilization of ammunition dump which was constructed at a cost of ₹7.65 crore more than 2 years ago.

The matter was referred to the Ministry in October 2016; their reply was awaited (January 2017).

CHAPTER-V : BORDER ROADS ORGANISATION

5.1 Avoidable extra expenditure

Failure of Director General, Border Roads in accepting tenders within the validity period and inadequacies in tender documents resulted in retendering and avoidable extra expenditure of ₹6.47 crore.

Mention was made in paragraph 5.1 of the Report No 16 of the Comptroller and Auditor General for the year ended March 2011, about the delays leading to failure in finalisation of the tenders within the validity period, which resulted in extra expenditure to the State. In their Action taken note (ATN) the Ministry admitted (March 2013) that the 60 days validity period for the cases requiring approval of Director General of Border Roads (DGBR)/Additional DGBR in consultation with the Integrated Financial Advisor (IFA) was less and stated that as a remedial measure instructions have been issued to keep the validity of such tenders to 120 days.

Notwithstanding the enhanced validity of the tenders, Audit observed that in two cases the contracts could not be concluded by the Chief Engineer (Project) in the first call, which eventually resulted in retendering and an avoidable expenditure of ₹6.47crore as discussed below:

Case-I : CE (P) Swastik

The DGBR invited bids for a river bridge in October 2014 with validity of 120 days from the date of opening of tenders. Technical (T)-bids were opened on 27 October 2014 and price bids were opened on 24 December 2014. Lowest (L-1) quote of M/s D2S Infrastructure (P) Ltd for ₹24.30 crore was valid till 23 April 2015. As L-1 quote exceeded 10 *per cent* of the administrative approval (AA) amount of ₹ 19.32 crore, the DGBR referred (18 February 2015) the case to IFA, who returned the case to the DGBR on 11 March 2015 with observations stating that since the case was under deliberations, extension of validity might be taken up with the L-1 firm for appropriate period. Further, on the DGBR solicitation (07 April 2015), the firm agreed (04 May 2015) to extend the offer till 15 July 2015 with additional financial implication of ₹2.88 crore. The DGBR decided (04June 2015) to re-tender the case in view of conditional offer of the firm. In pursuance of the re-tender (09 June 2015), CE (P) Swastik concluded (December 2015) the contract with M/s Anuj Infraprojects Pvt. Ltd (L-1) for ₹29.40 crore.

Audit observed (August 2016) that lackadaisical approach of the DGBR and the IFA within validity of the L-1 offer of M/s D2S Infrastructure (P) Ltd for

₹24.30 crore resulted in re-tendering and consequent extra expenditure of ₹5.10[20] crore.

In reply (August 2016), HQ DGBR attributed the delays to the IFA, whose response to the Audit observation was awaited (January 2017).

The reply was not acceptable as apart from the IFA, there was delay in processing at HQ DGBR resulting in lapse of the offer and extra expenditure of ₹ 5.10 crore, which was avoidable.

Case– II: CE (P) Sampark

The CE (P) invited tenders on 12 January 2015 for surfacing works on road. In pursuance, M/s New Jehlum construction Coy was found lowest at ₹12.02 crore with validity for 120 days i.e. up to 28 June 2015. Since the L-1 quote exceeded ₹10.00 crore, CE (P) forwarded the case to HQ DGBR on 11 March 2015 for approval mentioning that the rates achieved were reasonable. The DGBR and IFA raised observations between 18 March and 16 June 2015, which were replied to by the CE (P) by 23 June 2015. As the DGBR did not accord approval up to 28 June 2015 i.e. within validity of the tender, the firm was approached by the CE (P) to extend the validity for one month, but the same was refused.

Consequent to retendering (8July 2015), a contract was concluded by CE (P) on 16 November 2015 with M/s Jai Lakshmi Stone Crusher for ₹13.39 crore which was higher by ₹1.37 crore than the rate achieved in first call.

CE (P) Sampark replied (December 2015) that tender in first call was not accepted by the DGBR probably due to high rates. The reply is not convincing as the DGBR did not record about high rate achieved in first call. Moreover, while forwarding the case on 11 March 2015 for approval of the DGBR, CE (P) Sampark had justified the reasonability of rates.

Thus, both cases taken together resulted in avoidable extra expenditure of ₹6.47 crore.

The matter was referred to the Ministry in September 2016; their reply was awaited (January 2017).

[20] ₹29.40 crore – ₹24.30 crore = ₹5.10 crore

CHAPTER-VI : DEFENCE RESEARCH AND DEVELOPMENT ORGANISATION

6.1 Development of an Integrated Aerostat Surveillance System

Import of a balloon costing ₹ 6.20 crore by a DRDO's lab under a project for development of aerostat surveillance system lacks rationale. Further, the project itself did not achieve its objective despite an expenditure of ₹49.50 crore.

Aerostat is a balloon based platform which is based on lighter than air principle and carries payloads for surveillance and communication purposes.

The Aerial Delivery Research and Development Establishment (ADRDE), Agra, had completed (2013) development of medium size aerostat of capacity 2000 cum under a research and development (R&D) project named 'Akashdeep' by using polyurethane (PU) coated nylon fabric with payload capacity of 300 kg, endurance[21] of five days and balloon life[22] of 18 months.

Based on Army's expressed interest in medium size aerostat with upgraded technologies, Ministry of Defence, Department of Defence Research & Development, New Delhi sanctioned a technology demonstration (TD) project (project Nakshatra) to ADRDE in July 2011 to develop aerostat platform with net payload capacity of 300 kg and an endurance of seven to 14 days with balloon life of four to five years at a total cost of ₹48.80 crores, by December 2014.The project included a sub-system for aerostat platform namely COMINT[23] payload to be developed by Defence Electronic Research Laboratory (DLRL) at a cost of ₹22.50 crore. It was decided to use laminated fabric to overcome the endurance and shelf life constraints in PU coated fabric. It was provided for in the project proposal that in case of unavailability of laminated fabric, attempt will be made to import the fabric.

The project cost was revised to ₹58.80 crore in October 2013 to cater for the import of laminated fabric. Probable date of completion (PDC) of the project as December 2014, was also extended up to June 2016.

[21]Endurance - Gas leakage rate of laminated fabric was less than that of PU coated fabric, which results in increased endurance from 5-7 days to 12-14 days.

[22]Shelf life- laminated fabric has less degradation effect when exposed to actual environment condition, which increases the balloon life from 18 months (PU coated) to 4-5 years.

[23] - COMINT (Communication Intelligence)- to intercept and measure direction of arrival of fixed frequency and frequency hopping signals even in dense signal environment so as to meet the internal security requirement.

Audit noticed (January 2017) that ADRDE spent ₹6.20 crore on import of balloon made of laminated fabric. However, this balloon was not utilised in the project as the project was carried out using PU coated fabric balloon. This project has been closed by ADRDE on 30-06-2016 after incurring an expenditure of ₹ 49.50 crore[24] without acceptance of the user. Thus, the balloon imported from a foreign firm at ₹6.20 crore had not been utilised for the intended purpose.

The ADRDE stated (January 2017) that the integrated aerostat (PU coated fabric balloon) surveillance system was successfully demonstrated during user associated technical trials (UATT) (May/June 2016) and the project was closed. ADRDE also stated that the other balloon (*i.e.* balloon made of laminated fabric) was kept as spare and would have been utilised in case of any damage that might have occurred in unforeseen circumstances.

However, the Army replied (February 2017) to an Audit query by stating that the UATT for the system could only be carried out for three days and as such the effectiveness of the COMINT system could not be ascertained. It further mentioned that ADRDE has been requested to deploy the aerostat with the COMINT payload for three months for UATT as it is a pre-requisite to ascertain efficacy before taking over the system for extended trials.

Thus, the very purpose of import of a balloon made of laminated fabric was to attain the project's objective of a medium size aerostat without the constraints of endurance and shelf life experienced in PU coated fabric. However, non-utilisation of the imported balloon by the lab for purposes of the project militates against the project's objective as consequently neither the aerostat was deployed nor COMINT payload tested for the duration desired by the user. The claim of the ADRDE about usage of the imported balloon as a spare to cater for the unforeseen circumstances is only an afterthought. Further ADRDE's claim for successful completion of the project is incomprehensible as the intended objective has not been achieved even after an expenditure of ₹49.50 crore, wherein the integrated aerostat is still based on a PU coated fabric. Thus, ₹6.20 crore incurred on import of balloon with laminated fabric, have been rendered idle.

[24] As of March 2016, project expenditure comprised of ₹ 30.06 crore on aerostat platform and ₹20.09 crore on COMINT payload with demands in pipeline worth ₹ 1.75 crore

6.2 Irregular sanction and expenditure of ₹5.20 crore on construction of vehicle testing ground after completion of the project

Director General, Research & Development accorded sanction for construction of Vehicle Testing Ground at Vehicle Research & Development Establishment, Ahmednagar (VRDE) at a cost of ₹5.20 crore in April 2009 based on VRDE's proposal of March 2005 to meet the specific requirement of testing the Unmanned Ground Vehicle (UGV)being developed on 2.5 Ton 'B' vehicle. However, by then UGV Project was closed .The expenditure is rendered infructuous because the Testing Ground cannot be gainfully utilized as Army's requirement is of a 50 Kg UGV for which existing VRDE Test Tracks would suffice.

The Defence Works Procedure-2007 envisage that all defence works and services are completed with the minimum delay in a cost-effective manner and that no new works are sanctioned without careful attention to the assets and facilities already available.

Audit noticed (April 2015) that a Vehicle Testing Ground was constructed in April 2014 at Vehicle Research & Development Establishment, Ahmednagar (VRDE) at a sanctioned cost of ₹5.20 crore to meet the test requirements of Unmanned Ground Vehicle (UGV) project[25], which was closed in February 2008.The Administrative Approval for the work was accorded by DG (R&D), in April 2009 based on the requirement projected by VRDE in March 2005 to meet the requirement of test facilities for the UGV with Gross Vehicle Weight of 10 Ton at a maximum speed of 82 kilometre per hour (KMPH).

Audit enquired (September/October 2016) about the necessity of sanctioning the work after the UGV project was closed in February 2008.DRDO HQ stated (December 2016) that the UGV testing ground was planned for then on-going as well as pipeline/futuristic unmanned systems testing and not for any 'specific' project and it was to facilitate an isolated test ground with safety provision for arresting moving UGV, in case of emergency/uncontrollable operation.

The reply is not tenable as the requirement of testing ground was projected specifically to meet the requirement of testing the UGV being developed on a 2.5 Ton 'B' vehicle with Gross Vehicle Weight of 10 Ton at a speed of 82

[25] UGV project- sanction (February 2004) by the MoD to VRDE as a Technology Demonstration Project for 'Development of Unmanned Ground Vehicle (UGV) on 2.5 Ton 'B' vehicle' at an estimated cost of ₹11.52 crore was closed (February 2008) without acceptance of the user whose requirement was for a 50Kg Chemical/Biological/ Radiological/Nuclear (CBRN) UGV. This was reported in CAG's Audit Report No.35 of 2014.

KMPH .The trials of this UGV had already been completed utilizing the existing VRDE test tracks, as the Testing Ground was not available then. The project of 2.5 Ton 'B' vehicle UGV was itself closed in February 2008. Thus, the delayed sanctioning of the Testing Ground did not serve the intended purpose .Besides, as the Army is currently in need of UGV of 50 Kg capacity only, the testing facility is not likely to be optimally utilized. Army in a Project Review meeting (August 2012) had intimated DRDO that the ongoing development of larger UGV would be stopped and henceforth all developments shall be directed to develop the smaller 50 Kg UGV. Also, since construction of the track, the VRDE has had only one project of development of CBRN mini-UGV for reconnaissance and that too a 50Kg UGV for which presently existing ground testing facilities would have sufficed.

Thus, sanctioning of the vehicle testing ground at a cost of ₹5.20 crore after closure of the UGV project was irregular being in violation of the principles of undertaking new works **.**

6.3 Infructuous expenditure of ₹19.53 crore

To demonstrate the missile in the range of 1200M and 1500M as stipulated by the Army Combat Vehicles Research & Development Establishment (CVRDE), Avadi procured 20 LAHAT missiles in spite of reservation of the foreign supplier due to technical constraints related to stability of the missile. During demonstration trials, the missiles failed to achieve the stipulated criteria/range of 1200M to 1500M. Army refused to accept the missile, thereby the payment of ₹19.53 crore made to the supplier was rendered infructuous.

General Financial Rules 2005 stipulates that every officer incurring or authorising expenditure should be guided by high standards of financial propriety. Every officer is expected to exercise the same vigilance in respect of expenditure incurred from public moneys as a person of ordinary prudence would exercise in respect of expenditure of his own money**.** The above stipulation is reiterated in the Purchase Management Manual 2006 governing procurements by Defence Research and Development Organisation (DRDO). It also stipulates that the concerned authority should be satisfied that the selected offer meet the intended requirement**.**

Audit noticed that Combat Vehicles Research & Development Establishment (CVRDE), Avadi took up a project inspite of the fact that there was no requirement from users, resulting in an expenditure of ₹19.53 crore being rendered infructuous.

The case is discussed below **:**

Ministry of Defence (MoD) accorded (December 2009) sanction for Technology Demonstration (TD) project ‘Development of fire control system with laser target designator for missile firing from Main Battle Tank (MBT) Arjun ’to be executed by CVRDE at a cost of ₹49.50 crore, which was further revised (May 2015) to ₹82.70 crore with PDC of May 2017 to pursue the missile development indigenously. As a potential option**,** laser homing anti tank (LAHAT) missile manufactured by M/s Israel Aircraft Industries (IAI), Israel, which uses a laser target designator (LTD), was identified (June 2010) .

In August 2010, Director General, Mechanized Forces (DGMF) had fixed the minimum range of the missile as 1200M with 80 *per cent* hit in the range between 1200M and 4000M. M/s IAI stated that the LAHAT missile was meant for range beyond 1500M and they would not commit on missile firing in a range less than 1500M due to technical constraints related to stability of the missile .DRDO HQ however, intimated (November 2010) the DGMF that the missile would be effective even at the shorter range of 1200M and had taken upon itself the responsibility to see the results during demonstration at 1200M .

Accordingly, CVRDE concluded (January 2011) a contract with M/s IAI for demonstration of missiles at a cost of US$ 2.8 million .

In July 2011, DGMF revised the ‘acceptance criteria ’stipulating with 67 *per cent* hit in the range 1200M to 1500M and also increased the number of missiles to 14 to be fired up to 5000M.Accordingly, an amendment to the order was issued (July 2011) for increasing the quantity to 20 missiles at a total cost of US$ 4.5 million.The missiles were delivered in May 2012 and ₹19.53 crore was paid to M/s IAI.

Audit noticed (December 2015) that in trials (2013), against the criteria of 67 *per cent* of missiles hit in a range of 1200M and 1500M, only 33 *per cent* of missiles had hit the target. Hence, the Army declared that the LAHAT missiles did not meet the acceptance criteria .Subsequent to non-acceptance of the missile, CVRDE/DRDO decided to pursue the development of missile indigenously.

In response to Audit observation (December 2015/October 2016), DRDO HQ stated (December 2016) that M/s IAI’s apprehension on short range was based on the simulation results but not on actual firing performance. Further, LAHAT missile alone was found suitable for 120mm calibre gun of Arjun MBT. Hence, in anticipation that missile can be manoeuvred for user’s requirement, the project was taken up to check the performance of the LAHAT missile.

The reply of DRDO HQ is not tenable as analysis of the results of firing and simulation results of LAHAT missile revealed that meeting low range performance requirements completely is not possible with the LAHAT missiles. Further, the very fact that the missile would not meet the low range criteria of the user, was underscored by M/s IAI (i.e. the manufacturer) itself even before placement of the supply order on them. Thus, the decision to proceed with the procurement/demonstration of the missiles is open to question as it has delayed the indigenous effort by five years besides unfruitful expenditure of ₹19.53 crore.

CHAPTER-VII : ORDNANCE FACTORY ORGANISATION

7.1 Performance of Ordnance Factory Board

7.1.1 Introduction

7.1.1.1 Ordnance Factories are the oldest and largest organization in India's defence industry with a history that dates back to 1787 when a gun factory was established at Ishapore which started production in 1791. There are 41 Factories (including two Factories at Nalanda and Korwa which are at project stage) divided under five clusters or operating groups (**Table 25**) producing a range of arms, ammunition, weapons, armoured and infantry combat vehicles, and clothing items including parachutes for the defence services. They function under the Ordnance Factory Board (OFB) which is under the administrative control of the Department of Defence Production of the Ministry of Defence, Government of India.

Table : 25

Operating group	Number of factories
Ammunition & Explosives	11
Weapons, vehicles and equipment	11
Materials & Components	8
Armoured vehicles	6
Ordnance equipment group	5
Total	41

Source: Annual Accounts of Ordnance Factories–2015-16

7.1.1.2 The major objectives of the Board are:

- To supply quality arms, ammunition, tanks and equipment to armed forces;
- To modernise production facilities to improve quality;
- To equip themselves with technologies through Transfer of Technology and in-house Research & Development; and
- To meet customer satisfaction and expand consumer base.

7.1.1.3 Status of Two Ordnance Factories under Project Stage

Ordnance Factory Project Nalanda was sanctioned (November 2001) by Government of India, Ministry of Defence as a new propellant factory for manufacture of 2 lakh Bi-Modular Charge System (BMCS) *per annum* for 155mm ammunition at an initial cost of ₹941.13 crore, which was revised (February 2009) to ₹2160.51 crore. The project was due to be completed by November 2005 and the Planned Date of Completion (PDC) was later revised to March 2019. Expenditure incurred on plant and machinery and civil works up to 31 March 2016 amounted to ₹245 crore and ₹423 crore respectively. A total of ₹668 crore has been spent for the project till 31 March 2016.

Ordnance Factory Project Korwa was sanctioned (October 2007) by the Government of India, Ministry of Defence for manufacture of 45,000 carbines *per annum* at an estimated investment of ₹408 crore. The time schedule for completion of the project, initially fixed as October 2010, was revised to March 2017. As of 31 March 2016, the Board expended ₹124 crore and ₹152 crore towards plant and machinery and civil works respectively. A total of ₹276 crore has been spent for the project till 31 March 2016.

Even after expenditure of ₹944 crore on these two projects, none of the project had accrued any benefits to the Board.

7.1.1.4 Our analysis of the performance of the Board during 2015-16 places it, where relevant, against the above objectives.

7.1.2 Performance of Ordnance Factory Board

The data on key areas of management in the Board for the five years 2011-16 are summarized in **Table 26**[26]. **Annexure-I** gives the details segregated across operating groups.

Table: 26

(₹in crore)

		Years					
		2011-12	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**Variation between 2015-16 and 2014-15 (%)**
I	**Financial Performance**						
	Revenue expenditure						
1	Budget Estimate (BE)	11,640	13,013	13,856	14,317	14,706	3
2	Final Grant	12,332	11,821	12,954	13,617	14,750	8
3	Actual Revenue expenditure (% utilization to Final grant)	12,141 (98)	11,936 (101)	12,834 (99)	12,832 (94)	14,133 (96)	10
4	Excess(+)/Savings(-) (3)-(2)	(-) 191	(+) 115	(-) 120	(-) 785	(-) 617	21
5	Revenue receipts[27]	12,876	12,553	12,001	12,001	13,712	14
6	Cost of issues to indentors	16,147	16,181	15,783	16,380	18,457	13
7	Value of issues to indentors	17,273	17,119	16,122	16,664	18,624	12
8	Profit (7) - (6)	1,126	938	339	284	167	(-) 41
	Capital expenditure						
9	Budget Estimate	400	400	436	1,207	760	(-) 37
10	Final Grant	293	357	466	765	687	(-) 10

[26] Figures in the Table have been readjusted wherever found necessary.

[27] Recoveries for supplies to Army, Air Force, Navy and other defence departments are shown as "deduct" under Minor Head 901 to 904 under Major Head 2079 up to 2013-14 in the Appropriation Account of the Defence Services.

		Years					
		2011-12	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**Variation between 2015-16 and 2014-15 (%)**
11	Capital expenditure(Actual)	279	349	465	746	680	(-) 9
12	Excess (+)/Savings (-) (11)-(10)	(-) 14	(-) 8	(-) 1	(-) 19	(-) 7	63
II	**Cost of Production: Components**						
13	Cost of stores	10,070	9,746	9,303	9,269	10,555	14
14	Cost of labour	1,490	1,617	1,705	1,959	2,040	4
15	Other costs *i.e.* Direct Expenses	159	216	239	274	298	9
16	Overheads	4,214	4,393	4,389	4,973	5,401	9
17	**Total Cost of Production**	15,933	15,972	15,636	16,475	18,294	11
18	Overheads as % of COP (16/17*100)	26	28	28	30	30	0
19	Labour costs as % of COP (14/17*100)	09	10	11	12	11	(-) 8
III	**Inventory**						
20	Stores-in-hand	5,336	5,604	5,588	5,906	6,739	14
21	Work-in-progress (WIP)	2,551	2,999	3,538	3,817	4,146	9
22	Stores-in-transit	538	682	854	887	988	11
23	Finished goods/components	1,212	1,206	1,305	1,698	1,535	(-) 10
24	**Total inventory**	9,637	10,491	11,285	12,308	13,408	10
25	Inventory as % of COP	60	66	72	75	73	(-) 3
26	WIP as % of COP	16	19	22	23	23	0
IV	**Labour & Machines**						
27	Numbers of direct industrial employees (DIEs)	46,568	47,166	46,206	44,464	43,002	(-) 3
28	Ratio of DIEs : Supervisory officers	1.41:1	1.46 : 1	1.5 : 1	1.5 : 1	1.4 : 1	(-) 7
29	Production per employee (₹ in thousands)	1,674	1,682	1,680	1,821	2,059	13
30	Man-hour utilization (%)	127	129	127	127	127	0
31	Machine hours available (in lakh hours)	1,577	1,603	1,203	1,001	1,155	15
32	Machine hour utilization (%)	78	76	73	75	78	4
V	**Issues: Indentor-wise**						
33	Army	10,027	9,609	8,609	9,098	10,202	12
34	Air Force and Navy	433	433	539	562	719	28
35	Other Defence Departments	192	138	147	164	221	35
36	Central Paramilitary Police Organizations (Ministry of Home Affairs)	826	831	782	650	571	(-) 12
37	Civil trade including Exports	913	963	1,046	889	1,032	16
38	IFD supplies[28]	4,883	5,145	4,999	5,301	5,879	11
39	**Total issues**	17,274	17,119	16,122	16,664	18,624	12
VI	**Research & Development**						
40	Expenditure on R&D	36	48	43	56	88	57
41	R&D expenditure as % of total revenue expenditure	0.30	0.40	0.34	0.44	0.62	41
Source : Budget & Expenditure Statement of OFB and Annual Accounts of Ordnance Factories							

Our analysis of trends from the data in **Table 26** is discussed in the succeeding paragraphs.

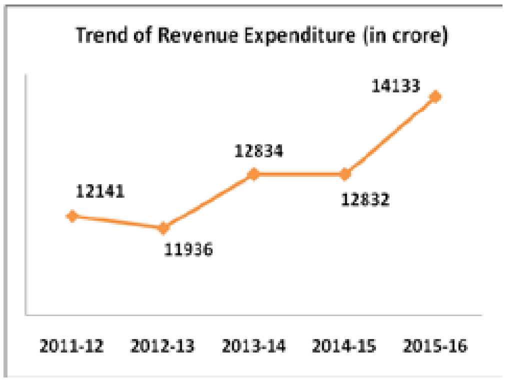
[28] IFD: Inter Factory Demand, whereby sister factories feed the need for stores of other factories.

Budgeting

7.1.2.1 Revenue expenditure

The Ordnance Factory Board (Board) receives budgetary grant under Grant No 26 of the Ministry of Defence to meet its running expenses *i.e.,* the revenue expenditure. The total grant was ₹14,750 crore in 2015-16. The Major Head 2079-Defence Services-Ordnance Factories is operated for booking its expenses and its recoveries against issues to the Defence establishment are shown by way of deduction under Minor Head 901 to 904 under Major Head 2079. Another Major Head 0079 records the receipts against sale of products to non-defence establishments, in the open market or exports, which is a credit to the Consolidated Fund of India.

Chart:6

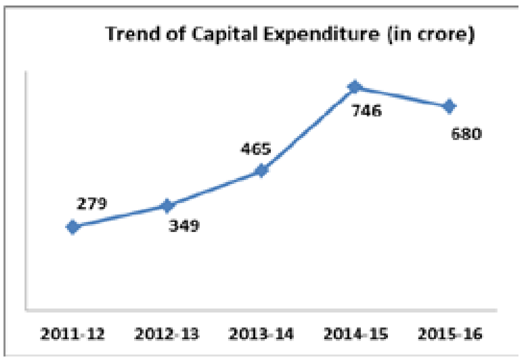


The expenditure on Stores: ₹6,520 crore which represented 46 *per cent* of the total Revenue expenditure, increased by 15 *per cent* in 2015-16 over 2014-15.

7.1.2.2 Capital expenditure

The Board also receives budgetary support for capital expenditure (Major Head 4076-Capital Outlay-Defence Services-04-Ordnance Factories), also called the New Capital (NC) grant. This grant meets the expenditure on new projects including procurement of plant and machinery, for which ₹680 crore was spent in 2015-16. In addition, a separate fund called the Renewal Reserve Fund (RR Fund), created through yearly transfers from revenue grant[29] had a balance of ₹115 crore as on 31 March 2016.

Chart:7

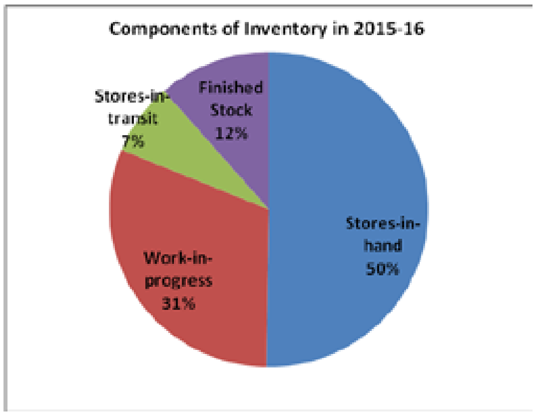


[29] The amount transferred from Revenue grants (Major Head 2027) annually for the RR fund is equal to the annual depreciation of plant & machinery and expenditure for annual replacement.

Capital expenditure under NC grant represented only three to five *per cent* of the total expenditure of the Ordnance Factory Board over the years. Though, nine *per cent* decrease in capital expenditure was reported in 2015-16 over last year, there had been 46 *per cent* increase in capital expenditure in 2015-16 over the figures of 2013-14 **(Chart 7).** The Ammunition & Explosive (A&E) group benefitted most from the capital procurements, accounting for 31 *per cent* of the capital expenditure.

7.1.2.3 Inventory holding

Chart : 8



The inventory holding in the Factories increased by 39 *per cent* from ₹9,637 crore in 2011-12 to ₹13,408 crore in 2015-16. However, there was a marginal increase of 10 *per cent* in 2015-16 over the holding in 2014-15. The level of holding is high representing 73 *per cent* of Cost of Production in 2015-16. Exactly half of the inventory is the Stores-in-Hand **(Chart 8).** The Stores-in-Hand *i.e.*, stores procured for manufacture but not used within the year by the Factories of the Board, has shown an increasing trend in the last five years 2011-16. The Work-in-progress (items in semi-finished state of manufacture) also increased marginally during the period (**Chart-9**).

Chart : 9

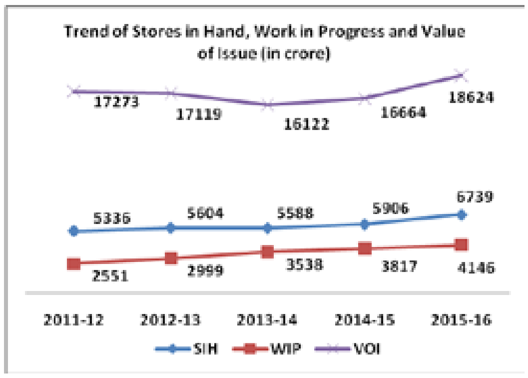
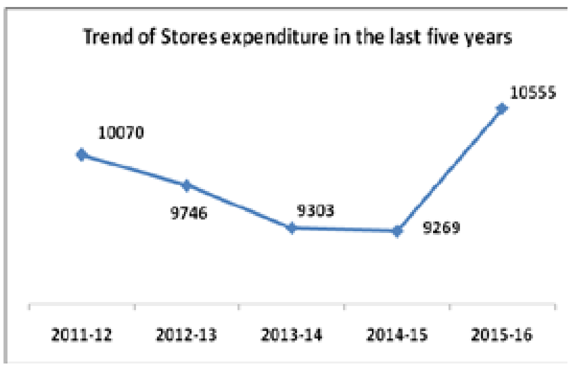


Chart:10

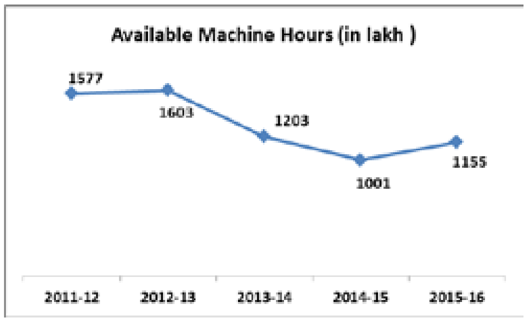


The high level of holding of inventory is a combination of several factors. In March 2010, the Board authorized the Factories for procurement to meet upto next three years' requirement along with staggered delivery[30]. This led to a significant holding of store inventory since 2011 (**Chart 10**).

[30] The decision was for "procurement of input materials including IFD items against indent upto next three years' requirement (2 years+ 50% option clause) with Price Variation Clause (for trade procurement) and staggered delivery to conform to budget allotments and shelf life of Stores"

7.1.2.4 Utilisation of Machines

Chart: 11



While the man hour utilization was reported to be 127 *per cent* in 2015-16, machine hour utilization was 78 *per cent* only. The machine hours available in 2015-16, though increased from previous year, have a declining trend in the period 2011-16 (**Chart 6**). The decline could be attributable to the increased down-time of machines and the fact that procurement of new machines did not keep pace with the condemnation of old & unserviceable machines. In this context, the status of un-installed plant and machinery becomes important, i.e., machines purchased but not commissioned to begin manufacture. A total of 438 machines valued at ₹512 crore were lying un-installed (March 2016) in Factories with the Weapons, Vehicles & Equipment Group and Ammunition & Explosive Group together accounting for 62 *per cent* of the total un-installed machinery.

7.1.2.5 Ability to meet Production Targets

Table : 27			
			(in number of items)
Year	**Target**	**Achievement**	**%age of Shortfall**
2011-12	547	195	64
2012-13	529	205	61
2013-14	382	163	57
2014-15	693	251	64
2015-16	580	194	67

Source : Target and Achievement Report of the Board

The production targets to factories are fixed by the Board in consultation with the Defence forces. These targets are drilled down to the factories: for final products and for feeder factories, which are then communicated by the Board to the factories. The targets take into consideration the requirements projected by the forces and the capacity of the factories for production. It is observed (**Table-27**) that despite the decline of 16 *per cent* in assigned workload (targets), the factories continued to fall short of targets. The factories could achieve only 33 *per cent* of targets in 2015-16.

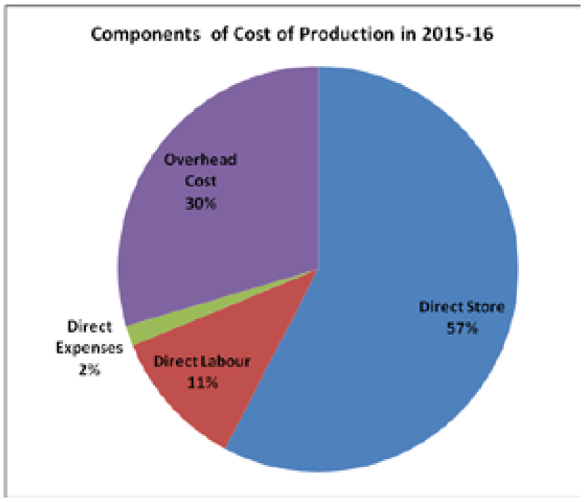
7.1.2.6 Cost of Production

Cost of production in Ordnance Factories comprises direct material, direct labour and overheads. The cost of production during 2015-16 at ₹18,294 crore showed 11 *per cent* increase over the figures of 2014-15. The main reasons for increase in cost of production were:

- A total of 1,292 principal items were produced in 2015-16 *vis-à-vis* 1120 items in 2014-15.
- The eight Ordnance Factories[31] contributed a total increase of ₹1657 crore over the previous year. Amongst it, six[32] principal items showed a total increase of ₹651 crore in cost of production.

Stores account for 57 *per cent* of the cost of production in the Ordnance Factory Board. Overheads at 30 *per cent* of the cost of production are particularly high in the Ordnance Factory Board as depicted in **Chart-12.** The composition of costs varies across operating groups (**Annexure-XI**) with the Armoured Vehicle Group and the Ammunition and Explosive (A&E) Group being most material intensive. The Ordnance Equipment Group which manufactures clothing and general purpose items was the most labour intensive among the Factories.

Chart : 12



7.1.2.7 High Cost of Overheads

The Cost of Overheads accounted for 30 *per cent* of the cost of production. The high overheads are a consequence of high committed cost on a workforce that is not directly deployed for production. Material and Components Group with some of the oldest factories of the Board reported the highest levels of overheads: fixed overheads and variable overheads being 26 *per cent* and 9 *per cent* respectively, a total of 35 *per cent* being the overheads as percentage of the cost of production.

Overheads charged in Ordnance Factories include indirect labour cost, indirect stores, supervision, electricity, transportation, depreciation, *etc.* Over the period 2011-16, the average overhead charges per annum was ₹4674 crore

[31] OF Khamaria, HVF Avadi, OF Chanda, OF Ambajhari, OF Bolangir, GCF Jabalpur, GSF Cossipore and OCF Shahjahanpur

[32] RD 84mm HEAT 551 INDG, Pinaka Rocket (PF), Rocket 84mm TPT, BMP-II (OE), Cartg 5.56mm Ball, Shell 155mm Ball HE HE M 144

which constituted (**Table-28**) around 28 *per cent* of the average annual cost of production (₹16462 crore) of Ordnance Factories Organization. Major elements of the overheads are supervision charges and indirect labour cost which together registered 60 to 70 *per cent* of total overhead cost during 2011-12 to 2015-16.

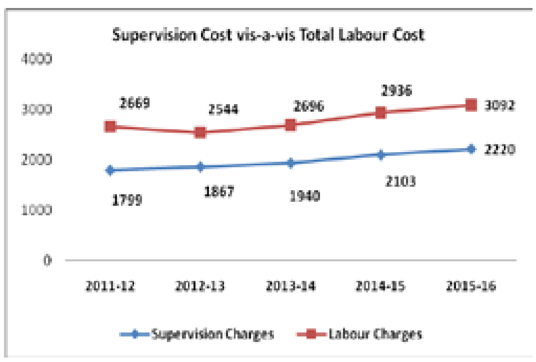
Table-28

				(₹in crore)
Year	**Cost of Production (COP)**	**Overhead Cost /%age of COP**	**Supervision Charge/ %age of Overhead Cost**	**Indirect Labour Cost/ %age of Overhead Cost**
2011-12	15,933	4,214	1,799	1,149
		(26%)	**(43%)**	**(27%)**
2012-13	15,972	4,393	1,867	913
		(28%)	**(42%)**	**(21%)**
2013-14	15,637	4,389	1,940	940
		(28%)	**(44%)**	**(21%)**
2014-15	16,476	4,973	2,103	954
		(30%)	**(42%)**	**(19%)**
2015-16	18,294	5,401	2,220	1,024
		(30%)	**(41%)**	**(19%)**
Total	82,312	23,370	9,929	4,980
Average	16,462	4,674	1,986	996
		(28%)	**(42%)**	**(21%)**

Table-28 provides the data for 2011-12 to 2015-16 across the Factories. Analysis of major elements of overhead revealed that high supervision charges (41 to 44 *per cent*) and indirect labour charges (19 to 27 *per cent*) were main contributors to high overhead.

The main reasons for high supervision charges and indirect labour cost are holding of excess supervisory staff compared to number of industrial employees (IEs), non-reduction of indirect IEs despite induction of new CNC machines, outsourcing of house-keeping, maintenance, store-keeping and material handling and irregular payment of piece work profit to indirect IEs.

Chart: 13



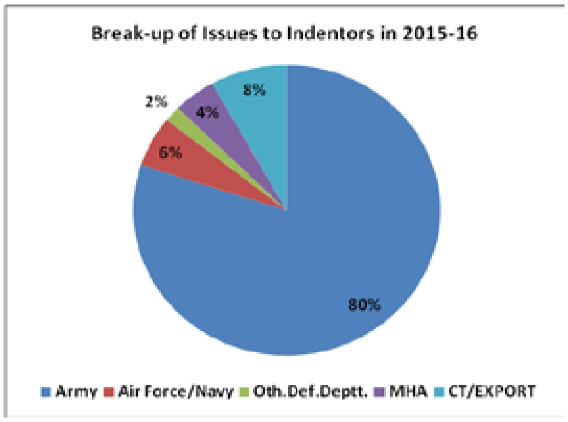
We found that over the period 2011-16, the supervisory costs (**Chart-13)** in the OF Organisation increased by 23 *per cent*. In fact, for every 2 IEs, there was one supervisor. Supervisory cost as a percentage of total labour cost was 67 to 73 *per cent* during the period 2011-16. A Committee on cadre re-structuring of Group-B cadre submitted a report in September 2012 with suggestions which could *inter-alia* address the high supervisory costs; the Ministry was yet to take a decision on this Report sent (October 2013) by the Board as of July 2016.

Indirect IEs are engaged in handling and transportation of materials; housekeeping, maintenance and repair work of equipment; store-keeping *etc*., which cannot be directly charged on a specific product and hence, are accounted as Overheads[33].

We observed that the number of indirect IEs remained static: 36 for every 100 direct IEs during 2011-12 to 2015-16, despite induction of new CNC machines and outsourcing of house-keeping, maintenance, storekeeping and material handling. Consequently, the Board spent ₹996 crore annually on an average on indirect IEs which accounted for 21 *per cent* of the overhead during 2011-12 to 2015-16.

7.1.2.8 Value of issues: Turn-over

Chart : 14



Value of Issues is worked out as the number of items manufactured multiplied by the Issue Price fixed by OFB. Value of Issues increased by 12 *per cent* from ₹16,664 crore in 2014-15 to ₹18,624 in 2015-16. However, issues to the Ministry of Home Affairs (MHA) declined by ₹79 crore in 2015-16 (from ₹650 crore in 2014-15 to ₹571 crore in 2015-16). Major items exported in 2015-16 were to Mauritius.

The Army is the major indentor for the products of the Ordnance Factories, accounting for nearly 80 *per cent* of the total issues during the year 2015-16 (**Chart 14**) with Civil Trade and Export being second at eight *per cent*.

Issue Price is fixed by the OFB at the beginning of the year based on the trends in the past three years. OFB follows different pricing policies for different categories of indentors. Issues to the Defence indentors are supposed to be on cost basis *i.e.* no profit should be charged on such issues. Deficit incurred in respect of issues to the Army for ₹128 crore in 2015-16 against surplus of ₹161 crore in 2014-15.

[33] Overheads are then apportioned across products in proportion to the Labour Costs

Table -29

	(₹in crore)
Indentor	**Surplus (+) / Deficit (-)**
Army	(-) 128
Navy, Air Force & Other Defence Department	(+) 37
Defence	**(-) 91**
Non-Defence (MHA & others)	(+) 31
Total	**(-) 60**
IFD	**(+) 227**
Net Surplus	**(+) 167**
Source : *Review of Annual Accounts for 2015-16*	

Ordnance Factories rely mainly on sister factories for input stores, such issues are known as Inter-Factory Demand (IFD) issues. Together IFD issues reported a surplus of ₹227 crore (**Table-29**) in 2015-16, over a deficit of ₹83 crore in IFD issues in 2014-15. This is mainly due to increase in issue price of IFD items in 2015-16. The profit in IFD issues are unnecessarily inflating the cost of production in the assembling factories. Though total Defence issues reported a deficit of ₹91 crore in 2015-16, losses in their issue, are offset by surplus generated by the IFD factories.

A mid-term correction of Issue Price appears to be required for IFD items and items issued to Indentors to minimize the increasing surplus on IFD issues and also to minimize the loss in Defence sector and to earn surplus from non-Defence sector.

7.1.3 Our Audit Process

Our Audit process starts with the risk assessment of the organization as a whole and of each unit, based on expenditure incurred, criticality and complexity of activities, level of delegated financial powers and assessment of overall internal controls and concerns of stakeholders. Previous Audit findings are also considered in this exercise. Based on the risk assessment, the frequency and extent of audit are decided. An annual audit plan is formulated to conduct audit on the basis of such risk assessment.

After completion of audit of each unit, Local Test Audit Reports (LTARs) containing audit findings are issued to the Head of the Unit. The units are requested to furnish replies to the audit findings within a month of receipt of the LTARs. Whenever the replies are received, audit findings are either settled or further action for compliance is advised. Important audit observations arising out of these LTARs are processed for inclusion in the Audit Reports which are submitted to the President of India under Article 151 of the Constitution of India. During 2015-16, audit of nine units was carried out by employing 3910 party days. Our audit plan ensured that most significant units, which are vulnerable to risks, were covered.

We issued 487 LTAR Paragraphs during 2015-16. In addition, 1319 LTAR Paragraphs were outstanding as of 1 April 2015. A total of 538 Paragraphs were settled during 2015-16. As of 31 March 2016, 1268 LTAR Paragraphs are outstanding as detailed below:

Table -30

Age	No. of Paragraphs Outstanding
Up to 1 Year	454
More than 1 Year and up to 2 Years	319
More than 2 Years and up to 5 Years	399
More than 5 Years	96
Total	**1268**

The Ministry/Board may take appropriate action for expeditious settlement of old outstanding Paragraphs.

7.1.4 Recoveries at the instance of Audit

At the instance of Audit, Ordnance Equipment Factory, Kanpur adjusted ₹2.36 crore on account of excess payment of service charges made to the Cantonment Board Kanpur and Ordnance Factory Khamaria had recovered ₹0.45 crore from their domestic consumers on account of water charges less recovered.

7.2 Management of Import Contract in Ordnance Factories

7.2.1 Introduction

Out of a total Budget (2012-16) of ₹53,976 crore, the Ordnance Factories spent ₹23,888 crore on procurement of Stores and ₹3,093 crore on procurement of machinery. Together, these procurements accounted for 50 *per cent* of the total expenditure. Of these, stores and plant &machinery worth ₹5840 crore and ₹987crore, which constituted 24 and 32*per cent* respectively were procured through import.

The Transfer of Technology agreements and their associated supply contracts play a crucial role in the indigenisation efforts of the Ordnance Factory Board. In this context the management of import contracts becomes important not only to ensure timely supply of the contracted items, but also in enhancing the indigenous manufacturing capacity of the Ordnance Factories.

7.2.1.1 Delegation of Financial Powers & Stages leading to the supply orders

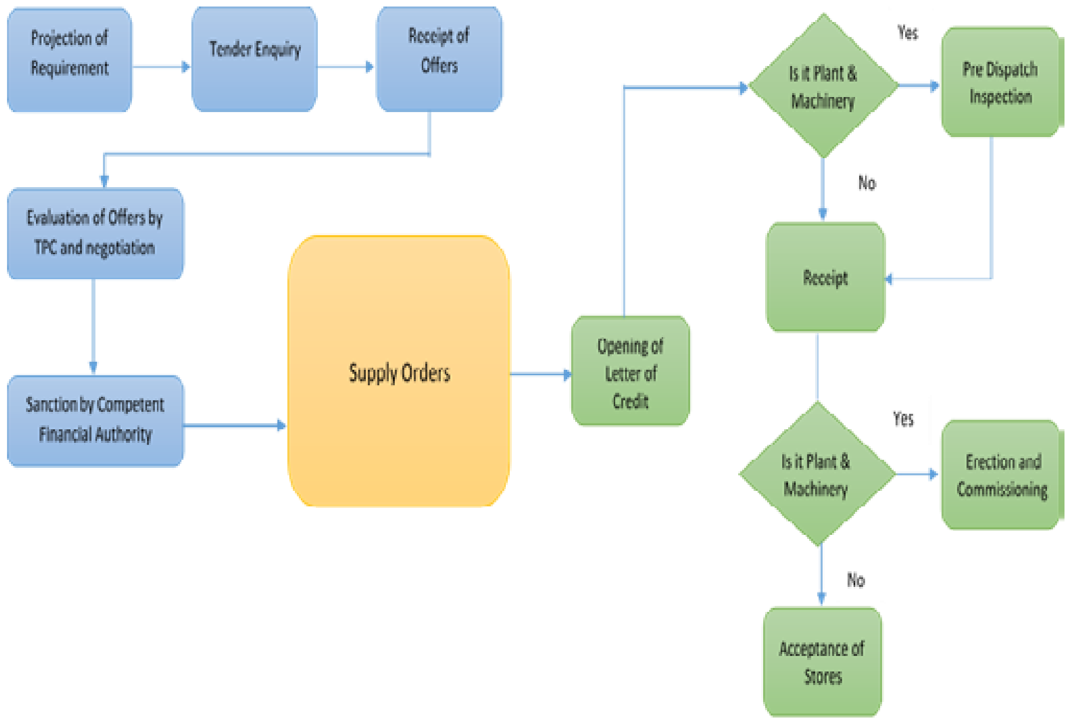
General Managers of the Factories have been delegated financial powers up to ₹50 crore for stores and ₹25 crore for plant and machinery. In case of single tender/ proprietary items, the powers are restricted to ₹1 crore only. The Ordnance Factory Board has been delegated full financial powers for procurement. Only cases of Single Tender procurements from OEMs[34] exceeding value of ₹3 crore needs to be referred to the Ministry for approval.

The imports of stores are mainly with respect to those items under Transfer of Technology from OEMs, which are yet to be indigenised. As such, they are proprietary items with no other available source. Yet, the Board has not been delegated full powers on these procurements.

Stages of procurement in chronological order from the projection of requirement to placing the contracts and receipt of stores/ plant and machinery are illustrated in **Chart 15** below:

[34] Other than the Russian OEM, M/s ROE where the Chairman of the Board has full powers, except for product support for T-90 tanks which has been restricted to ₹20 crore.

Chart: 15- Stages of Procurement



This Report contains the results of a review on whether the import contracts were compliant with extant rules and were drafted, negotiated and managed to serve the best interests of the Government. We selected 28 import contracts valuing ₹805 crore concluded during 2012-15[35] pertaining to five ordnance factories[36]. Of these 28 contracts, 11 pertained to plant and machineries and balance 17 contracts were for supply of stores. We examined these contracts at both stages: pre-contract (up to the signing of the contract) as well as post-contract (up to delivery/commissioning) management. The results of Audit examination are given below:

7.2.2 Pre-contract Management

7.2.2.1 Delays in procurement

The Board's Procurement Manual 2010(OFBPM) prescribes a time frame for placement of supply order (SO) from the date of opening of commercial offer as under:

[35] Contracts concluded during 2015-16 were not sampled for detailed examination considering the overlap in post contractual activities beyond 2015-16.

[36] The Factories being Engine Factory Avadi (Stores), Heavy Vehicles Factory Avadi (Plant and Machinery), Field Gun Factory Kanpur (Plant and Machinery), Opto Electronics Factory Dehra Dun (Stores) and Gun & Shell Factory Cossipore (Stores)

- Six weeks in case of procurement falling within the financial powers of General Manager
- 11 weeks in case of procurement falling within the financial powers of Board and
- 17 weeks in case of procurement within the financial powers of the Ministry,

We analysed the time taken in placement of SOs from the date of opening of commercial offers as indicated in **Table-31** below:

Table 31: Analysis of time taken in placement of SOs

Sl. No.	Sanctioning Authority	No. of SOs placed			
		Within the prescribed period	Beyond the prescribed period up to 24 weeks	Beyond 24 weeks	Total
1	GM, OF	1	12	6	19
2	OF Board	1	2	3	6
3	MOD	0	0	3	3
Total		**2**	**14**	**12**	**28**

As could be seen from the above, out of 28 contracts, only in two cases (7*per cent*) supply orders were placed within the prescribed time. The Factories took more than 24 weeks in 36 *per cent* of the cases. Further, where orders were within the delegated powers of MOD, no SO could be placed within the prescribed period of 17 weeks. The delays were mainly due to procedural reasons**.**

7.2.2.2 Negotiations with the Suppliers

OFBPM stipulates conduct of commercial negotiation mainly in case of single tender situations or when the price is considered high with reference to assessed reasonable price, irrespective of the nature of tendering by the Tender Purchase Committee (TPC) duly constituted and in case of procurement beyond Board's financial power, TPC under Chairman/Board would do commercial negotiation. This clause was at variance with Ministry of Defence instruction of May 2007[37]which stipulates that cases beyond the powers of the Board shall be decided upon by the Collegiate Committee constituted by them.

[37] The Collegiate Committee was to cut down the time taken in "seeking clarifications and proper understanding of technical issues involved in proposals received for approval from the Board". The Committee has six members including Additional Financial Advisor, Ministry of Defence. Timelines were also drawn up: the Committee was to present the competent authority with its decisions within 30 days of receipt of the proposal; another 25 days for the proposal to be put up to the Competent authority. No timeline was drawn up for approval by the competent authority.

Out of 28 contracts examined in audit, negotiations were conducted in respect of 14 contracts, representing 50 *per cent* of the sample. We observed that there was no thumb rule to suggest as to what constituted "reasonability of price" as audit scrutiny revealed that commercial negotiations were conducted even when the rates offered were lower than five *per cent* over the Last Purchase Rate (LPR) and no negotiations carried out even when the rates offered was more than 25 *per cent* over the LPR. Two such cases are discussed below:

- Gun and Shell Factory (GSF) Cossipore received (January 2014) an offer from M/s. FFV Sweden (OEM) against its TE (January 2014) for supply of 2081 barrel assembly of 84mm Rocket Launcher Mark-III at unit rate of SEK 60480 which was higher by 4.5 *per cent* over LPR. We observed that GSF concluded order only in March 2015 *i.e*, after a lapse of 15 months from receipt of commercial offers even though the OFBPM stipulated a time frame of 17 weeks. Abnormal delay occurred due to Collegiate Committee taking 26 weeks time in offering their recommendation to the Ministry for according sanction. The main point of contention related to justification of price quoted by the foreign firm and this despite the fact that Board negotiated (June 2014) with the foreign firm by bringing down the unit rate to SEK 59298, being 2.4 *per cent* higher than LPR. Ultimately, the Collegiate Committee considered (December 2014) the negotiated rate of SEK 59298 to be reasonable which culminated in the Ministry according (March 2015) sanction to the Board. As a result of delay in according sanction by the Ministry, GSF had to face stock out situation during 2014-15 and failed to meet target of supplying 1800 numbers of 84mm Rocket Launcher Weapon during 2015-16. Even during 2015-16, GSF could supply only 1189 numbers of 84mm Rocket Launcher Weapons against the target of 1800; and

- Opto Electronic Factory (OLF), Dehradun against its TE (February 2014) received offers (March 2014) from M/s. Rosoboronexport Russia (OEM for T-90 tanks) for spares of telescopic sights (PNK-4S) which resulted in placement (August 2014) of order at offered rate of USD 183746 without any negotiation even though the rate was higher than 29 *per cent* over last supply order (July 2013). Subsequently, against another TE (June 2014) for a follow up purchase, M/s. Rosoboronxport Russia quoted USD 194458 which was five *per cent* higher than the LPR. This time, OLF conducted negotiation against which M/s. Rosoboronexport Russia reduced the rate marginally to USD 193457 and accordingly placed order in February 2015. The acceptance of the steep rise in the purchase in August 2014 had a cascading effect on subsequent purchases against order (February 2015).

7.2.2.3 Lack of clarity regarding procedure for deduction of Liquidated Damages

Under the terms of the contract, an irrevocable Letter of Credit in advance (ranging from 30-45 days) of receipt of notification from the supplier of dispatch of consignment, is required to be opened by the Factories. There is no specific condition that the Letter of Credit will be opened for an amount net of the Liquidated Damages (LD) for delays in delivery or after adjusting for material which is found unacceptable on grounds of quality, wherever applicable.

As a result, there is inconsistency in each Factory. EFA deducted payments on account of Liquidated Damages while opening the Letter of Credit for the consignment which was delayed. On the other hand, GSF released full payment in the Letter of Credit and separately raised a demand for payment of Liquidated Damages from the firm subsequently.

7.2.2.4 Non inclusion of ' Liquidated Damages' clause in Supply Orders

Even though OFBPM stipulates levy of liquidated damages (LD) for delayed supply of the indented items, we observed that in two supply orders for procurement of product support items from the OEM for T-72 tanks, LD clause was not incorporated on the pretext that both the Original ToT and the Supplementary Agreements under the ToT did not have clauses to levy LD. As a result, though the supplies against these two orders were delayed, LD of ₹1.3 crore could not be recovered from the OEM.

7.2.3 Post-contract Management

Of the 28 import orders examined in Audit, delays from the prescribed time schedule were found in 22 orders, constituting 79 *per cent* of the sampled orders. The delays ranged between two and 17 months as indicated in **Table-32**. Against five orders for plant and machineries, deliveries were yet to be made by the suppliers.

Table 32: Delay in Delivery

Delays	No of orders
<3 months	5
3-6 months	6
>6 months	10

Of the total 22 instances of delayed receipt, in six cases the delays were owing to delayed Pre Despatch Inspection (PDI) by the Factory (discussed in para 7.2.3.1 below) and in two cases because of delays in opening letter of credits by the Factory.

In respect of the remaining 9 cases of delayed delivery which could be attributed to the supplier, liquidated damages (LD) were not levied in respect of 5 cases amounting ₹2.09 crore.

7.2.3.1 Delay in Conducting Pre-despatch Inspection by Factories

The contracts on procurement of plant and machinery (P&M) contain provision for Pre-despatch inspections (PDI), whereby the Factory deputes a team to the Supplier's premises to satisfy itself, before dispatch of machinery, that it meets the specifications contained in the supply order.

We found that there was delay in PDI in 6 out of 11 contracts for P&M in the audit sample, delays ranging from 8 weeks to 28 weeks. The impact due to delayed constitution and deputation of pre dispatch team at FGK are given in the **Table-33**below:-

Table-33: Impact of Delay in PDIs

	Guideways CNC Lathe machine	Horizontal Machining Centre	CNC Precision Horizontal Boring & Milling machine
Date of the contract	July 2012	December 2012	February 2013
Stipulated date of delivery	September 2013	December 2013	March 2014
Request for PDI	May 2013	June 2013	December 2013
Approval of PDI team			
by GM	August 2013	October 2013	January 2014
by Board	October 2013	November 2013	January 2014
by the Ministry	November 2013	January 2014	May 2014
Deputation of PDI team	December 2013	February 2014	May 2014
Decision by TPC on extension	January 2014	December 2013	April 2014
Actual Date of delivery	April 2014	May 2014	July 2014

Had the Factory designate the PDI team in advance of the request for PDI, after placement of the supply order, the delays could have been avoided.

7.2.3.2 Quality issues

OFB's Procurement Manual regulates the procedures to be followed by the Factories with regard to submission of quality claims with the foreign suppliers in case the items are rejected on account of qualitative discrepancy and quality claims on account of defects or deficiencies. It, inter alia, stipulates that the quality claims for defects or deficiencies in quality noticed during the Joint Receipt Inspection shall be presented within 45 days of completion of Joint Receipt Inspection and acceptance of goods. The supply orders normally contained a clause that binds the supplier to replace or rectify the defective material within 90/100 days of receipt of the quality claims.

But the Factories were unable to enforce these conditions and quality claims were either delayed by the Factory or remained unaddressed as per the details given below:

(i) Delay in quality claims by Ordnance Factory

Gun Shell Factory Cossipore placed (September 2012) a supply order for 2300 barrels on M/s. FFV, Sweden (OEM) at a total cost of ₹117 crore. The barrels were to be delivered in phases from April 2013-December 2014. The first consignment of 200 barrels was received in July 2013 and September 2013, of which 25 barrels were rejected due to various defects[38]. Against the stipulated period of preferring quality claims within 45 days of holding Joint Receipt Inspection[39]as prescribed in the Manual, the Factory took an inordinate time to do so as shown in the **Table-34** below:

Table-34: Time taken by GSF, Cossipore for Quality Claims on M/s. FFV, Sweden for supply of barrels

Date of receipt of store	Date of quality claim	No of barrels	Time taken for claim (months)
12.09.2013	19.09.2014	25	12
12.09.13 to 17.07.14	10.01.2015	121	6 to 16
19.07.13 to 11.09.14	16.01.2015	136	4 to 16
17.07.14	23.02.2015	4	7
25.02.15	11.03.2015	6	-
05.12.13 to 17.03.15	26.05.2015	5	2 to 16
11.09.14 to 22.06.15	17.07.2015	10	1 to10
19.07.13 to 17.07.14	25.11.2015	3	16 to 28

As the Factory raised quality claims for 310 barrels in batches of receipt of material, the OEM sent fresh stock as replacement of the rejected barrels. In all, replacement of 294 barrels during February 2015-April 2015 were received; the balance 16 barrels worth ₹72 lakh was still pending replacement as of October 2016.Referring of quality claims and resultant delayed replacement by the OEM, is to be viewed in the light of the fact that GSF had registered shortfall of 66.34 and 48.83 *per cent* in production of 84mm Rocket Launcher Mark-III weapon during 2013-14 and 2014-15 respectively.

[38] Ra Value more than specified, non-achievement of specified criteria in drawing dimension and technical specification of Step-up and Step-down at Commencement of Rifling, rust observed inside the chamber, Scratch mark, depression at left side of Firing Pin hole, *etc.*

[39] The clause on Joint Receipt Inspection was not included in the original ToT for 84 mm Rocket Launcher or in the Supply Orders linked to the ToT.

(ii) Delay in resolving the quality claims by the suppliers

Engine Factory, Avadi placed (October 2013) an order on M/s. Kerametal (Firm) for 3009 numbers of delivery valve at total cost of Euro 34423 with the stipulation to supply the sample quantity of 120 delivery valve within three months from the date of contract and bulk supply within three months of giving acceptance of samples by the Factory. The supply of the sample got delayed due to transportation problems and it was eventually received in October 2014, which was cleared in inspection. EFA accordingly accorded Bulk Production Clearance to the Firm in November 2014. Bulk supply of 2889 delivery valve was received by the factory in May 2015 against which 2275 delivery valves valuing ₹19 lakh were rejected (October 2015) due to defects in surface finish and roughness. The Factory referred quality claims on the firm in October 2015 after four months against stipulated 45 days for replacement of rejected stores, which was still awaited. Under the terms of the contract, the supplier was to replace the rejected material free of cost within 90 days of the quality claims.

Meanwhile, the Factory had placed (June 2014) another supply order for purchase of delivery valves on the Firm at a total contract value of ₹38 lakh. In case of this supply order also, the samples were accepted (September 2014), bulk clearance granted (November 2014); and the bulk supply was rejected (October 2015) due to the same defects as was in the 1st supply order. The quality claims referred in October 2015 were awaiting settlement as of December 2016.

The Factory stated that the Firm had submitted (May 2016) a sample of five rectified valves in respect of each order, which was awaiting inspection in Quality Control section.

Simultaneously, the Factory had placed (June 2014) another order on the Firm for 80 numbers of Block crank case, against which it received supplies in three consignments during June - November 2015. Of these, 17 block crank cases costing ₹95 lakh received under two consignments in June 2015 and November 2015 were rejected[40] by the Factory in September 2015 and February 2016 respectively. The Quality claims submitted in the same months were also awaiting free replacement (December 2016).

In all, quality claims worth ₹2.24 crore were pending settlement in four instances, for periods ranging from seven months to 10 months (September 2016) against the laid down time span of 90 to 100 days.

[40] blow holes and porosity/nicks marks, steps mark and visual damages observed in cylinder liner seating bore and crank shaft bearing race bore, dimensional deviation and surface roughness value not achieved in crankshaft bearing bore and more ovality observed.

7.2.4 Conclusions

Ordnance Factories import crucial part of its stores and plant & machineries. Audit examination of selected import contracts concluded by the five factories during 2012-15 revealed that there were deficiencies in management of the contracts at pre-contract as well as post-contract stages.

Audit found that undue time was taken in negotiations and approval of supply orders as only 2 out of 28 test checked supply orders had been placed within the stipulated time frame. Provision for constitution of collegiate committee, as instructed by the Ministry with a view to reduce the time taken in negotiation and approval, had not been incorporated in the procurement manual. Further, owing to non-inclusion of clause relating to 'Liquidated Damages' with cost implications in two orders, Factories were rendered weak in enforcing timely delivery of stores from the supplier.

There were also delays in supplies ranging from 2 to 17 months: in eight cases due to delay in conduct of PDI/opening of LC by the Factories and in balance cases, on the part of suppliers. We also noticed instances of delay both in referring quality claims by the Factories and subsequent resolution of the same by the suppliers resulting in quality claims worth ₹2.24 crore remaining pending for settlement from seven to ten months. OFB may consider including a provision of LD for delayed supply as well as delay against quality claims.

The matter was referred to the Ministry of Defence/Ordnance Factory Board (November 2016); their replies were awaited (January 2017).

7.3 Non-revision of Labour Estimates after introduction of CNC machines and incorrect payment of Piece Work Profit

7.3.1 Introduction

An important key for planning, execution and monitoring of production in Ordnance Factories is the Estimates of unit production cost for each item manufactured in the Factory. These contain estimates for material consumption (Material Estimate), labour cost (Labour Estimate) and also factors in the admissible rejection and wastage.

The procurement manual for plant and machinery in Ordnance Factory stipulates that for each procurement proposal for plant and machinery, an Internal Rate of Return (IRR)[41] or a Cost-Benefit Analysis based on savings made by inducting the machine must be made. On introduction of new machines, Factories are required (Board's directions of April 2004) to conduct proper time and motion study on the basis of which labour estimates are required to be revised[42].

Introduction of CNC[43] machines brings in substantial benefits[44] because the CNC machines take less man-hours with reduction in manufacturing costs and inspection time. Once programmed, they are capable of producing items repetitively even reducing inspection time (100 *per cent* check is no longer needed).

The Board has been making incremental addition of CNC machines over the last few decades. The benefits of automation can be best measured by revision of manufacturing estimates; hence, the Board's insistence for the revision on commissioning of new plant and machinery through a time and motion study.

This audit was conducted during April to July 2015 to examine revision of labour estimates on procurement of CNC machines and its impact on payment of piece work profit and outsourcing; labour planning: reporting of available SMH and target SMH in labour planning for the period 2012-13 to 2014-15 (updated up to March 2016 wherever possible) in four Factories, *viz.* Ordnance Factory Khamaria (OFK), Ammunition Factory Kirkee (AFK), Ordnance Equipment Factory Kanpur (OEFC) and Metal & Steel Factory Ishapore

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[41] IRR calculations are made for purchase above ₹50 lakh which was enhanced to ₹2 crore in 2015. For purchases below this threshold, Cost-Benefit Analysis is made.
[42] Revision is required to take place by way of reduction of Standard Man-hours of labour due to induction of CNC machines.
[43] Computer Numerically Controlled machines based on microelectronics-based technology. This includes computer-aided design and drafting (CAD), computer-aided manufacturing (CAM), flexible manufacturing systems (FMS).
[44] Our contact (June 2015) with Central Manufacturing Technology Institute (CMTI) and visit to Bharat Forge Limited (BFL), Pune (July 2015) confirmed the multiple benefits of introduction of CNC machines.

(MSF), which had high incidences of labour cost. For detailed examination of estimates, we selected 20 principal items, five from each selected factory.

7.3.2 Non revision of labour estimates

Between 2010-11 and 2014-15, 45 CNC machines were procured and commissioned at a cost of ₹39.10 crore in the four selected factories for manufacture of the 20 selected items. The introduction of 45 new CNC machines necessitated revision of 33 labour estimates. We however found that notwithstanding the instructions issued by the Board, none of these Factories had conducted time and motion study after commissioning of new machines. As a result, revision of labour estimates based on time and motion study was not carried out in respect of any of the selected items. In eight cases, the labour estimates were however revised based on the cycle time of the new machines. Revision of labour estimates were not carried out in25 cases (76 *per cent*).Factory-wise details are shown in **Table-35**below.

Table-35: Non-revision of labour estimates

Factory	No. of machines commissioned	No. of estimates to be revised as per time & motion study	No. of estimates revised as per cycle time	No. of estimates not revised at all
AFK	15	6 [45]	2	4[46]
OFK	7	8 [47]	2	6
MSF	10	6	4	2[48]
OEFC	13	13	0	13
Total	**45**	**33**	**8**	**25**

The Engineering Division of the Board sought (February 2015) to collate data on savings accrued by way of revision of estimates from Factories with a deadline of 15 March 2015, which was not provided by the Factories so far(March 2016).

In February 2016, pursuant to audit's comments, Board instructed all the Factories to revise the material and labour estimates with reference to the projected IRR/Cost benefits analysis. It also stated that approval of new plant and machinery would be linked to revision of estimates for the machines already commissioned. In March 2016, Secretary (Defence Production) further stressed the need for adopting scientific process for ascertaining exact labour savings and to ensure that the existing system of revision of estimates was robust.

[45] Multiple machines were involved for different/same operation against same estimates.
[46] Estimate No. 12,886 (involving two operations in two machines) was revised for only one operation.
[47] Four estimates were involved for two machines.
[48] Only Unavoidable Rejection (UAR) percentage revised and labour estimate was not revised.

In response to the draft audit paragraph seeking reasons for non-revision of estimates, the Ministry stated (August 2016) that:

- The requisite reduction in estimates had since been carried out. (MSF)
- Revision of six estimates was not done due to non-reduction of cycle time of the newly commissioned machines. (OFK)
- The estimates were linked to case gauging and lead swaging machine which were replaced on a like to like basis and hence no scope for revision. (AFK)
- Estimates would be reviewed and action taken accordingly. Regarding the superfluous operations, their rationalisation was underway. (OEFC)

Our further verification of estimates revealed that:

- At OFK, the date of last revision of the estimates relating to the machines in question ranged between 1983 and2004. The new machines were procured between 2011 and 2014. Further, the factory management while responding to the Audit query in July 2015/April 2016 had admitted that revision of estimates against two machines[49]could not be done due to repeated quality problem and frequent breakdown of one machine and non-proving of components in another machine.
- At AFK, the rated output/capacity of the new machines procured was higher and therefore warranted review of labour estimates.
- Revision of estimates at OEFC was under process and yet to be approved.
- At OEF Kanpur not a single estimate was revised out of 13 which should have been revised. We noticed instances of superfluous operations in OEF Kanpur, where new machines commissioned in the Factory made a number of operations for manufacture of Short Plain Weaves Poly & Viscose Dope Dyed, Bag Sleeping MK-4, Heater Space Oil Burning and Tent Extendable Frame Support 4M, redundant. However, the estimates were not revised and the Factory continued to engage labour for these redundant operations in manufacture of these items.

7.3.3 Payment of Piece Work Profit (PWP) in excess of admissibility at MSF, Ishapore

Output Standard Man hour (SMH) for an item is product of the estimated SMH required to produce a unit item and the number of items manufactured in a month. Input SMH is the aggregation of the actual attendance hours in a month by each Industrial Employee (IE). Piece Work Profit (PWP) is a

[49] Relating to machine Regd. No. 10503 and 10519

measure of the efficiency of the worker (multiplied by a factor of 1.25) and calculated as:

PWP percentage = [(1.25*Output SMH - Input SMH)/Input SMH] * 100.

We selected five production Shops at MSF and measured the shop-wise Output SMH for each item manufactured during a month and compared it with the Output SMH reported by the Shop for the month. This was done for three years 2012-15.

We found that the actual Output SMH was less than the Input SMH in three Shops (Gun Machine Shop, Tool Room Shop and New Gun Forging Shop) in 99 instances (97 *per cent*) out of 102[50]. Hence, no PWP was admissible[51] during these months. Yet, PWP aggregating ₹2.60 crore was paid in all the months by inflating the Output SMH.

Chart-16 & **Chart-17** illustrate the trends in Gun Machine Shop (GMS) and Tool Room Shop (TRS) respectively in 2014-15, indicating reported Output SMH more than Input SMH though actual Output SMH was less than Input SMH.

Chart-16: GMS

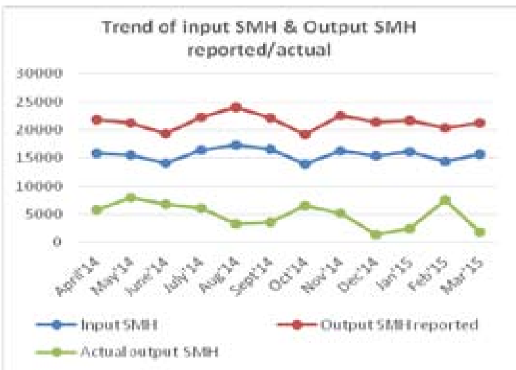
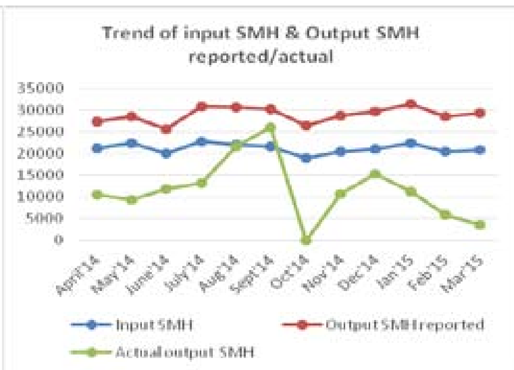


Chart-17: TRS



The Ministry stated (March 2016) that there was no deficiency between input and output hours at MSF and for GMS section having large number of product mix, output could not be measured based on a particular item produced during a month.

The reply is not acceptable as we calculated the output SMH with reference to month/section-wise production data of each item furnished (July 2015) by the

[50] Number of instances was 108 (12 months*3 production shops*3 years). For six instances (October & November 2012 for each shop), data was not available.

[51] Due to multiplication of 1.25 factor with output SMH, PWP was admissible in 3 instances: 11 *per cent* in April 2012 for GMS and 23 and 50 *per cent* in August 2014 and September 2014 respectively for TRS.

Factory management. During subsequent verification (March 2016), the Factory could not furnish item-wise daily production report of the sections concerned in support of their claim of higher output SMH than input SMH.

7.3.4 Payment of PWP to indirect workers

As per the Manual[52], fixation of piece work rates for a piece of work/operation is only feasible if the particular work is measurable *i.e.*, a reasonable estimation of the volume and nature of work involved can be made. Accordingly, no piecework rates can normally be fixed for indirect services, repair jobs, *etc.*, which should be carried out on day work basis. Thus no PWP is payable to indirect workers, non-productive/ service sections *etc.* However, the Manual prescribes payment of "Incentive Bonus"[53] to maintenance workers[54] of production sections restricted to 50 *per cent* of the PWP earned by the piece workers of such section.

Table-36: SMH booked for indirect work

Factory	Year	SMH booked (in lakh hours)	Payment of PWP (₹ in lakh)
OFK	2012-13	4.31	44.84
	2013-14	4.35	42.01
	2014-15	5.40	84.75
MSF	2012-13	1.20	9.82
	2013-14	0.76	5.88
	2014-15	0.46	6.84
OEFC	2012-13	0.05	0.56
	2013-14	0.0001	0.01
	2014-15	0.01	0.19
AFK	2012-13	0.87	8.00
	2013-14	1.22	11.24
	2014-15	0.80	13.03

We found that the sampled Factories booked piece-work hours in 01 and 02 series which are meant for indirect work orders (**Table-36**). Some of these jobs included printing of invitation cards, Service Books, Leave Accounts, Souvenir for singing competition, removal of debris, collection of scrap from different section, *etc*., which had no relation with production and should not be booked in the piece work card as per the provisions of the Manual. We also found that OEFC paid PWP worth ₹86.59 lakh to those who were posted in

[52] Para 231 of DAD OM Part-VI (Vol-I)
[53] Para 155 of DAD OM Part-VI (Vol-I)
[54] Maintenance workers not attached to production section are paid incentive bonus at 50 *per cent* of the average PWP earned by the piece workers in the whole factory.

store issue (April 2012-March 2015), store stock (April-August 2012) and R&D Section (April 2012-April 2014) *i.e.* non-productive sections. Similarly, OFK paid PWP worth ₹1.58 crore to indirect IEs engaged in non-production works like inspection, supervision, godown keeping, in-house R&D, *etc*.

While accepting the observations, the Ministry stated (August 2016) that employees in the printing press of the MSF had since been diverted to direct production works and piece work booking against care and custody had since been stopped at OEFC.

7.3.5 Under-reporting of Available SMH

We analysed the Target SMH and Available SMH in the sampled Factories during the period 2012-15 and observed that the Factories under-reported the available SMH in eight of 10 instances by applying incorrect normative SMH/IE/annum. In two cases, there was over-reporting of available SMH. The SMH per IE per annum applied by the Factories ranged from 2348 to 2831 in 2012-13 as against the prescribed SMH of 2691.36. In 2013-14 to 2014-15, the Factories applied SMH per IE per annum ranging from 2391 to 2859 as against the prescribed 3019.68 hours. The extent of under-reporting was up to 22 *per cent* in AF Kirkee as shown in **Table-37** below:

Table-37: Available SMH *vis-a-vis* Target SMH

Year	Target SMH	Available SMH as per norms	Available SMH reported
			(in lakh hours)
Ammunition Factory Kirkee			
2012-13	109.19	83.30	72.68
2013-14	93.31	88.87	70.38
2014-15	92.59	88.99	69.81
Ordnance Factory Khamaria			
2012-13	99.69	79.80	83.93
2013-14	101.66	86.73	82.11
2014-15	107.35	104.48	82.45
Metal and Steel Factory Ishapore			
2012-13	29.60	28.58	29.65
2013-14	30.08	29.86	27.72
2014-15	29.00	28.26	25.30
Ordnance Equipment Factory Kanpur			
2012-13	107.62	61.39	NA
2013-14	96.91	68.49	NA
2014-15	90.44	67.04	55.68

While accepting the facts, the Ministry stated (August 2016) that once the norms for available SMH were rationalised, then all Factories would utilise the same for calculation of available SMH.

The Board issued (June 2016) instructions to all the General Managers to follow uniform norm for available SMH per IE per annum as 2947 hours.

7.3.6 Over-estimation of Target SMH

We noticed instances of over-estimation of Target SMH by raising the estimated labour hours per unit production of an item in two cases as illustrated below:

- Metal & Steel Factory, Ishapore used a higher measure of estimated labour hours in 2014-15 for different items, than the approved SMH provided in the Estimates, resulting in higher estimation of Target SMH as shown in **Table-38**below:

Table-38: Excess Target SMH shown by MSF Ishapore

Item	Estimated labour hours per unit production		Production target for 2014-15	Extra Target SMH
	for 2013-14	for 2014-15		
	(i)	(ii)	(iii)	((ii)-(i))*(iii)
Steel Rod 32mm Dia	0.79	0.85502	1,15,014	7,478
Brass Pressing Blanks	0.77	0.77782	75,289	589
Pre-form Blank for Pinaka	75.26	77.24778	3,000	5,963
Cold Swaging Barrel Blank	119.79	200.52588	107	8,639
TA Pin	10.58	14.11343	12,000	42,401
T-72 Casing	675.24	675.26719	150	4
Forging for Cylinder	31.88	86.68712	50	2,740
Total				**67,814**

- Similarly, OF Khamaria used higher labour estimates than the approved estimate leading to over-estimation of Target SMH for seven items by 1.10 lakh SMH in 2013-14.

The Ministry stated that for MSF, there was error in compilation of data; and for OFK, upward revision of estimates was necessitated due to proof, material testing and actual requirement.

The reply regarding OFK is not tenable as no approval from the Board was obtained for upward revision of SMH as required under the Manual[55].

[55] Para 109 of DADOM Part-VI, Vol-I

7.3.7 Outsourcing of operations without corresponding reduction in estimates

As per Defence Accounts Department Office Manual Part-VI, before accepting the proposal for service assistance, separate estimate is to be prepared for concerned product after removing the manpower authorised in the original estimate and ensuring inclusion of authorisation of drawal of outsourced material in the estimate.

We found that while the Factories were outsourcing jobs/ operations included in the Estimates, the corresponding SMH relating to the outsourced operations were not deducted while calculating the Output SMH. This led to excess payment of ₹10.94 crore made to the IEs in case of the sample items selected (**Table-39**) during the period of three years (2012-13 to 2014-15).

Table-39: Payment to piece workers for outsourced operations

Factory	Item of Work	Value of Outsourcing contract (₹ in crore)	SMH related to outsourced operations	Excess payment to piece workers (₹ in crore)
AFK	Transportation and unloading of materials from store to production shop	0.93	1,82,792	2.30
OEFC	Shifting, loading and collection of stores	8.76	5,18,026	8.64

The Ministry stated (August 2016) that:

- Reduction in estimates had since been effected in respect of operations outsourced (AFK);
- Rationalisation of estimates was underway which would be completed soon (OEFC).

7.3.8 Conclusions

Board mandates the Factories to revise the Labour Estimates after introduction of CNC machines. The Estimate quantifies the unit labour cost for each item of production and serves as the template for labour planning, deployment and control on costs. But in three-fourth of the sampled cases examined, the Factories did not revise the labour estimates.

Factories by deviating from the norms laid down by the Board over-estimated the labour hours (SMH) required for meeting targets and under-estimated the available SMH. The Target SMH and Available SMH figures being unreliable, labour planning in the Factories was deficient to that extent. At MSF Ishapore, actual output SMH was less than those reported resulting in excess payment of Piece Work Profit (PWP) to direct Industrial Employees. Further, payments of PWP to indirect workers (not eligible for PWP) were also noticed.

We found that despite outsourcing, the in-house IEs were paid on the basis of Estimates from which the outsourcing element (in the form of SMH) had not been deducted.

7.3.9 Recommendations

- ❖ The Board must ensure that the Factories revise the labour Estimates immediately after completion of the first production cycle, across products where new plant and machinery are commissioned.

- ❖ The Board should issue instruction to the Factories to adhere to laid down norms for calculation of available and target SMH.

- ❖ The Board must issue instruction to Factories to exclude outsourced operations from the Estimates in order to avoid extra payment to IEs. The practice of payment of PWP to indirect workers should be stopped except in case they are engaged in the production activities similar to those of direct IEs.

7.4 Management of Manufacture Warrants

7.4.1 Introduction

A warrant constitutes the authority of the ordnance factory management to the production shops concerned for putting the work in hand. Warrants are issued by the planning section of a Factory to the production shop and prescribe the order quantity to be produced. Warrants are constituted in two parts *viz*. Material Warrant[56] and Manufacture Warrant each authorising drawal of the material and deployment of labour respectively for the production. 'Manufacture Warrants' are the authority to the shops to undertake work placed on the Factory. The labour part of the warrant records the number of authorised Standard Manhours (SMH) required to manufacture the order quantity based on estimate.

7.4.1.1 Opening and closing of warrants

The Manual[57] stipulates that normal duration of warrants for works other than capital works is six months and production is required to be completed within six months[58]. The warrants are therefore required to be open only for six months. Further extension for keeping the warrant open wherever necessary would be subjected to the prior approval of the Board. The Manual also prescribes that a large work order can be divided into compartments, with a warrant against each compartment to ensure that production is completed and the warrant closed within the prescribed period of six months. Replacement warrant is issued for works to cover the articles found defective in the course of manufacture.

7.4.1.2 Risks of open warrants

The opening of warrants for more than six months is fraught with following deficiencies:

- It allows the Factories to keep items that remain semi-finished because of short closure, rejection or failed production, in the form of work-in-progress in open warrants, without regularisation.

- When multiple warrants are opened for one product (in order to meet the ordered quantity), open warrants provide an opportunity to spread rejections across warrants in order to keep it within the normal rejection

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[56] The issues on material warrants was earlier covered in Inventory Management in Ordnance Factories (Paragraph 8.2 of Report No. 35 of 2014)
[57] Para 619A and 620 of DADOM Part-VI
[58] Warrants for production of Armoured vehicles, ordnance and carriage components may be issued for one year without reference to the Board.

limits or transfer excess material or excess labour drawn to other warrant (s) through *Transfer Vouchers (TV)*.

- Till such time the warrant is closed, the cost of production cannot be ascertained. Thus, the Factories may not be in a position to know if they are incurring losses in production and hence may not be able to take timely corrective action.

As per the Manual, in order to highlight abnormal/irregular features in the progress of manufacture to the notice of the factory management for corrective action in times, Accounts Office (AO) of the Factory is required to consult the original documents, analyse the cost closely and critically for detecting abnormalities/irregularities like belated documentation, advance labour payments before drawal of material, over drawal of material, loose estimation, non-closure of warrants within the stipulated period even when production is completed.

Detailed analysis of these warrants is incorporated in a quarterly report called 'Concurrent Review of Production Cost and Activities' and is sent to the office of the Principal Controller of Accounts(PCA) (Factories) for further action at the Board level.

This audit was conducted to examine the management of Manufacturing Warrants issued during 2012-13 to 2014-15, in four Factories *viz.* Ordnance Factory Khamaria (OFK), Ammunition Factory Kirkee (AFK), Ordnance Equipment Factory Kanpur (OEFC) and Metal & Steel Factory Ishapore (MSF). For detailed examination of warrants, we selected 20 principal items, five from each selected Factory.

Audit Findings

7.4.2 Non-closure of warrants in time and the impact thereof

We found that the status of outstanding warrants was not reviewed by the Board in the Board meeting regularly except for five occasions during 2012-13 to 2014-15. In view of large number of outstanding warrants (14,594 as of 30 September 2012) in all the Factories, the Board decided (November 2012) to close all the outstanding warrants issued up to 2011-12 in a phased manner by December 2013. In the subsequent Board meetings (July and November 2013), the Board, as a routine exercise, only noted the status and requested Operating Division Members to expedite Factories for early closure of old warrants on priority but without any comment/action on the deficiencies in the follow up action taken by the Factories on the Board's earlier decision of November 2012. The office of the PCA (Factories) reviewed the quarterly reports on Concurrent Review of production cost and production activities sent by the Accounts Office of the Factories. However, they did not submit a consolidated status report along with comments on abnormal/irregular features relating to various warrants to the Board for further corrective action.

As the review mechanism of the outstanding warrants was not effective both at the Factory and Board level, the number of outstanding warrants across all the Factories increased over the period 2012-15 by 69 *per cent*. As of March 2015, the number of such open warrants was as high as 24,706, which pertained even to the period as old as 1999-2000. Year-wise breakup of the outstanding warrants amongst all the Factories is shown in **Annexure-XII.**

As far as the Factories selected for audit, we found that only 189 (27 *per cent)* of 693 warrants[59] sampled in Audit and issued between 2012-13 and 2014-15 were closed within the six-month period across the four sampled Factories. While 403 (80 *per cent*) of the remaining warrants were closed after the stipulated period, 101 warrants (15 *per cent*) were still open and awaiting closure (March 2015). Since such warrants were open beyond six months, approval for the same should have been obtained from the Board. Factory-wise breakup of the warrants not closed within the stipulated time frame is tabulated as follows:

Table-40: Age-wise analysis of delay in closure of warrants

(Figure in numbers)

Factory	Warrants issued for selected items	Warrants closed within six months	Warrants closed between six and 18 months	Warrants closed between 18 and 36 months	Warrants yet to be closed as of 31.03.2015	
					More than six months old	Not due for closure
OFK	50	10	33	7	0	0
MSF	146	81	47	6	4	8
OEFC	305	52	139	4	78	32
AFK	248	46	99	68	19	16
Total	**(749-56) =693**	**189**	**318**	**85**	**101**	**56**

The Ministry attributed (August 2016) the reasons for keeping the warrant open beyond six months to:

- Time taken to regularise the manufacturing loss against some warrants.
- Time involved in quality checks including proofing and further investigation of proof failure.

Notwithstanding the reasons given, as all such factors have duly been considered while fixing the time limit of six months for closure of each

[59] Total number of warrants for selected 20 items issued from April 2012 to March 2015 (749) – Warrants issued during the last six months (56)=693

warrant, keeping the warrants open beyond six months without the approval of the Board was irregular.

7.4.2.1 Excess booking of labour across open warrants

The following case studies capture the *modus-operandi* of the Factories to transfer rejections and excess booking of labour across open warrants.

Case Study 1: Metal & Steel Factory, Ishapore

Production of 30 mm (Sarath) Cartridge Cases: Reluctance to take remedial measures to control abnormal losses

The Factory opened the warrant (*No. 8410/0*) in August 2012 for manufacture of 38,092 numbers of 30 mm (Sarath) Cartridge Cases. But against the "normal" rejection limits[60] of 13 *per cent (*4,952 cartridges cases), 38 *per cent* of production (14,565 cartridge cases) were rejected in proof test. Abnormal rejection of 9,613 cartridge cases costing ₹1.54 crore was a loss against that warrant, which needed to be regularised.

However, instead of analysing the reasons of abnormal rejections and taking remedial measures, the Factory, in November 2013, transferred 12,351.32 SMH (required to produce 10,000 cartridge cases) to other two warrants (8796/0 and 8743/0) where the rejection was low and within the permissible limits. However, no material was transferred from the warrant (8410/0) to the new warrants. By doing so, the rejection level in all three warrants remained within the "normal" limit of 13 *per cent* of the manufactured quantity. Thus by manoeuvring the warrants, the loss worth ₹1.54 crore caused by excessive rejection in warrant No. 8410/0 was covered up. No reasons were recorded for the necessity for the two labour transfer vouchers (TVs). This apart, excess booking of material in the cost card equivalent to 14,565 rejected cartridge cases against the warrant 8410/0 completed with accepted quantity of 23,527 cartridge cases distorted the cost of production in this warrant.

Moreover, the Manual states that Piece Work Profit (PWP) can be paid only for items that are cleared in inspection. But in this case, PW payment was made for the entire quantity produced, including rejection, leading to excess payment of ₹12.90 lakh.

The Ministry stated (August 2016) that inspection is a long drawn process and till such time the results are received, the Industrial Employee (IE) has to be paid and the costs booked in the Piece Work Cards. When the lot subsequently failed in proof, the SMH for 10,000 rejected cases was transferred to other warrants to ensure disallowance of labour wages. In the

[60] Defined as the Unavoidable Rejection - UAR

new warrant (8796/0), another lot of 10,000 cases were manufactured where no labour was booked in the PW card.

The reply is not acceptable since the Rules neither allow any warrant to be kept open for more than six months nor payment of PWP for rejected items. Further, TVs are not to be generated to spread a rejection across warrants as the issue of rejections in the course of manufacture needs to be addressed by means of replacement warrant. This approach of suppressing abnormal rejections and reluctance to learn from mistakes and take remedial measures is extremely unfortunate.

Case Study 2: Ammunition Factory, Kirkee

Production of Fuze DA5A: Warrant no. 1110030000, 1220030000

In all, the Factory was holding 41 lots of the rejected Fuze DA5A required for 51mm Bomb High Explosive (HE) against production during 2011-12 to 2014-15 for which final acceptance was awaited (September 2015) from Senior Quality Assurance Establishment (SQAE). The Factory did not regularise the transaction in the original warrants but transferred both labour and material cost of products, which were initially rejected, to another warrant at the time of closure to avoid recording of abnormal rejection in the original warrant.

The Ministry stated (August 2016) that the parent warrant had to be short closed within six months and the excess materials drawn (semi-finished condition) along with labour cost booked were transferred to the new warrant.

The reply clearly indicates that the OFB/Ministry are more focused on technically obfuscating the manufacturing/workmanship deficiencies rather than taking remedial measures so as to bring down rejections within reasonable levels in future.

Case Study 3: Ordnance Factory, Khamaria

Production of Link Belt of 30mm Naval ammunition: Warrant No.M0020

The Factory issued the warrant in May 2011 for manufacture of 50,000 Link Belt of 30mm Naval ammunition. But after manufacturing the ordered quantity, it was found that 4,817 SMH (₹2.21 lakh) was booked in excess and therefore transferred (November 2013) through a TV to another warrant (No. P0010) issued in April 2013 for manufacture of Cartridge Case of 40mm L/70 ammunition. Transfer of SMH was facilitated by keeping the warrant open for 30 months. Since such transfers can only be made in respect of similar items, the transfer made by OFK in the subject case was therefore unauthorised.

While accepting the observations, the Ministry stated that a Board of Enquiry was constituted in 2013 and responsibility was fixed to avoid erroneous posting of labour hours from one warrant to another and related anomaly in future.

7.4.3 Issue of Transfer Vouchers

The Manual[61] allows the preparation and use of Transfer Vouchers (TV)[62] for correction of wrong booking of labour, rectification of mistakes and transfer of expenditure from one work order to another by debiting the order for which the labour has actually been utilised and crediting the order on which the labour is drawn. As an internal control to check its use, it must be enfaced with certificate on the necessity of their preparation, by the Assistant Works Manager to be sent to the Accounts Office. The TVs are first registered in the Costing Section and passed on to the Material and Labour Sections for checking and posting on warrants and the priced TVs are returned to Costing Section for adding the overhead charges. Thereafter, the TVs along with allocation sheets *etc.* are sent to Electronic Data Processing (EDP) Section for the preparation of the abstract of TVs, which when received back are posted in the cost cards through costing package.

We examined the prevalence of TVs in sampled Factories as also the compliance with the controls on its use. We found that:

- OF Khamaria prepared 1,380 TVs valuing ₹ 91 crore (material ₹89.91 crore + labour ₹0.65 crore) between 2012-13 and 2014-15 without citing any reason. We also found that these were neither accounted in the relevant Cost Cards[63] by debiting the warrant from which the transfer took place and crediting the recipient warrant. Thus, not only were the norms for issue of TV violated but the transaction also distorted the cost of production of the items.

- 2,662 TVs were prepared by OEF Kanpur during 2012-13 to 2014-15 without citing reasons for initiation of the TVs. These included 74 TVs for transfer of 4211.26 SMH across different series of Work Orders[64]. Further, two TVs were prepared by the Factory and the labour transferred to a warrant that did not exist.

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[61] Para 626(A) of DADOM Part-VI

[62] In case of material if materials drawn against one order and are unavoidably used for another, the concerned AWM will prepare a transfer voucher crediting the Order on which the materials were drawn and debiting the order for which the materials have actually been utilized.

[63] When labour hours are transferred from one warrant to another, the overheads are also transferred since overheads are charged as a percentage of labour cost. The TVs are posted in the cost cards based on abstract of transfer vouchers.

[64] From work orders relating to items for issue to Army, Sister Factory and Factory's own stock to Work Orders relating to Departmental series.

- OEF Kanpur raised TVs and transferred 39.43 lakh SMH valuing ₹65.79 crore, which were drawn in excess of the authorised SMH. We found that the originating cost card had not been debited correspondingly.

- 16 TVs were prepared (2012-13 to 2014-15) at MSF Ishapore and OF Khamaria to transfer various items from the Direct Work Order series (*i.e.*, items manufactured in final stage of production and on completion, are to be directly issued to the indentor) to a Component Work Order series (on which manufacturing would need to commence ab-initio) and *vice-versa*. This casts doubts that the items may have been rejected in quality assurance and hence, the labour hours transferred.

- AF Kirkee prepared 1,368 TVs without the authentication by the Assistant Works Manager of the shop.

Ministry, in their reply, while accepting the facts, stated that instructions were issued (February 2016) to minimise the use of TVs and to provide proper justifications as per norms. It was further added that the Board would monitor compliance report from the Factories.

7.4.4 Inadequate controls on warrants

We also found irregularities which together with the use of TVs, show the absence of internal controls on production. These are summarised below:

- During 2012-13 to 2014-15, OEF Kanpur booked labour costs of ₹3.80 crore against 87 warrants that had since been closed. While the Ministry attributed the anomaly to oversight, the matter is serious and points towards inadequacies in the internal controls.

- Production cannot commence without drawal of material. In AFK and OEFC, 1,249 number of warrants were closed during 2012-15 after booking ₹61.50 crore for labour without drawing any material. Besides, 22 warrants issued from 2012 onwards were kept open by AFK after booking of labour valuing ₹1.70 crore without drawing any material.

The Ministry stated in reply (August 2016) that the warrants were completed by drawing the materials from shop saving and transferring semi finished material from other warrants.

Considering the established labour to material ratio of 1:5.4 (average over 2012-15), the reply however has a connotation suggesting that material worth ₹341.28 crore had been lying unaccounted in factory shops which was stated to have been consumed by engaging labour worth ₹63.20 crore.

- In OF Khamaria, we found 11 instances of lot date/Inspection Notes of the items manufactured which were issued prior to date of issue of warrants; 14 instances of labour booked after the items/lots were accepted in inspection.

The Ministry stated (August 2016) that such transactions happened in case of urgency expressed by other indentor as well as availability of money from them, when the passed lots were diverted to these indentors and the corresponding proportionate material and labour were transferred to the warrants issued against appropriate Work Orders.

The reply is not convincing as issue of finished items before opening of warrants and booking of labour after acceptance of finished items in inspection against a particular warrant make a mockery of manual provisions on warrant management.

7.4.5 Conclusions

The warrants are required to be closed within six months of its issue. Keeping warrants open for unduly long periods is fraught with risk of allowing unauthorised adjustments. Open warrants provided an opportunity to the Factories to spread rejections across warrants (in order to keep it within the normal rejection limits) or transfer excess material or excess labour drawn to other warrant through Transfer Vouchers. Transfer Vouchers were being used in the Factories without following the relevant internal controls.

7.4.6 Recommendations

- ❖ Given the large scale non-adherence to the specified life of the warrants, there is a need to look at standardised life of the warrant. Instead of having a uniform life of six months for every warrant, OF should fix life of the warrants keeping in view the requirements of each warrant. Keeping the warrant open for unduly long periods should be discouraged.

- ❖ Transfer Voucher should be used for catering to genuine adjustments. These should not be used for hiding abnormal losses.

- ❖ Cases of abnormal losses should be investigated and measures should be taken to remedy the weakness in the system as well as to address the instances of negligence or misdemeanour.

7.5 Procurement of defective Radiators

Heavy Vehicles Factory, Avadi placed an order for Radiators to be fitted in T-90 tanks on a firm which had no prior experience of manufacturing required Radiators. The Factory accepted Radiators worth ₹2.78 crore which did not conform to the stipulated technical requirements and rendered T-90 tanks fitted with such Radiators unacceptable to Army.

In order to fulfill the Army's indent (November 2004) for supply of 300 T-90 Tanks[65] (Tank) in phases between 2006-07 and 2009-10, Heavy Vehicles Factory Avadi (HVF) issued a Tender Enquiry (May 2005) for procurement of 102 Racks with radiators[66] (Radiators). HVF received offers from four firms[67]. A Technical Committee, constituted to assess the capacity verification of these firms, reported (May 2006) that only the Mumbai-based Firm 'B' had the experience and the facilities for manufacture of similar type of Radiators and had developed Radiator cores for Combat Vehicles Research and Development Establishment, Avadi (CVRDE) of same design and size.

However, we observed that the Tender Purchase Committee-I (TPC-I) of HVF recommended (June 2006) placement of the order on Gurgaon-based Firm 'A' on the basis of cost[68] ignoring the report of the Technical Committee that Firm 'A' did not have the experience in manufacture of such Radiators and the firm was in process of establishing the facility for manufacturing of such Radiator which was expected to commence by October 2006 only.

On the basis of the TPC-I recommendation HVF placed (July 2006) a supply order on Firm 'A' for 102 Radiators costing ₹2.28 crore with complete delivery by March 2008 in phases as under:

- Two Radiators as pilot samples within six months (January 2007) for Bulk Production Clearance (BPC)

- First batch of 50 Radiators within six months and second batch of 50 Radiators within 12 months of BPC

HVF received only one pilot sample of Radiator in June 2007 *i.e.* five months after the scheduled date. Based on the performance of pilot sample of

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[65] Indigenous manufacture of T-90 tanks (Tanks) at HVF is based on Transfer of Technology obtained (February 2001) from M/s Rosoboronexport, Russia.

[66] This radiator is plate and bar type against conventional tube type conforming to drawing No 188.31.082SB-1 consisting of water cooler, oil cooler housed in a fabricated framed structure.

[67] M/s. Perfect Radiators and Oil Coolers Private Limited, Gurgaon, now M/s. Lloyd Electric and Engineering Limited (Firm 'A'), M/s Teksons Limited, Mumbai (Firm 'B'), M/s Apollo Heat Exchangers Private Limited, Thane (Firm 'C') and M/s. Halgona Radiators Private Limited, Bengaluru (Firm 'D').

[68] Firm A had quoted ₹2.28 crore against the offer of Firm B for ₹3.79 crore

Radiator fitted on the tank, HVF issued BPC in January 2008 for manufacture of Radiator subject to elimination of certain discrepancies related to fitment of Radiator, raw materials *etc*. by the Firm.

Against the scheduled delivery of 102 Radiators by March 2008, the firm supplied 65 Radiators during February 2009 to July 2010 and did not supply any Radiator till December 2012. Meanwhile in October 2012, HVF decided to place order for additional quantity of 19 Radiators under option clause of the supply order of July 2006, thus increasing total quantity from 102 to 121 Radiators (₹2.80 crore) with PDC as October 2013. As the supplies even in respect of original quantity of 102 could not be completed within the stipulated schedule, PDC was extended up to February 2014 with Liquidated Damages (LDs). Supplies were completed by June 2014 and as of October 2014 payment amounting ₹2.58 crore was made to the firm after deducting LD.

We noticed that, by March 2013, 61 numbers of T-90 tanks fitted with the Radiators supplied by the firm were issued to the Army up to 31 March 2013. However, during Factory trials (2012) and Joint Receipt Inspection (JRI) (April/May 2013) of T-90 tanks produced by HVF using these Radiators, CQA[69] (HV) observed temperature of the coolant overshooting up to 120^{o} C within short distance of 4 to 8 Kms. Based on the observations of CQA, HVF found some deviations from drawing and specifications which were not noticed during fitment trials before BPC and sent the Radiators back to the firm for rectification. However, during performance evaluation of rectified Radiators, the problem of temperature rising up to 120^{o} C was again observed. In view of above, component level inspection and further tests were carried out jointly by HVF and CQA during the period from June to September 2014 in which non-conformances related to the manufacturing process, material and quality assurance were observed which were to be rectified by the firm. However, in subsequent JRI of T-90 tanks carried out in October 2014, problem of rising temperature up to 120^{o} C still persisted. Based on detailed analysis, CQA confirmed that the Radiators were not meeting the stipulated technical requirements as per drawing and specifications and hence were not acceptable.

In view of non acceptability of the Radiators supplied by the firm and resultant hold-up in issue of T-90 tanks, Army HQ (MGO Branch) decided (November 2014) to pursue a multi-pronged approach *i.e.* procurement of Radiators through import from Original Equipment Manufacturer (OEM) on emergent basis and expedite indigenous manufacture of Radiators based on design of imported Radiator. It was further agreed (September 2015) by HVF to replace

[69] Controllerate of Quality Assurance, (Heavy Vehicle), a quality assurance establishment under Director General of Quality Assurance (DGQA)

the non-compliant Radiators on 93 T-90 tanks held by them in batches by 31 March 2017 and thereafter on 61 tanks held with Army units.

Accordingly, HVF signed a contract (March 2016) with the OEM for import of 93 numbers Radiators at a cost of 69.40 lakh USD with PDC of December 2016. Out of 93 Radiators, 45 Radiators were received till December 2016.

As of December 2016, out of the 93 T-90 tanks held with HVF, 42 tanks had been replaced with the imported Radiators and were issued to the Army.

We also observed that while the quality deficiencies were under discussions with Quality Assurance Establishment, HVF had placed (July 2013) another order of 29 Radiators on the Firm 'A' at a cost of ₹1.27 crore, of which five Radiators were received (June 2016) against a payment of ₹20 lakh after deducting LD.

Thus, placement of purchase orders on a firm with no prior manufacturing experience in the required Radiators led to delay of about six years in supply. Subsequent failure of HVF in getting the defects of the Radiators rectified by the firm resulted in non-acceptance of T-90 tanks fitted with those Radiators by the Army. As a result, not only the entire expenditure of ₹2.78 crore by HVF towards procurement of 126 indigenous Radiators proved to be infructuous but issue of T-90 tanks to Army was also inordinately delayed impacting operational preparedness of the Armed Forces.

Ordnance Factory Board (OFB)/Ministry stated (April 2016/October 2016) that (i) order on Firm 'A' was placed on the ground that the Firm 'A' was in the process of establishing facilities for aluminium Radiators and would be able to make commercial production from October 2006; (ii) the Factory did not err in granting BPC since the pilot sample of Radiator was fitted in T-90 tanks for performance trial after its satisfactory performance in various tests and the T-90 tank fitted with the pilot sample of Radiator had completed 498 Km without any abnormality and the BPC was given to the Firm with a mention to eliminate certain discrepancies during bulk manufacture and; (iii) tanks were not issued not due to defect in design but due to insistence of the Army for fitment of imported Radiators with improved design.

The reply of OFB/Ministry is not convincing in view of the following:

- HVF had issued BPC based on the performance of pilot sample of one Radiator against the pilot sample of two Radiators, thereby deviating from the terms of the supply order.
- The BPC was issued subject to elimination of certain discrepancies relating to fitment of Radiators, raw material, *etc*. Since this firm did not

have prior experience, it was desirable to issue BPC only after adequate assurance that the deficiencies noticed during trial of pilot sample have been fully addressed.

- The CQA had stated (November 2014) that Radiators supplied by the firm were not meeting the stipulated technical requirements owing to the existing non-conformances related to manufacturing, material and quality assurance. Such observations by a quality assurance establishment also raises question on the tests conducted by HVF on the pilot sample before giving BPC.

7.6 Avoidable loss of ₹31.32 crore towards rejection of empty Fuze A-670M due to delay in defect investigation

Despite repeated failure in production of Empty Fuze A-670M in two Factories since 2008-09 onwards, OF Board constituted Joint team only in April 2014 which could give its recommendation in July 2016. Meanwhile, the production continued and empty Fuze A-670M valuing ₹31.32 crore were lying as rejected in two Factories as of July 2016.

Fuze A-670M, a mechanical fuze used in 30mm BMP-II[70] ammunition, is being manufactured in Ordnance Factories since 1985 based on Transfer of Technology (ToT). Empty Fuze A-670M (fuze) is manufactured at Ordnance Factory Ambajhari (OFAJ) and Gun and Shell Factory Cossipore (GSF); the fuze is filled and the ammunition is assembled at Ordnance Factory Khamaria (OFK) and Ordnance Factory Badmal (OFBL).

Mention was made in Paragraph 4.7.5.1(b)(vii) of Report No. PA 4 of 2008 (Defence Services) regarding rejection of both empty and filled lots of Fuze A-670 valuing ₹18.31 crore during 2002-07. While accepting the Audit contention, Ministry in their Action Taken Note stated (March 2010) that necessary action would be taken to avoid losses in production of the Fuze A-670M in future.

In the follow-up audit (May 2016) we found that without addressing the quality aspects the production continued and 34 lots and 23 lots of fuze valuing ₹31.32 crore were rejected during 2008-16[71] at OFAJ and GSF respectively due to inconsistency in proof performance like premature functioning; blinds; and timing of self-destruction being lower than specified.

[70] Boevaya Mashina Pakhota-II (Original Equipment Manufacturer) of Russia, erstwhile USSR

[71] The rejection of filled fuzes were meagre: out of a total of 56 lots produced in 2011-16 at OFBL, two lots were rejected. Only one lot was rejected in OFK during 2011-16

We found that despite continuing rejections in 2008-16, the Board took over five years to initiate action for investigation into the reasons for failure of fuze. A Joint Team under the chairmanship of Additional General Manager/OFK was constituted in April 2014[72] comprising members of all the concerned Factories and their Quality Assurance Establishments. The Joint Team submitted its report after a further two years i.e. in July 2016 wherein quality problem in Spiral, Safety Lock Assembly (SLA)[73] and Cap-0541A had been identified as the most probable cause of rejection. We found that the cause of rejection was similar to the probable cause of rejection of fuze as pointed out in the earlier Audit Report.

The quality issues of fuze which have been hampering production of Fuze A-670M since long, had also adversely affected the production of the filled ammunition. The shortfall in meeting the targets of fuze and the ammunition over the last five years (2011-16) is tabulated below:

Table-41

Year	Shortfall in fuze (empty)		Shortfall in ammunition	
	As percentage of target	Value of shortfall (₹ in crore)	As percentage of target	Value of shortfall (₹ in crore)
2011-12	16	2.34	26	21.83
2012-13	51	9.50	15	13.94
2013-14	63	13.82	83	242.78
2014-15	72	13.15	55	71.14
2015-16	56	10.87	89	326.02

Meanwhile, due to shortfall in supply of empty fuze from OFAJ and GSF, OFK initiated import action of 3.82 lakh numbers of fuze at a cost of ₹35.19 crore for meeting the demand of the ammunition for the Services which had to be cancelled on the ground of non-acceptance of contractual conditions by the foreign firm.

We further analysed that based on the recommendation of the Joint Team (July 2016), proof firing of 15 lots manufactured with in-house SLA had given satisfactory results at Long Proof Range Khamaria. Controller of Quality Assurance (Ammunition) Pune agreed (July 2016) to conduct a GM's trial to ascertain the functioning of fuze upon replacement of in-house manufactured SLA and Spiral. However, the GM's trial was yet to be conducted as of November 2016.

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[72] OFAJ also requested (December 2014) Defence Attache, Moscow to conduct a production process audit of hardware manufacture at OFAJ and filling and assembly at OFK through the OEM. But no response had been received from OEM as of July 2016.

[73] The SLA is a mechanical device in which the clip gets opened to allow the flash to pass through for ignition.

Thus, despite repeated failure in production of Empty Fuze A-670M in two Factories since 2008-09 onwards, OF Board constituted Joint team only in April 2014 which gave its recommendation in July 2016. Meanwhile, the production continued and empty Fuze A-670M valuing ₹31.32 crore were lying as rejected in two Factories as of July 2016.Further, inability to address quality issues in manufacture of Fuze A-670M by OFB with delays in initiating investigation and in identifying the exact causes for failure, led to shortfall in issue of critical ammunition to the Indian Army.

The matter was referred to the Ministry of Defence/Ordnance Factory Board (November 2016); their replies were awaited (January 2017).

7.7 Avoidable rejection due to failure to diagnose exact causes of earlier rejections

Failure of Ordnance Factories and the Quality Assurance Establishments in identifying exact causes of rejection resulted in continued rejection of lots of 105mm HE ammunition valuing ₹10.02 crore during 2013-16

Ordnance Factories are responsible for ensuring quality of the ammunition manufactured while the Senior Quality Assurance Establishment (SQAE) positioned in the Factory premises, provides the overall quality assurance. In the event of heavy rejection or accidents, timely defect investigation is required to be carried out to identify the cause; suggest remedial action to make the rejected lot serviceable and such measures to prevent their recurrence in future.

105mm IFG HE ammunition is filled at Ordnance Factory Badmal (OFBL) and Ordnance Factory Chanda (OFCh). The two filling Factories rely[74] on Trade and Ordnance Factory Kanpur (OFC) for empty shells.

During 2010-11, four accidents were reported by Central Proof Establishment, Itarsi (CPE) during proof of filled 105 mm HE ammunition manufactured by OFBL, due to damage of the Muzzle brake[75]. A Task Force was formed (2011) with the representatives of the Factories, the SQAEs positioned in the Factory premises, the Controllerate of Quality Assurance (Weapon) (CQA/W) and the Proof Establishment, to investigate the accidents.

The Task Force took two years (February 2013) to conclude that the causes for the accident were rust inside the groove under the driving band[76], dimensional

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[74] In 2011-12, OFAj stopped production of empty shells for 105mm HE ammunition

[75] The muzzle brake of a weapon redirects and controls the burst of combustion gases that follows the departure of a projectile.

[76] The driving band made of metal that is pressed into the middle of the shell body.

difference in the driving band and inadequacies in its dynamic balancing (balancing of the shell in the barrel while firing). Among the remedial measures were phosphating of the shell before the driving band is pressed on it (to avoid rust); process controls at the stage of cleaning of the driving band groove and knurling operation prior to band pressing *etc*. An additional control point of dynamic balancing of the shell was also recommended.

The remedial measures recommended by the Task Force could not be implemented because it entailed changes in the process schedule (manufacturing process) for which the Controllerate of Quality Assurance (Ammunition) (CQA/A) did not grant approval. Instead the CQA/A directed the Ordnance Factories to follow the procedures as per the design documents of the OEM. Thus, the exact causes of rejection of the ammunition remained unresolved.

Meanwhile, production of 105 mm HE ammunition continued with the existing design of OEM. We found that four lots comprising 8009 numbers of Shell 105 mm ammunition valuing ₹10.02 crore manufactured at OFBL during July 2013 – July 2015, were involved in accidents during proofing at CPE Itarsi due to muzzle brake damage and premature functioning of rounds.

CQA/A identified (November 2015) that certain flaws were present in manufacturing of shells and fuzes either at empty stage or filled stage. They also highlighted that such high number of accidents at proof establishments not only damage scarce equipment but also endangers the lives of the personnel and as such immediate corrective actions are necessary.

In view of high numbers of accidents, CQA/A directed (November 2015) Ordnance Factory Board (OFB) to constitute a Failure Review Board (FRB) under the aegis of OFB with the representatives from concerned Factories and SQAEs to study, identify and pinpoint the cause of accidents and adopt remedial measures to arrest further production of defective ammunition. Accordingly, the Board directed (December 2015) OFBL constitute an FRB to study and pinpoint the cause of accident and adopt remedial measures.

The FRB constituted (January 2016) at OFBL to investigate and pinpoint the actual cause of defects, submitted its report in July 2016. However, FRB could not pinpoint or identify the exact reason of rejection but suggested for 100 *per cent* X-raying of the next few lots as a short term measure.

On being enquired in Audit, OFBL stated (March 2016) that since the major recommendations suggested by the Task Force did not pertain to OFBL, the remedial measures were not incorporated at OFBL.

Thus, while these accidents in proof firing at CPE, Itarsi reoccurred during July 2013-July 2015, the OFB as well as QAE are yet to diagnose the problem and take effective measures.

The matter was referred to the Ministry of Defence/Ordnance Factory Board (December 2016); their replies were awaited (January 2017).

7.8 Under utilization of costly machines

Two tooled-up CNC machines were purchased at a total cost of ₹9.32 crore by Rifle Factory Ishapore despite already having an existing capacity to meet the targets. One tooled-up machine has been non-functional since July 2014 for want of special purpose tools (as of April 2016) and the prospect of utilization of the other machine engaged in production of two components is also bleak in view of procurement of these components from trade at a much cheaper rate.

Rifle Factory Ishapore (RFI) manufactures 5.56 mm Indian Small Arms System Rifle. Three components of the weapon *viz*. Breech Block, Pawl Hammer and Extractor are manufactured in36 machines in two production sections: CNC-II and Small Component (SC) section. Together these machines provide a capacity to manufacture 87,100 numbers of Breech Block at CNC-II section during 2010-11. Further, with the existing resources, Factory was able to manufacture 99,309 and 1,49,469 of Pawl Hammer and Extractor respectively.

The Factory projected (May 2010) a demand to replace four lathe machines of different sections[77] which had outlived their lives with two CNC machines under Renewal and Replacement grant for manufacture of these three components to enhance the capacity of 5.56mm Rifles from 60,000 numbers per annum to 80,000 per annum.

Ordnance Factory Board accorded (December 2010) the sanction and Factory placed (May 2012) an order on a foreign firm for two numbers of tooled up CNC Machining Centres for an amount of CHF 14.51 lakh. The delivery date for machines which were scheduled to be delivered by February 2013 was extended to June 2013 due to repeated change in composition of the pre-dispatch inspection team. The Factory received the machine valuing ₹9.32 crore in August 2013 which was erected and commissioned at the CNC-II and SC sections by the foreign firm in January 2014.

The machines procured were tooled-up machines which could be used only for the specific operations for which they had been tooled-up by the manufacturer.

[77] LC (two machines), MM and M (one each)

We observed that after commissioning, the two machines went under breakdown on several occasions between May 2014 and December 2014 and after intervention (December 2014) of the manufacturer, only one machine erected at SC section could be made operational. The other machine erected at CNC-II section was non-functional since July 2014 because the special tools recommended by the firm for proper functioning of the machine for manufacturing of breech block could neither be developed in-house nor procured from trade.

In March 2015, Factory decided to procure Pawl Hammer and Extractor from trade since the in-house cost of production of these components was not economical compared to trade cost. Accordingly, Factory procured 30000 and 62067 number of Pawl Hammers and Extractor respectively from trade during 2015-16 as it resulted in reduction of cost of production as well as increase in quality of components/products.

Thus, the procurement of the two CNC machines was flawed since the factory was having existing capacity to meet the futuristic targets and also these machines were not put to use for manufacturing of components of Rifles.

On being enquired in Audit, Ordnance Factory Board stated (April 2016) that the machines were procured for replacement of four condemned lathe machines which was in line with the goal to induct new machines with advance technology which can enhance productivity as well as futuristic load. It was also stated that the new machines are also being utilized for manufacturing of the components for newly developed weapons.

The Board's contention is not convincing since:

- The production sections: CNC-II and SC sections already had the capacity to manufacture Breech Block, Pawl Hammer and Extractor to meet the futuristic demand of 80,000 numbers of 5.56 mm Rifle per annum and thus, additional capacity was not required in the Factory;

- In-house production cost vis-à-vis trade cost of the components (Extractor and Pawl Hammer) was not assessed at the time of placement of demand for the CNC machines as these components are available from trade sources at cheaper rate;

- Old machines were disposed off (March 2011) 34 months prior to the commissioning of new machines in violation of Procurement Manual for Plant and Machinery which stipulates that old machines should be disposed off only after the receipt of their replacements;

- The demand for 5.56mm Rifle has been on a steady decline since 2012-13 because the Army's demand has been saturated and;
- Utilization of the new machines for manufacturing of components for newly developed weapons is not possible since the new machines were not general purpose machines but procured under tooled-up conditions, designed for manufacturing of only specific components.

Thus, two tooled-up CNC machines were purchased at a total cost of ₹9.32 crore by Rifle Factory Ishapore despite having existing capacity to meet the targets. One tooled-up machine is non-functional since July 2014 for want of special purpose tools (as of April 2016) and the prospect of utilization of the other machine engaged in production of other two components is also bleak in view of procurement of these components from trade at a much cheaper rate. Audit recommends that the OFB may explore if these CNC machines can be re-tooled and put to use in other shops/ factories.

The matter was referred to the Ministry of Defence (September 2016); their reply was awaited (January 2017).

7.9 Delay in production of BLT variant of Tank T-72

As per Indent, T-72 Bridge Laying Tanks (BLT) variants were scheduled to be delivered by HVF, Avadi in a phased manner during 2012-2017. On account of delays in execution of infrastructure projects and frequent changes in the sealed design of T-72 BLT, HVF was yet to commence issue of T-72 BLT variant and the advancing tank column of the Armoured Regiments, therefore, remained incomplete to that extent.

An advancing tank column of an armoured regiment comprises the fighting tanks with the weaponry along with its variants, *i.e.,* tanks which provide support services to the main tank. The variants include Bridge Laying Tanks[78] (BLT) which are used to lay short span bridges over canals and other obstacles to enable the movement of main tanks. Indian Army has been holding BLT on old T-55 tanks, which have since outlived their life.

[78] The BLT is essentially a tank without the weapon control system or the turret, but with a bridging system that is attached to the chassis. The carrier vehicle of a BLT is modified to equip it with hydraulic systems and fit the bridging system.

With the indigenisation of Tank T-72 in 1993 and taking cognizance of the need to upgrade the corresponding variants, Army projected (2007) a requirement of 381[79] variants of T-72 tanks which included 147 BLT variant. To meet this requirement the Ordnance Factory Board (Board) in turn felt a need to augment its infrastructure and procure fresh machinery and equipment for production of the BLT. The Board accordingly prepared a Detailed Project Report (DPR) in 2009, which *inter-alia* determined the critical timelines for all the activities leading to eventual phased roll out of the BLT. Combat Vehicles Research & Development Establishment (CVRDE), Avadi under Defence Research and Development Organisation (DRDO) was the agency responsible for design and development of the BLT variant. The Ministry placed an indent for Army in February 2010 for 135 BLTs[80] on the Board, scheduled for phased delivery during 2012-2017. In August 2010, creation of production facilities at the Heavy Vehicles Factory, Avadi (HVF) at a total cost of ₹280 crore[81], was sanctioned by the MoD, which included procurement of machinery and equipment worth ₹199 crore. As of September 2016 a total expenditure of ₹190 crore including civil works has been incurred.

We observed that the project for manufacture and issue of 135 BLTs to the Army was severely lagging behind. Delays were mainly attributable to tardy procurement of machinery and equipment by the factory and non-freezing of designs by CVRDE, which led to failure in achievement of objectives of the ₹280 crore project. The issues leading to delay are discussed as follows:

- **Slow procurement of Machinery and Equipment**

As per the DPR, placement of orders for machinery like CNC Turn Mill Centre, Boring and Milling machine, Gear Shaping machine, Laser Cutting machine, *etc*. and equipment like Forklift, Drilling machine, Welding machine, Battery Operated Truck, Crane, *etc*. were required to be completed by August 2011 and their commissioning was required to be accomplished by February 2013. Meanwhile the sealed design was received by the Factory in June – September 2011.

There were delays at both the pre and post contract award stages. We found that the factory could not place the order within the scheduled time and the orders for machinery and equipment were issued even in September 2016. It was further seen that within the stipulated time of August 2011 not a single order was placed by the factory. Even as of September 2016 *i.e.* five years after the targeted time, the orders for four items including one critical machine (CNC machine for production of Torsion Bar) were yet to be placed.

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[79] 147 BLTs, 160 Tanks for Trawls and 74 Flails

[80] 12 BLTs under Limited Series Production sent to the Army in 2006-07 by DRDO

[81] Ministry's sanction (August 2010) was for BLT and Tanks for Trawls. No separate money value for BLT project was available.

The delay in placing of supply order was further compounded by the delays in execution of supplies by the suppliers. Our examination of 50 sampled machinery and equipment out of total 101 required, revealed an average delay of 26 months (with the range between 11 and 46 months) in placement of orders[82] which was mainly due to inordinate time taken for technical evaluation of the tenders and negotiation with vendors.

In post-contract phase, there was a delay of two to 15 months in receipt of 14 machines and equipment. We found that these delays were attributable to delay in deputing pre-dispatch inspection (PDI) team by the factory and non-compliance of modification by the suppliers as suggested by PDI team. In addition, there were delays of two to 14 months[83] in commissioning of 12 machines by the suppliers.

The Ministry stated (June 2016) that considerable time was taken for procurement, receipt and commissioning of machines/equipment due to delay in framing of machine specification, teething problem in e-procurement system, delay in deputing PDI teams due to exigency in workload, paucity of funds and non-availability of vessels for shipment of imported machines.

The contention of the Ministry is, however, not tenable as we instead found that the delays were compounded due to inordinate time taken for technical evaluation of the tenders and negotiations with vendors. Further, the bottlenecks in deputing PDI teams, framing of machine specifications and other logistic arrangements could have been avoided by efficient project planning and procurement action.

Thus, the action for procurement of machinery and equipment was tardy which was mainly impaired by delay in placement of orders and also in commissioning of the equipment. Consequently, the Board could not produce and commence the supply of BLTs even by September 2016.

- **Frequent changes in sealed design and drawings**

Mention was made in Report No. 35 of 2014 of the Comptroller and Auditor General of India about frequent changes in the designs leading to delay in development of Tank (MBT Arjun). Ministry in their reply (December 2015) to Public Accounts Committee's (PAC) questionnaire about the mechanism/system for freezing of design of the newly developed items stated that complete configuration management system exists with Defence Research and Development Organisation (DRDO) and the developed product is

[82] With reference to the prescribed time limit of six months for placing orders after sanction

[83] In absence of specific timeframe for commissioning of machines in the supply orders, six months time was considered for commissioning of machines as adopted in the earlier Audit Reports.

normally trial evaluated extensively for complete operational satisfaction of the User before placing indent. It was clarified that the configuration is to be frozen after trial evaluation and only very critical changes are to be requested through existing 'Alteration Committee' mechanism. The Alteration Committee comprising members of the Factory, CQA, DRDO, User is responsible for suggesting changes/improvement in manufacturing process and materials in course of bulk production of established items, wherever required because of quality problems.

Notwithstanding the procedure explained by the Ministry to the PAC, we observed that while HVF was provided the sealed design drawings[84] in June-September 2011, the amendments to the drawings (e.g. major amendments in respect of Hull manufacturing, Radiators, *etc.*) continued even up to September 2016. In all, 757 amendments were made to the approved drawings by the DRDO and Controllerate of Quality Assurance (Heavy Vehicles) [CQA(HV)] by March 2013.

Even as late as December 2014, the designs on certain assemblies/components were amended. It was reported by HVF in Production Review Meeting (March 2013) that DRDO was amending the designs in the production shop itself without intimating the feeder sections. These changes in designs not only resulted in mismatch in the components and tools procured or manufactured but also had financial implications caused by cancellation of supply orders placed on the basis of previous designs. The Ministry further intimated (November 2015) that amendments in drawings from time to time by DRDO resulted in delay in receipt of sealed drawings and amendments to the sealed drawings were still being received.

In response to an Audit query about the reasons for frequent changes in the sealed design, CQA (Heavy Vehicles) Avadi intimated (January 2015) that amendments were issued by DRDO to incorporate improvements necessitated by production constraints and hence, the drawings could not be frozen.

Ministry in June 2016 agreed to the Audit contention and stated that continuous amendments in drawings by CVRDE and time taken in resolving the major issues relating to design/inspection methodology/ refinements had hampered the pace of progress of manufacturing BLT.

[84] The drawing designs are to be given by the developer, DRDO in a sealed cover to the representative of the Directorate General of Quality Assurance *i.e.* Controllerate of Quality Assurance Establishment, Heavy Vehicles (CQA (HV)).

Conclusion

The production of the BLT variant has been hindered on two fronts. Lack of effective coordination amongst all the stakeholders in resolving the issue of amendment of sealed design during bulk production stage over a period of five years has resulted in delay in production. This is compounded by the delays in procurement and commissioning of machinery and equipment by the Factory. These factors have deprived the Armoured Regiment of Army of a major capability for its advancing Tank column in replacement of the current holding of BLTs on obsolete T-55 Tanks.

(PRAVEEN KUMAR TIWARI)
Director General of Audit
Defence Services

New Delhi
Date: 23 March 2017

Countersigned

(SHASHI KANT SHARMA)
Comptroller and Auditor General of India

New Delhi
Date:24 March 2017

ANNEXURE-I

(Referred to in Paragraph 1.10)

Recovery at the instance of audit

Sl. No	Unit/ formation		Nature of over payment / non recovery	Amount objected (amt in ₹)	Amount accepted (amt in ₹)	Amount recovered (amt in ₹)
1	CO Chennai	i)	Non-recovery of training& living charges from Ministry of External Affair.	15640800	17404637	17404637
		ii)	Short-Recovery of Training & living charges from Min of External Affairs	2058000	2052000	2052000
2	CSD HO Mumbai	i)	Recoveries from suppliers on account of Excise duty reduction.	---	1797947	1797947
		ii)	Non-recovery of difference in price due to reduction of MRP in market	8243076	7671878	7671878
		iii)	Blockage of Government funds due to delay in raising debit note and back loading the stock to supplier	910000	998018	998018
		iv)	Non recovery of Liquidity Damage (LD) charges.	382625	193455	193455
		v)	Recovery on a/c of irregular payment	---	88334	88334
3	PCDA(O) Pune	i	Recovery on a/c of Irregular payment of Transportation Allowance	607910	635850	628036
		ii	Recovery on a/c of Irregular payment of Qualification Grant.	250500	250500	250500
		iii	Recovery on a/c of irregular payment of Children Education allowance	241110	206883	206883
		iv	Recovery on a/c of encashment of leave/LTC	1704639	1797338	1733141

Sl. No	Unit/ formation		Nature of over payment / non recovery	Amount objected (amt in ₹)	Amount accepted (amt in ₹)	Amount recovered (amt in ₹)
		v	Recovery on a/c of field allowance	276235	355866	352919
		vi	Recovery on a/c of other allowances	1879361	3375738	3362587
4.	PCDA SC Pune	i)	Recovery on a/c of overpayment to the Supplier	265000	248788	[14]248788
		ii)	Non recovery of HBA	150000	150000	150000
		iii)	Recovery on a/c of minus bal GPF/ Overpayment of TA/ under recovery of CGHS/ Others.	865148	387700	387700
5.	VRDE Ahmednagar	i)	Recovery in r/o fixation of Grade Pay of A 4800/- for Tech Officer 'A' in DRDO	-	2115000	2984469
	ARDE Pashan	ii)	-do-	-	1736581	1736581
6.	RCI Hyderabd		Non-recovery of Service Tax	-	1352891	1352891
7.	GE(W) Colaba		Electricity Charges from regimental shop	-	1255267	1255267
8.	AFMSD Mumbai		Recovery towards non-replacement of life expired drugs	526000	526000	552750
9.	DIAT Girinagar	(i)	Recovery of excess Pay & Allowances	-	258193	258193
	JCDA(R&D) Pashan	(ii)	Recovery of computer advance - DIAT	-	59952	59952
10.	ARDE Pashan	(i)	Recovery of Transportation Allowance	118632	142216	142216
	R&DE(E) Dighi	(ii)		88064	88064	88064
11.	ARDE Pashan		Recovery of Telephone bills	101560	101089	101089
12.	DMRL Hyderabad	(i)	Recovery of rent & allied charges from URC run by DMRL	161978	161978	161978
	EME School Baroda	(ii)	Recovery of rent and allied charges in r/o foreign trained para military force trainees	10040	8990	8990
13.	VRDE Ahmednagar		Recovery on a/c of non-imposition of LD on a firm	-	149610	149610
14.	CCE(R&D) West Pashan		Non-deduction of I-Tax	-	101210	103000

Sl. No	Unit/ formation		Nature of over payment / non recovery	Amount objected (amt in ₹)	Amount accepted (amt in ₹)	Amount recovered (amt in ₹)
15.	MGASC Pune		Recovery on account of risk and cost purchases	157126	177426	177426
16.	ASL Hyderabad	(i)	**Misc recoveries** Excess overhead charges/compensation	-	81875	81875
	HEMRL Pune	(ii)	Recovery of Penal Interest	35568	35568	35568
	CEPZ Pune	(iii)	Railway Warrants	-	3560	3560
	MH Golconda	(iv)	Excess issue of Railway Warrants	7020	7020	7020
	ACC&S Ahmednagar	(v)	Auction money of condemned stores	-	11914	11914
17	PAO GREF Dighi		Recovery on a//c of Transportation and Field allowances		214655	214655
	PAO(ORs) Guards Kamptee			31798	36270	36270
18	PAO(ORs) MIRC Ahmednagar		Recovery on a/c of Other Allowances	0	3375	3375
	PAO(ORs) AOC Secunderabad			117960	1460660	1316660
19	GE Kota		Recovery of electricity and water charges from an Officer Mess	-	-	209712
20	250 Transit Camp		Crediting of AC charges to Regimental Fund instead of Govt. treasury	-	-	38460
	Total			**34830150**	**47704296**	**48618368**

Say ₹ 4.86 crore

ANNEXURE-II

(Referred to in Paragraph 1.10)

Savings at the instance of Audit

Sl No	Unit/formation	Nature of irregularity pointed out by audit	Remedial measures taken by units	Amount involved (₹ in lakh)
1	GE(CME) Dapodi	Unauthorised provision of 04 Type V married accommodation for MES Civilian Officers	A/A cancelled	108.41
2.	HQ MG&G Area Mumbai	Irregular sanction for provision of Single living accommodation for one JCO and two Havs at Baroda	A/A cancelled	12.85
		Irregular sanction for provision of approach road from PT Gate to swimming pool at 3 TTR Margoa	A/A cancelled	5.60
3.	HQ SC Pune	Irregular transfer of public money into regimental fund	Amount Deposited into Govt Treasury	3.00
4.	COD Dehu Road	Over provisioning of an Item	Demand reduced	8.30
5.	MITS&D	Special Repairs to sewage system OTM accommodation at MINTSD Pune under GE(S) Pune	A/A revised with reduction in work	14.18
6.	HQ Andhra Sub Area	Provision of falls ceiling in bldg No. E2 DD of 161 Med Regt under GE(N) Secunderabad	A/A cancelled	1.91
7.	HQ Pune Sub Area	Special repairs to chain link fencing at ALC under GE(S) Pune (N)	A/A cancelled	14.24
		Provision of wire fencing at INI Pune under GE(CME) Kirkee (D)	A/A cancelled	9.1
		Special repairs to Bldg No. 37 at Aurangabad Cantt under GE(S) Ahmednagar (N)	Reduction of excess Market Variation	0.33
		Provision of Incinerator for destruction of office papers/material at CSD under GE(N) Pune	Reduction of excess Market Variation	0.11
8.	PCDA, SC, Pune	Reduction in the amount of CGEGIS & Encashment of earned leave	Amount restricted	1.89
9.	HQ ACCS, Ahmednagar	Provision of Syntex water tanks along with staging and water connection in OR MdAccn at JK road (Qty 12) (capacity 1000 Ltrs) at ACC&S Ahmednagar	Reduced the work	0.10
10.	Stn HQ Aundh	Provision of Trestle Stores Room for CSD at CME	A/A cancelled	0.82
11.	PCDA(O) Pune	Savings on account of Terminal Gratuity Claims (Through PS)	Claims amended	27.95
		Savings on account of Terminal Gratuity Claims (Through TAOS)	Claims amended	11.05
12.	HQ 21 Mtn. Div	Special repairs to building	A/A cancelled	14.50

Sl No	Unit/formation	Nature of irregularity pointed out by audit	Remedial measures taken by units	Amount involved (₹ in lakh)
13.	Station HQ Sukna	Special repairs to boundary wall	A/A cancelled	13.30
14.	HQ 111 Sub area	Provision of Standby Air Handling Units and Cooling Tower and Allied works	A/A cancelled	12.96
		Provision of Aluminium Frame portion wall with glass	A/A cancelled	0.98
15.	HQ 20 Mountain Div.	Provision of Solar Water Heater system for cook house and unit lines	A/A cancelled	10.70
		Comprehensive special repair to building	A/A cancelled	9.73
16.	HQ 417 Engr Bde	Provision of two wheeler Parking stand	A/A cancelled	1.70
17.	Station HQ Barrackpore	Provision of Aluminium partition for LPG offices	A/A cancelled	1.47
18.	Station HQ Vairentage	Provision of vitrified ceramics tiles	A/A cancelled	0.97
19.	Station HQrs, Nabha	Provision of chain link fencing between building No P-124 to building No. P-130 at Military Station, Nabha	A/A cancelled	1.98
20.	-do-	Provision of chain link fencing between Gate No 1 to building No P-124 at Military Station, Nabha	A/A cancelled	1.98
21.	-do-	Provision of chain link fencing between building No. 137 to Gate No. 2 of Armd Wksp at Military	A/A cancelled	1.98
22.	HQ 61 Sub Area	Provn of addition/alteration in auditorium building under zone I area at Jaipur Mil stn	A/A cancelled	14.16
23.	HQ 61 Sub Area	Provn of guard room, stores & ancillaries at Haldighati line at Jaipur Military Station	A/A cancelled	14.98
24.	HQ 61 Sub Area	Provn of extension in of building No. P-803 in Zone I Area at Jaipur Mil Station	A/A cancelled	14.99
25.	15 Inf Div	Admin Approval Cum Released Order for Provn of Four Servant Quarters at 615 EME Bn Officers Mess at Amritsar Cantt.	A/A cancelled	14.44
26.	HQ 71 Sub Area	Provision of store for Clothing and Signal Store.	A/A cancelled	10.60
27.	HQ 135 Works Engr	Excess provision of OR institute amounting to Rs. 20.56	Reduction Statement issued	21.18
28.	HQ 71 Sub Area	Provision of Environment Control System for operationalising E – library portion seen as not in order	A/A cancelled	14.90
29.	HQ 71 Sub Area	Provision of 01x Guard Room (05 persons) with toilet and bathroom in Wksp morh at 14 EME Bn viewed as irregular as guard rooms are not authorized for OR Md Accn	A/A cancelled	14.52

Sl No	Unit/formation	Nature of irregularity pointed out by audit	Remedial measures taken by units	Amount involved (₹ in lakh)
30.	HQ 71 Sub Area	Provision of Main Gate renovation work at HRDC HQ 71 Sub Area under GE (North) Udhampur	A/A cancelled	3.91
31.	HQ NC	Militancy Area charges applied in Adm Approval of provision of road connecting Inf Bn 2 with Inf Bn 3 at Bhalara Station @ 10% instead of 5%	Reduction Station issued by HQrs NC after applying correct charges	14.03
32.	HQ 9 corps	Provision of covered footpath was viewed as irregular by audit as no scale has been laid down for such work	A/A cancelled	14.77
33.	HQ NC	Construction of 01x40 men barrack and Provision of 08x Single Officers living accommodation for 625 EME Bn at Rajouri.	Reduction Statement issued	6.55
34.	HQ 20 Mtn. Div	Comprehensive Spl Repair to Block No 0/54 and 0/55 under GE Binnaguri	A/A cancelled	43.00
35.	HQ 4 Corps	Provision of 01 High Mast security light at JCOs/OR Married Accommodation Complex	A/A cancelled	7.57
36.	HQ 4 Corps	Provision of Rest Room near Building No. P-25 at Station HQ Tezpur	A/A cancelled	6.10
Total				507.79

Say ₹ 5.08 crore

ANNEXURE-III

(Referred to in Paragraph 1.10)

Adjustment in Annual Accounts at the instance of Audit

Sl No	**Unit/formation**	**Nature of irregularity pointed out by audit**		**Remedial measures taken by units**	**Amount involved (₹ in crore)**	**Net effect of the amount involved (*ie.* 50%) (₹ in crore)**
1.	CSD HO MUMBAI	Saving on a/c of amendment to Annual Accounts for the year 2014-15		Annual Accounts 2014-15 amended accordingly	97.40	48.70
		Under statement of liability towards CST/VAT	2.44 crore			
		Under statement of Sundry Creditors	79.38 crore			
		Non-accounting of expenditure towards completed Deposit Works	2.61 crore			
		Non-accounting of outstanding liabilities	0.99 crore			
		Over statement of value of closing stock in the Annual Accounts for the year 2014-15	5.63 crore			
		Non provision towards Service Charges/VAT	6.35 crore			
		TOTAL	97.40 crore			**48.70**

Say ₹ 48.70crore

ANNEXURE-IV

(Referred to in Paragraph 1.12)

Position of outstanding ATNs

Ministry of Defence - excluding Ordnance Factory Board

(i) Pending for more than ten years

Sl. No.	Report No. and Year	Para No.	Subject
1.	No. 2 of 1989	11**	Purchase and licence production of 155mm towed gun system and ammunition
2.	No.12 of 1990	9**	Contract with Bofors for (a) purchase and licence production of 155mm gun system and (b) Counter Trade
3.	No.8 of 1991	13*	Central Ordnance Depot, Agra.
4.	No.8 of 1993	29*	Import of mountaineering equipment and sports items
5.		31*	Avoidable payment of detention charges
6.	No. 7 of 1998	32*	Infructuous expenditure on procurement of substandard cylinders
7.	No. 7 of 2001	15**	Procurement of an incomplete equipment
8.	PA Report No. 7A of 2001	*ATN for 7 out of 42 paras yet to be received even for the 1st time while one part ATN referred back to Ministry	Review of Procurement for OP VIJAY(Army)
9.	No. 6 of 2003	14*	Irregular recruitment of personnel
10	No. 6 of 2004	3.2*	Recoveries/Savings at the instance of Audit.
11	No. 6 of 2005	3.2*	Recoveries/savings at the instance of Audit
(ii)	**Pending more than 5 years up to 10 years**		
12	Report No. 4 of 2007	3.5*	Recoveries/Savings at the instance of audit
13	PA Report No. PA 4 of 2008	Chapter I**	Supply Chain Management of General Stores and Clothing in the Army
14	Report No. CA 17 of 2008-09	2.7*	Non-renewal of lease of land occupied by Army Golf Club
15		3.5*	Utilisation of Government assets for non-governmental purposes

16	Report No.12 of 2010-11	3.6*	Recoveries/Savings at the instance of audit
17		2.1**	Defective import of SMERCH Multi Barrel Rocket Launcher System
18	PA Report No. 6 of 2010-11	Standalone Report*	Supply Chain Management of Rations in Indian Army
19	PA Report No. 14 of 2010-11	Standalone Report**	Canteen Stores Department
20	PA Report No. 35 of 2010-11	Standalone Report*	Defence Estates Management
21	PA Report No. 11 of 2011-12	Entire Report*	Special report on Adarsh Co-operative Housing Society, Mumbai
(iii) Pending more than 3 years up to 5 years			
22	Report No. 24 of 2011-12	3.1**	Extra expenditure due to acceptance of higher rates
23		3.14*	Recoveries and savings at the instance of Audit
24		5.2**	Non-completion of bridge after twelve years of sanction
25	PA Report No. 18 of 2012-13	3.1,3.2,4.5,5.8,5.9,5.11,5.14 & 7.3**	Performance Audit of the Medical Establishments in Defence Services
(iv) Pending up to 3 years			
26	Report No. 30 of 2013	2.1*	Improper management of Defence land
27		2.5*	Absence of effective controls resulting in non recovery of outstanding dues
28		3.7*	Recoveries, savings and adjustment in accounts at the instance of Audit
29	Report No. 35 of 2014	2.1*	Inordinate delay in indigenization of TATRA vehicles
30		2.2*	Procurement of unacceptable equipment valuing ₹27.32 crore
31		3.1***	Nugatory expenditure of ₹88.39 crore in the procurement of Chemical, Biological, Radiological and Nuclear (CBRN) Equipment
32		3.2*	Extra expenditure of ₹2.33 crore due to failure to accept the tender for procurement of tea within the validity period
33		3.3*	Loss of revenue due to non collection of metal scrap from Field Firing Range

34		3.6**	Recoveries, savings and adjustment in accounts at the instance of Audit
35		7*	Defence Grants-in-Aid Scheme of Defence Research and Development Organization
36	PA Report No. 19 of 2015	Entire Report***	Performance Audit on Ammunition Management in Indian Army
37	Report No. 44 of 2015	2.1*	Working of Cantonment Boards
38		2.2***	Non-availability of Specialized Parachutes
39		2.3*	Short recovery of interest on mobilization advance
40		3.1***	Functioning of Army Aviation Corps
41		3.2***	Shortfall in availability of BMP vehicle in Indian Army
42		3.3*	Unwarranted procurement of image intensifier sight for Commander of Tank T-55
43		3.4*	Excess procurement of stores
44		3.5***	Less deduction of Liquidated Damages
45		3.6*	Non-Installation of Hydraulic Test Benches
46		3.7***	Avoidable expenditure in procurement of Hi-Lo-Beds
47		3.8*	Recoveries, savings and amendment of annual accounts at the instance of Audit
48		4.1***	Loss due to excess payment and short recovery of electricity charges
49		4.2***	Inadequate monitoring of execution of a project
50		4.3***	Non utilization of assets
51		4.4***	Blockage of Government money due to conclusion of contracts without availability of site
52		4.5***	Infructuous expenditure due to procurement of substandard pipes
53		5.1**	Avoidable expenditure due to acceptance of contract at higher rates
54		5.2**	Under recovery of Services Tax from the contractors
55		5.3**	Delay in procurement of Water Truck resulted in extra expenditure
56		6.1*	Project Management in Terminal Ballistic Research Laboratory (TBRL) Chandigarh

57		6.2***	Information Technology Audit of SAP Enterprise Resource Planning System at Research Centre Imarat, Hyderabad
58	PA Report No. 51 of 2015	Entire Report***	PA on Implementation of Ex-servicemen Contributory Health Scheme
59	Report No. 19 of 2016	2.1***	Functioning of Director General Resettlement
60		2.2***	Supply Chain Management of Ration in Indian Army-Follow up Audit
61		2.3***	Procurement of Environmental Control Units found incompatible during exploitation
62		2.4***	Non-deduction of income tax on field allowances granted to Junior Commissioned Officers in the Army
63		2.5***	Short acquisition of land measuring 73.826 acres
64		3.1***	Unwarranted procurement of Radio Sets for trial purposes
65		3.2***	Irregular attachment of service personnel with private institute
66		3.3***	Irregular sanction of an additional laundry facility
67		3.4**	Recoveries, savings and adjustment in accounts at the instance of audit
68		4.1***	Inordinate delay in completion of works sanctioned for operational military requirements
69		4.2***	Non recovery of water charges from Personnel Below Officer Ranks
70		5.1***	Improper selection of sites for bridges
71		5.2***	Procurement of Cranes without proper need assessment
72		6.1*	Avoidable procurement of a mobile Nitrogen Gas Generator Plant
73		6.2*	Infructuous procurement of material

***	ATNs examined by Audit but yet to be revised by the Ministry in the light of Audit remarks – 33**

****	ATNs vetted by Audit but finalized ATNs are awaited from Ministry – 14**

*****	Action Taken Notes not received even for the first time - 26**

ANNEXURE-XI

(Referred to in Paragraph 7.1.2.6)

Details of Cost of Production and Value of Issues

(₹ in crore)

	M&C	WV&E	A&E	AV	OEF	Total
Cost of Production						
2011-12	2,074.90	3,812.50	5,266.51	3,818.35	961.17	**15,933.43**
2012-13	2,363.68	3,693.91	5,285.98	3,515.71	1,113.16	**15,972.44**
2013-14	2,286.95	3,655.37	5,517.54	2,930.54	1,246.27	**15,636.67**
2014-15	2,518.20	4,084.51	6,017.46	2,536.31	1,319.25	**16,475.73**
2015-16	2,740.60	3,897.10	6,844.32	3,294.47	1,517.58	**18,294.07**
Value of Issue						
2011-12	2,321.00	4,176.00	5,662.00	4,239.00	875.00	**17,273.00**
2012-13	2,516.28	4,109.93	5,540.77	3,836.42	1,115.90	**17,119.30**
2013-14	2,382.40	3,966.44	5,584.44	2,926.91	1,261.91	**16,122.10**
2014-15	2,676.65	3,937.18	6,128.84	2,519.04	1,402.66	**16,664.37**
2015-16	2,896.31	3,953.51	6,961.70	2,949.83	1,862.59	**18,623.95**
Breakup of cost of 2015-16 (with % of COP)						
Material	1,310.14	1,891.32	4,519.26	2,176.39	657.46	**10,554.57**
	(47.81%)	**(48.53%)**	**(66.03%)**	**(66.06%)**	**(43.32%)**	**(57.69%)**
Labour	329.59	491.25	541.29	285.67	392.35	**2,040.15**
	(12.03%)	**(12.61%)**	**(7.91%)**	**(8.67%)**	**(25.85%)**	**(11.15%)**
Direct Expense	132.25	49.12	60.86	49.36	6.21	**297.80**
	(4.83%)	**(1.26%)**	**(0.89%)**	**(1.50%)**	**(0.41%)**	**(1.63%)**
FOH	708.59	1018.71	1430.49	578.98	354.22	**4,090.99**
	(25.86%)	**(26.14%)**	**(20.90%)**	**(17.57%)**	**(23.34%)**	**(22.36%)**
VOH	260.02	446.7	292.43	204.07	107.34	**1,310.56**
	(9.49%)	**(11.46%)**	**(4.27%)**	**(6.19%)**	**(7.07%)**	**(7.16%)**
Total	**2,740.59**	**3,897.10**	**6,844.33**	**3,294.47**	**1,517.58**	**18,294.07**
Inventory position						
Stores in hand	643.23	1,256.41	2,507.31	2,142.32	189.41	**6,738.68**
WIP	417.54	1,091.69	1,132.13	1,438.04	66.95	**4,146.35**
Finished Stock	349.07	344.42	244.02	575.92	21.50	**1,534.93**
Stores in transit	66.94	188.5	620.47	111.59	0.88	**988.38**
Total	**1,476.78**	**2,881.02**	**4,503.93**	**4,267.87**	**278.74**	**13,408.34**
Source : Annual Accounts of the Ordnance Factories for the year 2011-12 to 2015-16						

ANNEXURE-XII

(Referred to in Paragraph 7.4.2)

Year-wise break-up of outstanding warrants as of 31 March 2015

Year of Issue	No. of Outstanding Warrants
1999-00	2
2004-05	8
2005-06	3
2006-07	3
2007-08	8
2008-09	17
2009-10	27
2010-11	51
2011-12	53
2012-13	186
2013-14	3490
2014-15	20858
Total	**24706**