

**Report of the
Comptroller and Auditor General of
India**

for the year ended March 2013

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**Union Government (Defence Services)
Air Force and Navy
Audit Report No. 34 of 2014**

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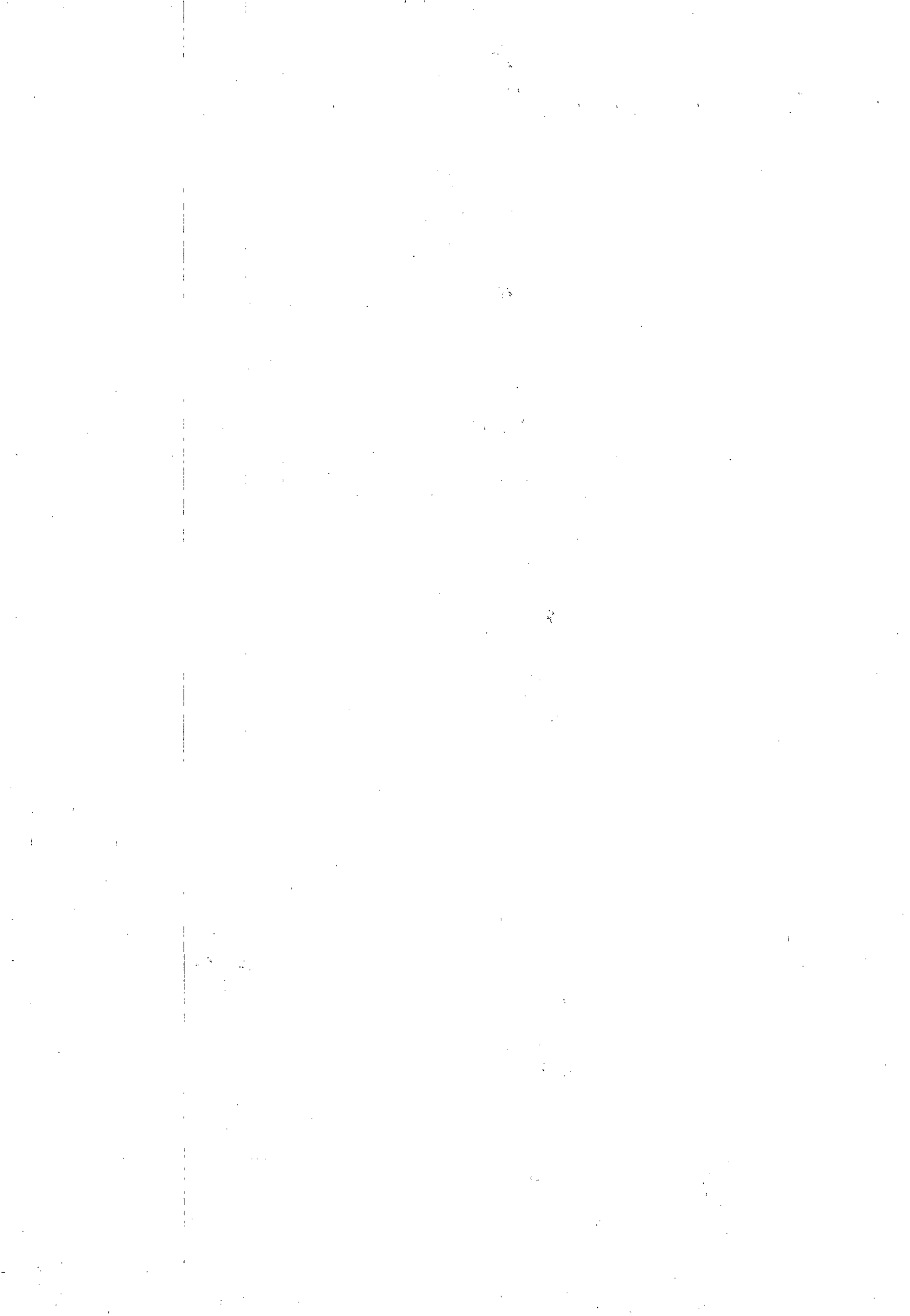
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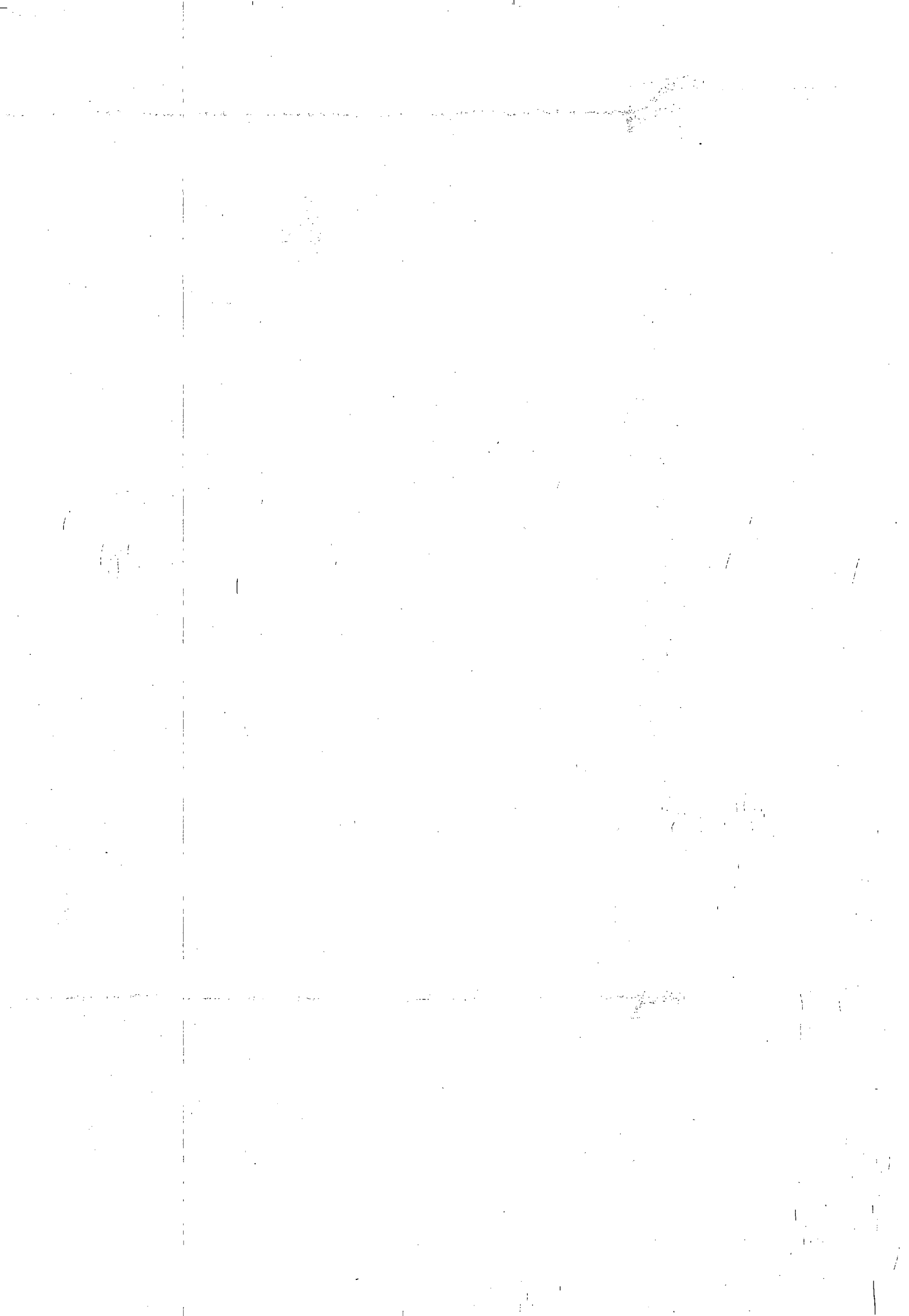
PREFACE

This Audit Report for the year ended March 2013 has been prepared for submission to the President of India under Article 151 of the Constitution of India.

The Report contains significant results of the Audit of the Union Government (Defence Services) - Air Force, Navy, Coast Guard, and Military Engineer Services.

The instances mentioned in this Report are those, which came to notice in the course of test audit for the period 2012-13 as well as those which came to notice in earlier years, but could not be reported in the previous Audit Reports; instances relating to the period subsequent to 2012-13 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

The total expenditure of the Defence Services during the year 2012-13 was ₹1,87,469 crore. Of this, the Air Force and Navy spent ₹51,118 crore and ₹29,879 crore respectively. The combined expenditure of the two services amounts to 43.21 *per cent* of the total expenditure on the Defence Services. The major portion of the expenditure of the Air Force and Navy is capital in nature, constituting 62.64 *per cent* of their total expenditure.

This Report contains major findings arising from the test audit of transactions of the Air Force, the Navy, Defence Research and Development Organisation, the Coast Guard and the Military Engineer Services. Some of the major findings included in the Report are discussed below:

I Procurement of trainer aircraft

Delay in development and supply of a trainer aircraft even after a lapse of 14 years by Hindustan Aeronautics Limited (HAL) had adversely affected stage II training of the pilots. Besides, the aircraft under development would be heavier compared to Indian Air Force (IAF) parameters which may affect training related performance. Moreover, advances released to HAL to the extent of ₹2953.88 crore against the contract of March 2010 remained unutilized so far. Due to ambiguous contractual provision, IAF had made substantial second stage payment amounting to ₹926.15 crore to HAL against nominal value of purchase orders valuing ₹6.04 crore.

(Paragraph 2.1)

II Non-utilisation of Mobile Ground Exploitation Stations for reconnaissance missions

A Reconnaissance (Recce) system is used to collect intelligence data for operational needs. An aerial Recce system comprises Synthetic Aperture Radar (SAR) pods, Electro Optic/Infra Red (EO/IR) pods and Static/Mobile Ground Exploitation Stations (MGES). Non procurement of adequate number of SAR and EO/IR pods coupled with incorrect allocation of four MGES imported (2009) at a cost of ₹129.76 crore resulted in their non-utilization for the intended purpose thereby affecting the Recce missions of IAF.

(Paragraph 2.2)

III Procurement of Air Combat Maneuvering Instrumentation system

Air Combat Maneuvering Instrumentation (ACMI) system provides an electronic replay of the entire combat sorties. IAF incurred an extra expenditure of ₹10.35 crore on excess flight trials of the ACMI system. Further, due to non synchronization of procurement and integration of ACMI system with fleet modification plan, the equipment procured at a cost of ₹167 crore could not be exploited fully for training purpose.

(Paragraph 2.3)

IV Unfruitful investment in procurement of a Torpedo

Torpedo 'W' contracted for ₹99.60 crore from M/s Bharat Dynamics Limited (M/s BDL) did not meet the envisaged Qualitative Requirements (QRs). Requisite airborne presetters remained under trials after four years of contract leading to inability of Indian Navy (IN) to operationally exploit these torpedoes which led to unfruitful investment. Further, delay in conclusion of contract and delivery of Torpedo 'W' led to inability of IN to maintain minimum pool reserve.

(Paragraph 2.4)

V Avoidable expenditure on repair of turbine blades

Due to non stipulation of time frame for validation of repair process in the contract, IAF was forced to offload blades for repair abroad to sustain the serviceability of aircraft even after an investment of ₹5 crore on procurement of Numerical Control Grinding Machine. As a result, IAF incurred an avoidable expenditure of ₹5.14 crore on repair by the original equipment manufacturer (OEM).

(Paragraph 3.1)

VI Loss due to delay in raising of discrepancy report

Failure on the part of Base Repair Depot to raise discrepancy report for wrongly supplied spares in prescribed time not only resulted in loss of ₹1.45 crore but also non availability of critical spares thereby affecting the maintenance of helicopters.

(Paragraph 3.2)

VII Avoidable expenditure on repair/overhaul of Auxiliary Power Unit

Auxiliary Power Unit (APU) is used for starting-up of the aircraft engines and maintaining emergency services during flight of aircraft in the event of failure of main power supply from the engines. IAF incurred an avoidable expenditure of ₹1.69 crore on repair and overhaul of six APUs due to lack of due diligence during assessment of estimates.

(Paragraph 3.3)

VIII Unjustified procurement of a system

Map Digitization Preparation Station (DMPS) is required for conversion of Manual Map to Digital Map. Three DMPS procured at a cost of ₹3.49 crore were not being utilised for the last four years as there was no requirement of DMPS at aircraft operating units.

(Paragraph 3.4)

IX Extra expenditure on procurement of Brake Parachutes

Brake Parachute is used to reduce the speed of the aircraft during each landing. Due to improper assessment of urgency, IAF incurred an extra expenditure of ₹12.66 crore on import of 100 Brake Parachutes.

(Paragraph 3.5)

X Avoidable loss due to injudicious decision on procurement of colour dyes

Colour dyes are used by IAF Aerobatic Team to perform Aerobatic displays in Air shows. Unrealistic projection of requirement of colour dyes by Indian Air Force coupled with decision to import entire quantity at one time for meeting three years requirement despite limited shelf life resulted in avoidable loss of ₹4.51 crore.

(Paragraph 3.6)

XI Directorate of Stores, Air Headquarters

Directorate of Stores at Air Headquarter (Air HQ) is responsible for planning, budgeting, provisioning and supply of non-technical stores to IAF. During audit of the Directorate of Stores and units concerned, Audit observed issues related to provisioning of sub-standard/ uncertified flying clothing and non-crediting of revenue into Public Fund Account. There were also several cases of irregular procurement of certain stores without scaling/approval of the Ministry. IAF suffered loss of ₹713.09 crore due to non implementation of 'Fall Clause' in procurement of fuel and that of ₹9.58 crore due to failure in taking advantage of prompt payment discount. A saving of ₹107 crore by way of availing discount on procurement of Aviation Turbine Fuel (ATF) accrued to IAF at the instance of Audit.

(Paragraph 3.7)

XII Audit on Aerospace Safety in Indian Air Force

The prevention of aircraft accident is an increasingly important factor in maintenance of combat capability of IAF. Audit Report of 1998 highlighted the issues of high rate of aircraft accidents, lack of training and infrastructure, lack of flying experience and training equipment, technical defects attributed to deficient maintenance procedure and delay in finalisation of investigation. Despite assurance given by the Ministry of Defence (MoD) to the Public Account Committee (PAC) in Action Taken Note (ATN) of September 2008, Audit observed (August 2013-December 2013) that these issues continued to persist. IAF lost 33 aircraft and 27 personnel during 2010-13. The percentage of accidents in fighter aircraft had increased. Technical defects and human error were the main causes of flying accidents. Due to non availability of basic trainer aircraft, intermediate jet trainer and full complement of advance jet trainer/simulators, training of pilots was compromised. Delay in finalisation of Court of Inquiries resulted in delay in finalisation of pensionary benefits and implementation of remedial measures for prevention of accidents and delay in regularisation of losses of aircraft accidents/incidents.

(Paragraph 3.8)

XIII Storage of special equipment and weapons in IAF

The sophisticated air armament stores including rockets, bombs, missiles, etc., are required to be stored in high quality, dust free and a temperature controlled environment. The life expired missiles need to be stored in suitable environment till their disposal to avoid environmental hazard. During audit of seven Equipment Depots, five AF Wings, three Base Repair Depots and one Air Stores Park, Audit observed that there were cases of delays in sanctioning of works for storage sheds and delays in execution due to change of site leading to time and cost overruns. Audit also noticed certain stores being kept in open area, continued dependence on public sector undertakings (PSUs) for storing of aero-engines, deficiencies in fire fighting equipment and shortage of crew, delays in repairing the seepage/leakage of storage sheds resulting in shifting of stores to other sheds.

(Paragraph 3.9)

XIV Avoidable expenditure on maintenance of simulators

Due to injudicious decision to continue with Annual Maintenance Contract for simulators despite grounding of HPT-32 fleet, Indian Air Force incurred an avoidable expenditure of ₹0.92 crore.

(Paragraph 3.11)

XV Functioning of Weapon Equipment Depot and Directorate of Weapon Equipment

More than 93 and 83 *per cent* of Annual Review of Demands (ARDs) – a measure of forward planning and replenishment of weapon equipment spares – were delayed by Weapon Equipment Depots at Mumbai and Visakhapatnam respectively. Of these, more than half of the ARDs witnessed delay in excess of three months. Despite the delay, the ARDs contained errors such as non-adherence to calendar year and non-consideration of available stock. The contracts emanating from the reviews for the weapon spares at Integrated Headquarters of Ministry of Defence (Navy) {IHQ MoD (Navy)} level were not concluded within the stipulated timeframe. IHQ MoD Navy also delayed raising of indents in 79 *per cent* of the cases. With delays at every stage, as of October 2013, contracts could be concluded for only 26 *per cent* of the items, need for which was projected in year 2009. The methodology for computing compliance to the

demands for weapon spares, as practiced currently, required robustness. Presently, the performance of forward planning and replenishment system for weapon equipment stores could not be reliably ascertained.

(Paragraph 4.1)

XVI Avoidable expenditure due to failure to invoke the repeat order option

Non-exercise of repeat order option available in an existing contract, while resorting to purchase of one set of main engines for INS Cheetah led to an avoidable expenditure of ₹0.70 crore. Besides, the requirement tendered out in December 2006, which was required in March 2008, fructified belatedly, only in March 2010. Resultantly, the ship could not be fitted with a new set of main engines during her refit in 2008 and could only be fitted in 2013 during subsequent refit *i.e.* Medium Refit-13.

(Paragraph 4.2)

XVII Unfruitful expenditure in repair of an aircraft

Adoption of piecemeal approach in repairs to a Sea Harrier trainer in making the aircraft airworthy, resulted in unfruitful expenditure of ₹6.26 crore as the aircraft remained unserviceable for want of spares.

(Paragraph 4.3)

XVIII Abnormal delay in procurement of critical spares

Lack of due diligence in processing the procurement of critical spares of Type 'A' Complex delayed their procurement which resulted in consequential fallout on the maintainability/exploitation of 'X' class submarines of the Indian Navy. Ultimately, the spares projected in March 2007 could be contracted only in August 2010 at an extra cost of ₹2.94 crore. However, the deliveries were yet (April 2014) to materialise.

(Paragraph 4.4)

XIX Procurement of an item at exorbitant cost

Navy procured generic Memory Cards on a resultant single tender basis at an exorbitantly high rate on the plea that the Memory Card was pre loaded with special to type software. This resulted in an extra expenditure of ₹1.10 crore.

(Paragraph 4.5)

XX Excess procurement of electrode

Material Organisation, Visakhapatnam, in a Rate Contract with a supplier, did not insist on staggered supply of quantities. This led to excess procurement and consequent expiry of the item worth ₹1.68 crore, without any use.

(Paragraph 4.6)

XXI Idling of investment due to non-synchronisation of civil works and provisioning of specialised equipment

The urgent requirement of advanced training facilities for Marine Commando East (MARCOS) sanctioned at a cost of ₹20.21 crore in March 2010, was yet (July 2014) to be fulfilled. Non-synchronisation of civil works and provisioning of specialised items also led to idling of investment of ₹6.98 crore.

(Paragraph 4.9)

XXII Non-availability of a dedicated fuel pipeline and blocking of funds

Lack of co-ordination between Coast Guard and Navy over the alignment of pipeline led to idling of ₹ 2.20 crore, since April 2004. Besides fuel pipeline to a jetty could not be provided.

(Paragraph 4.10)

XXIII Avoidable payment of late fee by Indian Coast Guard

Coast Guard did not reconcile the payment terms offered by Maharashtra Housing and Area Development Authority (MHADA) with the terms sanctioned by the Ministry, in its acquisition of flats which resulted in payment of late fees of ₹3.74 crore, inclusive of an avoidable payment of ₹0.98 crore towards delay in processing of payment. An avoidable payment of ₹0.45 crore

of interest on service charge was also made to the Authority. Sanction from competent financial authority (CFA) was not obtained for making these payments of ₹4.19 crore to the MHADA.

(Paragraph 5.1)

XXIV Blocking of funds and recovery of interest from a shipyard

Indian Coast Guard Headquarters (ICGHQ), in deviation of the laid down policy, sought to procure additional On Board Spares (OBS) from M/s Goa Shipyard Ltd. (GSL), after the delivery of the vessels in order to utilise unspent funds of ₹ 1.19 crore. M/s GSL could not supply the additional OBS, and the ICGHQ instead of recovering the unspent balance, from M/s GSL, let the funds remain with the shipbuilder for almost five years, leading to blocking of funds of ₹1.19 crore. On being pointed out by Audit, an amount of ₹56.53 lakh was recovered towards interest on outstanding advances.

(Paragraph 5.2)

XXV Lapses in recovery of advances to Coast Guard personnel

There were lapses in timely recovery of advances totalling to more than ₹1 crore granted to Coast Guard personnel. The lapses were attributable to systemic deficiency in the office of the Principal Controller Defence Accounts (Navy), Mumbai.

(Paragraph 5.3)

CHAPTER I: INTRODUCTION

1.1 About the Report

The Report relates to matters arising from the Audit of the financial transactions of Ministry of Defence and its following organisations:

- Indian Air Force (IAF)
- Indian Navy (IN)
- Indian Coast Guard
- Defence Research and Development (R&D) Organisation of the Ministry of Defence and its laboratories dedicated primarily to IAF/IN
- Defence Accounts Department dealing with IAF/IN
- Military Engineer Services (MES) dealing with IAF/IN

Transactions relating to Air Force are audited by the office of the Principal Director of Audit, Air Force [PDA (AF)], New Delhi and the audit of transactions in respect of Navy/Coast Guard is carried out by the office of the Principal Director of Audit, Navy, [PDA (N)], Mumbai.

The audit conducted by these two offices is of three distinct types: Financial Audit, Compliance Audit and Performance Audit.

Financial Audit is the review of financial statements of an entity that seeks to obtain an assurance that the financial statements are free from material misstatements and present a true and fair picture.

Compliance Audit scrutinises transactions relating to expenditure, receipts, assets and liabilities of the audited entities to ascertain whether the provisions of the Constitution of India, applicable laws, rules, regulations and various orders and instructions issued by the competent authorities are being complied with.

Performance Audit is an in-depth examination of a programme, function, operation or the management system of entity to assess whether the entity is achieving economy, efficiency and effectiveness in the employment of available resources.

This Report relates to matters arising from the Audit and contains findings pertaining to Capital and Revenue acquisitions, installation/upgradation of systems and work services. Total financial value of cases commented upon in this Report is ₹3291.87 crore. A brief financial analysis of the expenditure incurred on the Air Force, Navy, R&D (related to Air Force and Navy) and Coast Guard as a part of the over-all defence budget of the country has also been included.

1.2 Authority for audit

Article 149 of the Constitution of India and the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act, 1971 govern the scope and extent of audit. Detailed methodology of audit and reporting is prescribed in the 'Regulations of Audit and Accounts, 2007'.

1.3 Planning and conduct of audit

Audit areas are prioritised through an analysis of risks so as to assess their criticality in key operating units. Expenditure incurred, operational significance, past audit results and internal control issues are amongst the prime factors which determine the severity of the risks. This exercise in turn guides the formulation of the annual audit programme. The number of units selected for audit is determined by matching the high-risk areas with available resources. Besides, high-value capital acquisitions and procurements are audited by specially constituted dedicated teams.

In general, interaction with the audited entity is encouraged from the initial stage in the auditing process. Audit findings are communicated during discussions at the end of an audit exercise and followed up in writing through Local Test Audit Reports/Statement of Cases. The response from the audited entity is considered and results in either settlement of the audit observation or referral to the next audit cycle for compliance. Some of the more serious irregularities are processed 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.

At present, the audit of Office of the Principal Director of Audit (Air Force) & Office of the Principal Director of Audit (Navy) comprises 920 units¹. For the

¹ Out of 920 units, 398 units pertain to IAF and 522 units pertain to Indian Navy.

period 2012-13, audit of 187 units²/formations was carried out by utilising 10813³ man days.

1.4 Internal control and co-ordination between Internal and External audit

The Finance Division of the Ministry of Defence is headed by the Secretary (Defence/Finance)/Financial Adviser (Defence Services) (FADS) who is responsible for financial scrutiny, vetting, advice and concurrence of all proposals of the Ministry of Defence. FADS is also responsible for internal audit and for accounting of the defence expenditure. Internal financial advice is provided both at the Service Headquarters level as also at levels of Command Headquarters and other units. Internal financial control is further aided by periodic internal audit by the Controller General of Defence Accounts (CGDA), the Head of the Defence Accounts Department, who functions under the FADS. The Principal Controllers of Defence Accounts, Air Force and Navy functioning under CGDA are located at Dehradun and Mumbai respectively. They are responsible for internal audit, financial advice at unit level and for scrutiny, payments and accounting of all personnel claims and bills for supplies and services rendered, construction, repair works, miscellaneous charges etc. received from Air Force and Navy/Coast Guard units.

The internal audit is expected to ensure effective implementation of the rules, procedures and regulations enunciated in the Defence Procurement Procedure, Manuals, Codes, etc. The offices of PDA (AF) and PDA (N) actively seek assistance and co-operation from internal audit in examination and scrutiny. Internal auditors have to carry out 100 *per cent* checks. The external/statutory audit bases its audit on sample/test check. The Inspection Reports (IRs) generated by external audit on the basis of local audit are issued to the audited entities as well as to their internal auditors *i.e.* Defence Accounts Department. These IRs are pursued to their logical conclusion after ascertaining the views of the internal auditors. Draft paragraphs proposed to be included in the Audit Report are sent to the Defence Secretary. Simultaneously, a copy is also forwarded to CGDA. The Ministry furnishes its response only after vetting by the FADS.

² Out of 187 units audited during the year, 111 units (inclusive of 8 Directorate at Air HQ) pertain to IAF and 76 units pertain to Indian Navy.

³ Out of 10813 man days, AF Office utilised 6195 man days and Navy Office utilised 4618 man days.

1.5 Profile of audited entities

1.5.1 Organisation – Key responsibilities

The Ministry of Defence at the apex level, frames policies on all defence related matters in consultation with the Finance Division. The Ministry 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 functions as the Head of the Department of Defence and is also responsible for coordinating the activities of other departments.

The Indian Air Force is headed by the Chief of the Air Staff. Air Headquarters (Air HQ) is the apex body and chief management organisation of the IAF. The ultimate and overall administrative, operational, financial, technical maintenance and control of IAF rests with Air HQ. Operational and maintenance units of IAF normally consist of wings and squadrons, signal units, base repair depots and equipment depots.

The Indian Navy is headed by the Chief of the Naval Staff. Naval Headquarters (NHQ) is the apex body and chief management organisation and is responsible for command, control and administration of the Indian Navy. Operational and maintenance units of Indian Navy consist of warships and submarines, dockyards, naval ship repair yards, equipment depots and material organisations.

The Coast Guard was created to protect the country's vast coastline and offshore wealth. The Director General, Coast Guard exercises general superintendence, direction and control of the Coast Guard.

Military Engineer Services (MES) is one of the largest Government construction agencies. Engineer-in-Chief is the head of the MES. The MES is responsible for conclusion of contracts, execution of work services and maintenance of existing buildings of the Armed Forces. It works under the Engineer-in-Chief Branch of Army Headquarters.

The Defence Research and Development Organisation undertakes design and development of weapon systems and equipment in accordance with the expressed needs and the qualitative requirements laid down by the Services. Certain laboratories are dedicated exclusively to Air Force and Navy like the Gas Turbine and Research Establishment (GTRE), Electronics and Radar Development Establishment (LRDE), Centre for Airborne System (CABS), Naval Science and Technological Laboratory (NSTL), Naval Physical and Oceanographic Laboratory (NPOL) and Naval Materials Research Laboratory (NMRL), etc. These organisations also render scientific advice to the Service Headquarters. They work

under the Department of Defence Research and Development of the Ministry of Defence.

The Defence Accounts Department is headed by the Controller General of Defence Accounts who provides services to the armed forces in terms of financial advice and accounting of defence services receipts and expenditure as well as defence pensions.

1.6 Significant audit observations

Audit has over the years, commented on many critical areas of defence pertaining to Indian Air Force, Indian Navy, Indian Coast Guard and dedicated R & D projects and also the linked Military Engineer Services. The Ministry of Defence, on its part, has taken several measures in response to these observations. An important step taken to improve the procurement procedure has been the introduction of the Defence Procurement Procedure and Defence Procurement Manual and their regular updation.

The present Audit Report points out significant deficiencies/short comings in the procurement processes followed- both under Capital and Revenue Heads- by Ministry of Defence as well as by the Services. The acquisition process lacked proper planning, effective price negotiation and proper monitoring. In high value Capital expenditure cases, delay in development and supply of a trainer aircraft even after a lapse of 14 years by HAL had adversely affected stage II training of pilots (Paragraph 2.1). Due to non procurement of adequate number of SAR and EO/IR pods, four Mobile Ground Exploitation Stations procured at a cost of ₹129.62 crore could not be utilised for the Recce mission (Paragraph 2.2). Due to non synchronization of procurement and integration of ACMI system with fleet modification plan, the equipment procured at a cost of ₹167 crore would not be exploited fully for training purpose during the shelf life of the system (Paragraph 2.3). An investment of ₹82 crore in procurement of Torpedo 'W' was rendered unfruitful besides affecting the operational preparedness of Navy (Paragraph 2.4). Another case in point was adoption of piecemeal approach in repairs to a Sea Harrier trainer in making the aircraft airworthy, resulting in unfruitful expenditure of ₹6.26 crore as the aircraft remained unserviceable for want of spares (Paragraph 4.3).

The Report also highlights cases involving substantial expenditure in which either the procurement failed to achieve its intended objective due to lack of synergy in planning or the procurement had been delayed. Due to non stipulation of time

frame for validation of repair process in the contract, IAF could not derive any benefit of an investment of ₹5 crore on procurement of machine. As a result, IAF incurred an avoidable expenditure of ₹5.14 crore on repair (Paragraph 3.1). Three DMPS procured at a cost of ₹3.49 crore were not being utilized for the last three years (Paragraph 3.4). Audit found that at Material Organisation, Visakhapatnam, though the procurement was made under a Rate Contract, the MO (V) did not insist on staggered supply of quantities which led to excess procurement, and consequent expiry of the item worth ₹1.68 crore, without any use (Paragraph 4.6). In another instance lack of due diligence in processing the procurement of critical spares of Type 'A' Complex delayed their procurement which resulted in consequential fallout on the maintainability/exploitation of the submarines of the Navy. Ultimately, the spares projected in March 2007 could be contracted only in August 2010 incurring an extra cost of ₹2.94 crore (Paragraph 4.4).

Several cases have been highlighted where more alertness on the part of the department was required. Due to improper assessment of urgency, IAF incurred an extra expenditure of ₹12.66 crore on import of 100 Brake Parachutes (Paragraph 3.5). Decision to import entire quantity of colour dyes at one time for meeting three years requirement despite limited shelf life resulted in avoidable loss of ₹4.51 crore (Paragraph 3.6). Injudicious decision of Air HQ to continue with Annual Maintenance Contract for simulator despite grounding of HPT-32 fleet led to an avoidable expenditure of ₹0.92 crore (Paragraph 3.11). Failure on the part of Base Repair Depot to raise the discrepancy report in time for replacement of wrongly supplied spares resulted in loss of ₹1.45 crore (Paragraph 3.2). IAF incurred an avoidable expenditure of ₹1.69 crore on repair and overhaul of six APUs due to lack of due diligence during assessment of estimates (Paragraph 3.3). Navy procured Memory Cards from a resultant single tender basis at an exorbitantly high rate, on the plea that, the Memory Card was pre loaded with special to type software. This resulted in an extra expenditure of ₹1.10 crore (Paragraph 4.5). The Coast Guard also lacked vigilance, where in one case the Coast Guard did not reconcile the payment terms offered by Maharashtra Housing and Area Development Authority with the terms sanctioned by the Ministry of Defence, in its acquisition of flats. This resulted in payment of late fees of ₹3.74 crore and also rendered a payment of ₹0.98 crore avoidable due to delay in processing of payment (Paragraph 5.1).

Several cases have been highlighted where greater vigil and promptness in decision making on the part of department was required. During audit of Directorate of Stores, Air HQ, Audit observed issues related to provisioning of sub-standard/

uncertified flying clothing and non-crediting of Revenue into Public Fund Account. There were also several cases of irregular procurement of certain stores without scaling/approval of the Ministry. IAF suffered loss of ₹713.09 crore due to non implementation of 'Fall Clause' in procurement of fuel and that of ₹9.58 crore due to failure in taking advantage of prompt payment discount. A saving of ₹107 crore by way of availing discount on procurement of ATF accrued to IAF at the instance of Audit (Paragraph 3.7). During audit on Aerospace Safety in IAF, Audit observed that the percentage of accidents in fighter aircraft had increased. Technical defects and human error were the main causes of flying accidents. Due to non availability of basic trainer aircraft, intermediate jet trainer and full complement of advance jet trainer/simulators, training of pilots was compromised. Delay in finalisation of court of inquiries (CoI) resulted in delay in finalisation of pensionary benefits, implementation of remedial measures for prevention of accidents and regularization of losses of aircraft accidents/Incidents (Paragraph 3.8). During audit of storage and inventory holding of weapons and equipment in IAF, Audit observed that there were cases of delays in sanctioning of works for storage sheds and delays in execution due to change of site leading to time and cost overruns. Audit also noticed certain stores being kept in open area, continued dependence on PSU for storing of aero-engines, deficiencies in fire fighting equipment and shortage of fire fighting crew, delays in repairing the seepage/leakage of storage sheds resulting in shifting of stores to other sheds (Paragraph 3.9). There were lapses in timely recovery of advances totalling to more than ₹1.10 crore granted to Coast Guard personnel. The lapses were attributable to systemic deficiency in the office of the Principal Controller Defence Accounts (Navy), Mumbai which could be avoided had timely action been taken to rectify the deficiency in the system (Paragraph 5.3).

Instances of violation of contractual terms and disregard for instructions have also been reported. Indian Coast Guard Headquarters (ICGHQ), in deviation of the laid down policy, sought to procure additional On Board Spares (OBS) from M/s Goa Shipyard Limited (GSL), after the delivery of the vessels and let the unspent funds remain with the shipbuilder for almost five years, leading to blocking of funds of ₹1.19 crore. At the instance of Audit, ₹56.53 lakh was recovered towards interest on outstanding advances (Paragraph 5.2). In another case, non-exercise of repeat order option available in an existing contract for purchase of one set of main engines for INS Cheetah led to an avoidable expenditure of ₹0.70 crore (Paragraph 4.2). The Report also seeks to highlight the lack of coordination between Coast Guard and Navy over the alignment of pipeline which led to idling of ₹2.20 crore,

since April 2004 apart from non-availability of the vital fuel pipeline (Paragraph 4.10).

The Report also seeks to highlight the recoveries effected at the instance of Audit where delay in promptly crediting the proceeds of scrap sale, resulted in accrued interest of ₹39.23 lakh which was recovered from M/s Mazagaon Dock Limited (M/s MDL) at the instance of Audit (Paragraph 4.7). Recoveries/Savings of ₹1.55 crore due to wrong pricing of items were effected at the instance of Audit (Paragraph 4.8).

The Report also highlights the need to strengthen work services. There was an urgent requirement of advanced training facilities for Marine Commando East (MARCOS) sanctioned at a cost of ₹20.21 crore in March 2010. However, non-synchronisation of civil works and provisioning of specialised items led to idling of investment of ₹6.98 crore. The facility is not yet available adversely affecting the training of the MARCOS (Paragraph 4.9).

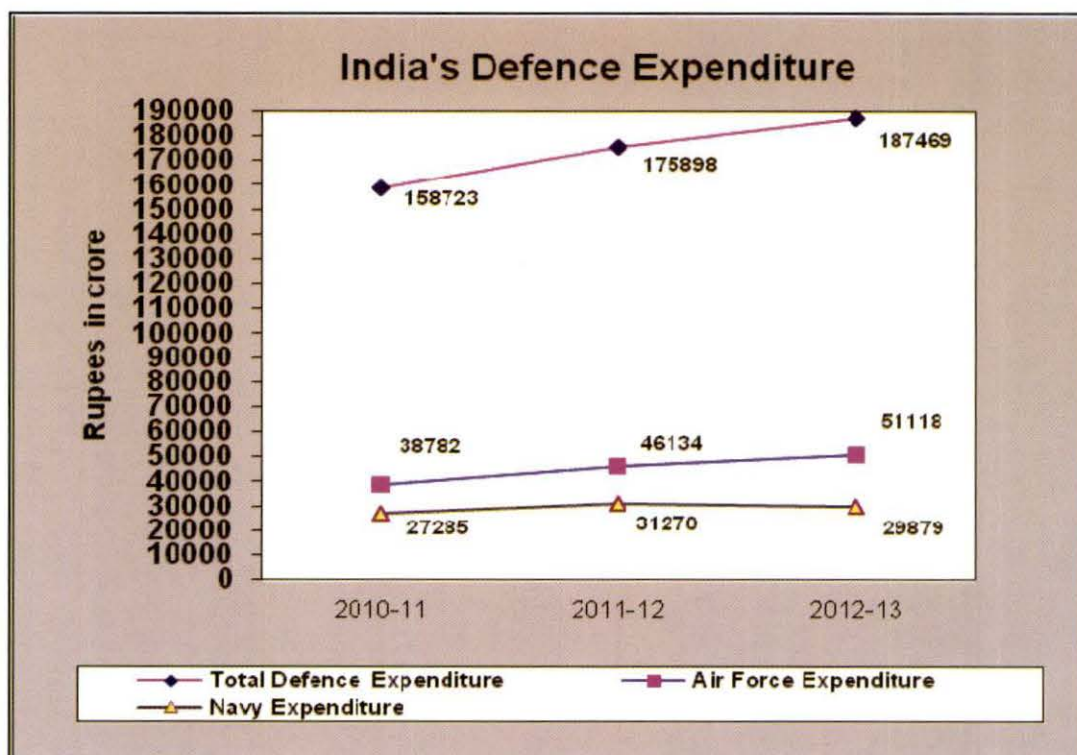
1.7 Financial aspects relating to Air Force and Navy

India's Defence Budget is broadly categorised under Revenue and Capital expenditure. While Revenue expenditure includes Pay and Allowances, Stores, Transportation and Work Services etc. Capital expenditure covers expenditure on acquisition of new weapons and ammunition and replacement of obsolete stores.

The defence expenditure increased by 6.58 *per cent* from ₹1,75,898 crore in 2011-12 to ₹1,87,469 crore in 2012-13. The share of the IAF and the Indian Navy in the total expenditure on Defence Services in 2012-13 was ₹51,118 crore and ₹29,879 crore respectively, which together constituted approximately 43.21 *per cent*.

1.7.1 Defence Expenditure

The defence expenditure, as depicted above, does not include the expenditure on the pension paid to retired defence personnel and expenditure incurred on Defence Accounts Organisation, Defence Estates Organisation, Secretariat of the Ministry of Defence, Defence Canteens and the Coast Guard Organisation. As a percentage of GDP, the defence expenditure has shown a downward trend during this period from 1.98 *per cent* to 1.81 *per cent* as shown in the following graph.



Historically, Revenue expenditure accounts for the bulk of the defence budget. Out of the total defence expenditure, the share of Revenue expenditure has gone up from 60.90 per cent in 2010-11 to 62.39 per cent in 2012-13, while the share of Capital expenditure has gone down from 39.10 per cent to 37.61 per cent during the same period as shown in the following Table.

Defence Expenditure

(₹ in crore)

Year	Annual Expenditure			Percentage increase over previous year	Expenditure as percentage of CGE@	Expenditure as percentage of GDP
	REVENUE	CAPITAL	TOTAL			
2010-11	96,667	62,056	1,58,723	08.87	12.87	1.98
2011-12	1,07,996	67,902	1,75,898	10.82	13.10	1.90
2012-13	1,16,970	70,499	1,87,469	6.58	12.89	1.81

@ CGE - Central Government Expenditure

1.7.2 Air Force and Navy Expenditure

The total expenditure incurred by the IAF and Navy during 2010-2013 ranged between 41.62 and 43.21 *per cent* of the total defence expenditure. In the year 2012-13, while the expenditure of the IAF rose by 10.80 *per cent* from ₹46,134 crore to ₹51,118 crore, the expenditure of the Indian Navy decreased by 4.45 *per cent* from ₹31,270 crore to ₹29,879 crore, as compared to the previous year. The distribution of defence expenditure is depicted in the following Table:

(₹ in crore)

Year	DISTRIBUTION OF DEFENCE EXPENDITURE						Total
	Army	Air Force	Navy	Ordnance Factories	R&D	Others	
2010-11	80,830	38,782	27,285	1,532	10,197	97	1,58,723
2011-12	86,803	46,134	31,270	1,717	9,938	36	1,75,898
2012-13	94,500	51,118	29,879	2,104	9,863	5	1,87,469

1.7.3 Air Force Expenditure

A broad summary of the expenditure of the IAF is given in the Table below:

Air Force Expenditure

(₹ in crore)

Year	Total	Percentage change over previous year	As a percentage of total Defence Expenditure	Revenue	Capital
2010-11	38,782	(+)16.60	24.43	15,179	23,603
2011-12	46,134	(+)18.96	26.23	17,322	28,812
2012-13	51,118	(+)10.80	27.26	18,138	32,980

1.7.3.1 Capital Expenditure

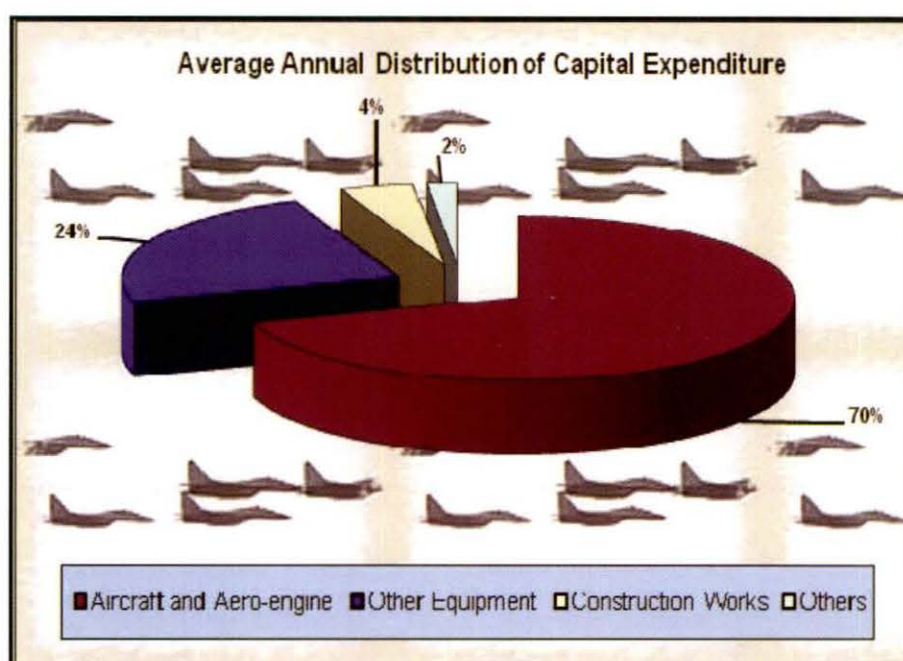
The Capital expenditure on the IAF rose by nearly 39.73 per cent during 2010-11 to 2012-13. In absolute terms, Capital expenditure increased from ₹23,603 crore in 2010-11 to ₹32,980 crore in 2012-13.

The Capital expenditure of the IAF was mainly incurred on acquisition of new aircraft and modernisation/upgradation of the existing aircraft. The average annual distribution of expenditure over the different categories for the last three years (2010-11 - 2012-13) for the IAF is depicted below in the Table as well as in the graph given below:

Capital Expenditure

(₹ in crore)

Year	Aircraft and Aero-engine	Construction work	Other equipment	Others	Total
2010-11	16,094	1,158	6,039	312	23,603
2011-12	20,274	1,153	6,788	597	28,812
2012-13	23,573	1,318	7,399	690	32,980



1.7.3.2 Revenue Expenditure

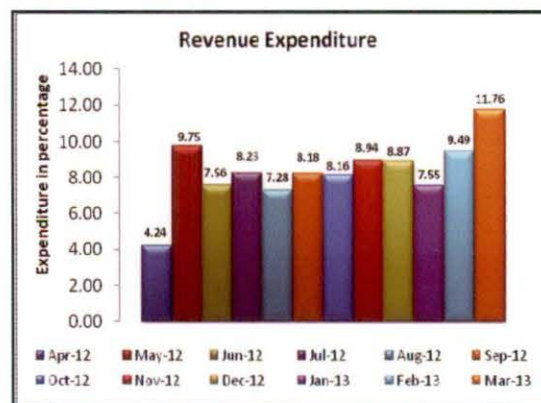
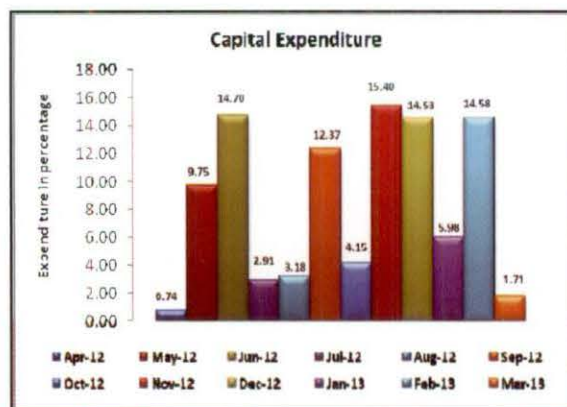
During 2010-11 to 2012-13, Revenue expenditure of the IAF increased by 19.49 per cent from ₹15,179 crore in 2010-11 to ₹18,138 crore in 2012-13. The Revenue expenditure of the IAF was mainly incurred on stores and special project, transport, works and pay and allowances. The average annual distribution of expenditure over different categories for the last three years is depicted below.

Revenue Expenditure

(₹ in crore)

Year	Pay and allowances	Stores and special project	Works	Transport	Others	Total
2010-11	6,856 (45%)	5,775 (38%)	1,692 (11%)	620 (4%)	236 (2%)	15,179
2011-12	7,532 (44%)	6,931 (40%)	1,800 (10%)	763 (4%)	296 (2%)	17,322
2012-13	8,378 (46%)	7,038 (39%)	1,775 (10%)	611 (3%)	336 (2%)	18,138

The flow of Capital and Revenue expenditure during the year 2012-13 is indicated below.



Scrutiny of expenditure revealed that there was an increase in the Revenue expenditure of IAF in March 2013. In this month (March 2013) IAF incurred 11.76 per cent of the Revenue expenditure.

1.7.4 Indian Navy Expenditure

A broad summary of the expenditure of the Indian Navy is given in the Table below.

Navy Expenditure

(₹ in crore)

Year	Total	Percentage change over previous year	As a percentage of total Defence Expenditure	Revenue	Capital
2010-11	27,285	(+) 18.96	17.19	10,145	17,140
2011-12	31,270	(+) 14.60	17.78	12,059	19,211
2012-13	29,879	(-) 4.45	15.94	12,119	17,760

The total expenditure on the Indian Navy decreased by nearly 4.45 *per cent* during 2012-13 as compared to 2011-12. The reduction was due to reduced Capital expenditure during 2012-13. In absolute terms, total expenditure decreased from ₹31,270 crore in 2011-12 to ₹29,879 crore in 2012-13.

1.7.4.1 Capital Expenditure

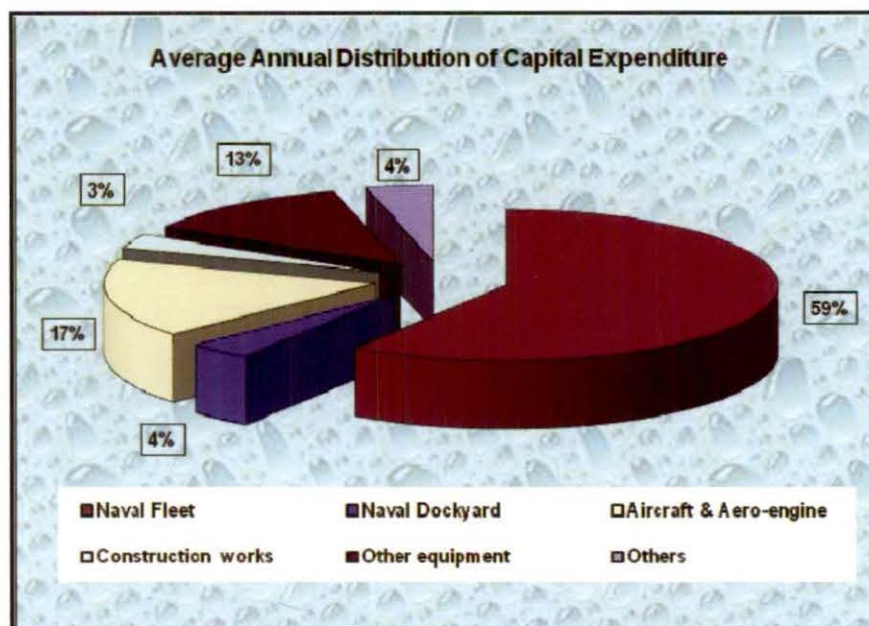
The Capital expenditure on the Indian Navy decreased by nearly 7.56 *per cent* during 2012-13. The decrease was mainly on account of less expenditure under the head acquisition of aircraft and aero engine as compared to the previous year. The average annual distribution of expenditure over the different categories for the last three years (2010-11 to 2012-13) for the Indian Navy is depicted below in the

Table as well as in the graph given below:

Capital Expenditure

(₹ in crore)

Year	Naval Fleet	Naval Dockyard	Aircraft and Aero-Engine	Construction Works	Other Equipments	Others	Total
2010-11	10,620	720	3,187	637	1,578	398	17,140
2011-12	10,320	648	4,336	515	2,583	809	19,211
2012-13	11,074	752	1,695	527	2,773	939	17,760



1.7.4.2 Revenue Expenditure

During 2010-11 to 2012-13, the Revenue expenditure of the Indian Navy increased by 19.46 per cent from ₹10,145 crore in 2010-11 to ₹12,119 crore in 2012-13. The Revenue expenditure of the Indian Navy was mainly incurred on stores and special project, transport, works, repairs and refit of aircraft carriers/frigates/other

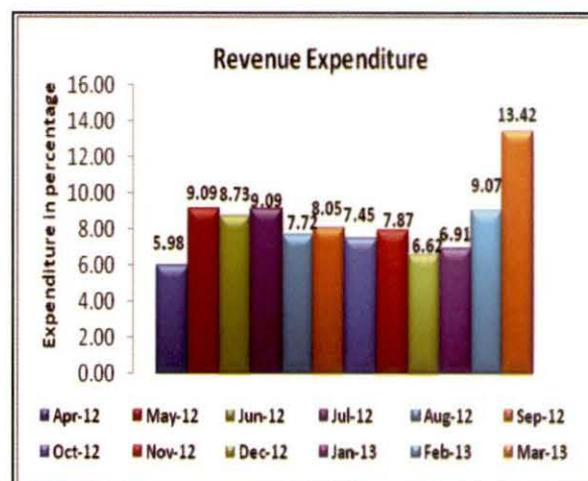
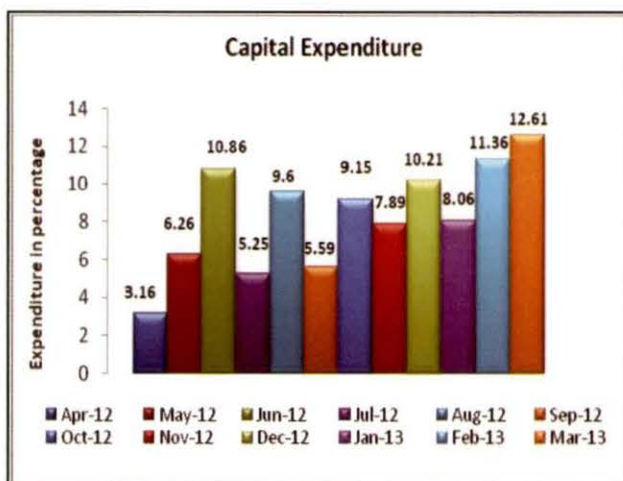
warships and pay and allowances. The average annual distribution of expenditure over different categories for the last three years is depicted below:

Revenue Expenditure

(₹ in crore)

Year	Pay and allowances	Stores	Works	Transport	Repair/ Refit	Others	Total
2010-11	3,731 (37%)	3,437 (34%)	701 (7%)	288 (2%)	606 (6%)	1,382 (14%)	10,145
2011-12	4,508 (37%)	4,173 (35%)	763 (6%)	353 (3%)	768 (6%)	1,494 (12%)	12,059
2012-13	4697 (39%)	3,982 (33%)	760 (6%)	380 (3%)	654 (5%)	1,646 (14%)	12,119

The flow of Capital and Revenue expenditure during the year 2012-13 is indicated below:



Scrutiny of expenditure revealed that the highest amount of Capital expenditure was incurred by the Indian Navy in the month of March 2013. Navy incurred 12.61 per cent of Capital expenditure in the month of March 2013 alone and 32.03 per cent of the Capital expenditure in the last quarter of the financial year.

1.8 Coast Guard Organisation

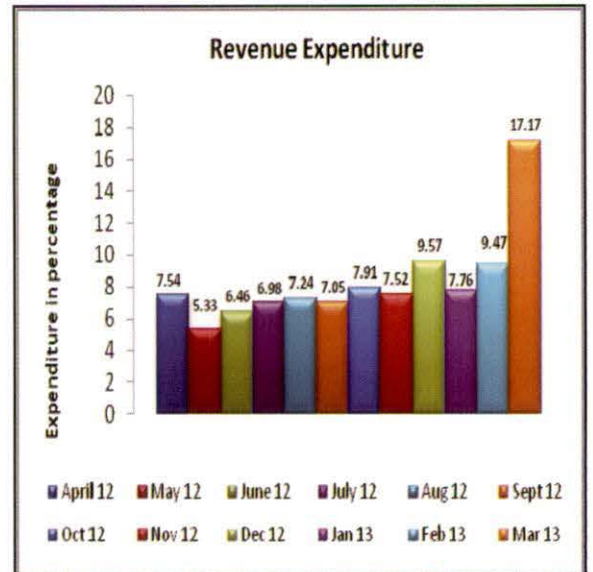
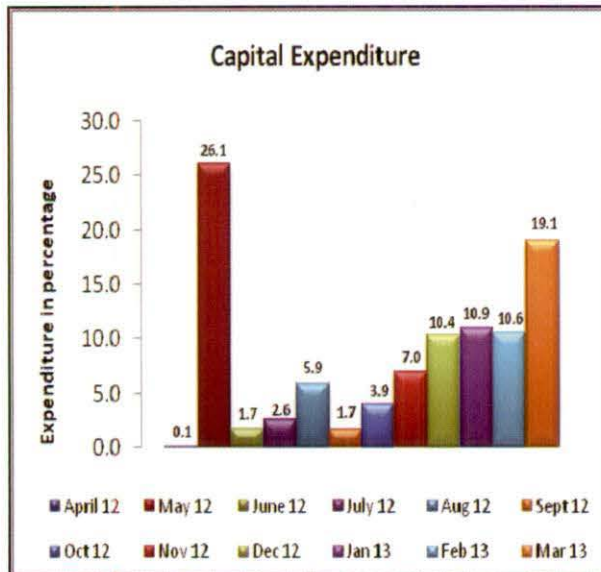
The budgetary allotments and expenditure incurred during 2010-11 to 2012-13 are tabulated below:

Coast Guard Expenditure

(₹ in crore)

Year	Budget Estimates			Final Grant/ App-Privation	Expenditure			Percent- age of BE which could not be utilised
	Capital	Revenue	Total		Capital	Revenue	Total	
2010-11	1,100.00	882.45	1,982.45	2,016.06	1,200.78	813.57	2,014.36	(-)01.61
2011-12	1,600.00	890.94	2,490.94	2,532.88	1,575.38	925.84	2,501.22	(+)0.41
2012-13	1,620.00	906.63	2,526.63	2525.41	1,564.71	945.35	2,510.06	(-) 0.66

The flow of Capital and Revenue expenditure during the year 2012-13 is indicated below:



Scrutiny of expenditure revealed that a substantial portion of Capital expenditure was incurred by the Coast Guard in the month of May 2012 and March 2013. The Coast Guard incurred about 19.1 *per cent* of the Capital expenditure in the month of March 2013 alone and 40.6 *per cent* of the Capital expenditure in the last quarter of the financial year. This reflected poor expenditure management by the Coast Guard. It was also observed that 34.40 *per cent* of the Revenue expenditure was incurred in the last quarter of the financial year but 17.17 *per cent* of the Revenue expenditure was incurred in the month of March 2013 alone.

1.9 Receipts of the Air Force, Navy and Coast Guard

The details of receipts and recoveries pertaining to the Indian Air Force, Indian Navy and the Coast Guard during the three years ending 2012-13 for the services that they provided to other organisations/ departments are given in the Table below:

Revenue Receipt

(₹ in crore)

Year	Receipt and Recoveries in respect of Air Force	Receipt and Recoveries in respect of Navy	Receipt and Recoveries in respect of Coast Guard
2010-11	592.92	175.00	13.33
2011-12	619.38	200.00	06.73
2012-13	605.26	200.00	34.41

1.10 Appropriation and expenditure

The summarised position of appropriation and expenditure during 2010-11 to 2012-13 in respect of the Air Force and the Navy is reflected in the Table below.

Appropriation and Expenditure

(₹ in crore)

AIR FORCE									
	Final Grant	Actual Expenditure	Total Excess/Savings (+) / (-)	Final Grant/	Actual Expenditure	Total Excess/Savings (+) / (-)	Final Grant/	Actual Expenditure	Total Excess/Savings (+) / (-)
REVENUE	2010-2011			2011-12			2012-13		
Voted	15,802.41	15,177.70	(-) 624.71	16,753.53	17,321.43	(+) 567.90	18,322.87	18,122.50	(-) 200.37
Charged	2.13	1.00	(-) 1.13	3.23	0.58	(-) 2.65	6.18	15.54	(+) 9.36
CAPITAL									
Voted	23,537.99	23,575.91	(+) 37.92	28,253.82	28,766.24	(+) 512.42	32,729.64	32,976.34	(+) 246.70
Charged	26.77	27.66	(+) 0.89	51.36	45.84	(-) 5.52	5.70	3.77	(-) 1.93
Total	39,369.30	38,782.27	(-) 587.03	45,061.94	46,134.09	(+) 1,072.15	51,064.39	51,118.15	(+) 53.76
NAVY									
REVENUE	2010-2011			2011-12			2012-13		
Voted	10,002.52	10,141.36	(+) 138.84	12,335.02	12,057.82	(-) 277.2	12,741.82	12,095.95	(-) 645.87
Charged	7.45	3.33	(-) 4.12	11.91	0.91	(-) 11.00	13.20	22.77	(+) 9.57
CAPITAL									
Voted	16,898.32	17,136.09	(+) 237.77	17,920.69	19,210.86	(+) 1,290.17	17,057.74	17,753.62	(+) 695.88
Charged	6.95	4.08	(-) 2.87	1.45	0.66	(-) 0.79	8.68	6.26	(-) 2.42
Total	26,915.24	27,284.86	(+) 369.62	30,269.07	31,270.25	(+) 1,001.18	29,821.44	29,878.60	(+) 57.16

An analysis of the Appropriation Accounts, Defence Services for each of the three years has been included in the Report of the Comptroller and Auditor General of India for the relevant years, Union Government – Accounts of the Union Government.

1.11 Audit impact

1.11.1 Response of the Ministry to Draft Audit Paragraphs

On the recommendations of the Public Accounts Committee (PAC), the Ministry of Finance (Department of Expenditure) issued directions to all the 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 proposed for inclusion in this Report were forwarded to the Secretary, Ministry of Defence between April 2014 and June 2014 through demi-official letters drawing attention to the audit findings and requesting a response within six weeks.

Despite the instructions of the Ministry of Finance issued at the instance of the Public Accounts Committee (PAC), the Ministry did not send replies to 26 Paragraphs out of 29⁴ Paragraphs included in this Report. Thus, the response of the Ministry could not be included in respect of these paragraphs.

1.11.2 Action Taken Notes on Audit Paragraphs of earlier Reports

With a view to enforce accountability of the executive in respect of all issues dealt with in various Audit Reports, the PAC 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 laying of the Report in Parliament.

Review of outstanding ATNs on Audit Paragraphs relating to the Air Force, Navy and Coast Guard as on 30 September 2014 showed that the Ministry had not submitted the initial ATNs in respect of two paragraphs included in the Audit Reports up to and for the year ended March 2012 as shown in Annexure I.

1.11.3 Outcome

Findings of earlier Reports have resulted in various procedural changes in Defence Procurement Procedure as well as systemic changes in operations of the audited entities. In addition, each year's audit also results in savings and recoveries. During 2010-11 to 2012-13 recoveries to the extent of ₹33.46 crore (₹2.39 crore in respect of current Audit Report) and savings to the extent of ₹5.49 crore (₹1.55 crore in the current year) were effected at the instance of Audit.

⁴ The introductory remarks included in Chapter I of this Report were not forwarded to the Ministry for their comments.

CHAPTER II: MINISTRY OF DEFENCE

2.1 Procurement of trainer aircraft

Delay in development and supply of a trainer aircraft even after a lapse of 14 years by Hindustan Aeronautics Limited (HAL) had adversely affected stage II training of the pilots. Besides, the aircraft under development would be heavier compared to Indian Air Force (IAF) parameters which may affect training related performance. Moreover, advances released to HAL to the extent of ₹2953.88 crore against the contract of March 2010 remained unutilized so far.

Flying training of pilots in Indian Air Force (IAF) is carried out in three stages - Basic stage (Stage-I), Intermediate stage (Stage-II) and the Advanced stage (Stage-III). Kiran and Iskara aircraft had been utilised for intermediate stage training since 1970s. The Iskara aircraft has been phased out from service in 2004¹. IAF felt (March 1998) the need to procure contemporary trainer aircraft to be designed and developed indigenously by HAL to replace ageing Kiran/Iskara aircraft which were considered to be old and beset with problems of spare. Cabinet Committee on Security (CCS) approved (June 1999) the Design and Development (D&D) of Intermediate Jet Trainers (IJT) aircraft by M/s Hindustan Aeronautics Limited (HAL).

Ministry of Defence (Ministry) accorded (July 1999) a sanction for the D&D of two prototypes of the IJT by HAL at a total cost of ₹180 crore which was subsequently revised (April 2005) to ₹467 crore with milestones for the Initial Operational Clearance (IOC) and the Final Operational Clearance (FOC) as 2006-07 and 2007-08 later revised (March 2009) to 2009-10 and 2010-11 respectively. DDPMAS² stipulates that Limited Series Production

¹ Iskara aircraft was phased out from service in year 2004 as per the CCS Note for procurement of 12 LSP IJT aircraft approved on 14 March 2006.

² DDPMAS - Design, Development and Production of Military Aircraft and Airborne Stores. It is a manual issued by Defence Research and Development Organisation and prescribed procedure for design, development and production of Military Aircraft and Airborne stores.

(LSP) for aircraft may be initiated by the concerned user service *i.e.* IAF based on Initial Operational Clearance (IOC) certification issued by the CEMILAC³.

However, while the Design and Development (D&D) of IJT was in progress, Ministry submitted (February 2006) a proposal to Cabinet Committee on Security (CCS) for procurement of 12 IJT LSP aircraft from HAL even before IOC of prototype aircraft. CCS approved (March 2006) the proposal and IAF concluded a contract (March 2006) with HAL for the supply of 12 IJT LSP aircraft at a total cost of ₹486 crore with delivery schedule between March 2008 and March 2010 further revised to 2011-12.

As D&D of prototypes aircraft was getting delayed, the Standing Committee on Defence in its seventeenth report expressed (March 2008) its concern over the delay in development of IJT. Ministry in their Action Taken Note stated (March 2008) that the certification of the aircraft would be completed in time to meet the induction of aircraft from 2008 as planned.

A mention about the delay in manufacture and supply of 12 trainer aircraft (LSP) and its impact on stage-II training of pilots as well as blockade of funds to the extent of ₹283.05 crore was made at Paragraph 2.4 of Audit Report of the C&AG of India (CA No. 18 of 2008-09). In their Action Taken Note, Ministry stated (February 2011) that the IJT programme was envisaged as a concurrent development along with the LSP and that the advance payment and stage payments were not only made for engine development and integration but also for development and testing of other major aircraft systems. Ministry further stated that due to delay in delivery of 12 IJT LSP aircraft, the training was not compromised as sufficient Kiran aircraft were available to undertake the task. Audit did not agree with the Ministry's reply as the terms of the sanction were violated as funds were released to HAL without completion of Initial Operational Clearance of two prototype aircraft. Further, audit also noticed from the CCS note that contract for procurement of 12 IJT aircraft had been made by IAF to fill the void created by phasing out of Iskara and impending phasing out of Kiran aircraft.

³ CEMILAC - Centre for Military Airworthiness and Certification is an agency which clears the ongoing Military aircraft projects, product and components for flight safety.

During subsequent Audit, we observed (January 2013) that Ministry had concluded (March 2010) another contract with HAL for procurement of 73 IJT Series Production (SP) aircraft along with associated equipment at a total cost of ₹6180 crore without completion of even Initial Operational Clearance (IOC) of prototype and LSP aircraft with delivery schedule in batches between 2013 and 2017. Our examination of the contract (March 2010) revealed the following:

- 1. Conclusion of contract for series production of trainer aircraft even before IOC/FOC of prototypes resulted in advances of ₹2953.88 crore lying unutilised**

At the time of submitting the proposal (February 2006) to the Cabinet Committee on Security (CCS) for procurement of 12 IJT LSP aircraft, Ministry had stated that the experience gained from the operational exploitation of the 12 IJT LSP would be conveyed to HAL for incorporation of necessary modifications on the subsequent series production. IAF had also clarified (September 2007) to HAL that order for series production would be placed after the induction of 12 IJT LSP aircraft.

However, we observed (January 2013) that against their own commitment, Air HQ had initiated (November 2008) a proposal for supply of 73 SP IJT aircraft from HAL even before completion of IOC and Final Operational Clearance (FOC) of prototype aircraft and delivery of any of the 12 IJT LSP aircraft to IAF. Air HQ stated (April 2013) that CCS approved procurement of 73 IJT SP aircraft in order to fill the void created by phasing out of Kiran aircraft and to provide lead time to HAL to commence series production. We also observed that while seeking approval of 73 SP IJT aircraft from CCS in February 2010, the Ministry had stated that the delivery of 12 LSP IJT would be completed by 2011-12. It also assured Ministry of Finance that delivery schedule of 73 SP IJT (2013-17) would be met and there would not be any delay in the SP IJT aircraft that would cause avoidable blocking of funds. A contract was concluded (March 2010) with HAL through production for procurement of 73 SP IJT aircraft with delivery schedule of 2013-17 and in terms of the contract an advance payment of ₹926.15 crore was released to HAL on signing of the contract.

We also observed (April 2014) that out of an advance of ₹2989 crore⁴ (including DRE⁵ and Capital) paid to HAL upto April 2014 for production of 73 SP IJT aircraft, HAL could utilize only ₹35.15 crore and, therefore, funds to the tune of ₹2953.88 crore were lying with HAL as unutilized advance.

In response to the paragraph issued to the Ministry in May 2014, Air HQ on the direction (August 2014) of Ministry of Defence (Finance/Budget) while justifying the conclusion of contract (March 2010), for procurement of 73 SP IJT stated (August 2014) that HAL had failed to meet the agreed timelines for certification and production of the engine. As a result, IAF was faced with a limitation of aircraft which was going to simultaneously affect the training of future combat pilots for its operational preparedness. Air HQ's reply (August 2014) is silent on violation of provisions contained in DDPMAS regarding initiation of LSP of aircraft only after Initial Operational Clearance (IOC) certification issued by the CEMILAC.

Moreover, Audit scrutiny of records further revealed (May 2014) that even after four years of conclusion of contract (March 2010) Standard of Preparation (SOP⁶) of aircraft were not frozen and therefore production of 73 SP IJT aircraft could not materialize without finalizing SOP. In reply to audit observation, IAF informed (July 2014) Audit that HAL had projected December 2014 and June 2015 as IOC and Final Operational Clearance (FOC) respectively for D&D of IJT prototypes. Air HQ further stated that SOP for IJT aircraft would be finalized only after achievement of IOC.

The response of Air HQ confirms the Audit observation that IAF in contravention of prescribed procedure had gone ahead in awarding the

⁴ ₹2989 crore = 15 per cent payment ₹926.15 crore was released on signing the contract + 15 per cent second stage (₹926.15 crore) released in May 2010 + ₹786.12 crore released for other milestone stipulated in the contract + ₹350.61 crore for DRE and Capital expenditure.

⁵ DRE- Deferred Revenue Expenditure (expenditure incurred on tools, jigs and fixtures etc.)

⁶ SOPs are standards of preparation of aircraft which defines the Air Staff Qualitative Requirements (ASQRs) of the aircraft. The SOPs are required to be frozen before manufacture of an aircraft.

contract to HAL for procurement of 73 IJT aircraft even without the IOC/FOC of prototype/LSP IJT aircraft.

Moreover, scrutiny of records revealed that 12 LSP IJT had yet (July 2014) not been delivered. Air HQ stated (July 2014) that at present six LSP IJT aircraft had been produced by HAL and delivery of these aircraft were delayed by HAL due to non completion of D&D activities.

Thus, in contravention of provisions contained in DDPMAS, IAF placed order for procurement of 73 SP IJT aircraft without the Initial Operational Clearance (IOC) and Final Operational Clearance (FOC) of Design and Development of the prototype and 12 LSP IJT aircraft. Consequently, due to considerable delay in production of contracted IJT aircraft, IAF continued to depend on ageing and depleting Kiran fleet for training purpose. Further, due to improper planning and hasty decision in conclusion of contract (March 2010), funds to the extent of ₹2953.88 crore remained unutilized.

2. Improper implementation of contract provisions

As per the payment terms of contract (March 2010) concluded for procurement of 73 SP aircraft, the second stage payment of 15 *per cent* of contract valuing ₹926.15 crore was payable to HAL based on certification by the seller (HAL) to the effect that the first purchase order (PO) in respect of contract deliverable and services had been placed by the seller on its vendors. The contract provided that for claiming the 2nd stage payment, HAL had to provide copy of any purchase order (PO) irrespective of the value of PO. Scope of the payment had been divided into four categories *viz.* aircraft, reserve engine, setting up of Capital and DRE⁷ facilities and Annual Maintenance Contract (AMC).

Audit observed (September 2013) that HAL had claimed immediately after signing of contract (March 2010) for second stage payment of 15 *per cent* of contract value amounting to ₹926.15 crore. The entire claim of ₹926.15 crore was released (May 2010) for payment by IAF to HAL against POs of nominal value of ₹6.04 crore. The claim was inclusive of three POs:- (i) ₹175.30 crore

⁷ DRE- Deferred Revenue Expenditure

w.r.t. setting up of Capital and DRE against Purchase Orders (POs) valuing ₹6.01 crore of September 2008 *i.e.* PO placed prior to signing of contract (ii) ₹627.16 crore *w.r.t.* aircraft against PO valuing only ₹1.44 lakh placed (March 2010) for purchase of cold drawn seamless tube for 12 LSP IJT aircraft and (iii) ₹123.69 crore *w.r.t.* reserve engine etc., against PO valuing ₹0.83 lakh placed (December 2010) which was meant for vacuum cleaner. As such, these payments had been claimed either for items purchased before the conclusion of contract or for items not related to SP IJT aircraft production activity.

On this being pointed out (September 2013) by Audit, Air HQ stated (January 2014) that the payment claimed (₹926.15 crore) against all the POs including that for first batch of 12 of 73 SP IJT aircraft by HAL was in line with the provisions of contract.

The reply is not acceptable as HAL had taken advantage of the ambiguous provision (*i.e.* claiming full second stage payment on providing copy of any PO irrespective of the value of PO) of contract. Besides, it was also observed that payment of ₹123.69 crore *w.r.t.* reserve engine etc., against PO valuing ₹0.83 lakh (December 2010) was not in order as the placement of order had occurred after the release of payment. The IAF contention that PO claimed for aircraft pertains to first 12 of 73 SP IJT aircraft is also not acceptable as the contract (March 2010) stipulated delivery of only six aircraft in first batch of supply (2013) and 14 aircraft in second batch of supply (2014) to be made by HAL. Further, the contention of IAF regarding payment made against 12 sets of 73 SP IJT aircraft was also not corroborated by the fact that HAL could utilize only ₹35.15 crore against total advance payment of ₹2989 crore for SP IJT aircraft which was still (July 2014) in planning stage.

Air HQ further reiterated their earlier stand and stated (August 2014) that all the three POs were in order and as per scope of payment. The reply of Air HQ does not address the issue of HAL's claim of ₹926.15 crore which was based on invoices/ POs valuing only ₹6.04 crore.

It was noticed that the contract is broadly based on the provisions contained in Chapter V 'Standard Contract Document' of DPP-2008. We also noticed that

the DPP-2008 had prescribed that payment terms with DPSUs would be as per the MoU in vogue. However, MoD has not concluded any MoU on payment terms with HAL so far (September 2014). It was also noticed that the payment terms in the contract (2010) did not contain the value of POs to be placed by the HAL *w.r.t* the amount of advance to be released under each category by IAF. Moreover, during implementation of the project the paying authority *viz.* CDA(HAL) failed to point out in Capital and DRE category that the purchase order placed was belonging to the period (2008) prior to the signing of the contract (2010). In the another category of reserve engine the paying authority released advance payment for vacuum cleaner which was not related to the specified category as mentioned in the contract.

Thus, IAF had made substantial second stage payments to HAL against nominal value of purchase orders not directly related to production activities of the contracted aircraft.

3. Limitation on operational role

- As per Air Staff Qualitative Requirement (ASQR) for Series Production (SP) aircraft, the All Up Weight (AUW)⁸ of the aircraft must not exceed 3500 Kg. However, Audit observed (January 2013) that against this requirement, the contract entered into was for AUW of 4250 kg in normal training configuration which was much higher than the AUW stipulated in the ASQR. Accepting the facts, Air HQ stated (April 2013) that this increase in weight had resulted in shortfall in some performance related ASQR of the order of approximately 15 *per cent*. Air HQ further added that a team had been constituted to carry out the study for weight reduction. However, from the minutes of 15th Steering Committee⁹ (August 2013), we noticed that HAL had clearly stated that only a maximum of 100 Kg weight reduction was possible.

⁸ AUW= Total weight of aircraft while airborne inclusive weight of pilots and fuel.

⁹ A Committee comprised of HAL and IAF representative constituted to watch the progress of production activity of IJT on quarterly basis.

In response to the paragraph issued to the Ministry in May 2014, Air HQ on the direction (August 2014) of Ministry of Defence (Finance/Budget) stated (August 2014) that a reduction in AUW would directly result in improvement in performance. HAL had carried out (August 2013) a study and had identified possibility to reduce 115 kg in the series production version. However, IAF did not agree (August 2014¹⁰) to the proposed reduction and advised HAL to seek expert consultancy for further weight reduction. Air HQ further stated that IAF may consider giving concessions to HAL on ASQR, depending upon the merit of case at an appropriate time.

The reply of Air HQ indicates that IAF had not taken seriously the adherence to their own approved ASQRs. As a result, IAF failed in providing requisite ASQR configuration of AUW of 3500 Kg for SP IJT aircraft in the contract which would result in procurement of heavier aircraft having AUW of 4250 Kg. This increase in weight of aircraft will result in shortfall in performance as admitted by the Air HQ.

- Likewise, the initial prototype of IJT aircraft had French SNECMA LARZAC 04-20 engine for design and development that was later replaced (April 2005) with higher thrust AL-551 engine (a Joint Venture of HAL and Russian manufacturer NPO Saturn) to meet the training requirements of IAF. We noticed (January 2014) that despite providing ₹159 crore to HAL exclusively for development of high thrust engine, the contracted engine of SP IJT aircraft (AL-551) would presently have Total Technical Life (TTL) of only 300 hrs against TTL of 3600 hrs provided in the ASQR. The contract (March 2010) provided that TTL of 300 hrs would be subsequently extended to TTL of 3600 hrs. However, the timelines for extending the TTL to 3600 hrs had not been stipulated in the contract. We further noticed (January 2014) that Air HQ had projected (September 2008) utilisation rate of 30 hrs/month/per aircraft to impart training to trainee pilots during

¹⁰ Statement has been made on the basis of Air HQ reply forwarded in August 2014.

stage II whereas considering the present TTL given by the vendor for the engines, the aircraft would complete their engine hours within 10 months after induction into IAF service. Therefore, IAF had taken unlimited liability on themselves by accepting the provision of the contract of SP IJT aircraft which did not have any stipulated timelines for further development of aero-engine to TTL of 3600 hrs.

Air HQ in its reply (August 2014) stated that the engine had been recently cleared for 300 hours of life and further tests were in progress by original equipment manufacturer (OEM) on engines which had run more than 300 hours for next phase of extension. It further added that till the award of engine life upto 1200 hours by OEM, existing Kiran aircraft would continue to be used to impart Stage-II training. Therefore, at this stage it is incorrect to state that IAF had created unlimited liability by agreeing for AL-551 engine of IJT.

Reply is not acceptable as non-stipulation of timelines for development of engine to Total Technical Life of 3600 hours in the contract would affect the stage-II training to trainee pilots as admitted by Air HQ. The reply of Air HQ regarding utilisation of Kiran aircraft for imparting stage-II training is also not tenable as the IAF held only 39 aircraft for training purpose against the authorisation of 79 Kiran and out of these only 19 aircraft were in flying condition. Due to this, IAF was finding itself extremely constrained¹¹ in completing the training of Stage-II pilots in time. Besides, the purpose for awarding the contract for development of IJT with a view to replacing the existing Kiran aircraft was also defeated.

In brief, IAF committed uncertain liability on their part by entering into series production contract of 73 IJT aircraft even before completion of the Initial Operational Clearance (IOC)/ Final Operational Clearance (FOC) of prototype aircraft in violation of stipulated provisions of DDPMAS. As a result, IAF

¹¹ Revising downwards the training flying hours from 105 to 87 hours and further by reducing the intake strength of trainees pilots.

was unable to provide modern IJT trainer aircraft to meet its stage-II training requirement for trainee pilots even after a lapse of 14 years. Due to acute shortage of the existing Kiran trainer aircraft, the training hours prescribed for stage-II training had to be reduced by IAF. Besides, the aircraft under development would be heavier compared to IAF parameters which will affect training related performance. Further, advances released by IAF to the extent of ₹2953.88 crore remained unutilized with HAL (August 2014).

The matter was referred to Ministry in May 2014; their reply was awaited (September 2014).

2.2 Non-utilisation of Mobile Ground Exploitation Stations for reconnaissance missions

Non procurement of adequate number of Synthetic Aperture Radar and Electro Optic/Infra Red pods coupled with incorrect allocation of four Mobile Ground Exploitation Stations imported at a cost of ₹129.76 crore resulted in their non-utilisation for the intended purpose thereby affecting the Recce mission of IAF.

A Reconnaissance (Recce) system is used to collect intelligence data for operational needs. An aerial Recce system comprises (a) Synthetic Aperture Radar (SAR) pods, (b) Electro Optic/Infra Red (EO/IR) pods and (c) Static/Mobile Ground Exploitation Stations (SGES/MGES). The SAR pod is used to provide images of enemy territory in all weather, day and night conditions while the EO/IR pods have cameras/sensors which are capable of providing images of any area of interest during day and night. The SGES/MGES, the ground portion of SU-30 MKI Recce pod system, are the control centres for the pods which receive real time data from the aircraft during operation.

Ministry of Defence (Ministry) concluded a contract (December 2004) with M/s Elta, Israel (OEM) for procurement of Aerial Recce system to be integrated on SU-30 MKI aircraft at a total cost of MUSD 136.61 (₹640 crore). Most of the supplies were made between December 2007 and March 2009.

Audit had earlier commented in paragraph No. 3.1 of the Report of Comptroller and Auditor General of India, No.16 of 2010-11 about the abnormal delay in integration of Recce pods onboard an aircraft. In their Action Taken Note, Ministry stated (June 2011) that the Recce pod had been successfully integrated and operationalised for its stated role.

Procured Aerial Recce system comprised two SGES and four MGES and three sets of SAR and EO/IR pods whereas for exploitation of one SGES/MGES, one set of pod (SAR and EO/IR) is required to be positioned for operation of the Recce system. Of these, four MGES valuing ₹129.76 crore were planned to be inducted between December 2008 and March 2009 at four Air Force Stations (AFS) located at forward locations. Presently, all the three sets of pods along with one SGES is located at AFS 'A'. The remaining one SGES is kept at AFS 'B'.

During audit of four AFSs (2010-12), it was noticed that these four newly inducted MGES could not be made operational at designated bases since their receipt (2008-09) as three out of four designated bases did not have SU-30 MKI aircraft. The fourth MGES was positioned at designated location operating SU-30 MKI squadron without any SAR and EO/IR pod eventhough for exploitation of MGES/SGES, one set of pod (SAR and EO/IR) is required to be positioned along with the Recce system. As a result, no Recce mission could be undertaken since the receipt of four MGES (2009). Subsequently, Air Headquarters (Air HQ) had decided (October 2011) to relocate these MGES to other three bases operating SU-30 MKI aircraft for their utilisation.

The matter was referred (July 2012) by Audit to Air HQ. In its reply, Directorate of Engineering (DoE), Air HQ stated (September 2012) that SAR and EO/IR pods are the extra attachment to the aircraft which takes imagery during real time missions and the same can be down linked with nearby SGES/MGES for further analysis. Therefore, positioning of MGES may not necessarily be undertaken at SU-30MKI base. The reply of Air HQ is not acceptable as it was against the intended procurement objective of the Aerial Recce system which was to be integrated on SU-30 MKI aircraft. The reply is also contradictory to their decision (October 2011) of relocating all MGES to bases with SU-30MKI squadrons for their utilisation.

Directorate of Operation (Offensive), Air HQ further clarified (January 2013) to Audit that utilisation of MGES at new locations was contingent on availability of additional sets of pods, the proposal for procurement of which was still under process (March 2014¹²).

On further audit query (March 2014) regarding non procurement of required number of pods for utilisation of four MGES and its impact on operational preparedness, Air HQ stated (April 2014) that while initiating (1999) the procurement action for three SAR pods and three EO/IR pods along with six SGES/MGES, it was envisaged that these pods would be sufficient to undertake necessary Recce operations in the desired area of concern. It further informed Audit that it was decided (2009) to procure additional six sets of SAR and EO/IR pods along with two MGES one each for Southern Western Air Command (SWAC) and Eastern Air Command (EAC) as presently available pods for exploitation limit the area of operations and also prevent IAF from achieving its full potential in Recce operation.

Further, in response to the paragraph issued to Ministry in May 2014, Air HQ on the direction (August 2014) of Ministry of Defence (Finance/Budget) furnished their reply directly to Audit wherein they reiterated (August 2014) their earlier stand that proposal for six sets of pods had been initiated (May 2013) based on the Raksha Mantri's Ops directive (2009) to cater for the contingency deployment.

The reply confirms that the requisite numbers of pods were not purchased earlier which has resulted in non utilisation of four MGES valuing ₹129.76 crore for operation of Recce system for the last five years since receipt (2009).

The matter was referred to Ministry (May 2014); their reply was awaited (September 2014).

¹² Position updated on the basis of information forwarded by Air HQ on 11 April 2014.

2.3 Procurement of Air Combat Maneuvering Instrumentation system

IAF had incurred an extra expenditure of ₹10.35 crore on excess flight trials of the Air Combat Maneuvering Instrumentation (ACMI) system. Further, due to non synchronization of procurement and integration of ACMI system with fleet modification plan, the equipment procured at a cost of ₹167 crore could not be exploited fully for training purpose.

Air Combat Maneuvering Instrumentation (ACMI) system comprises Static and Ground Mobile Station, External pods, Network terminals and V/UHF R/T¹³ sets. The system provides an electronic replay of the entire combat sorties and thus ensure thorough effective post-flight debriefings. This results in improving the air combat skills of pilots with lesser flying effort thereby directly contributing to operational skills. It also has the facility to monitor the combat parameters, in real time, at a ground station with an option to communicate immediate warning of unsafe/collision regimes, thus contributing to flight safety.

Ministry of Defence (Ministry) concluded (October 2007) a contract with M/s BVR System Ltd. Israel (OEM¹⁴) for procurement of three ACMI systems inclusive of 46 external pods and associated equipment at a total cost of MUSD 19.46 (₹79.57 crore). These systems were delivered between December 2009 and January 2010 and commissioned between April 2011 and September 2011 at Air Force Station (AFS) 'M', 'N' and 'O'. Indian Air Force (IAF) procured two additional ACMI systems inclusive of 54 pods along with associated equipment at a total cost of MUSD 18 (₹87.56 crore) in December 2010 under option clause of the main contract (October 2007). These were delivered during July-August 2012 and installed (July 2013) at AFS 'P' and 'Q'. The examination of case reveals the following findings:

¹³ Very/High Ultra Frequency Receive/Transmit sets.

¹⁴ Original Equipment Manufacturer.

1. Extra expenditure on Flight Integration trial

The ACMI pod fitted on the aircraft constantly transmits aircraft flight path information to the ground station. At the ground stations, it reproduces an accurate and a complete picture of the air combat when replayed along with the inputs from many other pods. These 100 pods were to be adapted to the different six platforms (aircraft) through placement of Repair, Manufacture and Supply Orders (RMSO) on Hindustan Aeronautics Limited (HAL). Out of six platforms, integration of system on aircraft 'C' is to be carried out during their upgradation programme (by 2020) by OEM. For remaining five platforms, flight test of these pods was prescribed at the rate of three days per platform (aircraft) (i.e. total 15 days for five platforms). These test flights were referred to as "Transparent Flights" and were planned and debriefed¹⁵ by the seller. Further, these flight tests were to be completed in two phases *i.e.* in first phase, Integration Flight Test (IFT) inclusive of Pod Integration Trials (PIT) was to be carried out in 15 days for all the five variants of aircraft to refine interface control document between pod and the aircraft. In second phase, On Site Acceptance Test (OSAT) was to be carried out to check the performance of the pod and the entire ACMI system for which no time line was prescribed in the contract.

As per the contract (2007), IAF was to carry out Pre Despatch Inspection (PDI) of the equipment at seller's premises, in order to check their compliance with specifications in accordance with its usual standard procedures. IAF carried out (November 2009) Pre Despatch Inspection of the equipment successfully.

However, we observed (October 2013) from the flight integration trial report that when the vendor brought (December 2009) the equipment to India for first phase of flight trials, it could not integrate the pods successfully with various aircraft at IAF bases due to software problems. As a result, IAF had to fly 5 fighter aircraft in seven phases from 15 December 2009 to 5 March 2011 for validation of Pod Integration Trials (PIT). The vendor could not clear PIT within stipulated time *i.e.* 15 days @ 3 days per aircraft. Instead, the vendor

¹⁵ The vendor has to conduct pods integration test in IAF aircraft and for which the seller has to plan the details of flight test and explain the progress of such test flights thereafter to IAF representative.

had taken 43 days for PIT *i.e.* 28 days in excess of the prescribed time in which 84 additional sorties were undertaken for the clearance of flight integration trials. Although contract provision stipulates total 15 days for five aircraft for flight tests, no provision for recovery from vendor on account of excess flight trials was provided therein. Consequently, IAF had to bear an extra expenditure of ₹10.35 crore on account of these 84 excess sorties towards PIT.

On the matter regarding excess flight trials (sorties) being pointed out in Audit (October 2013), Air HQ merely stated (November 2013) that the total 138 flights sorties [*i.e.* for PIT (109 sorties¹⁶)] and OSAT (29 sorties) were undertaken. The reply was silent on the 84 excess sorties undertaken in extra 28 days for pod integration trials and the expenditure incurred thereon.

In response to the paragraph issued to the Ministry in May 2014, Air HQ on the direction (August 2014) of the Ministry of Defence (Finance/Budget) stated (August 2014) that the extra expenditure worked out towards PIT was not completely incurred towards PIT but also includes comprehensive flight evaluation through flight integration trials. It further added that PIT tests were carried out during flight evaluation trials within the prescribed period as per contract.

The reply is not tenable as the objective of flight evaluation trials was to check the performance and operational exploitation of the external pods after their integration and finalization of Standard of Operation (SOP) to exploit the ACMI modified aircraft with the pods in most effective and safe manner. It is also evident from the flight test reports that all flight trials were conducted to integrate the ACMI pod for which the vendor had taken 43 days to clear the flight trials as against the stipulated 15 days for Pod Integration Trials (PIT). As a result, IAF had to incur an extra expenditure of ₹10.35 crore on extra sorties undertaken during the 28 days for PIT of the system. Besides, the flight test efforts for OSAT were carried out in addition to the pod integration test.

¹⁶ Inclusive of 25 sortie undertaken in 15 days prescribed for flight test

2. Delay in fleet modification

For integration of ACMI system, Air Force had planned to modify all six variant of combat aircraft. The modification was to be carried out by M/s Hindustan Aeronautics Limited (HAL) after due certification by OEM. Initially, HAL modified one aircraft of each variant for flight evaluation for integration of ACMI system and thereafter, the series modification of each fleet for integration and carriage of ACMI pod was to be undertaken after the flight trials.

We noticed (April 2014) that out of six variants of aircraft, IAF had placed Repair, Manufacture and Supply Orders (RMSO) on HAL for series modification in respect of only three variants of aircraft between April-November 2011. For the remaining three variants, the RMSO for 15 aircraft 'A' was concluded in April 2014 and balance 30 aircraft 'A' are to be modified after their up-gradation in 2020-21. The Repair Manufacture and Supply Order (RMSO) for aircraft 'B' was yet to be placed (July 2014¹⁷). In respect of aircraft 'C', no separate RMSO had been placed as all aircraft 'C' would be upgraded by aircraft OEM in which ACMI integration is a part of Final Operational Clearance.

We further observed that the shelf life of ACMI system is 20 years from the date of delivery¹⁸ and till date (July 2014¹⁹) series modification of only one variant of aircraft 'D' had been fully completed whereas the fleet of aircraft 'E' and 'F' had been partially modified. Considering the up-gradation plan of aircraft 'A' and 'C', which were under their various phases, the complete fleet modification of all the variants of aircraft for integration of ACMI system would not be accomplished till the end of 2020-21. Thus, by the time all the fleet/aircraft would be modified (2020-21), half of the shelf life of these ACMI system since delivery would expire.

¹⁷ Position updated as per reply furnished by Air HQ on 30th July 2014).

¹⁸ Systems were delivered in batches. Delivery of system against contract of October 2007 was materialized between December 2009 to June 2010 whereas the delivery against contract (2010) materialized between July-August 2012.

¹⁹ Position updated as per reply furnished by Air HQ on 30th July 2014.

Air HQ in its reply to paragraph issued in May 2014 stated (August 2014) that the exploitation of ACMI system did not depend upon the type of aircraft variant as the ACMI system is not aircraft specific. They further stated that it can be fitted on and exploited by any type of aircraft variant after required study/modification in such variant of aircraft. It also intimated that series modification of various platform were under progress.

The reply is not acceptable as IAF procured the ACMI system to be integrated on all the six variants of aircraft with the aim of improving the training skills of the pilot and also to provide electronic replay of the entire combat sortie. Since, two out of six variants of aircraft would be modified during their upgradation by 2020-21 and the RMSO for one variant was yet to be placed (July 2014), IAF failed to synchronize the procurement and integration of ACMI system with fleet modification plan of all the six variants of the combat fleet for achieving optimal operational exploitation of the system during its life time.

Thus, due to non synchronization of fleet modification plan with the procurement and integration of ACMI system with all the variants of platforms, the system procured at the total cost of ₹167 crore could not be exploited fully for training of pilots. Further, by the time all the system would be integrated, half of the shelf life of the pods would expire since delivery.

The matter was referred to Ministry in May 2014; their reply was awaited (September 2014).

2.4 Unfruitful investment in procurement of a Torpedo

Torpedo 'W' contracted for ₹99.60 crore did not meet the envisaged Qualitative Requirements (QRs). Requisite airborne presetters remained under trials leading to inability of Indian Navy (IN) to operationally exploit these torpedoes, resulting in unfruitful investment. Further, delay in conclusion of contract and delivery of Torpedo 'W' led to inability of IN to maintain minimum pool reserve.

Naval Science and Technological Laboratory (NSTL), Visakhapatnam a laboratory under Defence Research & Development Organisation (DRDO), in

February 2005, developed Torpedo 'W' [earlier known as Advanced Experimental Torpedo (AET)]. A mention was made in an earlier Audit Report²⁰ that the staff project for development of AET undertaken by DRDO failed to fructify despite delay of twelve years and after incurring an expenditure of ₹46.24 crore which compelled Indian Navy (IN) to continue using vintage torpedoes, adversely affecting defence preparedness. Ministry of Defence (Ministry) in their Action Taken Note (April 2006), while agreeing with the facts of the case, stated that in spite of all the hurdles, the required success rate was demonstrated successfully by February 2005 and IN accepted the torpedo designed by NSTL. It was also stated that Government sanction was under progress by IN for placement of order on M/s Bharat Dynamics Limited (M/s BDL).

Thereafter, Ministry concluded a contract (November 2009) with M/s BDL at a total cost of ₹99.60 crore for procurement of 'A' numbers of Torpedo 'W' along with accessories and support test equipment to be delivered by May 2012.

Though the Ministry had accepted the torpedo designed by DRDO, our scrutiny (July 2013) of the records pertaining to the procurement of Torpedo 'W' revealed the following:

I. Delay in conclusion of contract and delivery of Torpedo 'W'

In November 2005, IHQ MOD (Navy) while proposing procurement of 'A' numbers of Torpedo 'W', projected a deficiency of 'B' numbers of torpedoes from the minimum pool reserve. However, the procurement was restricted to only 'A' numbers of torpedoes with the intention of making up the deficiency from Torpedo 'X'²¹ in future. Defence Acquisition Council (DAC) accorded (January 2006), Acceptance of Necessity (AON) with the categorisation as 'MAKE'²², as per the Defence Procurement Procedure (DPP) 2005. However, since M/s BDL had already been termed as production agency in the past and had already manufactured prototype versions post Transfer of Technology

²⁰ Para 5.2 of C&AG of India's Report No.7 of 2005 (Air Force & Navy).

²¹ Torpedo 'X' is an advanced version of Torpedo 'W' and is under development.

²² Category 'Make' means indigenous production and research & development of the equipment under capital acquisition.

from NSTL, the procurement was re-categorised (August 2007) as 'Buy'²³ (Indian) from M/s BDL, after this provision was introduced in the DPP 2006. Also as the field evaluation trials were satisfactorily conducted using prototype torpedoes, which were manufactured by M/s BDL, the No Cost No Commitment (NC-NC) trials were waived in July 2008. Accordingly, Request for Proposal (RFP) was issued to M/s BDL in August 2008 and finally the contract was concluded in November 2009 with M/s BDL.

As per DPP 2006, a time frame of 23 to 34 months has been envisaged for signing of contract from the date of AON. As the NC-NC trials were waived off in the instant case, the timeframe for conclusion of contract would be 17 to 22 months. However, the contract was concluded in 46 months from the date of AON entailing a delay of 24 months. We noticed (July 2013) that main reasons for the delay were time taken for change in categorisation of acquisition, decision to waive NC-NC trials²⁴ coupled with delays in price negotiations²⁵ between the Ministry and M/s BDL. As the torpedoes were being procured to maintain minimum stock level (pool reserve), the delay had an adverse impact on the operational preparedness of IN.

Further, as per the contract, 'A' numbers of Torpedoes 'W' were to be delivered by May 2012. However, we observed (September 2013) that only 'C' numbers of torpedoes *i.e.* about 52 *per cent* of the contracted torpedoes were delivered between July 2012 and May 2013. M/s BDL cited certain production related constraints and delivery extension was sought up to December 2014 for balance items. We further noticed (May 2014) that 'D' out of 'C' torpedoes received, *i.e.* about 38 *per cent*, were found (April 2014) to be unserviceable due to failure in electrical check conducted during Joint Receipt Inspection by representatives of IN and M/s BDL. Since M/s BDL was nominated as the production agency by Department of Defence Production & Supplies (DDP&S) in 1997 for the torpedoes and Transfer of Technology was completed in 2006, delay due to production related constraints lacked justification.

²³ DPP 2006 introduced the category 'Buy (Indian)' which is outright purchase of equipment from Indian vendor.

²⁴ 4 months were taken to decide on waiver of NC-NC trials whereas the time prescribed to conduct trials themselves is 6-12 months in the DPP.

²⁵ Time prescribed to complete the price negotiation process by Contract Negotiation Committee is 3-5 months which was completed in 9 months.

II. Investment remaining unfruitful

Naval Staff Qualitative Requirements (NSQRs) for Torpedo 'W' were initially framed in July 1985 and finalised in 1997 based on the outcome of a staff project. Though, there was considerable dilution in NSQRs of 1997 in critical parameters as compared to NSQRs of 1985, even the diluted NSQRs of 1997 could not be fully met by the torpedoes that were eventually contracted in 2009 from M/s BDL.

While there was a minor dilution in torpedo speed, there were major dilutions in terms of shipborne presetters²⁶ and FIAM²⁷. The NSQRs envisaged a requirement of both shipborne and airborne presetters but the contract was concluded for airborne presetters only as shipborne presetters was still under development at NSTL. Since shipborne presetters was unavailable, the operational exploitation of Torpedo 'W' from the identified class of ships was uncertain. Further, FIAM were required for fixed wing as well as rotary wing aircraft as per NSQRs, whereas in the Torpedo 'W' contracted for, provision for FIAM was made for rotary wing aircraft only. This clearly showed the operational utility of these torpedoes would be considerably reduced due to non-inclusion of these requirements in the contract.

Further, IN had nominated (May 2005) Torpedoes 'W' for MATCH²⁸ (helicopters) since the airborne presetters met the Navy's requirement for MATCH only. In order to facilitate the induction of Torpedo 'W' for MATCH, certification for the fitment of airborne presetters on MATCH by Center for Military Airworthiness & Certification (CEMILAC)²⁹, Bangalore was envisaged (May 2005). The modifications of airborne presetters and Evaluation Trials (ETs) were completed and the airborne presetters was cleared by CEMILAC for exploitation by February 2007.

As per the contract, quantity 'J' of airborne presetters was to be delivered within 18 months from the effective date of contract *i.e.* May 2011. However, against the contracted quantity of 'J', only 'K', *i.e.* 13 per cent, were supplied

²⁶ Presetters – It is a Fire Control System which feeds firing data in the torpedo about directions, distance and type of search to carry out.

²⁷ FIAM – They are required for launching of torpedo from rotary wing aircraft (Helicopters)

²⁸ MATCH: Multi-role Anti Submarine Torpedo Carrying Helicopters.

²⁹ Centre for Military Airworthiness and Certification (CEMILAC) is an independent agency under DRDO which conducts airworthiness certification of the airborne equipment, stores and vehicles.

by M/s BDL for ground and flight trials (December 2013) and were undergoing flight trials to resolve certain technical issues as noticed during audit scrutiny.

IHQ MOD (Navy) in their reply (December 2013) stated that the Torpedo 'W' met the NSQRs of 1997. They further stated that another contract (June 2010) with M/s XYZ for upgradation of Torpedo 'Z' catered for the requirement of the dual capability shipborne and airborne presetters which could fire Torpedo 'W' also. However, reply is not acceptable as fact remains that there has been dilution in the speed of torpedoes as compared to NSQRs of 1997. Further, non-procurement of shipborne presetters and fixed wing aircraft FIAM, led to deviation from NSQRs. Our analysis of the another contract (Torpedo 'Z') revealed that it catered for the requirement of airborne presetters for helicopter type 'S' only, and did not cater for airborne presetters for MATCH role helicopter *i.e.* the platform for which Torpedo 'W' were procured. Further, integration and trials for the dual capacity presetters were planned post successful Sea Acceptance Trials (SATs) of Torpedo 'W'. However, the SATs of Torpedo 'W' were declared unsuccessful (April and May 2014).

We also observed (June 2014) that though the airborne presetters were already developed and certified for exploitation in as early as 2007, during their ground trials in February-March 2014, it was noticed by IN that certain software modifications were required to be undertaken in presetters due to certain inadequacies in their functioning. As a result, CEMILAC clearance of February 2007 for exploitation of the airborne presetters was withdrawn. M/s BDL were requested by IN to expedite the clearance only after which flight trials could be scheduled. Therefore no airborne presetters was available with IN for operational utilisation of Torpedo 'W' from MATCH.

To sum up, the procurement of quantity 'A' Torpedoes 'W', which commenced in January 2006 essentially to meet the minimum pool reserve requirement of IN by 2012, could not materialise even in 2014 after an investment of ₹82 crore, due to partial supply of the contracted quantities of torpedoes, supplied torpedoes facing technical problems and the airborne presetters remaining under trials. This resulted in the investment remaining unfruitful and also adversely affecting the operational preparedness.

The matter was referred to the Ministry in May 2014; their reply was awaited (September 2014).

CHAPTER III: AIR FORCE

Contract Management

3.1 Avoidable expenditure on repair of turbine blades

Due to non stipulation of time frame for validation of repair process in the contract, IAF was forced to offload blades for repair abroad to sustain the serviceability of aircraft even after an investment of ₹5 crore on procurement of Numerical Control Grinding Machine. As a result, IAF incurred an avoidable expenditure of ₹5.14 crore on repair by the Original Equipment Manufacturer.

As per General Principles of Contract (Para 6.10.2) of Defence Procurement Manual, a contract must be governed by terms and conditions to protect the interest of both the parties to the contract. It is also desirable that conditions of the contract should be precise and definite.

In order to fill the gap in the Indian Air Force, Ministry of Defence (Ministry) concluded (October 1982) a contract with aircraft manufacturers¹ for procurement of Mirage-2000 aircraft. These aircraft were inducted into IAF squadron service from 1984 onwards. Ministry signed (August 1993) a contract for Transfer of Technology (ToT) of depot level maintenance of M-53-P2 aero-engines with M/s SNECMA (OEM²). Further, Ministry also signed (August 2006) a contract with OEM for ToT for repair of High Pressure Turbine (HPTR) Blades of aero-engines on free of cost basis.

For repair of excessively worn (Cat 'D'³) HPTR Blades of aero-engine of Mirage-2000 aircraft, Numerical Control Grinding Machine MT-41 (Machine) is required. After the signing of the contract (August 2006), a case was

¹ Aircraft manufacturers= M/s. Dassault Aviation, M/s. SNECMA and M/s. Thomson CSF

² Original Equipment Manufacturer

³ Cat 'D' = Repairable

initiated by Air HQ for procurement of the machine. Ministry concluded a contract (March 2008) with M/s DANOBAT S. COOP, Spain for supply and installation of one Machine (MT-41) at a cost of 807,395 Euro⁴ (₹5 crore). M/s SNECMA (OEM of aero-engines) with whom Ministry had signed the contract (August 2006) for ToT for repair of blade had to provide training to IAF team and validate the repair process of blades of aero-engines at 4 Base Repair Depot (BRD) after commissioning of the Machine MT-41. The Machine (MT-41) was received at BRD in April 2009 and installed and commissioned by the supplier in August 2009. During scrutiny, Audit observed (April and September 2013) that non-stipulation of time frame for validation of repair process of blades after repair in the contract of March 2008 caused an avoidable delay in validation of repair process resulting in offloading of blades for repair to OEM⁵ as discussed below:

After installation of the Machine, BRD carried out repair of blades of aero-engines in two Phases. First phase was initiated in May 2010 wherein the repair was carried out on 15 blades and records of repair in respect of these blades were forwarded to OEM premises abroad in January 2011 for validation of repair process. Under second phase, repair was carried out on 30 blades from April 2012 onwards and records thereto were forwarded to OEM in October 2012 for validation of repair process.

In response to an Audit query (September 2013) about delay in validation of repair process ranging between 12 to 33 months, Air HQ stated (October 2013) that OEM had asked for submission of documents in a specified format along with certain additional data for validation of repair process. These documents/data were submitted in July/August 2013 to OEM.

Due to non-validation of repair process, 1820 repairable blades accumulated in the Depot during the period 2010-13. As non availability of these blades was considered critical for sustaining serviceability/availability of engine, BRD sent 788 blades for repair to OEM between 2010 and 2012 under door to door repair contract⁶ of January 2009. Out of 788 blades, 683 blades were received

⁴ 1 Euro = ₹62

⁵ M/s SNECMA

⁶ A long term contract specifying the terms and conditions for repair/overhaul of an specific equipment as and when arise.

back after repair upto October 2013 and an expenditure of ₹5.14 crore was incurred on their repair. 1032 blades were yet to be repaired and were still with the BRD (October 2013) for want of repair.

On the matter being pointed out by Audit about the delay in validation of repair process by OEM (April/September 2013), Air HQ also stated (October 2013) that the repair process of blades was of very critical nature and was required to be validated by the OEM based on the sample repairs undertaken by IAF. After the certification of validation process by the OEM, IAF would be able to repair the accumulated blades. Air HQ further added that as the OEM had provided ToT for repair process of blades free of cost, there was no time limit specified for validation of repair in the contract of 2008 and the case was constantly being pursued at the highest level for early validation of repair process.

Air HQ's reply is not acceptable as under Article 1.2 of the procurement contract (March 2008), OEM was to validate the repair process at 4 BRD itself and the same was not to be sent to OEM. Non stipulation of time frame for validation of repair process in the contract (March 2008) caused an avoidable delay in validation of repair process resulting in offloading of blades for repair abroad at OEM's site.

In response to the paragraph issued in April 2014, Air HQ on the direction (August 2014) of Ministry of Defence (Finance/Budget) stated (August 2014) that the machine is being utilized by 4 BRD for gaining expertise and validating the process for repair of turbine blades. Air HQ further added that Mirage fleet is going to be in operation for next 20-30 years and hence such investment would reap substantial benefits during the life cycle of the fleet.

Reply of Air HQ is not acceptable as the machine is not being utilized for intended purpose and blades are being offloaded to OEM for repair to sustain the serviceability/availability of engine. The validation process had still not been completed (July 2014) even after more than three years of forwarding the records of repair to OEM. Moreover, even in case of provision of ToT free of cost, time stipulation for validation process is necessary in the interest of Indian Air Force.

Thus, IAF could not derive any benefit of an investment of ₹5 crore made on procurement of Machine even after more than four years of its installation due to flaw in the contract. This resulted in offloading of the blades of aero-engines for repair at a cost of ₹5.14 crore besides affecting serviceability/availability of the aircraft.

The matter was referred to the Ministry in April 2014; their reply was awaited (September 2014).

3.2 Loss due to delay in raising of discrepancy report

Failure on the part of Base Repair Depot to raise discrepancy report in prescribed time not only resulted in loss of ₹1.45 crore but also non availability of critical spares thereby affecting the maintenance of helicopters .

IAF concluded (July 2007) a contract with a foreign firm⁷ (firm) for procurement of 11 lines⁸ of spare parts for maintenance of Mi-17 Helicopters at a cost of USD 389647 (₹1.84 crore⁹). As per Clause 6 of this contract on receipt of a consignment, if a discrepancy was found to exist between the quantities/conditions of the stores received and the details shown on the relevant voucher, a discrepancy report (DR) was to be raised by the buyer within time stipulated in the contracts concluded with the supplier to make good the deficiencies. During Audit, it was noticed that delay in raising of DR in respect of three lines of spares within the prescribed time limit of 90 days resulted in a loss of ₹1.45 crore as discussed below:

As per clause 2.1 of the contract, the stores were to be delivered within 90 days from the date of opening of Letter of Credit (LoC). LoC was opened on 28 November 2007. Hence, stores were required to be delivered by 26 February 2008 (90 days). However, against this stipulated delivery date the firm dispatched the three lines valuing USD 322300 (₹1.52 crore) out of contracted

⁷ M/s AVIABALTIKA Aviation Ltd., Lithuania

⁸ Number of lines indicate the identification number of individual spare parts, description and quantity.

⁹ 1USD = ₹47.30

11 lines to 31 MCU¹⁰, AF by air on 28 May 2009. Accordingly, payment amounting to USD 306185 (₹1.45 crore) was released (June 2009) to the firm after deducting the liquidated damages for the delay in delivery.

As per clause 7.3 of contract, the supplier was to deliver the stores to 31 MCU AF, Palam, New Delhi which in turn was to deliver the stores to 3 Base Repair Depot (BRD) (the ultimate consignee as per the contract). 3 BRD received the items from 31 MCU on 16 June 2009 and these items were put up to Quality Assurance Section (QAS) at BRD for inspection on the same day. During inspection, it was found that supplied three lines of spares were not identical in all respects to the contracted items. The QAS submitted (29 June 2009) photographs and other details to Air Officer Commander (AOC), 3 BRD as proof of their findings and submitted the preliminary report on 31 July 2009 and final report on 3 September 2009 to AOC, 3BRD for raising a discrepancy report. However, the DRs were received by Air HQ from AOC, 3BRD only on 7 September 2009 *i.e.*, after a lapse of 99 days from the receipt of consignment for onward transmission to the firm. Air HQ forwarded these DRs to the firm in September 2009. The firm rejected (December 2009) the claim on the ground that DRs were received only on 10 December 2009 *i.e.* after 180 calendar days from the date of delivery of items (*i.e.* 28 May 2009).

In response to the paragraph issued in April 2014 regarding the loss due to delay in raising of discrepancy report, Air HQ on the direction (August 2014) of Ministry of Defence (Finance/Budget) stated (August 2014) that DR documents were dispatched by registered post on 24 September 2009 which should have been received by the firm within three days. Air HQ further added that the rejection of DR by the firm was not accepted. Air HQ also stated that the case was still being actively pursued with the firm for settlement and that payment against the other three contracts concluded with the firm between July 2012 and November 2013 had been withheld till settlement of DR.

The fact remains that the user unit (3 BRD) itself forwarded the DR to Air HQ after 99 days as against the stipulated period of 90 days as per the contract. The delay in raising DR by 3 BRD was also against the provision of IAF Manual

¹⁰ Movement Control Unit

(IAP-1501) which prescribes a timeline of 28 days only for the IAF units for reporting the discrepancy to Air HQ.

Thus, failure of Air HQ to raise DR in time resulted in unfruitful expenditure of ₹1.45 crore since 2009 on procurement of spares which have neither been made good nor replaced, though considered critical for the maintenance of Mi-17 helicopter.

The matter was referred to the Ministry in April 2014; their reply was awaited (September 2014).

3.3 Avoidable expenditure on repair/overhaul of Auxiliary Power Unit

Avoidable expenditure of ₹1.69 crore incurred by IAF on repair and overhaul of six Auxiliary Power Units due to lack of due diligence during assessment of estimates.

As per Para 13.2.1 of Defence Procurement Manual (DPM-2006), estimation of rates/cost is vital for establishing the reasonableness of the prices and therefore, should be worked out in realistic and objective manner on the basis of prevailing market rates, last purchased price, economic indices for raw material/labour, other inputs costs, and assessment based on intrinsic value etc. During scrutiny of a contract concluded in February 2011, Audit noticed (October 2012) that non-compliance of provisions of the DPM-2006 relating to the assessment of estimates resulted in an avoidable expenditure of ₹1.69 crore on repair and overhaul of Auxiliary Power Units (APUs) of IL-76 transport aircraft as discussed below:

Indian Air Force (IAF) has an inventory of 17 number of IL-76 transport aircraft and for smooth functioning of the fleet, IAF has an inventory of 22 APUs. The primary function of APU is starting-up of the aircraft engines and its secondary role is in maintaining emergency services during flight of aircraft in the event of failure of main power supply from the engines.

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Air HQ issued (July 2007) Request For Proposal (RFP) to five firms on Limited Tender Enquiry (LTE) basis for Repair and Overhaul (ROH) of six APUs declared Cat 'D'¹¹ by Board of Officers (October 2006). The estimates for ROH of each APU was USD 82193 (₹36.99 lakh¹²) and this was based on last contract concluded in December 2002 with M/s Aviazapchast, Russia. Only three firms responded to the RFP (July 2007) and M/s Aviaexport, Russia was declared (August 2007) the lowest bidder (L-1). The firm quoted USD 164750 (₹74.14 lakh¹²) for ROH per APU *i.e.* more than double the indented cost. A Price Negotiation Committee (PNC) meeting was held (March 2008) with M/s Aviaexport, wherein Air HQ gave a counter offer of USD 90000 (₹40.50 lakh¹²) for Repair and Overhaul (ROH) per APU to the firm. However, the basis for arriving at USD 90000 for giving counter offer had not been recorded in the minutes of PNC meeting. The matter was closed as M/s Aviaexport did not accept the counter offer.

Subsequently, Air HQ revised (August 2008) the estimates for ROH of each APU to USD 172987.50 (₹69.20 lakh¹³) on the basis of August 2007 L-1 quote after allowing escalation of 5 *per cent per annum* for the year 2008. JD Eng D1(T), Air HQ while justifying the reasonability of the revised rates to JD Eng D(Q), Air HQ opined (August 2008) that almost all the elements of cost in the instant case including the metal prices at LME¹⁴ had increased manifold and indicated that the estimated cost worked out earlier based on 2002 prices was unrealistic/inaccurate and issued the revised RFP (October 2008) for ROH of six APUs. In response to the Request for Proposal (RFP) of 2008 issued to seven firms, only one vendor M/s Aviazapchast submitted (November 2008) its quote at USD 453384 (₹1.81crore) per APU which was 262 *percent* of the revised estimates (August 2008) of USD 172987.50 (₹69.20 lakh¹³). As it was a case of single vendor situation, Air HQ decided (January 2009) for re-tendering.

Air HQ further revised (January 2009) the estimates for ROH of each APU to USD 181636.88 (₹87.19 lakh¹⁵) on the basis of August 2007 L-1 quote after

¹¹ Cat 'D' = Repairable

¹² 1 USD = ₹45

¹³ 1 USD = ₹ 40

¹⁴ LME = London Metal Exchange

¹⁵ 1 USD = ₹48

allowing escalation of 5 *per cent per annum* for the year 2008 and 2009 and issued revised RFP (February/March 2009) to eight firms for ROH of 10 APUs¹⁶ as the number of Cat 'D' APUs had increased during the intervening period. Only three firms responded this time and the quote (USD 205000 per APU) of M/s STE was found L-1. However, M/s STE offer was not considered as the firm could not produce Original Equipment Manufacturer (OEM) certificate. The Price Negotiating Committee, therefore, decided (June 2009) to invite M/s Aviaexport being the next lowest [USD 228960 (₹1.10 crore¹⁵) per APU] for further negotiations and the contract for ROH was concluded (February 2011) with M/s Aviaexport at the negotiated rate of USD 224380(₹1.08crore¹⁷) per APU.

On the matter regarding unrealistic assessment of estimates being pointed out (January 2014) by Audit, Air HQ stated (February 2014) that the contract (RFP of July 2007) could not be concluded in the year 2008 due to the offer being 100 *percent* higher. Further, Air HQ on the direction (August 2014) of Ministry of Defence (Finance/Budget) stated (August 2014) that the estimated cost was worked out on the basis of available inputs as per DPM norms with no reliable market intelligence available through open sources (internet)/Air Attache office.

The reply confirms the Audit observation that the estimates were not based on the reasonability of prices and did not take into account all the factors prevailing in 2007 as per provisions contained in the DPM, resulting in price escalation and delay in conclusion of contract. Further, according to the provision of DPM (Para 13.8), last purchase price of more than three years vintage is not a real scale for comparison. Air HQ also did not seek information through non-budgetary quotes from the registered firms as per provision {(Para 11.2) read with (Para 13.2.1)} of DPM-2006 for working out the estimates in a realistic manner. Moreover, Air HQ itself accepted (August 2008) that the estimates worked out in 2007 on the basis of 2002 prices were unrealistic/inaccurate.

¹⁶ In the meantime, Number of Cat 'D' APUs has increased.

¹⁷ 1 USD = ₹47.35

Had IAF worked out the proper indent cost of ROH of APU on the basis of rates prevailing in 2007 as per provisions contained in the DPM before issuing RFP in July 2007, it could have secured the contract for ROH of six APUs in 2007 only @ USD 164750 per APU against the rate of USD 224380 per APU contracted in February 2011 with the same firm.

Fact remains that due to failure on the part of IAF in working out the estimates with due diligence resulted in an extra expenditure of ₹1.69 crore¹⁸ on repair and overhaul of six APUs.

The matter was referred to Ministry in April 2014; their reply was awaited (September 2014).

Procurement

3.4 Unjustified procurement of a system

Map Digitization Preparation Stations (DMPS) procured at a cost of ₹3.49 crore were not being utilised for the last four years as there was no requirement of DMPS at the unit level.

Paragraph 3 of Appendix 'A' of Defence Procurement Procedure 2006 stipulates that while giving justification for the procurement of an equipment, the operational role and necessity of the item and details of working out of total quantity required should be indicated in the proposal.

Ministry of Defence (Ministry) concluded (March 2006) a contract with M/s Hindustan Aeronautics Limited (HAL), Bangalore Division for procurement of 17 aircraft 'M' along with spares and TTGE¹⁹ which included

¹⁸ Calculation of avoidable expenditure = ₹1.69 crore
1 USD = ₹ 47.35 (as on February 2011)
Difference in cost of ROH per APU = USD 224380 – USD 164750 = USD 59630
Difference in cost of ROH of six APU = USD 59630 x 6 = USD 357780 x ₹47.35
= ₹1.69 crore

¹⁹ TTGE = Tools, Testers and Ground Equipment

three Map Digitization Preparation Stations (DMPS) and three Map Loading Stations (MLS) valuing ₹3.95 crore²⁰.

DMPS is required for conversion of Manual Map to Digital Map, wherein hard copy of a map (manual) is scanned through this equipment and thereafter digitized by using various computer software whereas MLS is required at field units for loading digitized maps on aircraft.

Air Force Station (AFS) 'A' received (April 2010) two DMPS and two MLS while one DMPS and one MLS were received at AFS 'B' (September 2010). During the Audit of AFSs 'A' and 'B', it was observed (July 2013/March 2014) that these three DMPS valuing ₹3.49 crore were not being utilised for the intended purpose as discussed below:

AFS 'A' informed (August 2010) HQ Western Air Command IAF as well as Directorate of Engineering, Jaguar, Air HQ (DoE) that since the DMPS was not used at field level, these two DMPS were not required there and only the MLS equipment was accepted at the base. Accordingly, DoE took up the issue (August 2010) with Directorate of Operation (Offensive), Air HQ which in turn requested (September 2010) DoE to allot one DMPS each to AFS 'C' and Central Photo Reproduction Unit (CPRU), AFS 'D' which could utilise such equipment. However, keeping in mind the operational scenario, Dte. of Eng Jaguar, Air HQ decided (September 2010) that the items would be retained at Jaguar bases. Accordingly, AFS 'A' issued (April 2011) the DMPS allotted to it to two operating squadrons (*i.e.* Sqn 'X' and Sqn 'Y') of aircraft 'M'.

We observed (July 2013) that since receipt, the DMPS had not been put to use at Sqn 'X' and Sqn 'Y' as digitization of map was not done at field units (operating squadrons). Further, Sqn 'X' also confirmed (July 2013) to Audit that in the present conditions the requirement of DMPS did not exist at Sqn level as the maps were being supplied from central agency. It further stated that the system was issued to Sqn 'X' without projection of any requirement.

AFS 'B' also informed Audit (March 2014) that digitization of maps is not done at field level and currently the DMPS was being utilised for

²⁰ Cost of 3 DMPS (₹3.49 crore) + 3 MLS (₹45.93 lakh) = ₹3.95 crore

scanning²¹ ferry maps which were being saved as soft copy. Thus, the DMPS was not being utilized for the intended purpose at AFS 'B' also.

In response to the paragraph issued in April 2014, Air HQ on the direction (August 2014) of Ministry of Defence (Finance/Budget) stated (August 2014) that for defence forces, several combat systems and weapons are essentially required during war time contingencies and their utilisation during peace time may be limited to maintain continuity and expertise. It further added that procurement of equipment is a time critical activity and delay in procuring maps from a central agency would hamper operations.

The reply is not tenable as Air HQ had earlier stated (October 2013) that digitization of the map was not being done at the field level *i.e.* AFSs 'A' and 'B' for which these equipment were initially procured. The fact that efforts made by the Air HQ to allot DMPS to CPRU AFS 'D' and AFS 'C' confirms that the DMPS units were purchased without diligent assessment of requirement at AFSs 'A' and 'B'.

Thus, the procurement of three DMPS for the field units valuing ₹3.49 crore without any requirement was not justified as digitization of map is not being done at the unit level as admitted by field units of AFSs 'A' and 'B'.

The matter was referred to the Ministry in April 2014; their reply was awaited (September 2014).

3.5 Extra expenditure on procurement of Brake Parachutes

Due to improper assessment of urgency, IAF incurred an extra expenditure of ₹12.66 crore on import of 100 Brake Parachutes.

Indian Air Force (IAF) operates different types of combat aircraft which utilize Brake Parachutes to reduce the speed of the aircraft during each landing.

²¹ Scanning implies that the manual maps used for ferrying an aircraft are scanned so as to change printed words or pictures into electronic text in order to put them in the memory of the computer. This is different from digitization which allows the user to make amendments to the digitized maps by use of MLS.

Based on the Provisioning Review of 'Safety Equipment' for the year 2010-11, Air HQ placed (December 2010) an indent on Ordnance Parachute Factory (OPF), Kanpur for seven lines of safety equipment at a total cost of ₹16.23 crore inclusive of 422 Brake Parachutes (Parachutes) valuing ₹4.59 crore (*i.e.* @ ₹1,08,800 per parachute) for SU-30 MKI aircraft with a schedule of requirement for supply of 300 parachutes in 2010-11, 100 in 2012-13 and 22 in 2013-14 as agreed (December 2010) by OPF, Kanpur.

Scrutiny of the records (March 2014) regarding procurement of Safety Equipment during audit revealed that OPF, Kanpur expressed (February 2011) its inability to meet the scheduled target in 2010-11 for supply of Parachutes due to non-availability of metal components and good quality of fabrics. Hence, in order to meet the urgent requirement (*i.e.* to sustain the allotted flying tasks) of IAF, Air HQ obtained (April 2011) 'No Objection Certificate' from OPF, Kanpur for import of 100 parachutes and placed (November 2011) a supply order on M/s. STE Ukraine for supply of 100 parachutes at a total cost of USD 2,650,000 (₹14.07 crore *i.e.* ₹14.07 lakh per parachute) with delivery schedule by May 2012 subsequently extended (August 2012) by Air HQ upto November 2012 with levy of liquidated damages (LD). However, the parachutes were actually supplied between September 2012 and March 2013. As such payment of USD 2385000 (₹12.66 crore²²) after deducting LD was made to the firm.

Meanwhile, OPF Kanpur supplied full quantity of 422 parachutes between June 2012 and March 2013 against the indent placed in December 2010. Out of 422 parachutes, 138 parachutes were supplied between June 2012 and September 2012 and the remaining 284 parachutes by March 2013.

Thus, the import of 100 parachutes at a cost of ₹12.66 crore (*i.e.* ten times higher rates as compared to the rates at which parachute supplied by OPF Kanpur against indent of December 2010) had not served the objective of urgent requirement.

²² 1USD= ₹ 53.10

In response to the paragraph issued in May 2014, Air HQ on the direction (August 2014) of Ministry of Defence (Finance/Budget) while admitting the facts of the case stated (August 2014) that due to poor response from OPF, Kanpur to supply the parachutes in time and to avoid Aircraft on Ground (AOG) of SU-30 MKI fleet, IAF initiated (June 2011) the proposal for import of parachutes. The Request for Proposal (RPF) was issued (August 2011) and the contract was concluded with foreign vendor for procurement of 100 parachutes. Air HQ further added that procurement was carried out in a planned manner.

The reply of Air HQ is not acceptable due to following reasons:

- At the time of placement of order (November 2011) for import of 100 parachutes on grounds of urgent requirement, the scheduled date for delivery was kept as May 2012 which subsequently extended to November 2012. The extension of six months granted to foreign vendor indicates that urgency was not assessed properly.
- Had IAF reviewed the status of expected supply position from OPF Kanpur (as it expressed its inability to meet the target only in 2010-11) before issuance of RFP(August 2011) /placement of import order (November 2011), the import of 100 parachutes at ten times higher cost compared to indigenous cost with delivery date of May 2012 could have been avoided.
- At the time of granting extension (August 2012) in delivery period upto November 2012, IAF could have foreclosed the contract as per the terms (Clause 9.01) of the contract on the ground of delayed supply for more than three months as by that time OPF Kanpur had already supplied (August 2012) Qty. 88 parachutes whereas the foreign vendor could supply 31 out of 100 parachutes only in September 2012.

Thus, due to improper assessment of the stated urgency, avoidable import of 100 parachutes at much higher rates led to an extra expenditure of ₹12.66 crore.

The matter was referred to Ministry in May 2014; their reply was awaited (September 2014).

3.6 Avoidable loss due to injudicious decision on procurement of colour dyes

Unrealistic projection of requirement of colour dyes by Indian Air Force coupled with decision to import entire quantity at one time for meeting three years requirement, despite their limited shelf life, not only resulted in over provisioning but also led to avoidable loss of ₹4.51 crore.

Surya Kiran Aerobatic Team (SKAT) of Indian Air Force (IAF) was raised (1984) in order to perform Aerobatic displays in Air shows on the occasion of Air Force day, Independence day and Republic day etc., by emitting coloured smoke trails depicting India's tri colours - Saffron, White and Green. Aerobatic displays of SKAT were performed on Kiran Mk-II, a trainer aircraft which along with HPT-32 aircraft was also being used by IAF for imparting training to Air Force pilots.

Headquarter Training Command (HQ TC), IAF proposed (August 2008) to Headquarter Maintenance Command (HQ MC), for import of colour dyes of 52650 litre each of green and saffron to meet the requirement of five years from 2009 to 2013 (*i.e.* 405 litre @ 26 colour display per year). White colour is generated through Aviation Turbine Fuel (ATF). As the shelf life of these dyes is three years, HQ MC, IAF restricted the quantity to 31590 litre (equivalent to 30800 Kg) for three years requirement at the time of according approval (November 2008) for import from M/s ROHM AND HAAS Chemicals LLC, USA, a Proprietary Article Certificate (PAC) firm. Accordingly, Air HQ concluded (March 2009) a contract with the firm for Saffron and Green dye of 30800 Kg each at a total cost of PDS 816200 (₹5.93 crore) with a delivery schedule of six to 39 weeks after opening of Letter of Credit. IAF received full quantity of dyes in batches (August 2009 and January 2010²³).

²³ The invoice pertains to June 2009 and November 2009 respectively and BOC is August 2009 and January 2010.

Air HQ decided (February 2011) to disband SKAT (June 2011) so as to relieve the Kiran Mk-II aircraft for imparting training to pilots, which had been affected following grounding of HPT-32 aircraft.

Audit observed (September 2011) from the procurement plan that IAF would carry out 26 colour displays per year. Accordingly, upto the disbandment of SKAT (June 2011), it had to perform 47 colour displays²⁴. However, SKAT could perform only 18 colour displays against the projected plan in which it consumed 7370 kgs. of each dye from the date of its receipt (August 2009) to disbandment of SKAT (June 2011) and the balance quantity of 23430 kgs of each dye was lying unutilised. Audit further observed (April 2013) that IAF had made efforts (since March 2011) to find alternate users (*i.e.* Army and Navy) and buy back by the Original Equipment Manufacturer (OEM) which did not fructify. In the meantime, the life of dyes expired between August 2012 and January 2013.

On being pointed out (April 2013) by Audit about the non-utilisation of dyes within its shelf life, Air HQ confirmed (June 2013) the non-utilisation of dyes and stated (October 2013) that samples of dyes had been sent (September 2013) to a private firm for testing and further extension of life. Air HQ further added (April 2014) that the procurement was done for three years due to criticality of the item expressed by the indenter (HQMC).

However, the fact remains that even if the life of dyes is extended by the private firm, no identified alternate users for the dye were available (August 2013). Besides, had IAF utilised the dyes on 47 colour displays as planned, even then only 65 *per cent* would have been utilised till disbandment of SKAT.

In response to the paragraph issued in June 2014, Air HQ on the direction (August 2014) of Ministry of Defence (Finance/Budget) admitted the facts and stated (August 2014) that keeping in view the shelf life of the colour dyes and the importance of the SKAT display as per pre-decided routine display, a conscious decision to procure three years requirement was taken by HQ MC.

²⁴ August 2009 to June 2011 = 22 months and IAF had to perform 26 colour displays in 12 months. In 22 months number of colour displays required to be performed by SKAT = say 47

Air HQ further added that the grounding of HPT-32 fleet resulted in increased burden on Kiran Mk-II aircraft to undertake stage-III training of pilots. Hence, Air HQ had decided (February 2011) to disband SKAT and accordingly number plated 52 Sqn²⁵ (June 2011). However, the reply of Air HQ was silent on non utilisation of dyes as per procurement plan from the date of receipt (August 2009) to disbandment of SKAT unit (June 2011).

Hence, non-utilisation of dyes as per procurement plan indicates the fact that dyes were not critically required as stated by HQMC at the time of processing of the case. Even the reduced requirement (November 2008) of dyes for three years as against the earlier five years was not correctly assessed which led to over provisioning. Further, import of the entire quantity for meeting three years requirement at one time despite the limited shelf life of the dye and also the fact that the time required to replenish stock was a maximum of four months, resulted in avoidable loss of ₹4.51 crore.

The matter was referred to the Ministry (June 2014); their reply was awaited (September 2014).

3.7 Directorate of Stores, Air Headquarters

3.7.1 Role and Mandate of the Directorate

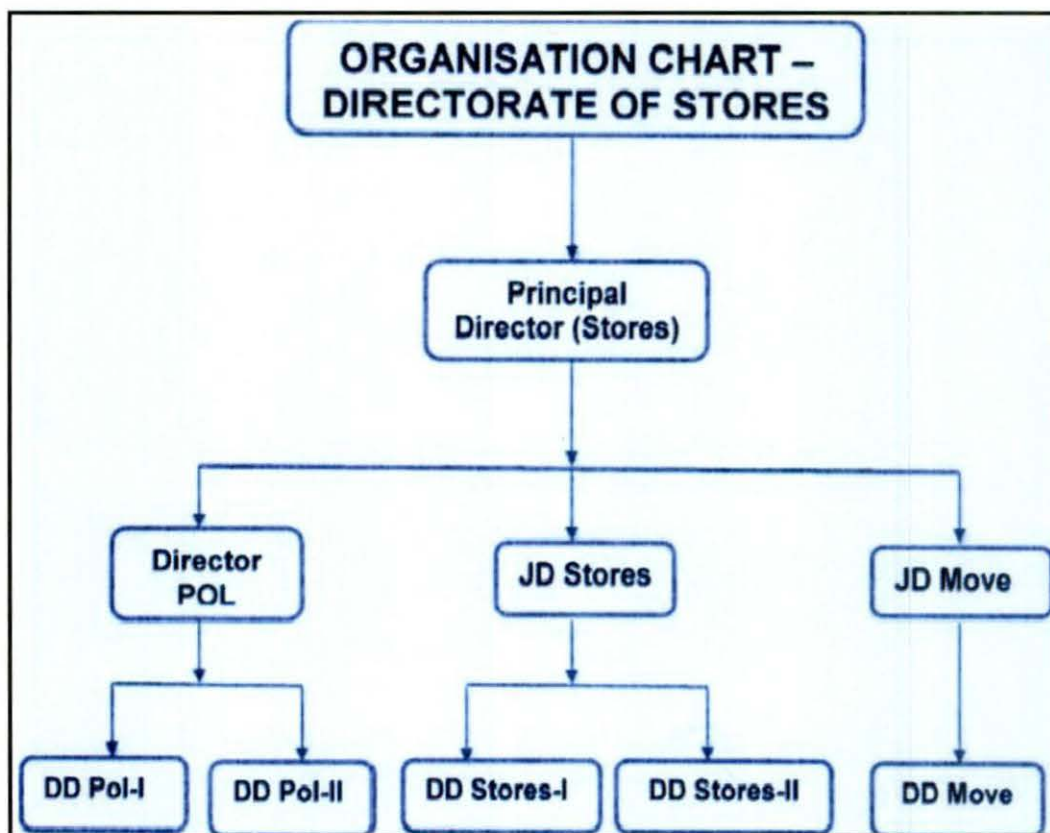
The Directorate of Stores at Air Headquarters (Air HQ) headed by Principal Director (PD) is responsible for provisioning and supply of non-technical stores²⁶ to Indian Air Force (IAF) units on the basis of the requirement assessed as per provisioning norms; for movement of stores and personnel through rail, air and sea for effective supply chain management for the IAF; and maintains liaison at appropriate levels with various authorities²⁷. The

²⁵ Stop functioning as a unit.

²⁶ Flying clothing, Extreme Cold Climate Clothing (Aircrew and Airmen), Aircraft tyres/tubes/batteries, Petroleum, Oils and Lubricants, Compressed Gases, Fire Fighting Equipments, Chemicals, PAD Equipments, Locking Wires, Camouflaging Nets for the peace and operational time requirement of the IAF.

²⁷ Ministries of Defence, Petroleum & Natural Gas, Railways, Army HQ, Naval HQ, Director General of Supply and Disposal (DGS&D), Director General of Ordnance & Equipment Factory (DGOEF), Director General of Aeronautical Quality Assurance (DGAQA), Director General of Quality Assurance (DGQA), Indian Oil Corporation Ltd (IOCL), Bharat Petroleum Corporation Ltd (BPCL), Hindustan Petroleum Corporation Ltd (HPCL), Air India and other concerned Public/Private Sector undertakings.

Directorate of Stores also plans and monitors budgetary estimates and expenditure for non-technical stores.



3.7.2 Audit Objectives

The audit was conducted with a view to ascertain:

- Whether there exists a system for providing reliable data pertaining to past usage, present trends in consumption and future planned utilisation and whether those records are being maintained methodically;
- Whether all the relevant rules, regulations, government orders and policies on provisioning of stores are being followed and adhered to strictly;

- Whether the right kind of stores are being procured in right quantity in the right place at the right time in an economic, efficient and effective manner;
- Whether the Budget was used judiciously, expenditure classified correctly and booked to the correct Code Heads, and financial interests of the Government watched;

3.7.3 Audit Scope

Out of a total of 81 indents/supply order placed during the period 2010-11 to 2012-13, a test check of all the 26 indents/supply orders each costing more than ₹1 crore was carried out at the Directorate of Stores and units concerned from August 2013 to December 2013 with the objective of examining the observance of and conformity with the prescribed procedures relating to provisioning of stores.

3.7.4 Source of Audit Criteria

The audit criteria used for benchmarking the audit findings were:

- General Financial Rules (2005)
- Financial Regulations (FR)/Delegation of Financial Powers (2006)
- Defence Procurement Manual (2009)
- IAP-1501(Equipment Regulations-Administration and Accounting)
- IAP-1541 (Manual of Provisioning)
- Manual of Operations for Integrated Financial Advisers (IFAs) in Air Force
- Government orders and policies on provisioning of stores
- Annual Procurement Plans
- Budget documents
- Reports and Returns on authorization and holding of stores
- Contracts and Case files at the Directorate of Stores

3.7.5 Audit Methodology

The Audit objectives, scope of audit and sources of audit criteria were discussed with the Directorate of Stores in an entry conference held in September 2013. Audit findings as discussed in the succeeding paragraphs are based on the analysis of records, data, information and replies furnished by the audited entities to the questionnaire/audit memoranda. Major Audit findings were discussed with the Directorate of Stores in the exit conference held in February 2014. Thereafter a Statement of Case (SOC) was issued (March 2014) to the Directorate of Stores and a audit paragraph to the Ministry of Defence (Ministry) in June 2014. Replies/comments as furnished by Air HQ in May 2014 on the SOC and in August 2014 on the draft audit paragraph have been suitably incorporated in the paragraph.

3.7.6 Audit Findings

3.7.6.1 Inventory management

Audit noticed that there exists a computerised inventory management system providing data pertaining to past usage and present trends in consumption, for future planned utilisation, records of which are also being maintained methodically.

3.7.6.2 Planning and Provisioning

a) Introduction and provisioning of newly introduced equipment

User Directorates obtain the sanction of the competent financial authority (CFA) for the introduction of new equipment in the Service and also obtain approval to the proposed scale of issue, where applicable, when seeking sanction for the introduction of new items; and thereafter refer the matter to the Directorate of Stores for taking necessary provisioning and supply action. The Directorate of Stores prepares draft indents for the items and quantities for which requirements exist, obtains financial concurrence of Integrated Financial Adviser (IFA) and approval of the Competent Financial Authority (CFA) from 'Acceptance of Necessity' (AoN) angle, and forwards the same to the Directorate of Procurement for taking necessary procurement action.

The Directorate of Stores is to ensure that sanction of the competent authority has been given for the introduction and provisioning of the new equipment and, where applicable, the scale proposed by the user Directorate has been duly approved. No action is to be initiated by the Directorate of Stores in regard to introduction and revision of equipment scales, unless prior approval has been obtained from the CFA.

The competent financial authorities to consider and give approval to the introduction/revision of equipment scales in the Air Force are as follows:

i) Air Staff Equipment Policy Committee (ASEPC)

The Committee functions under the Chairmanship of Deputy Chief of Air Staff (DCAS) and is empowered to accord approval to a case in which the gross initial financial effect is more than ₹5.00 crore but does not exceed ₹10.00 crore. The Committee makes specific recommendations regarding cases pertaining to equipment in which the total expenditure exceeds ₹10.00 crore to be referred to Ministry of Defence and Ministry of Finance (Def/Air) for further consideration.

ii) Air Staff Equipment Policy Sub-Committee (ASEPSC)

The Sub-Committee functions under the chairmanship of Air Officer in-charge Maintenance (AOM) and is empowered to consider and approve a case in which the gross initial financial effect is ₹5.00 crore or below.

b) Provisioning of scaled items

Provisioning of scaled items is a process of making up deficiencies in the authorised level on the trends of consumption and the force planned for the future. Briefly, it is a topping up process of those stores which are consumed over a period and are replenished at fixed intervals.

The centralized system of provisioning at Air Headquarters is designed to ensure that stock at the depots plus the quantity in the process of supply do not

fall below the Maximum Potential Establishment²⁸ (MPE) at any stage. MPE represents the level to which the various types of stores are provisioned to achieve the stockage objective which represents the maximum stocks that are authorized to be held in the Equipment Depots. IAF follows the cyclic review method of provisioning under which provisioning reviews are carried out periodically with a pre-determined review programme to monitor/control/regulate the procurement at various levels such as review action figure (RAF)²⁹, short stock figure (SSF)³⁰.

c) Financial powers

The Government of India, Ministry of Defence sanctioned (July 2006) the delegation of Capital procurement power and further enhancement/ addition in the existing delegated financial powers under Revenue to various Air Force authorities to the extent specified in Financial Regulations³¹.

Cases not covered by the delegated financial powers need to be referred to the Ministry of Defence for sanction.

3.7.6.3 Irregular provisioning of stores without scaling

As per extant orders, whenever a new item is introduced with different specifications, the item has to be scaled or the existing scale has to be amended.

²⁸ MPE is laid down by the Government and varies in respect of different ranges of equipment with due regard to their source of supply and susceptibility to deterioration while in storage; and MPE is expressed in terms of so many months' anticipated requirements.

²⁹ This is the re-order level. When the stocks held at stockholding depot (including ASPs) of an item reach this level, a special review is to be undertaken and supplementary indent placed if necessary.

³⁰ This is the minimum stock level. When the stocks at the stockholding depot (including ASPs) reach this figure, action is to be taken to expedite supplies against outstanding indents and, where applicable, from yield off repair. If there are no outstanding indents, a special review is to be undertaken. When the SSF level for an item is reached, further issues by Equipment Depots are to be made only with the prior approval of Air HQ.

³¹ Financial Regulations for Defence Services (Part-I), Volume-II, Revised Edition 1983

Scrutiny of the records at the Directorate of Stores, however, revealed (August-December 2013) the following instances of irregular provisioning of stores without scaling/revision of scale.

• **NATO Suit³² complete - ₹1.07 crore**

The Directorate of Stores initiated and sought (February 2010) 'Acceptance of Necessity' (AoN) from the Competent Financial Authority (CFA) in consultation with Integrated Financial Adviser (IFA) for procurement of Qty 247 NATO Suit complete of different sizes at an estimated cost of ₹1.09 crore under Schedule-XII (B) (scaled deficiencies)³³. IFA concurred with the proposal in March 2010 and the CFA approved the proposal in March 2010. Accordingly, two supply orders were placed (June 2010) on M/s Aeronav Industrial Safety Appliances, New Delhi and M/s Next Millenium, New Delhi for supply of Qty 247 NATO Suit complete at a total cost of ₹1.07 crore.

Audit observed (September 2013) that procurement (June 2010) of NATO Suit Complete (Sec/Ref No. 322C/2715, 2719 & 2720) which were different from the scaled (January 2001) NATO Suit (Sec/Ref No. 322C/4003-11) in use, without revision of scale was irregular.

In response to the paragraph issued to Ministry of Defence (June 2014), Air HQ on the directions (August 2014) of Ministry of Defence (Fin/Budget) stated (August 2014) that NATO suits were procured to cater for scaled deficiencies in limited sizes with the approval of CFA in consultation with IFA and thereafter no further procurement had been effected as the scale was under amendment.

The reply of the Air HQ is not acceptable for the following reason:

- Procurement of these items cannot be treated against scaled deficiencies, since these were upgraded ones and quite different from the scaled ones in use as is apparent from the Section/Reference numbers. Further, the reply was silent as to how concurrence and

³² NATO suit is issued to Aircrew operating at extreme cold climate areas to resist the temperatures up to minus 55 degree Celsius.

³³ Financial Regulations (Powers to accord necessity angle approval on indigenous sources other than PSUs and Government Department against scaled deficiencies), under Code Head-748/02 (Flying Clothing).

approval were given to the procurement of unscaled items under Schedule-XII (B) (scaled deficiencies) by IFA and CFA respectively.

• **Arctic Gloves - ₹4.38 crore**

The Directorate of Stores initiated (July 2009) a case for first time procurement of Arctic Gloves (small, medium and large) having an active heating element with lithium battery which can be used by Aircrew in fighter, transport and helicopter fleet operating above 5000 feet Above Mean Sea Level (AMSL) and sought (July 2009) AoN from the CFA in consultation with the IFA under Schedule-XII (B)³⁴. The IFA concurred with the proposal in July 2009 and the CFA approved the same in August 2009. A Supply order was placed (February 2010) on M/s Aeronav Industrial Safety Appliances, New Delhi for supply of 2630 pairs of subject item of three sizes at a total cost of ₹4.38 crore. The same were received at 56 Air Stores Park, Faridabad in July/August 2010.

Audit observed (September 2013) that since the requisite prior approval of the ASEPSC was not obtained for their introduction/scaling, the introduction of Arctic Gloves without scaling was irregular.

While the Directorate of Stores had informed (October 2013) in response to Audit observation (September 2013) that the item Arctic Gloves was a scaled item and the procurement was effected against deficiencies, Air HQ in response to the paragraph issued to Ministry (June 2014), on the directions (August 2014) of Ministry of Defence (Fin/Budget) stated (August 2014) that since the helicopters had been called upon to operate in the naxal infested areas for internal security, the urgency and operational justification could not wait for scaling action.

The reply of the Directorate of Stores/Air HQ is not acceptable for the following reasons:

³⁴ Financial Regulations (Powers to accord necessity angle approval on indigenous sources other than PSUs and Government Department against scaled deficiencies), under Code Head-748/02 (Flying Clothing).

- Audit did not find mention of urgency and operational necessity in the proposal of the Directorate of Stores initiated in July 2009 for procurement of these items. Moreover, there appears to be no apparent link between provisioning of Arctic Gloves which were to be used above 5000 feet Above Mean Sea Level and deployment of aircrew in naxal-infested areas which are not located in high altitude areas.
- Procurement of these items cannot be treated against scaled deficiencies, since these were upgraded ones and quite different from the scaled ones in use, requiring scaling before procurement in terms of Schedule XII (JIB)³⁵ of Financial Regulations.

◦ **Flame Retardant Aircrew Survival Jacket - ₹3.88 crore**

Since the existing scaled Survival Jacket was not meeting the prime requirement for rescue and safety in aviation as it could neither house the Personal Rescue Beacon (PRB)³⁶ nor was Fire Retardant, the Directorate of Stores initiated (February 2012) a case for AoN for procurement of 2700 survival jackets as one time procurement prior to scaling. IFA concurred with the proposal and the CFA approved the proposal in April 2012. Two supply orders were placed (March 2013) - one on M/s Aeronav Industrial Safety Appliances, New Delhi for supply of 1700 survival jackets (for Russian Origin aircraft) for ₹2.30 crore and the other on M/s Arnaf Futuristic Technologies (P) Ltd, New Delhi for supply of 1000 survival jackets (for non-Russian aircraft) for ₹1.58 crore - as per staggered delivery plan up to September 2014. Audit observed (September 2013) that since the requisite prior approval of the ASEPSC was not obtained for their introduction/scaling, provisioning of Survival Jackets without scaling was irregular.

In response to the paragraph issued to Ministry of Defence (June 2014), Air HQ on the directions (August 2014) of MoD (Fin/Budget) stated (August 2014) that because of operational necessity, survival jackets that needed to house the Personal Rescue Beacon were procured for use by highly qualified aircrew operating Jaguar fighter aircraft, whose life cannot be quantified in monetary terms.

³⁵ Schedule (JIB)- Approval of expenditure for introduction of new items and its scale.

³⁶ The PRB is automatically switched 'ON' during emergency and includes V/UHF whip antenna and GPS to enable communication between the ejected pilot and rescue team.

While Air HQ's concern for aircrew safety is understandable, provisioning of Survival Jackets without scaling remains irregular in the absence of the requisite approval of the Ministry in terms of extant orders.

• **Helmets for MI-17 V5 Helicopter Aircrew**

The Directorate of Ops Induction (T&H³⁷) initiated (February 2011) a case and obtained (March 2011) AoN from the CFA in consultation with IFA for one time procurement of 320 helmets (sizes 1 & 2) at a cost of ₹1.98 crore before scaling. Accordingly, the Directorate of Stores generated (March 2011) a Schedule of Requirement (SoR) and forwarded (March 2011) the same to the Directorate of Procurement for further procurement action. The Directorate of Procurement processed (April 2011) the case on single tender enquiry (STE) basis as recommended in the AoN. However, due to representation (April 2011) of another vendor, the CFA (AOM) approved (June 2011) the case for procurement of 80 *per cent* (quantity 256) from M/s Shakti Enterprises, Faridabad and rest 20 *per cent* (quantity 64) on open tender. But the purchase was put on hold subsequent to the directions (September 2011) of Vice Chief of Air Staff (VCAS) not to procure any CEMILAC³⁸-uncertified helmet, which was, however, later cleared by a waiver (November 2011) from Chief of Air Staff (CAS) due to the urgent requirement of helmets for induction of MI-17 V5 helicopter. Accordingly, the Directorate of Procurement placed (December 2011) the supply order on M/s Shakti Enterprises, Faridabad for 256 helmets (quantity 128 each in both sizes) at a total cost of ₹1.50 crore. The delivery was to be completed in seven lots by March 2013.

Audit observed (September 2013) that since the requisite prior approval of the ASEPSC was not obtained for their introduction/scaling, provisioning of helmets for MI-17 V5 Helicopter aircrew without scaling was irregular.

In response to the paragraph issued to Ministry (June 2014), Air HQ on the directions (August 2014) of Ministry of Defence (Fin/Budget) stated (August 2014) that since the helicopters had been called upon to operate in the naxal infested areas for internal security, the urgency and operational justification meant that the proposal could not wait for scaling action.

³⁷ Transport and Helicopter

³⁸ Centre for Military Airworthiness & Certification authority

Air HQ's reply is not acceptable as Audit did not find mention of such urgency and operational necessity in the Air HQ's proposal of February 2011.

• **Fire Retardant overalls and gloves – ₹1.55 crore**

The Directorate of Stores initiated (November 2011) a case for obtaining approval from the CFA in consultation with IFA for one time procurement of Qty 4800 each of Fire Retardant(FR) overalls and gloves before scaling - as scaling of these items were in progress - for fire rescue personnel employed as part of Rescue and Crash Fire Fighting team. The proposal was concurred by IFA and approved by the CFA in May 2012. Two supply orders were placed (August 2012) on M/s Arnaf Futuristic Technologies (P) Ltd, New Delhi only for supply of 4800 Fire Retardant overalls and 4800 gloves at a total cost of ₹1.55 crore.

Scrutiny of the records at the Directorate of Stores revealed (October 2013) the following:

- The Ministry had accorded (September 1999) sanction for procurement of, *inter alia*, the Fire Retardant overalls (Qty - 1760), Helmet with visor (Qty-880) and Safety boots with steel toes (Qty - 880). These stores could, however, not be procured initially for want of the specifications and authorized inspecting agency because these items were not in use in the IAF and subsequently because of lapse of sanction.
- In view of lapse of sanction, the Directorate of Ops (ATS) had initiated (September 2008) a case for Ministry's sanction for modified requirement of stores in increased number in view of new induction (2005) of 110 Crash Fire Tenders. After obtaining (January 2009) the approval of VCAS, the case was referred (April 2009) by Air HQ to the Ministry for sanction for the procurement of FR overalls with gloves (Qty 4800), helmets with visor and neck protection (Qty 2400) and overboots (Qty 2400).
- On a query (April 2009) of the Ministry as to whether the subject procurement was covered under delegated financial powers of Air HQ,

the Directorate of Ops (ATS) took (May 2009) a view that the proposal was covered under their delegated financial powers but did not apprise the Ministry of their viewpoint. Instead, they forwarded (May 2009) the proposal to the Directorate of Stores for further action.

- While procurement for Qty 4800 each of Fire Retardant overalls and gloves was done, the helmet with visor & neck protection and overboots were still pending for finalization.

Audit observed (October 2013) delay in procurement of Fire Retardant clothing stores and irregular procurement thereof in view of the fact that the requisite prior approval of the ASEPC was not obtained for their introduction/scaling.

In response to the paragraph issued to Ministry (June 2014), Air HQ on the directions (August 2014) of Ministry of Defence (Fin/Budget) stated (August 2014) that one time procurement of Fire Retardant overalls and gloves was as per delegated financial powers under Schedule-XII J1A³⁹ and subsequently the case had been processed for scaling.

Air HQ's reply is not acceptable, as any item required to be introduced in the IAF needs to be first scaled with the approval of ASEPC/ASEPC, there is no provision in the delegated financial powers of Air HQ for one time procurement before scaling. Hence one time procurement before scaling under Schedule-XII (J1A) was unauthorised. Further, items demanded as far back as in 1999 are yet to be scaled and procured as per provisions of Financial Regulations.

Air HQ's own admission (April 2013) that whenever a new item is introduced with different specifications, the item has to be scaled or the existing scale has to be amended, validates Audit observation that introduction of all the above new items without scaling was irregular. Further, delay in scaling has resulted in criticalities for such items in the units as these had been provisioned without scaling. Therefore, further provisioning of these items till the time their scaling is completed, was not possible.

³⁹ Financial Regulations (Schedule-XII J1A), dealing with approval for expenditure for equipment not authorised/scaled.

3.7.7 Provisioning of unsuitable and substandard stores and delay in provisioning.

Importance and criticality of Flying Clothing towards aircrew safety and mission accomplishment calls for introduction of products of a very high quality duly cleared after a structured testing, certification and inspection process and timely provisioning thereof.

Audit, however, noticed the following instances of provisioning of substandard, unsuitable, untested and uncertified flying clothing and delays in provisioning thereof.

- **Substandard Flame Retardant Overall - ₹8.06 crore**

Air HQ placed (July 2008) a supply order on M/s Aeronav Industrial Safety Appliances, New Delhi for supply of 9200 units of Flame Retardant (FR) Overall (sizes-6, 7, 8 and 9) at a total cost of ₹8.06 crore, to be supplied within six months of bulk production clearance.

Audit noticed (September 2013) that consequent upon receipt of several complaints from the users, Director General (Inspection & Safety) (DG (I&S)) had requested (September 2011) DEBEL⁴⁰ to carry out detailed technical analysis of used and brand new FR Overalls. This revealed (March 2012) that the firm had supplied substandard FR Overalls, endangering the lives of the Aircrew. Accordingly, DG (I&S), asked (April 2012) CEMILAC to withdraw the 'Type Approval'⁴¹ awarded to M/s Aeronav Industrial Safety Appliances, New Delhi, which CEMILAC did (April 2012).

Since the 'Type Approval' was soon reinstated (July 2012), Audit took up (September 2013) the case of procurement of substandard FR Overalls with the Directorate of Stores and sought, inter alia, the exact justification for the reinstatement of the 'Type Approval'.

⁴⁰ Defence Bioengineering & Electromedical Laboratory

⁴¹ Means approval of the vendor by CEMILAC for supply of the particular store

From part reply/documents received (July 2014) from Air HQ, Audit noticed (July 2014) that DG (I&S) had recommended (June 2012) to CEMILAC to reinstate the 'Type approval' of M/s Aeronav Industrial Safety Appliances, Noida, on the plea of the past supply record and passing of random FR materials sample during subsequent testing (June 2012) by DEBEL, stating at the same time that the batch of FR Overalls found to be substandard had been recalled from the field.

The reinstatement of 'Type Approval' on the plea of the past supply record and passing of random FR materials sample despite the recall of substandard overalls from field units is not justified. The case reveals that Air Headquarters had not only procured substandard quality of FR overalls which had an effect of endangering the lives of ground staff but also failed to take any concrete action against the defaulting vendor, for such substandard supply. Audit further called for (August 2014) the details of substandard Flame Retardant overalls recalled from field units together with their final disposal; the information was awaited (September 2014).

• **Untested and uncertified helmets**

During the period from October 2007 to September 2010, Air HQ procured Qty 1225 helmets from M/s Tan Enterprises, New Delhi (Qty 396) and M/s Shakti Enterprises, Faridabad (Qty 829). These were received at various stock holding Depots/Parks between December 2008 and January 2011.

Audit noticed (September 2013) that eight helmets had flown off during ejection on MiG-21 and MiG-27 aircraft during the years 2010 and 2011, which was a matter of grave concern to the IAF. These were indigenous helmets which were inducted into the service without requisite testing and certification. As an immediate measure, an interactive session among various air force authorities⁴² had been held in September 2011 in which users brought out various problems such as availability of helmets only in two sizes, ill fit of

⁴² SASI & Os, Aviation Medicine Specialists and Aircrew of all MiG-21/27 operating bases of WAC, IAF

indigenous helmets to many aircrew resulting in flying off during ejection, and necessary improvement on helmets for comfort and safety etc.

Accordingly, Director General (Inspection & Safety) suggested (November, 2011) both 'short term measures'⁴³ and 'long term measures'⁴⁴ to effectively eliminate the problem of helmets flying off during ejection to ensure utmost safety of the aircrew, stating that subsequently these helmets would be replaced by 'Common Helmets & Masks' which would be tested and certified product.

Audit observed (September 2013) the issue of procurement and induction of these helmets without requisite testing and certification and sought clarifications on their modification as a short-term measure and expenditure incurred on modification.

In reply the Directorate of Stores stated (October 2013) that 157 helmets were modified at ₹21.81 lakh and another lot of 94 helmets at ₹13.06 lakh was then under modification.

In response to the paragraph issued to Ministry (June 2014), Air HQ on the directions (August 2014) of Ministry of Defence(Fin/Budget) stated (August 2014) that once the issues concerning helmets were noticed, 'short term measures' as well as 'long term measures' were taken at the highest level and the helmets were made usable. However, they did not respond to the Audit observation regarding authorisation given for induction of indigenous helmets without the requisite testing and certification.

Therefore, procurement of untested and uncertified flying clothing items reveals flaws in the provisioning and procurement of critical items, as procurement of untested and uncertified flying clothing items has adverse flight safety implications.

⁴³ Provisioning of additional padding to achieve a snug fit to aircrew, reduction of life of the padding for mandatory change and improvement of material used for chinstrap etc.

⁴⁴ Development and induction of Common Helmets & Masks

- **Delay in provisioning of Fleet Specific Flying Clothing for a special operations squadron**

IAF raised one Squadron (January 2011) of C-130J aircraft as a special Operations Squadron. To support their operations, flying helmets and other specialist equipment need to be worn by the aircrew.

Accordingly, the Squadron forwarded (July 2012) a Statement of Case (SOC) to the Directorate of Ops (T&H) for scaling and procurement of fleet specific flying clothing involving financial effect to the tune of ₹2.03 crore (approximate) stating therein that any delay in this process would affect the operations of the fleet in future as the unit would not be capable of undertaking missions that need this flying clothing. The Directorate of Ops (T&H) forwarded (November 2012) the SOC to the Directorate of Stores for necessary action. In response, the Directorate of Stores informed (November 2012) the Directorate of Ops that I&S Branch was the co-ordinating agency for all indigenized flying clothing and requested them to follow up the progress of the case with JD QAS (Flying clothing). It was also stated that future provisioning would be made after requisite scaling of the helmets and masks for use by the aircrew of C-130J aircraft.

Audit observed (October 2013) that the scaling action for fleet specific flying clothing was not completed even after more than two years of raising the squadron.

In response, the Directorate of Stores stated (October 2013) that the scaling action for flying clothing for aircrew operating C-130J aircraft had not been completed and the Directorate of QAS (Aero) further informed (October 2013) Audit that since the case for indigenization of flying clothing for C-130J aircraft had not been referred to their Directorate, no action on the same had been initiated by them and that process of indigenization of flying clothing for C-130J aircraft was likely to take 2-3 years for completion after due testing and certification.

By the Squadron's own admission (July 2012), delay in the scaling and provisioning of flying clothing for C-130J aircraft would affect the operations of the Squadron in undertaking the intended operation.

Thus, the case reveals ineffective coordination among various Directorates at Air HQ resulting in delay in scaling and provisioning of requisite flying clothing, thereby affecting the operations of the special Operations Squadron.

• **Non-compatibility and shortage Oxygen Masks**

MI-17V5 helicopter fleet operating at Wing 'A' (unit) assigned with extensive flying with minimum of flight altitude of 10,000 feet, requires every helicopter to be equipped with oxygen system comprising oxygen regulators, disconnectors and oxygen masks for being used by aircrew as well as passenger.

Audit noticed (September 2013) shortage of all these items vis-à-vis posted pilots, the availability being only 87 *per cent*. Since, 50 *per cent* of the available 87 *per cent* oxygen masks were unserviceable, the available quantity of serviceable masks was grossly insufficient to meet the requirement of posted aircrew. Consequently, aircrew were using passenger oxygen masks which did not have built-in microphone forcing them to resort to non-standard practice of wearing the mask over the headset microphone entailing a flight safety hazard. Also, the aircrew were not able to use helmets during sorties entailing flying above 10,000 feet due to non-compatibility of oxygen mask and helmet.

In response to the paragraph issued to Ministry (June 2014), Air HQ on the directions (August 2014) of Ministry of Defence (Fin/Budget) informed (August 2014) that the case had been referred to the Directorate of Ops (T&H) for furnishing clarification to Audit.

The fact remains that non-compatibility of oxygen mask and helmet coupled with shortage and un-serviceability of oxygen masks has adverse flight safety implications for aircrews of the unit.

• **Incorrect assessment in provisioning of Oxygen Regulator for Jaguar aircrew – ₹16.8 crore**

Oxygen Regulator is a critical item which has a direct bearing on cockpit availability⁴⁵ for Jaguar aircrew. The Maximum Potential Establishment (MPE) of the item is 57 months.

Audit noticed (October 2013) that the Directorate of Stores had initiated (May 2009) a proposal for procurement of 65 Oxygen Regulators at a total cost of ₹16.80 crore @ ₹25.84 lakh each, taking into consideration MPE of only 36 months instead of the prescribed 57 months, without giving any justification for their doing so. Reduction of MPE from 57 months to 36 months, however, kept the sanction for the proposal within the delegated financial powers of Air HQ (₹20 crore with IFA's concurrence).

IFA concurred with the proposal in July 2009 and Air Officer in-charge Maintenance approved the same in July 2009. Accordingly, the Directorate of Stores forwarded (July 2009) 'Schedule of Requirement' along with draft 'Request for Proposal' duly vetted by IFA to the Directorate of Procurement for initiating procurement action. The lowest price ₹30.98 crore offered (December 2009) by M/s Aviation Defence Spares Ltd., U.K. was, however, found to be beyond Air Headquarters' financial powers, and, thus, required Ministry's approval.

Instead of going for Ministry's approval, an internal meeting was held (March 2010) under the Chairmanship of Assistant Chief of Air Staff (ACAS) (Logistics) to discuss on the procurement of Oxygen Regulators for Jaguar Aircrew, in which proposed Qty 65 of Oxygen Regulators was reduced to Qty 35 on the following grounds:

- Keeping in view the critical requirement of Oxygen Regulators and the gestation period for supply of new ones being at least 15 months,

⁴⁵ Each fighter aircraft has one Oxygen Regulator and two Oxygen Regulators for trainer aircraft

immediate requirement was to be met through repaired/overhauled ones.

- The overhauled regulators would be available with one year OEM warranty and the cost of overhaul would be less than one-third the cost of new ones.
- Considering an ideal yield repair of 75 per cent, 30 repairable Oxygen Regulators would be recovered.

Accordingly, it was decided (April 2010) by ACAS (Logistics) in the CNC Meeting to restrict the requirement of the Oxygen Regulators to 35 only. The Directorate of Procurement, therefore, placed (May 2010) a supply order on M/s Aviation Defence & Spares Ltd UK for supply of 35 Oxygen Regulators at a cost of ₹15.85 crore, which were received at 24 ED AF between May 2011 and December 2011.

Audit observed (October 2013) the following irregularities in the provisioning of Oxygen Regulators:

- Reduction of MPE from 57 to 36 months without any justification, kept the proposal within the delegated powers of Air HQ, resulting in reduced availability of a critical item.
- Subsequent reduction in the provisioning of Qty 65 of Oxygen Regulators - assessed on the basis of already reduced MPE - further reduced the availability of a critical item.

In response to the paragraph issued to Ministry (June 2014), Air HQ on the directions (August 2014) of Ministry of Defence (Fin/Budget) submitted their reply and stated (August 2014) that the reduction in quantity be looked in the correct perspective, which resulted in savings to the exchequer and reduction in inventory carrying cost, as Oxygen Regulator is a very costly item that can

be repaired and reused. However, reasons for reduction MPE from 57 to 36 months were not explained.

Their reply is not acceptable for the following reason:

- Out of 23 repairable Oxygen Regulators sent for repair, only 12 (*i.e.* 52.17 *per cent*) Regulators were repaired (June 2014) and the remaining 11 (*i.e.* 47.83 *per cent*) Regulators were rendered non-repairable. As opening of Letter of Credit was under process, no repaired Regulator has been received till August 2014. Thus, in effect, no repaired Regulator has been received even after a lapse of more than *four* years. This only shows that the reduction of Qty 65 of Oxygen Regulators to Qty 35 was not based on realistic and genuine grounds.

Thus, the case reveals that initial unjustified reduction in MPE from 57 months to 36 months coupled with subsequent reduction in the assessed Qty 65 of Oxygen Regulators to 35 on the basis of unrealistic and unconfirmed grounds only to keep the procurement proposal within the delegated financial powers of Air HQ impacted adversely on the availability of this critical item.

While delay in provisioning of flying clothing was resulting in non-accomplishment of envisaged mission, introduction of substandard and unsuitable flying clothing without mandatory testing, certification and inspection by the designated agencies was the cause for low satisfaction level and serious flight safety ramifications flagged by the field units across IAF.

3.7.8 Financial Management

3.7.8.1 Budget

The Directorate of Stores operates following Revenue Major Heads for procurement of stores. Year-wise allotment and expenditure under these heads

during the period from 2010-11 to 2012-13 are tabulated below:

(₹ in Lakh)

Code Head	Year	Allotment	Expenditure	Savings(-)/ Excess (+)	Percentage Savings (-)/ Excess (+)
744/02 (Ration)	2010-11	8945.00	8945.00	--	--
	2011-12	10825.00	10825.00	--	--
	2012-13	10858.25	10202.73	(-) 655.52	(-) 6.04
745/02 (LPG, Coal & Firewood)	2010-11	245.00	245.00	--	--
	2011-12	266.00	125.00	(-) 141.00	(-) 53.01
	2012-13	140.00	162.02	(+) 22.02	(+) 15.73
746/02 (Aviation Turbine Fuel & Aerolubes)	2010-11	250510.00	250510.00	--	--
	2011-12	322537.33	316640.00	(-) 5897.33	(-) 1.83
	2012-13	360041.00	354837.00	(-) 5204.00	(-) 1.45
746/03 (Main Grade Fuel)	2010-11	14970.00	14970.00	--	--
	2011-12	15730.00	15730.00	--	--
	2012-13	20025.00	19975.92	(-) 49.08	(-) 0.25
747/04 (Ordnance)	2010-11	363.06	340.00	(-) 23.06	(-) 6.35
	2011-12	3.50	3.50	--	--
	2012-13	16.31	0.00	(-) 16.31	(-) 100
748/02 (Flying Clothing)	2010-11	2986.01	2895.00	(-) 91.01	(-) 3.05
	2011-12	3200.00	3185.00	(-) 15.00	(-) 0.47
	2012-13	628.98	625.33	(-) 03.65	(-) 0.58
748/04 (DGOEF Clothing)	2010-11	5009.26	245.00	(-) 4764.26	(-) 95.11
	2011-12	0.00	0.00	--	--
	2012-13	9.98	9.98	--	--
750/02 (Misc)	2010-11	120.67	120.00	(-) 00.67	(-) 0.56
	2011-12	15.00	15.00	--	--
	2012-13	77.68	77.68	--	--

Source: Details of allotment and expenditure furnished by Air HQ vide their letter No. Air HQ/61739/Cen/Audit/Stores dated 16 September 2013.

Audit observed considerably low expenditure particularly against the budget allotment for DGOEF⁴⁶ Clothing items (Code Head 748/04) both in terms of *percentage* and amount, and called for (December 2013) the exact reasons for the same along with details of surrender of funds.

In response to the paragraph issued to Ministry (June 2014), Air HQ on the directions (August 2014) of Ministry of Defence (Fin/Budget) stated (August

⁴⁶ Director General of Ordnance & Equipment Factory

2014) that as DGOEF supplies were normally erratic in nature, the targets were not adhered to during the specified period as per delivery schedules.

The reply, however, did not explain the reasons for allotment of ₹5009.26 lakh in 2010-11 despite the fact that in the past two financial years *i.e.* 2008-09 and 2009-10 expenditure was ₹750.00 lakh against the allotment of ₹748.59 lakh and ₹920.00 lakh against the allotment of ₹921.29 lakh respectively, nor did it furnish details of instances of non-adherence to targets as per delivery schedules.

3.7.8.2 Booking of Capital expenditure on installation of Halon Reclamation and Refilling Facility to Revenue Head - ₹6.64 crore

Production of Halon gas has been banned worldwide through Montreal Protocol of 1999, as it is an Ozone Depleting Substance. But it is permitted to be used for critical application; including use in Military aircraft, for fire-fighting purposes till the right equivalent is available.

As its sources of supply were depleting worldwide, IAF planned (May 2010) to stock up Halon gas to meet the next 30 years' requirement at the designated Stock Holding Depot (SHD). For the purpose, a reclamation and refilling facility was needed to be established, as during its storage, Halon gas needs to be recycled to ensure that its purity levels are maintained.

Accordingly, the Directorate of Stores initiated a case in May 2010 and sought the approval of Deputy Chief of Air Staff (DCAS) (CFA) in consultation with Integrated Financial Advisor (IFA) under Schedule-I⁴⁷ of Financial Regulations (FR) (meant for incurring expenditure on Capital Procurement) for installation of reclamation and refilling facility for Halon Gas comprising equipment and allied infrastructure at SHD 'A' at an estimated cost of ₹5.99 crore as capital procurement following revenue route in terms of Government orders of September 2007. The Government orders permits procurement of items specified therein - which are basically capital in nature based on twin criteria of cost being ₹10 lakh and above and life being seven years and above but expenditure in respect of which was being booked to revenue heads-

⁴⁷ Power to incur expenditure on capital procurement by CFA (*i.e.* DCAS, Air HQ) up to the financial limit of ₹10.00 crore.

following revenue route with the stipulation that expenditure of capital nature is classified accordingly under appropriate capital heads.

While processing of the case for obtaining the concurrence of PIFA and approval of CFA, ACAS (Logistics) observed (January 2011) that this being an unscaled item and one time requirement, the procurement could be made under Schedule-XII J(1A) (Revenue expenditure for equipment not authorized/scaled). Accordingly, PIFA concurred with the proposal in February 2011 and AOM approved the proposal as CFA in February 2011 under Schedule - XII J (1A). Subsequently, the Directorate of Stores placed an indent (March 2011) on the Directorate of Procurement which in turn placed a supply order in May 2012 on M/s Neometrix Engineering (P) Ltd, Noida for supply and installation of Halon Reclamation and Refilling Facility (HRRF) along with accessories at a total cost of ₹6.64 crore from Revenue Code Head 746/03 (Main Grade Fuel).

Audit noticed (September 2013) the following irregularities in the above procurement:-

- i) Booking of Capital expenditure to Revenue Head in violation of Government orders of 2007.
- ii) Wrong concurrence of PIFA/CFA
- iii) Procurement of technical store by the Directorate of Stores which is responsible for provisioning and procurement of non-technical stores.

While PIFA's comments on Audit observation on wrong concurrence were awaited (September 2014) despite reminders, the Directorate of Stores stated (October 2013) in response to Audit observation (September 2013), that since neither the Principal Integrated Financial Adviser (PIFA) nor the CFA recorded any comments on the Schedule, the case was processed further for procurement under Schedule XII (J1A) following concurrence by the PIFA and approval by the CFA (AOM). The Directorate of Stores further informed that since gas expenditure was being booked under Code Head 746/03 (Main Grade Fuel), HRRF being a related subject was also booked under the same Code Head. Endorsing the reply of the Directorate of Stores, Air HQ stated (May 2014) in response to SOC issued (March 2014) by Audit that since the

case was not opposed by IFA and CFA, the case was processed under delegated financial powers and could not be termed as wrong projection of case by ACAS (Logistics).

Air HQ's reply is not acceptable as cost of HRRF being above ₹10.00 lakh and its life being more than *seven* years, procurement thereof was required to be treated as Capital procurement and expenditure thereon to be booked to Capital Code Head in terms of Government orders of 2007. As such the above procurement is in violation of the said Government orders.

3.7.8.3 Loss due to non-implementation of Fall Clause in procurement of Petrol, Oil and Lubricants

The IAF has been procuring main grade petroleum products like Aviation Turbine Fuel (ATF), High Speed Diesel (HSD), Superior Kerosene Oil etc., from three Public Sector Companies (PSCs)⁴⁸ – IOCL, BPCL and HPCL by entering into Rate Contracts.

Air HQ entered into rate contracts with these companies for procurement of ATF for the period April 2002 to March 2005, April 2005 to March 2008 and April 2008 to March 2011 extended from time to time up to 31 March 2014⁴⁹ and for procurement of HSD for the period November 2004 to 31 October 2007 and November 2007 to October 2010 extended from time to time up to 31 December 2013⁵⁰.

The rate contracts, inter-alia, contained a 'Fall Clause' to the effect that 'the prices charged by the seller shall not exceed the prices at which they sell them to any other customer during the period of contract excepting on sale to 'other oil companies' and sales through exports. This clause would not apply where any price concession has been especially authorized by the Ministry of Petroleum and Natural Gas to any specific category of customers. However, the seller would keep the buyer informed of the same specifically indicating

⁴⁸ Indian Oil Corporation Limited (IOCL), Bharat Petroleum Corporation Limited (BPCL) and Hindustan Petroleum Corporation Limited (HPCL)

⁴⁹ 1st Extension (01/04/11 to 31/03/12), 2nd Extension (01/04/12 to 31/03/13), 3rd Extension (01/04/13 to 31/03/14)

⁵⁰ 1st Extension (01/11/10 to 30/06/11), 2nd Extension (01/07/11 to 31/12/11), 3rd Extension (01/01/12 to 31/12/12) and 4th Extension (01/01/13 to 31/12/13)

the items and the rates with the approval of the Ministry of Petroleum and Natural Gas.

During the review of the functioning of the Directorate of Stores, Audit observed (August 2013) that since IOCL had been giving significant amount of discounts in the range of ₹106 per Kilolitre (Kl) to ₹3050 per Kl on the sale of ATF to many bulk consumers like Indian Airlines/Air India/NACI, Lufthansa, British Airways and other foreign airlines and in the range of ₹600 per Kl to ₹1125 per Kl on the sale of HSD to many bulk consumers like Indian Railways, UP State Road Transport Corporation, Rajasthan State Road Transport Corporation Ltd etc., the IAF had lost approximately ₹713.09 crore (₹703.36 crore on procurement of ATF during the period from 2003-04 to 2010-11 and ₹9.73 crore on procurement of HSD during the period from 2006-07 to 2012-13) due to inaction on the part of IAF to enforce the 'Fall Clause' of the rate contract to negotiate and avail of such discounts.

In response to the paragraph issued to Ministry (June 2014), Air HQ on the directions (August 2014) of Ministry of Defence (Fin/Budget) accepted (August 2014) the facts, without, however, clarifying as to why Ministry as well as IAF failed to enforce the 'Fall Clause', until the issue was highlighted (September 2009) by Audit after which IAF/Ministry negotiated (March 2011) with the three PSUs and started getting discount on ATF from April 2011 onwards - as has been discussed in the succeeding paragraph.

3.7.8.4 Recurring annual savings at the instance of Audit

Audit noticed (August 2013) that consequent upon the issue regarding loss due to non-implementation of Fall Clause having been raised (September 2009) in Audit, IAF/Ministry had negotiated (March 2011) and obtained from all the three PSUs a discount of ₹300 per Kl on procurement of ATF for the period from 1 April 2011 to 31 March 2012, ₹550 per Kl for the period from 1 April 2012 to 31 March 2013 and ₹1100 per Kl for the period from 1 April 2013 to 31 March 2014. In this way saving of ₹107 crore by way of availing of discount on procurement of ATF had accrued to IAF/Ministry up to March 2014.

In response to the paragraph issued to Ministry (June 2014), Air HQ on the directions (August 2014) of Ministry of Defence (Fin/Budget) accepted

(August 2014) that IAF had been getting the discount which was ₹1300 per Kl for the ATF and ₹183.75 per Kl for Diesel in the current financial year *i.e.* 2014-15.

3.7.8.5 Failure to take advantage of Prompt Payment Discount - ₹9.58 crore

Audit noticed (August 2013) that while Indian Navy had been availing the Prompt Payment Discount (PPD) of ₹10 per Kl from April 2000 and ₹20 per Kl from April 2005 on making full payment within 20 working days from the receipt of the bills pertaining to primary oils (fuels) including ATF and HSD, IAF had failed to do so, resulting in an approximate loss of ₹9.58 crore during the period from 2003-04 to 2012-13 on procurement of ATF as no provision for PPD was made in the relevant rate contracts.

In response to the paragraph issued to Ministry (June 2014), Air HQ on the directions (August 2014) of Ministry of Defence (Fin/Budget) accepted (August 2014) the facts without, however, clarifying as to why no provision for the PPD was made in the relevant contract as was the case with Indian Navy.

3.7.8.6 Non-crediting of dealership commission on issue of LPG into Public Fund

Consequent to the introduction of LPG as a fuel for cooking in the Armed Forces and authorization of cooking gas equipment to the cook-houses as sanctioned by Government of India from time to time, Government of India, Ministry of Defence issued (February 1991) instructions on the utilisation of dealership commission⁵¹ being allowed to Armed Forces by Oil Companies based on number of cylinders sold per month.

As per the instructions, dealership commission on issue of LPG by nationalized oil companies to Armed Forces would be utilized for meeting the

⁵¹ The total dealership commission - renewable from time to time - being allowed by Oil Companies was ₹5.30 per cylinder in February 1991 and ₹7.30 for sale up to 2500 cylinders and ₹6.50 for sale of 2501 and above cylinders per month, in July 1994. A sum of ₹3.62 per cylinder out of the total dealership commission allowed by the Oil Companies was to be taken as rebate to Defence Department and reduced from the total bills and the balance amount of the dealership commission was to accrue to the executive authorities for the purpose of meeting the operating cost of distributorship.

operating cost on the authorized items⁵² to run the gas agency and the unutilized balance amount, if any, as on 31 March of each year would be remitted⁵³ to the Government. These accounts would be got audited by the CDA concerned as any other auditable document.

The Ministry had sanctioned (September 2003) direct procurement of LPG by IAF units from LPG agencies of PSU oil companies and allotment of funds⁵⁴ through controlling Command HQ to meet the requirement of security deposits as well as purchase of LPG. Accordingly, Air HQ had issued (July 2005) instructions to Command HQs to project funds for one time expenditure and annual recurring expenditure to Air HQ for procurement of LPG.

Government of India, Ministry of Defence, clarified (January 2007) that whether running Free Issue LPG, Payment issue LPG or Free/Payment Issue LPG, the dealership commission so accrued would be utilized on the authorized items and the unutilized balance amount if any as on 31st March of each year would be remitted to the Government and got audited by the concerned CDA as any other auditable document accordingly. The Directorate of Stores circulated (February 2007) the clarification to all Command HQs for its compliance.

Audit observed (September 2013) that in gross violation of the Ministry's orders, unutilized balance amount of the dealership commission accrued as on 31st March each year was not being remitted to the Government by Air Force authorities on the plea that Gas Agencies were being operated as Regimental Institutes out of Non Public Fund (NPF) and no money from Public Fund *i.e.* Consolidated Fund of India was involved. IAF had made a net profit of ₹2.24 crore in 2005-06 alone⁵⁵. Subsequent information was not available.

In response to the paragraph issued to Ministry (June 2014), Air HQ stated (August 2014) that Air Force Gas agencies did not fall under the ambit of

⁵² Repair of LPG appliances, purchase of stationery, expenditure on employment of part-time help/extra duty pay to run the agency, inventory control and any other expenditure to improve the efficiency of dealerships and cooking appliances.

⁵³ Under Major Head 0076 Minor Head 110 (c)-Receipt Head (Revenue Accounts)(Other Non-Tax Revenue).

⁵⁴ From Locally Controlled Head 745/01.

⁵⁵ Subsequent information not available.

Government sanction of January 2007, as these were run on self sustaining basis without any financial assistance/support from the Government fund.

Air HQ's reply is not acceptable for the following reasons:

- At the time of authorizing direct procurement of LPG by IAF units from LPG agencies of PSU oil companies, funds were provided from Government fund to meet the requirement of security deposits as well as purchase of LPG. Scrutiny of the records at the Directorate of Stores revealed (September 2013) that funds for security deposit and recurring annual expenditure on procurement of LPG *per annum* were demanded by the Air Force Units/Commands and provided by Air HQ. It is, therefore, incorrect to say that no financial assistance/support from the Government fund was provided.
- Non-remittance of unutilized balance of dealership commission accrued as on 31 March each year to Government is in contravention of the Ministry's own instructions of January 2007.

3.7.8.7 Conclusion

The Directorate of Stores is a centralized agency for planning, provisioning and indenting of all types of non-technical stores required by the units of IAF. The Directorate of Stores also maintains liaison at appropriate level with different Ministries of the Central Government and Public/Private Sector Undertakings. However, Audit observed several instances of irregular approval and concurrence by CFAs and IFA respectively and wrong booking of expenditure. There were also several cases of irregular procurement of flying clothing, Arctic Gloves Battery Heated, NATO Suit complete and Flame Retardant Overall without scaling/approval of the Ministry. Audit noticed cases of procurement of substandard Fire Retardant Overalls, and untested & uncertified helmets endangering the lives of pilots. There was a considerable delay in procurement of fire protection clothing, and scaling/procurement of Fleet Specific Flying Clothing for a special operations squadron. The Directorate of Stores was also not able to maintain effective liaison with PSUs as a result of which IAF suffered loss of ₹713.09 crore due to non-implementation of fall clause in procurement of fuel and loss of ₹9.58 crore due to failure in taking advantage of prompt payment discount.

The other important issues were non-crediting of revenue of ₹17.92 crore (approx) into Public Fund Account. A saving of ₹107 crore by way of availing discount on procurement of ATF during the period 2011-12 and 2013-14 accrued to IAF at the instance of Audit.

3.7.8.8 Recommendations

1. Strict adherence to the laid down procedure regarding scaling and obtaining sanction of appropriate CFA may be ensured.
2. Special efforts should be made by the Directorate of Stores for early finalisation of the scales of the items being procured so as to avoid criticalities at user units.
3. Quality control of the flying clothing needs to be strengthened to guard against supply of sub-standard and un-certified items.
4. The Directorate of Stores may consider preparing a data base of rates and discounts offered by oil PSUs to other Government/Private customers through liaison with the Ministries at appropriate level.

The matter was referred to Ministry in June 2014, their reply was awaited (September 2014).

3.8 Audit on Aerospace Safety in Indian Air Force

3.8.1 Introduction

Flight Safety mission Statement of Indian Air Force (IAF) is to ensure operational capability by conserving human and material resources through prevention of aircraft accidents. No operational goals can be achieved if pilots and aircraft are lost. As risk is inherent in military aviation, it has to be assessed and managed effectively in order to accomplish the mission. Thus, the prevention of aircraft accident is an increasingly important factor in the maintenance of a combat capability of IAF. The terminology of flight safety has been replaced by "Aerospace Safety".

Mention was made in Paragraph No. 7 of Audit Report No. 8 of 1998 regarding high rate of aircraft accidents, lack of training and infrastructure, lack of flying experience and training equipment, technical defects attributed to deficient maintenance procedure and delay in finalization of investigation. The Audit review addressed the issues pertaining to investigation of accidents and follow up measures taken by IAF during the period 1991-97. Based on this Audit Report and after taking evidences of the representatives of Ministry of Defence (Ministry) and Hindustan Aeronautical Limited (HAL) in August and September 2000, Public Accounts Committee (PAC) finalised its report (29th Report) which was presented to the parliament on 21st March 2002. In its Action Taken Note (ATN) of September 2008 on the recommendation of the PAC, Ministry had assured PAC about implementation of preventive measures, enhancing quality of training, acquisition of advance jet trainer (AJT) and simulators, and early regularization of losses. During current audit (August 2013 to December 2013), we examined the issues pertaining to investigation of accidents and follow up measures taken by IAF during the period 2010-13. We *inter alia* observed that these issues continue to persist as there was lack of trainer aircraft, delay in finalization of court of Inquiries (CoI) which resulted in delay in finalization of pensionary benefits and implementation of remedial measures for prevention of accidents, non implementation of preventive measures to avoid recurrence of such accidents and delay in regularization of losses of aircraft accidents/Incidents. This has been discussed under Audit findings in the succeeding paragraphs.

3.8.2 Organisational Structure

Directorate of Aerospace Safety (DAS) at Air Headquarters (Air HQ) headed by Air Marshal (AM) and assisted by Principal Director/Director/Joint Director level officers is assigned with the mission of enhancing the safety of the men and material resources of the IAF while operating in peace and war. Prevention and Investigation are two major task areas of DAS.

3.8.3 Audit Objective

The Audit was conducted with a view:

- to ascertain whether the causes of aircraft accidents/Incidents were identified by IAF, risk identified and remedial measures suggested/taken and losses regularised in time;
- to obtain status with regard to availability of requisite ground infrastructure and support services, control measures, their suitability and effectiveness;
- to ascertain that the arrangement exists to identify training needs of IAF personnel, up-dation thereof, arrangement made for imparting the requisite training and expected results thereof;
- whether critical weaknesses in technology having direct bearing on aerospace safety were identified in time by aircraft operating units and outcome thereof.

3.8.4 Scope of Audit

Scrutiny of the records for the period 2010-11 to 2012-13 was carried out from August 2013 to December 2013 at the Directorate of Aerospace Safety (DAS), the Directorate of Air Veterans and the Institute of Aerospace Safety. In addition, eight⁵⁶ aircraft operating wings under four⁵⁷ IAF Commands out of 45 Wings under seven IAF Commands were selected for detailed audit. Selection of field units was done to ensure that all types of fighter⁵⁸ aircraft are covered in audit.

⁵⁶ 2 Wing, 7 Wing, 8 Wing, 11 Wing, 15 Wing, 20 Wing, 33 Wing and 40 Wing.

⁵⁷ Headquarters (HQrs) Western Air Command, HQrs Central Air Command, HQrs Eastern Air Command and HQrs South West Air Command.

⁵⁸ MiG variants, Jaguar, Mirage and Su-30.

3.8.5 Source of Audit Criteria

Following sources were used as audit criteria:

- General Financial Rules, 2005 (GFR)
- Indian Air Force Equipment Regulations IAP– 1501
- Manual of Flight Safety Management (IAP 3030)
- AFO 34/06, policy letters issued by the Ministry of Defence (MoD)
- Policy Page of Flight Safety Organization at Air HQ
- Executive Committee Report on flight safety

3.8.6 Audit Methodology

The Audit scope, objectives, and criteria were discussed with the Principal Director (PD) of the Directorate of Aerospace Safety (DAS) in an entry conference held on 17 September 2013. Audit evidence was gathered through examination of records, issue of questionnaires to Air HQ, and issue of Preliminary Slips etc. Audit findings were also discussed with PD of the DAS in the exit conference held on 10 February 2014. A statement of case (SOC) was sent to Air HQ on 21 March 2014 and paragraph was sent to the Ministry in June 2014. On the directions (August 2014) of the Ministry of Defence (Finance/Budget), Air HQ furnished reply to the Paragraph (August 2014), which has been suitably incorporated in the paragraph. However regarding audit observation on delay in procurement of Basic training Aircraft (BTA), Intermediate Jet trainer (IJT) and Advance Jet Trainer (AJT) Air HQ stated that Ministry may reply appropriately which was awaited (September 2014).

The Audit findings as discussed in the succeeding paragraphs are based on the analysis of records, data/ information collected from the entities through audit memos/questionnaires and response of Air HQ to the statement of case and the Paragraph.

3.8.7 Audit Findings

3.8.7.1 Aircraft accidents/Incidents

Accidents

Aircraft accidents are grouped in three categories (Cat-I, Cat-II and Cat-III) and cover all damages of more than 10 *per cent* of the total cost of the aircraft as shown below:-

Cat-I- These are serious accidents in which aircraft is destroyed or damaged beyond economical repair (BER) or cost of damage of the aircraft, excluding damage to aero-engine(s) is more than 50 *per cent* of the total cost of the aircraft.

Cat-II-Aircraft sustains extensive damage and the cost of damage/repair, excluding damage to aero-engine(s), is 31 *per cent* to 50 *per cent* of the total cost of the aircraft.

Cat-III- Aircraft sustains major damage and the cost of damage/repair, excluding damage to the aero-engine(s), is 11 *per cent* to 30 *per cent* of the total cost of the aircraft.

Incidents

Minor damages to the aircraft where the cost of damage is upto 10 percent are categorized as Incidents as shown below:-

Cat IV- Minor damage to the aircraft (airframe) where the cost of damage is up to 10 *per cent* of the total cost of the aircraft.

Cat V-All flying/ground Incidents, considered worth reporting in the interest of aerospace safety.

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Scrutiny of the data on aircraft accidents/Incidents for the period from April 2010 to March 2013 furnished (August 2013) to Audit by DAS revealed that, 42 aircraft of different⁵⁹ variants met with accidents which comprised 37 flying accidents and 05 ground accidents. While Court of Inquiry (CoI) in respect of five flying accidents was under finalization, the provisional loss recorded by DAS in respect of 37 accidents was ₹856.72 crore. The year wise break up of these accidents/Incidents is given in the Table below:-

Year	Total flying hours	Flying Accidents				Ground Accidents				Total flying/ground accident	Fatal (No of deaths)	Rate ⁶⁰ of accidents	Incidents ⁶¹
		Cat I	Cat II	Cat III	Total	Cat I	Cat II	Cat III	Total				
2010-11	227480	12	-	02	14	01	-	-	01	15	02 (14)	0.62	449
2011-12	227322	13	01	02	16	-	-	01	01	17	04 (04)	0.70	517
2012-13	230200	05	-	02	07	02	-	01	03	10	02 (09)	0.30	568
Total	685002	30	01	06	37	03	-	02	05	42	08 (27)	0.54	1534

(Data on accidents/Incidents furnished by DAS to Audit in August/October 2013)

It would be seen from the above Table that:-

- 33 accidents (79 per cent) were serious (Cat-1) where aircraft were totally destroyed or rendered beyond economical repair (BER). In the remaining 09 accidents (1 Cat II and 8 Cat III), the aircraft were in repairable condition. We noticed that seven⁶² aircraft were still under repair (January 2014) even after a lapse of one and half year to about four years and two⁶³ aircraft had resumed⁶⁴ (June 2014) flying after necessary repairs. Due to delay in repair/recovery, these seven aircraft

⁵⁹ MiG-21 T 96, MiG-21 Bis, MiG-27, MiG 29, Su 30, Mirage-2000, Jaguar, Kiran, Hawk, Chetak, Mi-8, Mi-17, Mi-26, ALH & AN-32.

⁶⁰ Accident Rate = (No. of flying accidents/total flying hours) x 10,000 as indicated in accident/Incident review.

⁶¹ Due to Technical Defects (TD), Human Error (HE), Bird Strike (BS), Foreign Object Damage (FOD), Natural Operational Risk (NOR), Un-Resolved (UR) incidents and Misc.

⁶² MiG-21, MiG-29, Jaguar TS, Kiran (2), Chetak and AN-32 intimated by Air HQ in January 2014.

⁶³ Mi-8 & Mi-17

⁶⁴ In response to Audit query (June 2014), information furnished by DAS vide no Air HQ/16561/3/9B/PC/Ty BM/AS dated. 18 June 2014.

were not available for operations with IAF, thereby decreasing the force level.

- The overall rate of accidents during the period 2010-2013 between 0.30 and 0.70 had shown a decreasing trend in comparison to such rate being between 0.89 and 1.52 for the period 1991-97 as reported in Audit Report of 1998.
- Although there was a decrease in total number of accidents in the year 2012-13 yet compared to preceding years the ground accidents had increased during 2012-13 involving a fatal accident also.
- In all eight accidents were fatal in which IAF lost 27 personnel (12 officers and 15 PBOR⁶⁵).
- The number of Incidents (Cat -IV and V) however, had increased by 27 *per cent* from 449 in year 2010-11 to 568 in year 2012-13.

Stream-wise and Cause-wise details of accidents have been discussed below.

A. Stream-wise accidents

In the Audit Report of 1998, we had pointed out that during the period 1991-97 most of the accidents involved fighter aircraft and ranged between 63 and 79 *per cent*. We had pointed out that even though there was decline in total number of accidents during the period 1996-97, the accidents involving fighter stream remained as high as 75 *per cent* of the total accidents. Besides in 62 percent of the fighter aircraft accidents, the aircraft involved were MiG variants. In response (September 2008) Ministry had brought out following preventive measures before PAC:

- Each accident is investigated by an independent Court of Inquiry (CoI) consisting of specialists from various fields;
- Preventive measures like determination of cause and timely introduction of preventive measures;
- Measures to enhance the quality of training to improve the skill levels and thrust on acquiring simulators and advance jet trainers;

⁶⁵ Personnel below officer rank

- Constant interaction with HAL at highest level to discuss serious flight safety measures. Original Equipment Manufacturer (OEM) are also approached to provide support to overcome the technical defects.

Stream-wise flying accidents of various fighters, trainer, transport and helicopters for the period 2010-13 as provided (August 2013) to audit by the DAS are tabulated below:

Period	Fighter	Trainer	Helicopter	Transport	Total
2010-11	06	01	07	00	14
2011-12	10	04	01	01	16
2012-13	06	00	01	00	07
Total	22	05	09	01	37

(Data on accidents furnished by DAS to audit in August/October 2013)

Our analysis revealed that accidents in fighter stream were higher and ranged between 43 and 86 *per cent* of the total flying accidents. Further, though there was decline in the number of accidents during the year 2012-13 yet the accidents in fighter stream was higher at 86 *per cent* of the total accidents. Also, out of 22 accidents involving fighter aircraft, 15⁶⁶ aircraft (68 percent) were of MiG variants of which 13 MiG aircraft were totally damaged and had become beyond economical repair (BER).

Thus, the *percentage* of accidents in fighter aircraft had increased from then 79 *per cent* (1991-97) to 86 *per cent* (2010-2013) of the total accidents. Also the accidents of MiG variants had increased from then 62 to 68 *per cent* of the total accidents of fighter aircraft. This brings into question the efficacy of implementation of the preventive measures instituted by the Ministry pursuant to the recommendations of the PAC. The details are discussed in the succeeding paragraphs:

⁶⁶ MiG-21 T 96 (05), MiG-21 Bis (05), MiG-27 (03) and MiG-29 (02)

B. Cause-wise accidents

Data on accidents due to human error (HE), technical defects (TD), and bird strike (BS) as provided (August/October 2013) to audit by the DAS is tabulated below:

Year	Cause-wise Accidents/Incidents					
	Accidents			Incidents		
	HE	TD	BS	HE	TD	BS
2010-11	06	08	00	61	217	96
2011-12	10	06	00	56	254	121
2012-13	03	04	00	39	308	140
Total	19	18	00	156	779	357

(Data on accidents/Incidents furnished by DAS to audit in August/October 2013)

As is evident from the Table above that 19 (i.e 51 per cent) of the flying accidents had occurred due to human error whereas 18 (i.e 49 per cent) of these flying accidents were due to technical defects. Further, though TD was the major contributor with 779 (i.e 60 per cent) of the Incidents, the Incidents due to bird strike were also significant with 357 (28 per cent) Incidents during the review period. Thus during the period 2010-13 all the flying accidents were due to human error and technical defects. Further analysis of cause wise accidents is discussed below:-

I Technical Defects

During scrutiny of Court of Inquiry (CoI) and connected records, we observed (October 2013) that 18 (out of 37) flying accidents had occurred due to technical defects out of which finalisation of CoI of three accidents was pending (October 2013). We noticed (October 2013) from the finalised 15 CoIs that one fighter aircraft crashed due to system failure on the part of gas supply vendor and quality assurance agencies in IAF, seven accidents were due to engine material failure, two accidents were due to engine flameout and five accidents were due to airframe material failure.

We further observed (March 2014) that 6⁶⁷ (40 per cent) out of 15 finalised CoIs remained inconclusive as the IAF could not establish the exact cause of technical defect that had led to the accident. Details of these cases are given in Annexure II. In one of these six accidents where cause of accident could not be established, IAF lost 11 personnel (2 officers, and 9 PBOR). We therefore suggested in the paragraph issued (June 2014) to the Ministry that IAF should include a technical expert from other Government agency as a member of CoI to conclusively establish the exact cause of accident.

In response to the paragraph, Air HQ stated (August 2014) that recommendation of the Audit regarding inclusion of outside representative in the CoI has been addressed in Air Force Order (AFO 8/14) issued in May 2014 wherein member of CoI are being taken from Government and public sector agency like HAL/ National Aeronautical Lab (NAL) etc. Air HQ further stated that the number of unresolved cases would decrease with the future induction plan of aircraft where in advance Flight Data Recorder (FDR) systems and other recording facilities would be available with the investigators to find out the root cause of accident. Air HQ also stated that with the advancement of technology and availability of investigation tools in Indian labs, the unresolved cases would decrease drastically.

The fact, however, remains that despite being pointed out in Audit in 1998 and assurance given by the Ministry in September 2008 to the PAC regarding minimizing the accidents; the accidents due to technical defects had increased from then 44 to 49 per cent. The mechanism for constant interaction with HAL, OEM etc. representative, promised by the Ministry to PAC in 2008 as a method to overcome the accidents due to technical defects was formalized only in the year 2014 after being reiterated by Audit. In addition, six (40 per cent) out of 15 finalised CoI had remained inconclusive as IAF was unable to identify the actual cause of TD and by Air HQ own admission (August 2014) the uncertainty having implication on flight safety would continue to persist till such time the advanced technology was made available to the investigators.

⁶⁷ MiG-21 (02), MiG-27 (02), Kiran and Mi-17

II. Human Error

Human Error (HE) comprises error on the part of aircrew on flying duty or ground duty or both. We had pointed out in Audit Report in 1998 that majority of HE accidents (41 *per cent*) were caused as a result of inadequate flying skill, error of judgement etc. based on findings of CoI. The PAC in its report (March 2002) on the Audit Report of 1998 had pointed out that the increasing trend of HE accidents indicated that the remedial steps taken were grossly inadequate. In ATN, Ministry assured PAC (September 2008) that measures to enhance quality of training to improve skill levels, ability to exercise sound judgement and improved situational awareness were constantly being reviewed and implemented. Besides, renewed thrust on acquiring simulators and the Advance Jet Trainer (AJT) was a step towards improving the quality of the man behind the machine.

We noticed (October 2013) from the findings of CoI of aircraft accidents (2010-13) that 19 (51 *per cent*) flying accidents had been attributed to human errors caused as a result of inadequate flying skill, error of judgment, poor supervision, lack of situational awareness, disorientation of the pilots, mishandling of controls and incorrect decision. Details of such flying accidents are mentioned in Annexure III. Our scrutiny (October 2013) further revealed that in these nineteen accidents IAF had lost 16 personnel (10 Officer and 06 PBOR). Two such major accidents are discussed below based on findings of respective CoIs:

- Chetak helicopter after taking off from Kalaikunda was to route to Bagdogra via Pannagarh and Purnea overflying the Singharsi Valley. But while taxiing, the captain changed the route and announced his destination to Singharsi helipad which was cleared by Deputy air traffic controller (DATCO) without understanding the implication of change in destination. Since there was nil visibility at Singharsi helipad, the helicopter crashed (September 2010) killing all three

personnel (2 officers and 1 PBOR) on board. Ground safety staff was held responsible for this accident.

- The tail rotor blades of two MI-17 helicopters collided, caught fire and crashed (August 2012) killing nine crew members (05 officers and 04 PBOR) on board. The mid air collision took place because the procedure of maintaining a minimum distance between the rotor disc was violated.

Thus accidents due to human error during the period 2010-13 continued to be caused by the same factors as were observed by audit in 1998 for accidents occurred during the period 1991-97. Further the rate of percentage of accidents due to these reasons had increased from then 41 *per cent* to 51 *per cent* of the total accidents during the stated period. Evidently the assurance given by the Ministry has not been fulfilled.

Our further scrutiny of Quarterly Flying Training Return relating to training provided by IAF also revealed that there was acute shortage of flying aids for basic training (Stage I), follow-on flying training (Stage II) and advanced training (Stage III). Details are discussed below:-

II(a) Basic Flying Training

We noticed (October 2013) from the brief submitted (September 2012) by DAS to the Ministry about the measures initiated to overcome flying training deficiencies that HPT-32 aircraft inducted in IAF in 1984 was used for basic flying training (Stage I) and Kiran aircraft inducted in IAF in 1968 was used for Intermediate (Stage II) flying training after trainee pilots had flown HPT-32 aircraft. HPT-32 aircraft was phased out in 2009 as the same was found to be accident prone. However, instead of taking timely action for replacement of this aircraft, the task of basic flying training was shifted to Kiran aircraft. DAS further apprised (September 2012) Ministry that training efforts available on Kiran aircraft had reduced considerably therefore flying training syllabus for basic flying trainees was truncated (2009-2012) by IAF

pending replacement of HPT-32 aircraft. DAS in their brief further informed (September 2012) Ministry that in order to make good the deficiencies of training resources, availability of Kiran aircraft was planned to be enhanced by making 40 aircraft kept under storage flyworthy, increasing procurement of spares and overcoming shortage of aero engines by enhancing overhaul task of 4 Base Repair Depot (BRD). Enhanced availability of aircraft was aimed to strengthen the basic flying training of pilots. We noticed (December 2013) from aircraft repair and overhaul firm task 2014-15 and forecast task 2015-18 for Kiran aircraft that repair/overhaul tasks to make the 40 Kiran aircraft fly worthy were allotted (November 2013) to HAL by IAF with a delay of over one year and even then the tasks were staggered as 2014-15 (8 aircraft), 2015-16 (10 aircraft), 2016-17 (12 aircraft) and 2017-18 (10 aircraft).

We also observed (October 2013) that contract for 75 Basic Trainer Aircraft (BTA) as replacement of HPT-32 aircraft was concluded (May 2012) between Ministry and M/s Pilatus Aircraft Ltd. Deliveries against this contract commenced in February 2013 and the first *ab-initio* course on BTA commenced from July 2013. 20 BTAs had been delivered (October 2013). However the delivery of the remaining 55 was to be completed only by August 2015.

Thus, the trainee pilots had to undergo basic flying training on ageing Kiran aircraft during the period 2010-2013 meant for Intermediate (Stage II) flying training. Contract for replacement of HPT-32 aircraft was concluded (May 2012) by Ministry after 3 years of phasing out of HPT-32 aircraft. The risk inherent to aerospace safety and trainee pilots in this manner of training would, however, persist till August 2015 in view of non availability of full Strength of BTAs.

Ministry did not reply on delay in procurement of BTA (September 2014).

II(b) Intermediate flying training

Intermediate (Stage II) training of pilots is imparted on Kiran aircraft. Kiran aircraft were inducted in 1968 and is aged aircraft. Government of India accorded approval (July 1999) for design and development (D&D) of Intermediate Jet Trainer (IJT) at a cost of ₹180 crore so as to replace the vintage Kiran aircraft. As per approval two prototype aircraft were to be manufactured by HAL, and tested/approved by Centre for Military Airworthiness and Certification (CEMILAC) for giving air-worthiness clearance (AWC) by 2004.

We observed (October/November 2013) that IJT was urgently required to replace the Kiran aircraft which were to be phased out from 2014 onwards. Audit observation regarding induction of IJT are discussed in Para No 2.1 of this report.

In reply to audit observation (November 2013), Air HQ stated (March 2014) that the delay in production and supply of IJT was attributable to HAL. Air HQ further stated that initial operational clearance (IOC) for prototype aircraft planned for March 2004 was revised several times by HAL and final IOC was expected to be completed in December 2014.

The fact remains that the non-availability of a replacement of IJT even 15 years after the Government sanction coupled with uncertainty in its production would adversely affect the Intermediate (Stage II) training of pilots especially as even the existing Kiran aircraft of 1968 vintage had been decided (September 2012) by IAF to be phased out from year 2014 onwards.

Ministry did not reply on delay in procurement of IJT (September 2014).

II(c) Advanced Training

Advanced training (Stage III) is intended to impart air combat and weapon delivery training to trainee pilots segregated for the fighter stream following the intermediate training (Stage II).

We had observed in Audit Report of 1998 that lack of AJT was the main reason for human error accidents as pilots converting on sophisticated MiG-21 from Kiran trainers had difficulties in coping with the quantum jump in performance and technology of MiG-21 as compared to pilots converting on Hunters. In ATN, Ministry admitted (September 2008) that the MiG 21 and hunter aircraft used for advanced training were not specially designed as advanced trainer and had inherent limitation for imparting air combat and weapon delivery training. In their ATN, Ministry stated (September 2008) that IAF had identified the requirement of AJT for safe and smooth transition of young trainee pilots.

Against the total requirement of 106 AJT for Stage III training, IAF acquired 66 AJT by 2012 against two contracts (2004 and 2007). Contract for balance 40 AJT from HAL was signed in July 2010. The delivery of these aircraft was scheduled from 2013 to 2017.

Audit scrutiny (October 2013) of the brief submitted (September 2012) by DAS to Ministry about the measures initiated to overcome flying training deficiencies brought out that delivery of all contracted aircraft would substantially improve the aerospace safety environment. However, we observed (October 2013) that only 5 aircraft had been delivered by HAL against the 7 planned in 2013-14. Thus, non-availability of full complement of AJT aircraft till 2017 would continue to affect the advance training of pilots, which by IAF's own admission (September 2012), would have implications for the aerospace safety environment.

Therefore, though the deficiency of 40 AJT had been identified (August 2007) by IAF and in their ATN (September 2008) Ministry had apprised the same to the PAC for safe and smooth transition of young trainee pilots, the full complement of AJT aircraft was yet (August 2014) to be made available to IAF.

Ministry did not reply on delay in procurement of AJT (September 2014).

III. Bird Strike

In response to the recommendation of the PAC on the issues raised in the Audit Report, Ministry in the ATN (September 2008) had stated that preventive measures to combat bird menace like study with aims to deprive the birds of food, installation of modern facilities etc. were in their active consideration.

We noticed (October 2013) from the records made available by DAS that IAF had decided (2006) to have bird survey done over major IAF airfields by a professional organization and a contract was accordingly given to Bombay Natural History Society (BNHS). The contract was however terminated (2006) due to poor performance of researchers employed by BNHS in the field. Thereafter, an Ornithological Cell in DAS with personnel having Ornithological background was established (2007), which was tasked to work exclusively and extensively on bird hazard prevention. With a view to provide a safer environment for conduct of operations and enhance aerospace safety aspect proactively, IAF had also decided (January 2008) to induct Avian Radar, a proven contemporary technology that could detect the bird movements in day as well as in night and microlight aircraft to survey local flying area for survey of garbage dumps, animal slaughter and carcass etc.

We observed (October 2013) that there was increasing trend of bird-hits after creation of ornithology cell as shown below:-

Year	No of bird strikes						
	Accidents				Incidents		
	Cat I	Cat II	Cat III	Total	Cat IV	Cat V	Total
2008-09	-	-	01	01	42	32	74
2009-10	01	-	-	01	49	35	84
2010-11	-	-	-	-	39	57	96
2011-12	-	-	-	-	39	82	121
2012-13	-	-	-	-	38	102	140
Total	01	-	01	02	207	308	515

We further observed (September 2013 and October 2013) that during the period 2010-13 there was no accident due to BS although there were two accidents during the preceding two years (2008-09 and 2009-10). However,

there was increase in number of Incidents due to bird strike during the period 2010-13. As against 574 Incidents reported in the Audit Report of 1998 during the period 1991-97 (average 96 per year), 357 Incidents occurred (average 119 per year) during 2010-13 despite the creation (2007) of ornithology cell.

While Ministry did not furnish any reply to the DP, in response to the Statement of Case (SOC), DAS stated (May 2014) that the anti-bird modules were a continuous process and need to be fine tuned as per the changes in the environment and that continuous validation and inspection of new modules was being undertaken by Ornithology Cell, and such continuous assessment by the wild life biologist was a norm even in advanced countries.

The reply is not acceptable as even after formation (2007) of Ornithology cell, the number of Incidents due to BS had shown an increasing trend as during the period 2010-13 the average number of Incidents due to BS was 119 per year as against average of 96 per year during the period 1991-97. Further, proactive measures like induction of Avian radar and microlight aircraft had not fructified (August 2014) as discussed below thereby exposing IAF to recurrence of such Incidents in future.

III (a) Delay in induction of avian radar

The Avian radar system is a bird detecting radar that is capable of detecting, monitoring and recording data. The radar is also able to operate round the clock and in all-weather conditions. The system is mobile and can be integrated with the Air Traffic Control (ATC) system at operating bases.

We noticed (October 2013) that DAS had initiated (January 2008) a proposal for procurement of 40 Avian radars at a cost of ₹160 crore. The number of radars were later on revised (June 2008) to 41 after taking into account one additional radar for Andaman and Nicobar command. Total requirement of 45 radars was worked out after including the requirement of four radars for Indian Navy. Air Staff Qualitative Requirements (ASQRs) of Avian radar was firmed

up in June 2008 and the request for proposal (RFP) was floated (2009) to four vendors who submitted (May 2010) their technical and commercial bids. The proposal was evaluated by technical evaluation committee (TEC) for compliance of RFP. Two vendors qualified for the TEC and were asked to offer radars for field trials. One of these vendors withdrew (April 2011) from the field trials and the only observation on the performance of the radar offered (May 2011) by the second vendor was regarding the capability of providing 3D coverage of airspace as per ASQRs. Therefore, procurement process was discontinued on the advice of Technical Manager (TM) (Air) because of the anomaly noticed (May 2011) by the Field Evaluation Trial (FET) team. While ratifying (November 2011) the ASQRs IAF diluted the parameter of 3D coverage to 2D and height from 10,000 feet from ground level to "not less than 2000 meter". Thereafter RFP was issued (April 2012) to 4 vendors and technical bids of Avian radar were opened by TEC in August 2012. The FET of the radar was pending (August 2013) due to non-finalisation of FET team.

Matter was taken up with Ministry (June 2014) and in response IAF stated (August 2014) that the previous procurement process was discontinued due to single vendor situation at FET stage and not due to anomaly in ASQR. The ASQR was revised to bring in more competition. IAF further stated that Contract Negotiation Committee (CNC) for procurement of Avian radars was in progress and the contract was likely to be signed in the current financial year.

The reply is not acceptable as the previous procurement process was discontinued on the advice of TM (Air) due to anomaly in ASQRs, as stated above, which resulted in non-induction (August 2014) of avian radars envisaged in January 2008 for detection of birds round the clock and in all-weather conditions.

III(b) Delay in Procurement of Microlight aircraft

Microlight aircraft are used to survey local flying area (LFA), around airfields including survey of obstacles around LFA; survey of garbage dumps, animal slaughter and carcass dumping areas etc. and exposure to other agencies directly involved with aerospace safety environment.

IAF procured (1999) 24 Streak Shadow Microlight (Microlight) aircraft which were inducted between December 1999 and May 2002. These aircraft were distributed to 19 Air Force units under four Commands. The Total Technical Life (TTL) of Microlight aircraft was fixed as 10 years by engineering branch at Air HQ subject to passing one time detailed checks.

We observed (October 2013) that in December 2009 when the force level of microlight aircraft was sixteen, IAF had considered the available number of microlight aircraft inadequate. To meet the requirement of all 58 aircraft operating stations a SOC for induction of 121 microlight aircraft in IAF to enhance its capability of countering the bird menace in various aircraft fleet and also for adventure/sports flying activities was initiated (December 2009) at a cost of ₹188 crore. 71 of the proposed micro light aircraft were meant for aerospace safety and balance for adventure activities. All the existing microlight aircraft were downgraded by May 2012. We further noticed that with the decrease in force level of Microlight during the period 2009-2012 the bird strike Incidents had increased as discussed in Para 7.2.3. The contract for replacement/induction of microlight aircraft was yet (October 2013) to be concluded and all the 58 aircraft operating stations were deprived of this technology to combat bird menace.

Matter was taken up with the Ministry (June 2014) and in response IAF stated (August 2014) that Contract Negotiation Committee (CNC) for procurement of microlight aircraft was in progress and the contract was likely to be signed in the current financial year. IAF also stated (August 2014) that there was no procedural delay in projection of requirement.

The reply is not acceptable as the lead time for induction of microlight aircraft was 12 to 36 months from the date of signing of contract. Had the case been initiated earlier after taking into account the TTL of the existing microlight aircraft, the contract could have been concluded in time to replace/induct these aircraft.

Thus, delay in initiation of case for replacement of Microlights and delay in conclusion of contract resulted in non-availability of microlight aircraft with all the aircraft operating stations of IAF for last two years, which is an aerospace safety hazard.

3.8.7.3 Non-availability of Simulators

It was mentioned in the Audit Report of 1998 that four of the five simulators procured from the manufacturer abroad for imparting training on MiG-21 aircraft were lying unserviceable since long. The performance of fifth simulator, which was partially unserviceable, was unreliable due to ageing. PAC drew attention to the comments in the Audit Report and recommended (March 2002) that effective steps be taken to make the existing simulators serviceable/operational and to initiate action for new acquisition to fill in the gap so as to provide efficient training to pilots in acquiring higher flying skills. In their ATN, Ministry stated (September 2008) that action was in hand to upgrade four⁶⁸ simulators and whenever new aircraft were inducted, procurement of simulators was also to be contemplated alongside.

We observed (September 2013) from the data provided (September 2013) by Air HQ that simulators for Mirage-2000, Jaguar DARIN I⁶⁹, Jaguar DARIN II⁷⁰, Air Combat Simulator (ACS), Advance Jet Trainer, Sukoi-30, MiG-27, MiG-29 and AN-32 were available and serviceable. Jaguar simulator DARIN-I was upgraded in December 2006, Jaguar simulator DARIN-II was upgraded

⁶⁸ Jaguar DARIN-I, Jaguar DARIN-II, Mirage-2000 and Air Combat Simulator

⁶⁹ Darin-I - Display Attack Ranging Inertial Navigation-I (old version of Jaguar aircraft)

⁷⁰ Darin-II - Display Attack Ranging Inertial Navigation-II (upgraded version of Jaguar NAWASS version with better avionics)

in December 2011, Mirage-2000 simulator in May 2010 and ACS in July 2013. Thus Jaguar DARIN-II, Mirage and ACS radars were upgraded after 18 to 58 months of the commitment given by Ministry to PAC based on the recommendation on the data given in Audit Report of 1998. We further observed (October 2013) that at Air Force Stations Jamnagar and Pune, the simulators were either not available or remained unserviceable as discussed below:

- We observed (October 2013) that a Jaguar Squadron (Sqn) was moved (August 2007) from Pune to Jamnagar after a review of operational considerations with Jaguar DARIN I Maritime aircraft (Ist Sqn). Another Sqn was resurrected (March 2008) with Jaguar DARIN-II aircraft (IInd Sqn). However, no "Jaguar Simulator" was available at AFS Jamnagar for imparting simulator training to Operational (Ops) pilots and under trainee (UT) pilots. Thus, in absence (October 2013) of simulator, the Ops and UT pilots of these two Sqns were being sent to AFS Gorakhpur (for simulator training in old version of Darin-I) and AFS Ambala (for simulator training in latest version of Darin-II) respectively.

In response to paragraph (June 2014), Air HQ stated (August 2014) that a case had been initiated at Air HQ for procurement of simulators for all Jaguar bases. Ist Sqn is planned to be upgraded to DARIN-III⁷¹ standards and the proposal accordingly includes DARIN-III simulator for this Sqn and DARIN-II simulator for IInd sqn. Till the procurement of these simulators was completed, the two squadrons would continue to train on simulators at Gorakhpur and Ambala. The reply was silent on the impact on prescribed hours/ squadrons due to sending of pilots for simulator training to Gorakhpur and Ambala.

The fact remains that the procurement of simulator for the two Sqns was pending even after a lapse of six years. Thus, till materialisation of

⁷¹ DARIN-III- Display Attack Ranging Inertial Navigation-III (Upgraded version of Jaguar DARIN-I aircraft with improved navigational, weapon aiming accuracy and modern avionics systems)

simulators, day-to-day commitment of the squadrons and hours prescribed for simulators training for Ops and UT pilots would continue to get affected.

Reply of the Ministry was awaited (September 2014).

- We observed (October 2013) that Full Machine Simulator (FMS) and Part Task Training (PTT) simulators of SU 30 MKI aircraft were received from OEM by AF unit in April 2010. Since receipt, the simulators could not be fully exploited as FMS simulator remained unserviceable for 163 days between August 2011 and August 2013 and PTT simulator was un-serviceable for 180 days between November 2011 and September 2013.

In response to paragraph (June 2014), Air HQ stated (August 2014) that as on date the simulators were serviceable and being utilised for training. Regarding un-serviceability, it was stated that a case for comprehensive AMC (Annual Maintenance Contract) was initiated in January 2011 on Proprietary Article Certificate (PAC basis) and the case file was with Ministry for expenditure angle sanction and approval of draft contract.

The fact remains that the simulators had not been gainfully utilized. Besides, despite the lapse of warranty in July/August 2011, the AMC was yet (August 2014) to be concluded.

3.8.7.4 Non-availability of infrastructure

I. Non-availability of infrastructure for newly inducted helicopters

In order to enhance the capability of the Mi-17 V5 helicopter fleet to undertake operations by night with greater safety and efficiency, contract for procurement of 80 Mi-17 V5 helicopters with night capability and associated

equipment from M/s Rosoboronexport Russia was signed (December 2008) at a total cost of 1.345 billion USD (Approx ₹6416 crore). These helicopters were received by May 2013 and allotted to seven Helicopter Units (HUs). Out of 80 Helicopters, 14 Helicopters were allotted as replacement of Mi 17 IV to one HU and balance 66 Helicopters were allotted among six⁷² newly raised HUs. For infrastructure requirement for Helicopters in six HUs, the work services like Dispersal and link taxi tracks, covered parking, hangers and maintenance complex, tarmac etc. were approved by the Cabinet Committee on Securities (CCS) in 2008 at a cost of Rs. 87.20 crore.

We observed (October 2013 and March 2014) that despite the fact that CCS approval for infrastructure works was accorded in 2008, yet the competent financial authority (Ministry/Air HQ) accorded sanctions for creation of infrastructure at four stations (Srinagar, Suratgarh, Bagdogra and Phalodi) between March 2010 and October 2010. While the work services at one station (Phalodi) was completed, the probable date of completion of these works at three stations was between October 2013 and May 2014 and these works were yet to be fully completed (August 2014⁷³). The work services in remaining two stations (Barrackpore and Purnea) are yet (August 2014) to be sanctioned for want of revised CCS sanction due to relocation of HUs from Kalaikunda and Nagpur to Barrackpore and Purnea respectively.

In response to paragraph, Air HQ stated (August 2014) that there was no delay on part of the IAF. Air HQ also stated that reasons for delay in creation of infrastructure at Air Force bases were due to time taken by IIT in vetting of drawings, non working season, deficiency of labour; delay in finalisation of tender by CE (AF) SZ etc. Scrutiny of facts stated by Air HQ revealed that mandatory airfield infrastructure for safe operations of these newly inducted helicopters was not available at Barrackpore and Purnea whereas important infrastructure like link taxi track, tarmac and hangars was not available at

⁷² 154 HU (Srinagar), 155 HU (Suratgarh), 156 HU (Bagdogra) 157 HU (Barrackpore), 158 HU (Phalodi), 159 HU (Purnea)

⁷³ Reply to Paragraph furnished by Air HQ in August 2014

Srinagar and Bagdogra which was an aerospace safety risk for operation of 44 helicopters valuing ₹3529 crore from these four HUs.

II. Delay in implementation of Modernization of Airfield Infrastructure

An Expert Committee (Excom) under the chairmanship of the Director General (Inspection & Safety) set up in 2004 had undertaken an in-depth study of the various causes of aircraft accidents/Incidents and made 222 recommendations in its report (2005) for implementation by IAF. By June 2007, 215 recommendations were implemented. The seven recommendations which were not implemented, were related to foreign object damage (FOD) prevention, review of aircraft related committees, bird hazard in IAF, solid waste management at 10 identified airfields, execution of solid waste management in 16 states through Ministry of Urban Development and ineffectiveness of urgent purchase system. We had called for (October 2013) the present position of implementation of these recommendations but DAS did not furnish any reply (September 2014).

We noticed that a proposal for modernization of navigational aid (MONA) was initiated in 2004. During the course of study, airfield lighting system was also included in the proposal which was also recommended by Excom in 2005. Accordingly the name of the proposal was changed to Modernization of Airfield Infrastructure (MAFI). Under the project, 59 airfields are to be equipped with modern technology equipment related to Air Traffic Management System, Instrumentation Landing System, Doppler VHF Omni directional Range, Tactical air Navigation, Automatic Terminal Information System, Automatic Message Switching System. The project is to be implemented in two phases in which phase I is to cover 30 airfields and phase II the remaining 29 airfields. Phase-I comprised of installation, integration, calibration and commissioning of the various equipments at 30 airfields. Contract for the MAFI project was signed with Tata Power Strategic Electronics Division (SED) on 16 March 2011 and the Project was to be implemented by September 2014.

We observed (October 2013) that contract for MAFI project was signed only in March 2011 after six years. We also observed that though as per the contract, the MAFI was to be completed at 30 selected airfields, the work at the pilot base i.e AFS Bhatinda, had not yet (October 2013) been completed.

In response, Air HQ stated (August 2014) that detailed project report (DPR) for MAFI was ratified by staff equipment policy committee in February 2007 at an estimated cost of ₹1216.44 crore. Subsequently, expression of interest was published in Ministry website in September 2007 and RFP was forwarded to 3 shortlisted vendors in January 2008; TEC report was accepted by Director General (Acquisition) in March 2009 and commercial proposals were opened in August 2009. M/s TATA power SED emerged the L-I vendor and after joint survey report of the 30 bases in phase I the project was approved by Air HQ in May 2010; the CFA approval to the project was accorded by CCS in March 2011. The contract was signed in the same month. Air HQ also added that the L-2 in this case had filed a writ petition in November 2009 at High Court of Delhi and the court proceedings also contributed to the delay in finalizing the contract. The petition was finally dismissed in January 2012.

The reply is not acceptable as Indian Air Force (IAF) took two years in ratification of Detailed Project Report (DPR) since its recommendation in 2005. Further, IAF took 38 months since issue of the RFP (January 2008) till conclusion of the contract (March 2011) against the prescribed timeline of 18-24 months (without trials) in the Defence Procurement Procedure -2006. Also the justification of delay due to court proceeding is not acceptable as the contract was concluded in March 2011 itself whereas the court proceedings were still pending and were finalised only in January 2012. Thus, the project was not processed with due urgency despite the fact that it is to aid in aerospace safety of the IAF and the proposal which had been initiated in 2004 was still pending.

3.8.7.5 Investigation of accidents

The PAC on noting the inordinate delays in finalisation of investigations and assessment and regularisation of losses on account of accidents/Incidents mentioned in the Audit Report of 1998 had recommended (March 2002) that suitable steps be taken to complete the assessment/regularisation expeditiously. In the ATN (September 2008), Ministry while up-dating the figures of pending CoI/Loss statement had assured PAC that all efforts are being made to settle the pending cases for regularisation of losses.

We noticed that Ministry had prescribed (October 2006) the following timelines for processing of flying accident cases and finalization of Court of Inquiry (CoI):

i.	Constitution of CoI	Within 48 hours of accidents	
ii.	Time limit for completion of CoI proceedings	Within 06 months of the accident	
iii.	Time to be taken for completing the formalities such as approval of concerned authorities at Air HQ	Within 03 months of completion of CoI	
iv.	Time limit for completion of remedial administrative action	Within 03 months of receipt of Chief of Air Staff (CAS)	
v.	Time to be taken for regularisation of loss	By Controller of Defence Accounts	3 months
		By Ministry/ Ministry of Defence Finance	3 months of receipt in Ministry

Thus, finalisation of CoI in respect of flying accident cases should not take more than 09 months from the date of constitution of the CoI. Remedial measures should be implemented and loss statements should be regularised within 12 months and 15 months respectively from the date of constitution of CoI. Air Officer in-charge Maintenance (AOM) had issued a task directive (November 2007) for regularisation of losses within 12 months or even earlier.

Timeline for finalisation of pensionary benefits to the family/Next of Kin (NOK) is 240 days from the date of death as prescribed by Air Officer In-charge Personnel (AOP).

Our examination (October 2013) of the CoI proceedings and the data relating to regularisation of loss statements revealed that delay in finalisation of CoI and regularisation of losses still persisted as discussed in succeeding paragraphs.

I. DELAY IN FINALISATION OF COURT OF INQUIRY

Our scrutiny of the CoI register for the period 2010-13 at Directorate of Aerospace Safety (DAS) revealed that 42 CoIs of aircraft accidents were dealt with by DAS during this period, out of which only 10 (24 *per cent*) were finalised within the time limit. 27 CoIs were finalised with a delay ranging from one to more than 24 months and 5 CoIs (2 CoIs of 2011-12 and 3 CoIs of 2012-13) were pending finalisation (October 2013). The details are tabulated below:

Total CoIs Handled	Delay range of finalised CoIs				Finalised without delay	Pending	
	Upto 6 months	6 to 12 months	12 to 24 months	Beyond 24 months		2011-12	2012-13
42	17	6	3	1	10	2	3

(CoI register maintained at DAS)

Delays in finalisation of CoIs had occurred inspite of the fact that Ministry had increased the timeline for finalisation of CoI from then four months (July 1993) to nine months (October 2006). We further observed that the delays in finalisation of CoI had mainly occurred at Air HQ's level. As against the permissible time line of 3 months for processing and approval of COI at Air HQ, the time taken was from 4 to 21 months in eight out of ten delayed CoI where delay range was from six month to over 24 months.

These delays had cascading effect in release of pensionary benefits to the family/ Next of Kin (NOK) in fatal accidents, implementation of remedial measures to avoid recurrence of accidents due to such causes and regularization of the losses as discussed in succeeding paragraphs.

II. DELAY IN PENSIONARY BENEFITS IN FATAL CASES

We observed (October 2013) that as against the timeline of 240 days in finalization of pensionary benefits in fatal accidents, as stated at Para 7.5, there were delays in release of pensionary benefits like special family pension, liberalized family pension, death-cum-retirement gratuity etc. to the dependents and NOK of the IAF personnel who had lost their lives in such accidents. Such delays ranged between 3 to 24 months as shown below:-

Total nos of fatal cases	No of cases where there was no delay in finalisation of pensionary benefits	No of cases where there was delay beyond prescribed period in finalisation of pensionary benefits to the NOK of deceased person.			
		Up to 3 months	3 to 6 months	6 to 12 months	12 to 24 months
27	5	3	4	11	3

The matter was taken up with the Ministry through a paragraph (June 2014) and in response Air HQ stated (August 2014) that to avoid any delay on part of the IAF, a new specially trained AAIB⁷⁴ (Aircraft accident Investigation Board) was constituted (May 2014) duly approved by Chief of Air Staff (CAS) for investigation and timely submission of CoI in all Cat-I accident cases and to avoid any delay in finalisation of CoI, Air Force Order (AFO) No. 34 issued in October 2006 was further refined/ streamlined and superseded by AFO No. 08 issued in May 2014. Air HQ also stated that delay in finalisation of pensionary benefits was due to various reasons like late receipt of papers/

⁷⁴ AAIB is a team at DAS which is deputed by Air HQ at the site of accident for an independent investigation (in addition to CoI) in all Cat I and some accidents of serious or peculiar nature and render a separate report to DG (I&S).

incomplete pension papers submitted by the NoK, delay in flying accident report and subsequent issue of causality report. Air HQ further stated that the timeframe for settlement of family pension in service death cases had been reduced (September 2013) by from 240 days to 180 days.

The fact remains that the reduced timeline for finalisation of family pension in service death cases was unlikely to provide any relief to the dependents and next of kin (NOK) of these personnel since IAF was not able to finalise the CoIs even after increase in timelines from four months to nine months. Further, delay in pensionary benefits due to late/incomplete receipt of papers from the NOK/dependents only brings in question the role of specially designated directorate for air veterans⁷⁵ at Air HQ. The fact also remains that these delays remained unnoticed and the Air Force Order (AFO) was revised (May 2014) by Air HQ only after being pointed out (October 2013) by Audit.

III. DELAY IN IMPLEMENTATION OF REMEDIAL MEASURES

The PAC (March 2002) had questioned the efficacy of preventive measures instituted by Ministry/IAF from time to time. In response MoD had stated that by and large the recommendations made by CoI are implemented. However, there were instances where specialist directorates feel that the particular recommendation made by CoI is not valid. In those cases specific recommendation is not implemented. Regarding monitoring mechanism Ministry had stated that follow up action on various recommendations accepted by Air HQ is to be taken by concerned specialist directorates. Prevention cell at Directorate of Flight Safety (now DAS) monitors the follow up action being taken by various agencies.

During the period 2010-13, 32 CoIs of flying accidents were finalised in which 218 remedial measures based on Chief of Air Staff remarks were issued by Air HQ for implementation by aircraft flying units to avoid recurrence of such accidents. We observed (October 2013) on scrutiny of the register of court of Inquiry that remedial measures were fully implemented only in 15 out of 32 CoIs upto October 2013. In respect of remaining 17 finalised CoIs, 45

⁷⁵ Directorate for air veterans is responsible for processing of cases for grant of pensionary benefits to widows/Next of Kin (NOK) of IAF personnel who die while in service.

remedial measures suggested in CAS remarks were not implemented. The non implemented remedial measures included measures like providing flight data recorder/cockpit voice recorder to MI-17 helicopter units, psychological study of aircrew involved in Cat-1 accidents, to procure load cells to accurately determine the centre of gravity (CG) of load on MI-26 helicopter, fitment of Solid State Flight Data Recorder (SSFDR) on Mig-27 by HAL, modification of flying helmets on a fast track basis as the existing helmets flew off during ejection by pilots, to introduce the mechanism of pilot induced oscillation (PIO) as part of ground training syllabus, etc., which had implications for flight safety. As regards monitoring mechanism we also noticed that no periodicity was laid down in AFO No. 34 issued in October 2006 although it provided that the concerned command and specialist directorate must keep the prevention cell at DAS informed about the follow up action.

In response to the paragraph, Air HQ stated (August 2014) that remedial measures which were under the direct control of Air HQ, were implemented immediately and the remedial measures which involved other agencies like HAL and OEM and required to be implemented in phased manner were regularly monitored by the concerned Directorate/Weapon Cells at Air HQ.

The reply is not acceptable as 24 (over 50 percent) out of pending remedial measures were those which were under direct control of Air HQ. Details of such cases are mentioned in Annexure IV. The fact remains that remedial measures in majority of the finalised CoIs have not been implemented which had implications for Aerospace Safety.

Thus, despite an assurance given by Ministry (2008) that inadequacy and shortcoming in the preventive measures were being constantly monitored to ensure an effective accident prevention programme, the remedial measure suggested in majority of the CoI finalised in the period covered in Audit review, were yet (August 2014) to be implemented. As regards timelines for informing DAS about follow up action taken, the same were laid down in AFO No. 08 issued in May 2014 wherein first feedback on action taken was to be reported to DAS within two months and subsequent feed backs are to be rendered on monthly basis till implementation of all remedial measures.

IV. DELAY IN REGULARISATION OF LOSSES

PAC while deploring inordinate delay in assessment and regularisation of losses pointed out in Audit Report of 1998, recommended that suitable steps be taken to complete assessment of losses and regularisation of pending cases expeditiously for the period 1991-2000. Ministry in ATN (September 2008) stated that all efforts were being made to settle the pending cases.

We noticed (October 2013) that Ministry had stipulated (October 2006) a timeline of 15 months for regularisation of loss from the date of constituting a CoI for flying accident cases. Keeping in view the inordinate delay in regularisation of losses at all levels, Air HQ had issued a Task Directive (November 2007) laying down the duties and responsibilities of various functionaries for timely regularisation of losses due to aircraft accidents and a time frame of 12 months. Task Directive (November 2007) also prescribed that the time limits for various activities be adhered to strictly. We observed (October 2013) from the data contained in the Annual Audit Certificate (AAC) for the year 2012-13 issued by Controller of Defence Accounts (Air Force) regarding details (June 2013) of losses awaiting regularisation from Ministry that 378 loss statements in respect of accidents/Incidents involving fighter, trainer, transport aircraft and helicopter were pending for regularisation as per Table given below:

Sl. No	Period of accidents / Incidents	Range	Total No. of loss cases	Amount of loss (₹ Crore)	Reason for pendency
1	1988-94	20 to 25 years	04	0.36	Due to non-receipt of regularisation sanction from CFA and pending audit report from Controller of Defence Accounts
2	1994-98	15 to 20 years	17	30.73	
3.	1998-2000	13 to 15 years	23	106.16	
3	2000-2003	10 to 13 years	71	328.77	
4	2003-2008	5 to 10 years	187	828.21	
5	2008 -2013	Below 5 years	76	126.91	
Total			378	1421.14	

It is evident from the Table above that as against the reduced timeline of 12 months (November 2007) even the timeline of 15 months prescribed (October

2006) by Ministry was not adhered to. This resulted in accumulation of large number of loss statements of aircraft accidents/Incidents and was indicative of an urgent need for strict monitoring at DAS. It is pertinent that out of 378 cases, 44 cases (12 *per cent*) amounting to ₹137.25 crore pending for regularisation pertain to period prior to March 2000.

The above observations were communicated to the Ministry through a paragraph (June 2014). While vetting the figures given in paragraph, Air HQ stated (August 2014) that the regularisation was pending for want of sanction from the CFA and Audit Report⁷⁶ on the loss statement from the Controller of Defence Accounts (CDA). Air HQ further stated that 73 cases amounting to ₹29 crore have been regularised and balance were yet to be regularised. These 73 cases included six cases prior to March 2000.

Thus, despite an assurance given (September 2008) by Ministry to PAC, regularisation sanction of CFA was still pending in respect of losses occurred during 1988-2000. Viewed against a timeline of 6 months (3 months for audit report by the CDA and 3 months for regularisation sanction by Ministry/Ministry of Defence (Finance) prescribed by Ministry in 2006, delay upto 25 years in regularisation of losses was unacceptable. Such delays were not only violative of the timelines prescribed by Ministry/Air HQ for regularisation of losses but strike off/write⁷⁷ off of these aircraft from IAF inventory remains held up for want of regularisation sanction.

CONCLUSION:

Audit Report of 1998 had highlighted the issues regarding high rate of aircraft accidents, lack of training and infrastructure, lack of flying experience and training equipment, technical defects attributed to deficient maintenance procedure and delay in finalization of investigation. In its Action Taken Note of September 2008 on the recommendation of the Public Account Committee, Ministry of Defence had assured about implementation of preventive

⁷⁶ Internal report given by CDA on loss statement raised by IAF.

⁷⁷ In case where the loss is not caused due to any willful negligence/default and no one is held to blame for the accident, the loss is to be regularised on 'Strike off' basis and in case where loss has occurred due to negligence/default and one or more individuals have been held to blame for the accident, the loss is required to be regularised on 'Write off' basis.

measures, enhancing quality of training by acquisition of advance jet trainer, simulators and other training aids and early regularization of losses. However, these issues continued to persist as Indian Air Force was unable to take concrete action in this regard even after five years of issue of ATN.

Indian Air Force lost 33 aircraft and 27 personnel (12 officers and 15 personnel below officers rank) during 2010-13. The *percentage* of accidents in fighter aircraft particularly in MiG variants increased during the period 2010-13 as compared to 1991-97 of the total accidents. Technical defects and human errors were the main causes of flying accidents. Accidents due to technical defects and human errors had increased from then 44 and 41 *per cent* (1991-97) to 49 and 51 *per cent* (2010-13) respectively. Damaged aircraft were not available for operations for a prolonged period due to delay in repair/recovery of aircraft.

Training of pilots was compromised as basic training of trainee pilots was conducted on ageing trainer aircraft meant for Intermediate training due to non-availability and delay in replacement of basic trainer aircraft. Intermediate training was/is being imparted on vintage trainer aircraft as their replacement is still uncertain. Indian Air Force continued to face disadvantage on account of use of ageing intermediate trainer aircraft. Advance training being imparted was sub-optimal due to non-availability of full complement of advance jet trainer and non-availability/un-serviceability of simulators.

Though there was no accident due to Bird Strike during the period of audit, however, the Incidents due to bird strike had increased. Avian radars and microlight meant for prevention of bird strikes was not made available due to delay in procurement. As a result, IAF had to continue with ineffective present system of avoiding bird strike.

Newly procured 44 helicopters for undertaking operations by night with greater safety and efficiency were inducted in Indian Air Force without adequate infrastructure. This coupled with delays in modernisation of airfield infrastructure (MAFI) at 29 Air Force Stations even after lapse of a decade have an aerospace safety risk for operations.

Delays in finalisation of CoIs ranging from one to more than 24 months had resulted in delays in grant of relief to the family/NOK of IAF personnel who had lost their lives in flying accidents and implementation of remedial measure to avoid recurrence of flying accidents. The delays had mainly occurred in according approval of concerned authorities at Air HQ. In many cases the CoI failed to conclusively establish the exact cause leading to accident. Timelines fixed by Ministry of Defence for regularisation of losses was not adhered to resulting in accumulation of large number of loss statements of aircraft accidents/Incidents.

RECOMMENDATIONS

1. Air Force needs to further improve the quality of training to minimise the accidents due to errors of skill and judgment. It should also frame a long term induction and de-induction plan for timely replacement of trainer aircraft and other Aerospace Safety facilities to mitigate the risks inherent to aerospace safety and trainee pilots.
2. Air Force needs to take timely action for creation of adequate infrastructure and induction of aircraft should be synchronized with creation of infrastructure for safe operation of aircraft. Modernisation of Air Force bases should be accorded priority to match with standard Air Force bases of developed countries.
3. Air Force should devise a control mechanism at each level to complete CoI within the prescribed time frame; and monitor implementation of remedial measures to avoid recurrence of accidents. Timeline for regularisation of losses due to flying accidents/Incidents should be strictly adhered to at all levels to avoid accumulation of loss statements of aircraft accidents/Incidents.

The matter was referred to the Ministry in June 2014, their reply was awaited (September 2014).

3.9 Storage of special equipment and weapons in IAF

3.9.1 Introduction

Indian Air Force (IAF) has a huge inventory of sophisticated equipment and weapons which include aircraft, helicopters, missiles and other related stores. With the induction of advanced aircraft such as SU-30 MKI, Advance Jet Trainer (AJT), upgraded MiG Bis and the future Medium Multi Role Combat Aircraft (MMRCA), more sophisticated air armament stores including rockets, bombs, missiles, etc., are required to be stored in high quality, dust free and a temperature controlled environment. Moreover, the life expired missiles need to be stored in suitable environment till their disposal to avoid environmental hazard. Thus, availability and maintenance of adequate and suitable storage space for these weapons and costly equipment is of utmost importance.

The entire inventory available in the IAF intended for use by various user formations / units is normally held at Equipment Depots (EDs), Air Stores Parks (ASP), Base Repair Depots (BRD) and Operational wings. The nature and scope of stores to be handled by various agencies are decided by Air Headquarters (Air HQ). The EDs and ASPs function under the direct functional and administrative control of HQ Maintenance Command (HQMC).

3.9.2 Audit Objectives

Audit was conducted with a view to assess whether

- Appropriate storage accommodation for all weapons and equipment at right time and place was available;
- The existing storage accommodation was maintained in storage worthy condition;
- Adequate measures are in place to address the safety issues concerning ammunition; and

- Action taken for proper storage and prompt disposal of life expired items;

3.9.3 Audit Criteria

Audit criteria used for benchmarking the audit findings were

- (i) Indian Air Publications 1501 and 1502
- (ii) Storage and Transport of Explosives Committee (STEC) instructions
- (iii) Centre for Fire, Explosives & Environment Safety (CFEES) instructions
- (iv) Air Force instructions
- (v) Original Equipment Manufacturer (OEM) instructions
- (vi) Contracts for storage accommodation, air conditioning and other storage facilities

3.9.4 Audit Scope and Methodology

A test check of the records for the period 2010-11 to 2012-13 was carried out at seven out of twelve EDs, three out of 12 BRDs, one out of three ASPs and five out of 45 Wings / Air Force Stations (AFS) during the period from August 2013 to December 2013. Selection of field units was done on the basis of their profile, strategic risks involved, nature of equipment/weapons being maintained there and operational requirements. Audit objectives, scope of audit and sources of audit criteria were discussed with the HQMC in an entry conference held on 28 August 2013.

The field audit was conducted during August to December 2013. Audit evidence was gathered through issue of questionnaire to the units audited, Audit queries etc., and from the records examined. Audit findings as discussed in the succeeding paragraphs are based on the analysis of records, data, information and replies furnished by the units audited to the questionnaire/audit memoranda issued to them. A Statement of Case was issued to Air HQ/Units/Commands concerned on 14 February 2014. Audit findings were discussed with the HQMC in the exit conference held on 30 May 2014. Reply/comments (May 2014) furnished by the concerned

Command HQrs/ units audited have been incorporated in the draft audit paragraph as appropriate.

The subject paragraph was issued (June 2014) to the Ministry. On the direction (August 2014) of Ministry of Defence (Finance /Budget) to submit the reply directly to Audit, Air HQ submitted the reply in September 2014.

3.9.5 Audit Findings

Audit findings are classified under the adequacy of storage accommodation, maintenance of storage accommodation, adequacy of safety measures taken and disposal of life expired armaments and are discussed below:

3.9.5.1 Lack of adequate storage accommodation due to delay in provisioning /approval/construction of work services

Indian Air Publication 1502 and STEC instructions stipulate various conditions for storage of equipment such as store house *i.e.*, building of permanent construction providing adequate cover and security, firm level flooring, spacious doorways, roof height, adequate lighting etc.

Audit observed (August-December 2013) that out of the 16 units selected for audit, six units had inadequate storage accommodation resulting in storage of costly aircraft spares, explosives, missiles, aero-engines in inappropriate accommodation/ temporary sheds/in the open posing hazard for their safety as discussed below:

- Equipment Depot (ED) 'A' of Indian Air Force is the mother depot equipped with storage facilities for different type of explosive stores. Majority of these stores are voluminous and heavy in nature and are received on a regular basis from Ordnance factories and abroad since its formation (1953). These stores are required to be kept inside the storage sheds (*i.e.*, Danger buildings). Ministry of Defence (Ministry) had accorded (March 2007) administrative approval (AA) for provision of five Air conditioned (AC) sheds at ED 'A' at an estimated cost of

₹20.49 crore for storage of missiles and other stores needing air conditioned storage environment. However, the work had not commenced till 2014 (even after a lapse of seven years) as “No Objection Certificate” (NOC) could be obtained by ED ‘A’ only in August-September 2009 from Forest Department and Government of Madhya Pradesh for cutting/removal of 1412 trees. The delay in commencement of work, had resulted in seeking revision (April 2013) of AA for ₹31.34 crore which was 53 *per cent* more than the original cost of ₹20.49 crore. In response to audit observation (June 2014), Air HQ in its reply (September 2014) while accepting the facts stated that the project was delayed due to long time taken in obtaining the NOC for tree cutting. Tree cutting procedure was likely to be complete by September 2014. Consequently, the work pertaining to AC sheds sanctioned in 2007 was yet to be completed even after a lapse of seven years resulting in storage of costly weapon stores being kept in temporary sheds which are not considered appropriate for their storage.

- The unit 26 Equipment Depot, AF, Bangalore is tasked with the responsibility of storing repairable aero-engines for their repair/overhaul at Hindustan Aeronautics Limited (HAL), Bangalore and subsequent despatch of aero-engines to the concerned units. These aero engines were stored in the sheds of HAL. However this facility was withdrawn (1991) by HAL which forced the Depot to keep the repairable engines in cases in the open space. Depot pursued the matter with HAL during the period between 1991 and 2003 for acquisition / transfer of land (1.88 acre) but the same had not fructified. Consequently, 26 ED approached (January 2003) HAL to transfer the land on lease basis for construction of storage accommodation. HAL agreed (March 2003) to transfer the land on a long term lease for 30 years at an annual rent of ₹3173. However, Ministry opined (October 2004) that the land had to be transferred free of cost as the transfer was intra-ministry for which HAL did not agree (April 2005). The land transfer issue was under correspondence amongst Ministry, Defence

Estate Officer (DEO), Bangalore, HQ MC, Air HQ and HAL for about six years between 2003 and 2009. Subsequently, HAL informed (2009) that the land measuring 1.88 acre was required by it for the expansion /creation of facility / infrastructure. Finally 26 ED proposed (April 2012) a work service costing ₹12.49 lakh [revised (July 2013) to ₹14.08 lakh] for constructing storage accommodation in the existing land at the depot itself.

In response to audit observation (June 2014), Air HQ in its reply (September 2014) while accepting the facts stated that the fund for provision of shed for storing aero-engine had been released (June 2014) and the work would commence shortly. It was also informed (September 2014) by Air HQ that presently the aero-engines were kept in the covered shelter at HAL Engine division as a goodwill gesture.

The fact remains that IAF remained dependent on HAL for the safety/storage of aero engines for the last 22 years and could not set up alternative storage accommodation during the period.

- The unit 43 ED AF located within AFS Hakimpet was facing acute shortage of storage accommodation for ideal storage of Kiran aircraft spares also in view of earmarking (March 2007) of the depot as Store Holding Depot (SHD) for Intermediate Jet Trainer (IJT) aircraft. A Board of Officers (April 2009) identified the site along with 62 trees for new infrastructure and recommended (February 2010) construction of permanent accommodation at a cost of ₹4.94 crore.

After a lapse of two years, Headquarters Training Command (HQTC) accorded (March 2012) an AA for provision of permanent accommodation for 43 ED at a cost of ₹4.93 crore. Audit however observed (October 2013) that Military Engineer Services (MES) authorities requested (May 2013) AFS, Hakimpet for an alternate site as the earmarked site was in low lying area and considered difficult for

carrying out construction. Hence, the tendering process was kept in abeyance till finalization (May 2013) of alternate site. AFS approached (July 2013) HQTC after four years with a proposal of alternate site without any financial implications. Presently, the vital aircraft stores were held in temporary accommodation at the depot. In response to audit observation (October 2013), the depot (43 ED AF) accepted the facts (October 2013) and stated that administration shared the error in due diligence process of selection of site along with MES. Further, Headquarters Maintenance Command (HQMC) stated (April 2014) that due to thick vegetation, bushes and jungle, MES authorities could not enter inside the proposed site for survey and oversight with regard to difficulty of the proposed site occurred.

Air HQ in its reply (September 2014) while accepting the facts stated that the work had commenced (April 2014) and would be completed by July 2015 and the entire store would be shifted to new accommodation thereafter.

The fact remains that despite recommendation of Board of Officers (April 2009) for construction of storage accommodation, the work sanction was accorded after a delay of two years and MES authorities, after a lapse of more than one year had requested for an alternate site and finally, the construction of storage accommodation was inordinately delayed for five years. Consequently, vital aircraft stores valuing ₹54.89 crore continued to be held in temporary accommodation.

- We observed (September 2013) that AFS, 'B' was authorized as per policy page to hold 10 days requirement of war wastage reserve (WWR) and AAT⁷⁸ storage of Net Explosive Quantity (NEQ) of 2.94 lakh Kgs against the existing storage capacity which was only 71,500 kgs. To overcome this shortage of space, a BOO assessed

⁷⁸ Annual Armament Training

(October 2010) the requirement for construction of new Weapon Storage Area (WSA) and recommended (October 2010) demolition of six temporary sheds and construction of eight igloos⁷⁹ and four new buildings to increase the storage capacity to 1.86 lakh Kgs of NEQ. However, after a lapse of two years, Ministry accorded (October 2012) sanction for provision of work services at a cost of ₹24.72 crore with a probable date of completion (PDC) of 106 weeks (*i.e.*, by October 2014). We further observed (September 2013) that though the work had been released (October 2012), the tendering process was in progress even after a lapse of more than one year, as the tender documents needed modifications to comply with the instructions of CFEES which was a mandatory requirement for all WSA works.

In addition, AFS 'B' projected (October 2010) the requirement of construction of 11 new danger buildings⁸⁰ in the newly acquired land measuring 40 acres to meet the authorized storage of WWR and AAT stores of the station as well as futuristic requirement arising out of new procurements. The subject work was held up for clearance of CFEES and the excess armament stores continued to be held in blast pens⁸¹ since October 2010.

In response to audit observation (June 2014) on non-obtaining of mandatory clearance from CFEES, Air HQ in its reply stated (September 2014) that the tender documents had to be modified to comply with the instruction of CFEES and the case was processed with Ministry for obtaining Financial Concurrence(FC) and observations of Ministry are still under progress. It was further stated that inflation was also one of reasons for receipt of higher quote than AA amount, and the fund has been released for the execution of the work in August 2014.

⁷⁹ Igloo is an above ground, earth covered magazine made of reinforced concrete or steel

⁸⁰ Buildings where explosives are stored

⁸¹ Blast pens are meant for storage of aircraft during Ops

The fact remains that without ensuring adequate storage, the storage authorization of NEQ was made four times the existing capacity. Moreover, due to delay in getting sanction from Ministry and construction of storage accommodation, the explosive stores were being temporarily held (October 2010) in blast pens, not conducive for their storage. AFS 'B' should have taken mandatory clearance from CFEES in time. Besides, due to inadequate planning, the works services projected in the year 2010 were still (September 2014) in tendering stage.

- We observed (October 2013) that AFS 'C' was authorised to hold NEQ of 90,200 Kgs, against which the unit was holding (November 2010) NEQ of 3.10 lakh Kgs in its WSA spread over two locations. The storage facility was inadequate for entire NEQ. Further, some of the excess stores were stored in non-standard accommodation while some stores were held in open. A BOO recommended (November 2010) work services for alteration and up-gradation of the non-standard accommodation to standard accommodation in accordance with CFEES norms. Accordingly, Headquarters South Western Air Command (HQ SWAC) accorded (January 2011) AA for addition/alteration to the existing WSA at AFS Bhuj at a cost of ₹3.16 crore. The work was completed (January 2013).

Besides, it was also informed (October 2013) by unit authorities that AFS 'C' had taken up (January 2012) the case for acquisition of 100 acres of land for additional over-ground storage accommodation in order to avoid improper storage of armament stores such as bombs stored in open area at the unit. To a specific audit query (July 2014), as to how the requirement of 100 acres of land was assessed, the AFS, Bhuj did not produce (August 2014) the relevant documents. Air HQ in its reply (September 2014) stated that AFS 'C' was pursuing the case vigorously for acquisition of land.

The fact remains that even though certain storage accommodation were made standard accommodation for the storage of excess store, increase of holding of excess NEQ before ensuring standard accommodation was not a prudent decision.

- The unit 45 ED AF, Agra is the mother depot for spares of IL-76/78 and Airborne Warning and Control System (AWACS) aircraft fleet and it has to keep a 20 *per cent* reserve of spares in stock. A BOO assembled (January 2012) for construction of Engine Bay at the depot for storage of IL engines as the stores (20 *per cent*) were housed in temporary building and aero engines were kept open in a Hangar since January 2010 recommended (January 2012) construction of the Engine Bay for 24 aero engines and Air HQ accorded (March 2013) AA at a cost of ₹5.75 crore with a PDC of 156 weeks from the date of release *i.e.*, by March 2016. We observed (June 2014) that pending completion of the work, eight engines valued ₹13.06 crore were being kept in the open area inside the depot.

In response to audit observation (June 2014) regarding keeping the engines in open area, Air HQ in its reply (September 2014) while accepting the facts stated that the engines are only to be stored in open when cased due to unavoidable local conditions. It further added that presently all engines were shifted to alternative location and covered with tarpaulin to avoid damage.

However as seen in Audit as per the BOO (May 2012) statement the engine cases lying in the open are likely to deteriorate due to extreme climatic conditions with temperature rising to 48 – 50⁰C during summer and dropping to 0⁰C in winters, which lead to damage/deterioration of engines placed inside the cases and thereby affecting their technical life.

Thus, in spite of existence of clear provisions/instructions for the proper storage of accommodation for the explosives/weapons, there was lack of

accommodation at the six test checked units out of 16 units resulting in costly weapon stores being kept in open space/blast pens exposing them to the vagaries of nature. The lack of proper storage accommodation would result in deterioration/damages of stores which may become unusable at the time of operational requirement jeopardizing the security of the nation.

3.9.6 Maintenance of storage accommodation

Indian Air Publication (IAP) 1502 envisages that equipment must be properly stored in the interest of economy and to ensure that equipment is fit for use at the time of requirement. IAP 1502 also encompasses ideal storehouse conditions, optimum atmosphere with reference to temperature and humidity, cleanliness, etc., and lays down the conditions for maintenance of stores of general purpose. Storage and Transport of Explosives Committee ⁸²(STEC) Pamphlet Nos. 3, 8 and 26 stipulate technical requirements for construction of buildings for military explosives, guidelines on air conditioning & humidity control in explosive areas and regulations for the storage of ammunition & explosives in the field respectively.

Audit observed (September 2013) storage deficiencies in two out of 16 selected units as discussed below:

- ED 'A' is the mother depot equipped with storage facilities for different type of explosive stores. Four sheds at depot (No.31, 72, 73 and 79) were of pre 1954 vintage and had developed multiple cracks on walls, pillars, roof, floor and platforms. Hence, a BOO recommended (November 2010) to undertake the work *i.e.*, the addition/altrnation of sheds on priority along with the specifications of STEC.

HQMC accorded (October 2011) AA for the work at a cost of ₹76.61 lakh with a PDC of 108 weeks (*i.e.*, by October 2013).

⁸² STEC is under Ministry of Defence (R&D) which issues various pamphlets prescribing the construction of buildings & traverses, air-conditioning etc., for military explosives / areas.

However the requirement of Reinforce Concrete Column (RCC) columns outside the shed and height of roof trusses were not included in the sanction. Due to which, the cost was revised (August 2012) to ₹1.73 crore based on the recommendation (June 2012) of MES authorities and PDC was extended up to August 2014.

In response to audit observation (February 2014) on delay in completion of the work services, HQMC stated (May 2014) that a separate design and structural engineering followed in this case contributed to the delay. The present progress of work was 40 per cent. Air HQ in its reply (September 2014) while accepting the facts stated that the timely detection of mistake by higher engineering authorities avoided loss to the state, which otherwise would have been incurred on construction of inappropriate sheds.

Consequently, the work initiated in 2010, had not been completed in its entirety (September 2014) in spite of a lapse of three years due to improper initial assessment of requirement of work services that led to a cost escalation of 126 per cent.

Pending completion of the work, though the stores shifted to other sheds had been covered with water proof tarpaulin/polythene sheets in order to safeguard from seepage/leakage, the fact remains that it was not appropriate for storage of explosives stores.

- Air conditioning plants of four sheds (No. 4, 6, 21 and 54) located at ED 'A' were of 1972 vintage and required replacement/proper controlled climatic conditions as per the OEM⁸³ specifications. Hence, a BOO assembled (November 2010) to assess the requirement of the work services. HQMC accorded (September 2011) AA for the work at a cost of ₹95.97 lakh with a PDC of 52 weeks (*i.e.*, September 2012) from the date of issue of AA.

In response to audit observation (June 2014) in regard to delay in replacement of AC plants, Air HQ in its reply while accepting the facts

⁸³ Original Equipment Manufacturer

stated (September 2014) that as per the recommendations of engineer authorities, the AC plants at sheds were kept serviceable with minimum essential repairs till suitable replacement to ensure that environment conditions remained within the prescribed limits. It was also stated that present progress of work in respect of replacement of AC plant was 45 per cent.

The fact remains that replacement of AC plants projected in November 2010 was yet (September 2014) to materialize even after a lapse of nearly four years, which necessitated shifting of stores to other AC sheds by the depot on this account.

- o 44 ED located at Air Force Academy (AFA) Dindigul had earlier (January 2007) catered for receipt, storage, maintenance, accounting, provisioning and issue of HPT-32 aircraft spares. The role of depot was revised (May 2013) to cater for receipt, storage, maintenance, provisioning, inspection, issue and accounting of entire range of Pilatus PC-7 Mk-II aircraft⁸⁴ and its associated equipment and spares.

Contract for Pilatus aircraft and its associated spares was concluded (May 2012) and the stores started arriving from November 2012. The representatives of the OEM visited the depot and recommended (May 2013) for storage of associated spares in an air conditioned room for optimal temperature control. The depot initiated four proposals for minor works to up-grade /modify storage accommodation viz. re-flooring in aero lube store (November 2012), air conditioning in aircraft battery store (March 2013), air conditioning in aircraft avionics/rotable store (June 2013) and special repairs to aircraft tyre stores (May 2013).

Audit observed (October 2013) that even though the contract for Pilatus was concluded (May 2012) and stores started arriving (November 2012), no simultaneous action was taken by IAF for providing air conditioned accommodation for these spares, instead action was initiated after a lapse of one year of the recommendation

⁸⁴ Pilatus PC-7 Mark II aircraft procured by IAF for imparting basic flying training to pilots

(May 2013) by the OEM representatives. HQMC stated (May 2014) that the stores were currently stored in HPT-32 store accommodation. Air HQ in its reply (September 2014) stated that all the four works were not completed yet.

Thus, in the absence of sufficient air conditioned accommodation, aircraft spares including costly and delicate avionics valuing ₹166.15 crore continued to be held in non-air-conditioned accommodation, in contravention of OEM recommendations.

Though IAF was aware of the importance of weapon storage facilities for different types of explosives store, the explosive store at mother depot were kept in non-standard sheds in dilapidated condition, further some explosive stores were held in non-air-conditioned sheds against OEM's recommendations. Besides, the works services for the storage of spares in respect of newly inducted aircraft were under taken only after their arrival. This is indicative of the fact that IAF had not given adequate importance towards maintenance of storage accommodation which is likely to cause deterioration in spares in the present situation.

3.9.7 Adequacy of safety measures

Explosives are chemical substances or combination of chemical substances, which by nature are liable to be ignited by a spark, friction or percussion. Once these are involved in a fire, they create sudden and intense pressure on its surroundings, usually characterized by the evolution of large quantity of heat, sound and flash. Consequently, any fire involving explosives/ammunition might lead to disastrous consequences as a result of mass fire/explosion unless dealt with speedily and effectively. STEC pamphlet No.6 and 15 stipulate the regulations/guidelines of fire protection and fighting fires in Government explosives establishments.

Audit observed (September 2013) that three out of 16 units reviewed, had inadequate fire fighting facilities, thereby exposing the stores/equipment and human life to any mishap/accident as discussed below:

- Air Stores Park (ASP) 'D' is an ammunition depot and is responsible for storage and maintenance of explosive stores. As per Defence Act 1903 (Section 3 and 7), no building shall be constructed within the limits of 900 meters from the crest of the outer parapet of IAF Stations and installation. The Government of India, Gazette notification (December 1962) imposes restriction on usage of land lying within 1000 yards.

We observed (September 2013) that contrary to this provision; ASP is located in a densely populated area surrounded by posh colonies, restaurants and marriage halls. Though, civil administration issued (2007 and 2009) notices to stop all the constructions within 900 meters from the boundary wall of ASP 'D' constructions were still mushrooming there.

In response to audit Observation (September 2013), ASP informed (October 2013) that though the matter regarding shifting of the depot was examined by Ministry and considered (October 2003) not feasible, the issue was again taken up by the depot with civil authorities by arranging regular meetings and the case was moved for shifting the depot owing to the mushrooming population, which was under examination by Ministry.

Fact remains that the depot continues to operate from a densely populated area, with the associated risk of potential disaster in case of any incident of fire/explosion.

We further observed (September 2013) following deficiency in regard to fire fighting measures at the ASP 'D':

- Against the authorized establishment (2012-13) of 64 civilian fire crew, only 42 civilian were positioned, leaving a deficiency of 22 fire crew since 2010-2011. Also, only five fire engine drivers were available against an authorization of 10 fire engine drivers.
- ASP was authorized (2010-11 to 2012-13) for five large trucks for fire fighting and one trailer fire pump. However, there was a deficiency of

one major fire fighting appliance Truck Fire Fighting Large (TFFL) and one trailer fire pump since 2010-11.

- No fire alarm system/fire detection system was provided in the storage accommodation of explosives to prevent any loss from fire in case of any mishap. The proposal (June 2013) for provision of fire alarm system and water hydrant was still under process.

In response to audit observation (September 2013) on deficiency of both fire crew and equipment, the ASP stated (October 2013) that 15 air warriors were posted (2010-11 to 2012-13) for fire fighting to make good the shortage of fire fighting staff with a deficiency of seven civilian fire crew.

Air HQ in its reply (September 2014) while accepting the facts stated that CFEES had not considered fire hydrant system as a reliable source and recommended that automatic fire detection-cum-alarm system were not required to be installed in explosive storage buildings as per STEC regulations. In regard to deficiency of fire crew, it stated that deficiencies were being made good through extra duties by available fire crew till posts were filled up permanently after release of vacancies by Ministry/Air HQ.

However, the fact remains that STEC regulations indicate provision of general fire alarm system which was not catered in the storage buildings. Besides, deficiency of fire crew (September 2014) and equipment has rendered the ASP vulnerable to fire hazards/mishaps.

- ED 'A' is the mother depot equipped with storage facilities for different types of explosive stores. Audit observed (September 2013) deficiency of fire fighting equipment such as fire buckets and fire beaters in respect of all the storage sheds.

In response to audit observation (September 2013), the depot stated (September 2013) that purchase orders had been raised (April to July 2013) to make good these deficiencies.

Fact remains that the depot had continued to function without a fire fighting equipment (September 2013) making it vulnerable to fire hazards.

- 11 BRD, AF is a premier BRD of the IAF tasked with Medium/Capital Repair of MiG 29 and Medium Repair of MiG 23 UB aircraft. Audit observed (September 2013) that there were acute deficiencies in holding of firefighting equipment such as fire extinguishers, fire buckets and fire beaters. On being pointed out in Audit (September 2013), the depot stated (September 2013) that action had been initiated to procure the deficient items and its materialization was at various stages of procurement.

In response to audit observation (June 2014) in respect of ED 'A' and 11 BRD, Air HQ in its reply (September 2014) while accepting the facts stated that the deficient fire fighting equipment are made good through procurement and further stated that it was always ensured to position adequate number of Minor fire fighting appliance at all critical areas, and the fire fighting infrastructure was geared up to handle any eventuality.

Fact remains that, the depot had been functioning without fire fighting equipment, that too with time-gap arrangement making it vulnerable to fire hazards and the depot had initiated procurement action for standard fire fighting equipment only after being pointed out in Audit.

Thus, in contravention of the orders promulgated by the Government of India, one ammunition depot continues to exist in densely populated location with the associated risk of potential disaster in case of fire explosion. Also, there was lack of manpower/ vehicles/ fire alarm system etc., in the depot. There was lack of fire fighting equipment in another depot. These indicate that no firm action has been put in place by Air HQ for safety measures in these weapon depots thereby compromising the safety of these explosives, thus neglecting adverse consequences.

3.9.8 Disposal of Life Expired armaments

STEC Pamphlet No.18 lays down the guidelines for disposal of waste explosives and ammunition by burning/demolition. Audit observed (September 2013) that in two units out of 16 units reviewed, there were delays in timely disposal of life expired armament/ammunition which could lead to any mishap/accident as discussed below:

- Armament/ammunition stores which are declared surplus to IAF requirement with no alternative use are disposed-of by ED 'A' through suitable methods viz. by detonation, burning, cooking off⁸⁵, breaking down and conversion/mutilation⁸⁶. In respect of the stores disposed-of at the demolition ground, right of collection of metal scrap is auctioned through M/s MSTC⁸⁷ Limited and a contract is awarded annually to the successful bidder. Air HQ assigns the annual task to the depot for the disposal of life expired arms and ammunition.

Audit observed (September 2013) that demolition task undertaken by the depot had been restricted only to the extent of the contractual obligation with the scrap contractor. Consequently, the depot had not been achieving the demolition task assigned by the Air HQ and the depot continued to accumulate large quantities of life expired armament such as R-73 missiles, rockets, detonator etc., which had fallen due for demolition/disposal.

In response to audit observation (June 2014), Air HQ in its reply (September 2014) while accepting the facts stated that at times demolition task at the depot was restricted only to the extent of scrap to be generated in order, not to exceed the contractual obligation with scrap contractor and further indicated that the anomaly pointed out by Audit had been addressed in the draft contract for the year 2014-15 and on its approval there would be no restriction for the scrap generation.

⁸⁵ Method of disposal of SAA in the incinerator

⁸⁶ Conversion- to convert any life expired armament either into scrap by breaking down or by mutilation. Mutilation- reshaping of life expired non-explosive armament by means of hammering / cutting.

⁸⁷ MSTC Limited, is a PSU earlier known as Metal Scrap Trade Corporation Limited

The fact remains that in spite of clear stipulation of guidelines, the depot was carrying out the demolition task to generate the scrap only for meeting the contract obligation in spite of accumulation of large quantities of life expired armaments.

- Audit observed (September 2013) that ASP 'D' was holding life expired armament/explosive stores occupying a total floor area of 361.19 sq metre. Thus accumulation could result in critical shortage of storage space. In response to audit observation (September 2013), ASP stated (October 2013) that reasons for delay in disposal of life expired stores was due to non-availability of demolition range and non-conducive weather condition for demolition.

Air HQ while accepting the facts (September 2014) stated that the life expired stores are unfit for intended use but are not unsafe and do not pose any additional threat or storage deficiency.

The fact remains that non-compliance of the instructions/guidelines prescribed for disposal of life expired ammunition is a potential hazard to the unit as well as to the densely populated area around the unit.

There was a delay in disposal of life expired store in one unit due to absence of demolition range. Another depot was carrying out the demolition task to generate the scrap only for meeting the contract obligation in spite of accumulation of large quantities of life expired armaments. These indicate improper assessment/action on the part of concerned authorities besides delay in timely disposal of life expired ammunitions.

3.9.9 Conclusion

Due to inadequate storage and delay in creation of additional storage accommodation for special equipment such as weapons, the critical stores are being held in inappropriate storage/open/other sheds which not only resulted in congestion in the sheds but also made the material handling difficult. In respect of stores which require air conditioned storage accommodation, the

delay/non-provision of storage accommodation had led to air armament stores being kept in sub-standard accommodation which could result in deterioration of their quality. Priority was not given to works for repairing the seepage/leakage of the storage sheds leading to shifting of stores to other sheds.

Deficiencies of fire fighting equipment and shortage of crew continued due to delay in their provisioning making the units vulnerable to fire hazards.

3.9.10 Recommendations:

1. EDs should hold only authorized weapon stores till the completion of adequate and appropriate accommodation in order to avoid exposure of excess stores in the open space/inappropriate storage leading to their deterioration.
2. Weapon stores are required to be provided with suitable safety measures prescribed by the manufacturers and as per STEC regulations issued from time to time.
3. Priority should be given to creation of adequate and appropriate storage area so as to coincide with receipt of store materials at the time of new aircraft inductions.
4. Action is required to be taken to ensure that the weapon storage depots located in the residential area are shifted to other places in the larger interest of safety of local civil population. Adherence to the Defence Act stipulation that no construction should be within 900 meters from the outer parapet of IAF station should be ensured.
5. Life expired armament stores are required to be disposed-of within the prescribed time limits.
6. Suitable fire fighting systems should be installed in the depots as specified in the STEC guidelines.

The matter was referred to the Ministry in June 2014; their reply was awaited (September 2014).

Works Services

3.10 Excess provision of Married Accommodation

Excess Provision of Married Accommodation for Non-Combatants Enrolled resulted in extra expenditure of ₹0.72 crore.

Scales of Accommodation for the Defence Services, 2009 authorised 100 *per cent* accommodation for the Non-Combatants Enrolled [NCs (E)]. However, the 100 *per cent* authorisation was reduced (April 2011) to 75 *per cent* by the Government of India (GoI). An instance of violation of the authorisation resulting in avoidable expenditure to the tune of ₹0.72 crore was noticed (July 2012) in Audit as discussed below:

A Board of Officers (Board) had assembled (October 2011) at Air Force Station (AFS), Jamnagar to assess the requirement of married accommodation for Defence Security Corps (DSC) and Non Combatants(Enrolled) [NCs (E)]. The scope of proposal (January 2012) *inter-alia* included Married Accommodation for 37 NCs(E) of Wireless Experimental Unit (WEU) at Khambaliya, a lodger unit of AFS, Jamnagar and 29 for DSC personnel. Based on the recommendations (January 2012) of the Board, Air HQ accorded (March 2012) a sanction for construction of 66 Dwelling Units (DUs) at a cost of ₹11.94 Crore. Accordingly, the Chief Engineer, Air Force [CE (AF)], Gandhinagar concluded (April 2013) a contract for ₹10.21 crore.

Audit scrutiny (September 2013) revealed that WEU, Khambaliya had authorisation of only 37 NCs(E). Taking into account 75 *per cent* authorisation, the construction of DUs should have been restricted to 28 DUs. Thus by providing 9 DUs in excess of the authorisation, Indian Air Force (IAF) had to incur an additional expenditure of ₹0.72 crore.

On the matter being pointed out in Audit (March 2014), Headquarters South Western Air Command (HQ SWAC) accepting the facts stated (April 2014) that the authorisation of 100 *per cent* Married accommodation was taken erroneously by the Board and there had been failure to notice the error at all levels at Air Force station and by Military Engineer Services (MES) authorities. It further added (July 2014) that to avoid such recurrence in future, policy letters have been circulated for compliance.

In response to the paragraph issued in May 2014, Air HQ on the direction (August 2014) of Ministry of Defence (Finance/Budget) while accepting the facts stated (August 2014) that the non reference of GoI's order which reduced scale to 75 *per cent* of establishment, by the BOO was an act of omission.

Thus, on account of excess provision of married accommodation for NCs(E), the Indian Air Force (IAF) had to incur an avoidable expenditure of ₹0.72 crore.

The matter was referred to the Ministry in May 2014; their reply was awaited (September 2014).

Miscellaneous

3.11 Avoidable expenditure on maintenance of simulators

Injudicious decision to continue with Annual Maintenance Contract despite grounding of HPT-32 fleet, Indian Air Force incurred an avoidable expenditure of ₹0.92 crore.

Ministry of Defence (Ministry) concluded (March 2004) a contract with M/s TSL Technologies Pvt. Ltd., New Delhi (OEM⁸⁸) for procurement of 18 simulators⁸⁹ at a cost of ₹7.5 crore. These simulators were installed and commissioned (February 2009) at four Air Force Stations⁹⁰ and were under warranty up to 12 December 2011. Out of 18, ten simulators were procured for

⁸⁸ Original Equipment Manufacturer

⁸⁹ Cockpit Procedure Trainers (CPTs) and Practice Procedure Platforms (PPPs)

⁹⁰ 406 AFS Bidar, 408 AFA Hakimpet, 413 AFS Tambaram and 409 AFS (AF Academy)

HPT-32 aircraft and eight for Kiran aircraft⁹¹ for imparting basic flying training to pilots.

On completion of warranty, the simulators were required to be maintained through Annual Maintenance Contract (AMC). For maintenance of all simulators, Ministry concluded (December 2011) a contract with M/s DEFSYS Solutions Pvt. Ltd., Bangalore⁹² for a period of three years at a total cost of ₹1.60 crore (exclusive of duties and taxes) and payment was to be made in 12 equal instalments (*i.e.* ₹13.33 lakh) on quarterly intervals commencing from April 2012 onwards. There was a provision (clause 13) in the contract for change/modification after conclusion of the contract.

Audit observed (July 2013) that there was a fatal accident (July 2009) involving HPT-32 aircraft and there were 189 incidents/accidents on HPT-32 aircraft upto July 2009 caused by engine cut⁹³. To undertake an in-depth analysis of maintainability and reliability of HPT-32 aircraft and its engine, a High Power Study Team (HPST) was constituted (July 2009) by Air HQ and M/s. HAL (Transport Aircraft Division) was also tasked to undertake technical investigation to find out the cause of failure and suggest remedial measure etc. In the meantime, IAF decided (August 2009) to discontinue the flying of HPT-32 fleet till the finalization of HPST report. The HPST in its report recommended (December 2009) that HPT-32 aircraft was designed and developed in the early 1980s and it did not meet present day standards. The technical investigation carried out by HAL was inconclusive in its findings. Hence, IAF took a final decision (June 2012) for closure of recovery of HPT-32 fleet (grounding of fleet).

However, Audit observed that despite grounding of HPT-32 aircraft from June 2012, IAF continued to pay equated quarterly instalment for maintenance of 10 simulators of HPT-32 aircraft even though there was a provision in the maintenance contract (December 2011) for change/modification after conclusion of the contract. Eight instalments amounting to ₹1.17 crore⁹⁴ had been paid as of April 2014⁹⁵ on account of maintenance to

⁹¹ HPT-32 and Kiran aircraft = These aircraft are being utilized for imparting basic and Stage II training to pilots respectively.

⁹² Designated firm by the OEM

⁹³ While flying in the air, engine abruptly stopped working

⁹⁴ Inclusive of taxes and duties and deduction of LD amounting to ₹2.40 lakh.

Out of total payment of ₹1.17 crore, ₹65 lakh paid on account of maintenance of HPT-21 aircraft and ₹52 lakh paid on account of maintenance of Kiran aircraft

⁹⁵ Position updated as per information furnished by Air HQ in September 2014

the firm. Had IAF shown due diligence and exercised amendment clause provided in the contract after grounding of HPT-32 fleet in June 2012, expenditure incurred/likely to be paid from June 2012 onwards amounting to ₹0.92 crore to the firm could have been avoided.

In response to the paragraph issued in May 2014, Air HQ on the direction (August 2014) of Ministry of Defence (Finance/Budget) accepting the facts stated (August 2014) that HPT-32 simulator had been shifted by Headquarter Training Command (HQ TC) to three training establishment⁹⁶ to impart training between August 2012 and July 2013. Therefore, no need was felt to invoke the amendment clause.

The reply is not acceptable as scrutiny of documents (July 2013) relating to finalization of maintenance contract revealed that HQ TC had informed Air HQ (December 2010) that these HPT-32 simulators would be put to use on revival of HPT-32 aircraft fleet. Fact remains that Air HQ came to know about the grounding of HPT-32 aircraft within six months (June 2012) of conclusion (December 2011) of AMC and could have exercised the change/modification clause of AMC to avoid expenditure of ₹0.92 crore likely to be paid to firm from June 2012 onwards. Besides, shifting of simulators to these training establishment would not serve any purpose as two⁹⁷ out of three establishments did not impart flying training and the third unit (National Defence Academy) was to impart only theoretical training to cadets in flying and aviation subjects as per policy page.

The matter was referred to Ministry in May 2014; their reply was awaited (September 2014).

3.12 Recovery at the instance of Audit

An amount of ₹1.43 crore was recovered at the instance of Audit.

Ministry of Defence (Ministry) decided (May 1976) to deposit 25 per cent of the revenue earned from cultivation of land held by Army, Air Force (AF) and

⁹⁶ Three training establishment = Electronic and Instrument Training Institute (E&ITI) -, Bangalore - two simulators, Mechanical Transport Institute(MTI), Tambaram - two simulators and NDA(AF Training Team), Kharagwasla (Pune)- six simulators.

⁹⁷ Electronic and Instrument Training Institute (E&ITI)-, Bangalore and Mechanical Transport Institute(MTI), Tambaram

Navy into public fund and rest 75 *per cent* into non-public fund⁹⁸. These orders were superseded (December 1995) by MoD which stipulated that all revenues realized from the land placed under the management of Army, Navy and AF were to be deposited into Government Treasury so as to form part of the Consolidated Fund of India.

It was noticed in Audit (May 1999) that these orders were not being complied with by Indian Air Force (IAF). The issue regarding non-compliance of orders (December 1995) had been taken in the Local Test Audit Report for the year 1999-2000 (July 1999). Air HQ took up (January 2000) the matter with Ministry for revoking its orders (December 1995) and for restoration of status quo ante existed prior to December 1995 but continued to deposit the 100 *per cent* revenue realised from the cultivation of land into non-public fund upto December 2000. Thereafter, the IAF stopped cultivation on Defence land (January 2001). The proposal (January 2000) of IAF was turned down by the Ministry in May 2002.

Audit pursued the matter from time to time. Due to non compliance of orders upto 2007, Audit raised the issue again in March 2008. However, Air HQ again referred (2008) the case to the Ministry for regularization of the revenues deposited into non-public fund. The Ministry declined (December 2008) the regularization and stated that Air HQ had no mandate to deposit the receipt in non-public fund. In May 2010, Air HQ again re-submitted the case for reconsideration. The Ministry reiterated (June 2010) its earlier stand. In September 2013, IAF recovered an amount of ₹1.43 crore from all affected units and deposited the same into the Government Treasury.

Thus, due to vigorous pursuance of the matter by Audit since 1999, an amount of ₹1.43 crore was recovered.

In response to the paragraph issued in April 2014, Ministry in its reply (July 2014) accepted the facts.

⁹⁸ Non-public fund is a fund other than the public fund and is used by AF units for the welfare of its personnel.

CHAPTER IV: NAVY

4.1 Functioning of Weapon Equipment Depots and the Directorate of Weapon equipment

More than 93 and 83 *per cent* of Annual Review of Demands (ARD) – a measure of forward planning and replenishment of weapon equipment spares – were delayed by Weapon Equipment Depots (WEDs) at Mumbai and Visakhapatnam respectively. Of these, more than half of the ARDs witnessed delay in excess of three months. Despite the delay, the ARDs contained errors such as non-adherence to calendar year and non-consideration of available stock. The contracts emanating from the reviews for the weapon spares at Integrated Headquarters of Ministry of Defence (Navy) [IHQ MoD (Navy)] level were not concluded within the stipulated timeframe. IHQ MoD (Navy) also delayed raising of indents in 79 *per cent* of the cases. With delays at every stage, as of October 2013, contracts could be concluded for only 26 *per cent* of the items, need for which was projected in year 2009. There was absence of clear directive by IHQ MoD (Navy) regarding methodology for computing compliance to demands raised, leading to inability to properly assess the performance of WEDs.

4.1.1 Background & Introduction

Weapon Equipment systems on a ship are electrical, electronic, hydraulic, and mechanical equipments associated with gunnery, missiles and anti submarine warfare and consist of gun mounting and missile launchers, fire control sensors, missile tracking radars /computers, torpedo, rocket launchers, and weapon inter-lock system etc.

In order to ensure timely and reliable Weapon Logistics support to Indian Naval Ships, Submarines, Dockyards, Repair Yards, Missile Technical Positions and the Training Establishments; Weapon Equipment Depots (WEDs) have been established at Mumbai, Visakhapatnam, Kochi and Karwar. WEDs are headed by an Officer-in-Charge (at the level of Captain at Mumbai and Commander at Visakhapatnam) and are responsible to their respective Admiral Superintendents, Naval Dockyards. The Directorate of Weapon Equipment (DWE) at IHQ MoD (Navy) is the controlling directorate of the WEDs.

4.1.2 Functions

The main functions of WEDs are:

- 1) To undertake the Annual Review of weapon spares and stores.
- 2) To arrange for repairs of all weapon spares held in repairable stock through Dockyards, Trade or the Original Equipment Manufacturer (OEM), within the delegated financial powers or by obtaining sanction of Competent Financial Authority (CFA) if repair cost exceeded the delegation available.
- 3) To issue weapon equipment stores to Ships, Submarines, Missile Technical Positions, Dockyards, *i.e.* meeting the demands raised by ships and establishments.
- 4) Procurement of weapon spares under delegated financial powers.

4.1.3 Scope of Audit

We conducted an audit of WEDs at Mumbai and Visakhapatnam, since the two depots are the stocking depots for most of the weapon equipment spares in the Navy, and to seek an assurance that WEDs were preparing ARDs as per the extant regulations, timely. We also assessed the timeliness in procurements emanating from the ARDs. We also sought to assess the compliance to demands raised on the WEDs for supply of spares of weapons equipments.

The role of DWE at IHQ MoD (Navy) in relation to processing of ARDs and procurements emanating from such ARDs was also assessed by us. We conducted the audit by visiting the WEDs and DWE during July to November 2013 and during April to May 2014, by issuing questionnaires, preliminary audit

memos and observations. Interactions were also held with the Naval Officers at WED (MB) and (V) as well as DWE, to understand the issues better.

The functions of WEDs with regard to ARDs for the cycle 2009-2011 have been covered in the present audit. However compliance to demands for weapon equipment spares for the years 2010-13 have been scrutinised since compliance follows ARD.

Replies to the audit questionnaire etc. have been suitably incorporated wherever received. The Draft Audit Paragraph was issued (June 2014) to the Ministry; their reply was awaited (September 2014). However, reply of IHQ MoD (Navy) was received in August 2014 and has been suitably incorporated.

An Exit Conference was also held with the concerned Navy officers, on 11 July 2014, wherein the Audit findings were discussed. We wish to thank the Navy for assistance rendered during the course of audit

4.1.4 Audit Objectives

The main audit objectives in this audit were to ascertain :

- a. Whether Annual Review of Demands (ARDs) and the procurement of weapon spares against ARDs were being timely undertaken and in accordance with IHQ MoD (Navy) guidelines.
- b. Whether Liquidation of Repairable Inventory at the WEDs has been timely.
- c. Whether Compliance to the demands raised for spares at WEDs has been satisfactory.

4.1.5 Sources of Audit Criteria

The major sources of audit criteria were:

1. Standing Orders of Weapon Equipment Depots
2. Naval Instructions 2006
3. Defence Procurement Manual 2009
4. Navy Order on Organization of WEDs (2010).

5. Navy Order on Stocking of Weapon Spares by WEDs (2010).
6. IHQ MoD (Navy) letter No WM/0468/Policy dated 07 July 2008 and 04 July 2011.
7. Schedule of Annual Review of Demands (ARDs) – 2010 and 2011.

Audit findings are discussed in succeeding Paragraphs:

4.1.6 Whether Annual Review of Demands (ARDs) and the procurement of weapon spares against ARDs were being timely undertaken and in accordance with IHQ MoD (Navy) guidelines?

4.1.6.1 Annual Review of Demands – An introduction

ARDs is the standard method for procuring weapon spares by means of forward planning and replenishment. Every item of inventory is to be reviewed by WEDs for ARD. ARDs is an important activity of the WEDs and requires due meticulousness for ensuring that weapon spares are adequately stocked in the WEDs, so that demands for the spares from the ships and establishment are complied with.

As per IHQ, MoD (Navy) guidelines (July 2008 and July 2011), Procurement Quantity (PQ) is the quantity of item / spares to be procured for maintaining stock for meeting the demands raised by the ships / establishments, arrived at by the WED as part of ARD exercise. For ARD 2009 and 2010, the formula stipulated for working out PQ was:

$$PQ = MSL + \text{Dues out} - \text{Total Stock (Stock} + \text{Dues In)}$$
 where MSL was three years consumption plus Dues-Out

The definitions of MSL, Dues Out and Dues In are given in the box below:

“MSL” is Minimum Stock Level which is a minimum stock stipulated for an item to be maintained by the WED.

“Dues Out” is the quantity of an item for which a demand is outstanding, and is yet to be supplied.

“Dues In” is the quantity of an item for which an indent or a contract has been raised or concluded.

In year 2011, the formula for working out the PQ was revised (July) by IHQ MoD (Navy) as under:

$PQ = (X.ACL + \text{Due Out} + \text{MSL}) - (\text{Stock} + \text{Dues in})$, where ACL would be three years average consumption.

The PQ factor (X) would be three for imported equipment and two for indigenous equipment

The procedure for ARDs is as follows:

ARDs are prepared equipment wise for a calendar year *i.e.* from 01 January to 31 December of that year and forwarded to IHQ MoD (Navy). Further, upon receipt of the ARDs, at IHQ MoD (Navy) after vetting by the local Internal Financial Advisers (IFA), the same are scrutinised keeping in view the items susceptible to local purchase *i.e.* available indigenously. For items susceptible to local purchase, indent is raised by the IHQ MoD (Navy) on the WED for procurement under delegated financial powers. IHQ MoD (Navy) has constituted Weapon Procurement Committee-3 (WPC-3) to undertake procurements against Indents raised by IHQ MoD (Navy)/DWE. Balance of the items are progressed for procurement at DWE, IHQ MoD (Navy) with the concurrence of Principal IFA (Navy) or at Ministry, if the estimated cost is beyond the delegated financial powers of IHQ MoD (Navy). The estimated cost is worked out based on Last Purchase Price (LPP), Professional Officer's Valuation (POV) and Budgetary Quotations (BQ). As and when the contract is concluded at IHQ MoD (Navy) for the ARD items, concerned WEDs are informed by a copy of the contract forwarded to them. The items which have been contracted are considered as “Dues In” by the WEDs while preparing the next cycle ARDs and those items which could not be contracted are included in the forthcoming ARDs by WEDs, if the

requirement has not already been met locally through indigenous repairs of defective modules/reverse engineering.

4.1.6.2 Quantum of Annual Review of Demands

Details of ARDs forwarded to IHQ MoD (Navy), for 2009, 2010 and 2011, as ascertained from WED (MB) and WED (V), are summarised below :

Table A

ARD cycle	WED (MB)		WED (V)	
	Total No of ARDs	Total items projected	Total No of ARDs	Total items projected
2009	84	2376	61	2613
2010	94	4308	66	2523
2011	85	1307	63	1862
Total	263	7991	190	6998
Total No. of ARDs forwarded 263+190 =453 containing 7991+6998=14,989 items				

During the course of our scrutiny inefficiencies found in the preparation of ARDs are discussed in paragraph numbers 4.1. 6.3 to 4.1.6 8:

4.1.6.3 Non-adherence to promulgated dates of submission of ARDs to IHQ MoD (Navy)

Annual schedule for preparation of ARDs is to be followed as promulgated by DWE, IHQ MoD (Navy) from time to time.

DWE, IHQ MoD (Navy) did not stipulate any timeframe for submission of ARDs by the WEDs for the year 2009. However WED (MB), set for itself dates of promulgation of ARDs for that year, whereas WED (V) did not set any dates for itself for forwarding the ARDs to IHQ MoD (Navy) for the year 2009. Time

schedule of ARDs 2010 and 2011 were promulgated (January 2011 and January 2012) by DWE, IHQ MoD (Navy).

We compared (August, September and October 2013) promulgated dates of submission with actual dates of submission of ARDs and found that most of the ARDs were dispatched by WEDs with delays, as brought out in the Table below:

Table B

ARD cycle	WED (MB)		WED (V)	
	Total number of ARDs sent	No of ARDs delayed	Total number of ARDs sent	No of ARDs delayed
2009	84	73	61	*
2010	94	88	66	66
2011	85	85	63	42
Total	263	246	190	108

**WED (V) did not promulgate the dates of submission of ARDs for 2009.*

The above table showed that out of 263 ARDs at WED (MB) for 2009, 2010 and 2011, 246 ARDs were forwarded to DWE, IHQ MoD (Navy) after the due dates. Thus, most of the ARDs *i.e.* 93.54 per cent, witnessed a delay.

Similar scrutiny of 129 ARDs at WED (V) for 2010 and 2011 showed that 108 ARDs were forwarded belatedly. This represented 83.72 per cent of the ARDs.

We further analysed (September, October 2013) the extent of delay *i.e.* the quantum of delay in forwarding the ARDs to the IHQ MoD (Navy). The results of the delays are tabulated below:

Table C
Magnitude of delay in forwarding ARDs to IHQ MoD (Navy)

Year	WED (MB)				WED (V)			
	ARD sent on time	Delay upto 100 days	Delay between 100 – 200 days	Delay above 200 days	ARD sent on time	Delay upto 100 days	Delay between 100 – 200 days	Delay above 200 days
2009	11	17	43	13	*	*	*	*
2010	6	56	15	17	-	27	39	Nil
2011	Nil	28	49	8	21	-	Nil	42
Total	17	101	107	38	21	27	39	42

**WED (V) did not promulgate the dates of submission of ARDs for 2009.*

As brought out above, the percentage of ARDs delayed by more than 3 months (for the years 2009 to 2011) to total ARDs, at WED(MB) and WED(V) works out to 55.13 per cent and 62.79 per cent respectively.

Since the starting point itself, *i.e.* preparation and submission of ARDs was substantially delayed, all sequential processes suffered a handicap of cascading delays.

We sought (November 2013) DWE, IHQ MoD (Navy) comments on non-adherence to the promulgated timelines for preparation of ARDs. In reply, DWE, IHQ MoD (Navy) stated (December 2013), that though it had been promulgating annual schedule for preparation of ARDs in consultation with WEDs, the need for timeliness would be re-emphasised, through guidelines and by conducting ARD workshops.

The reply is virtually an admission that IHQ MoD (Navy) had not been able to enforce compliance to its promulgated timelines for submission of ARDs.

In their subsequent reply (August 2014) IHQ MoD (Navy) changed their stand and stated that WEDs were permitted to sequence ARD preparation. However, IHQ MoD(N) accepted the quantum of delays and attributed the reasons to increased inventory, manpower constraints, manual system of preparation of ARDs and time taken by the local IFAs in vetting the ARDs. They also added that (August 2014) that the schedule was promulgated to accomplish the Annual Review of Demands in one calendar year, despite being fully aware that it may not be possible to achieve the same, given the available resources.

The reply of IHQ MoD (Navy) was not acceptable. The contention of IHQ MoD(Navy) regarding sequencing of ARD preparation by WEDs was factually incorrect, as the Schedule of ARDs for 2010 and 2011 was promulgated by IHQ MoD(Navy), clearly urging the depots to forward the ARDs well in time so as to reach by the scheduled date. While manpower and increased inventory may have acted as a constraint in timely submission of ARDs, the schedule of preparation of ARDs promulgated by IHQ would have obviously taken into consideration the prevailing constraints. Further, our analysis (September and October 2013) showed that 88.5 percent and 63.3 percent of ARDs of WED(MB) and WED(V) respectively were forwarded to the respective IFA's for vetting, after the promulgated date of submission to IHQ MoD(Navy). Therefore, the contention that delays were attributable to IFAs was incorrect.

Delay in submission of ARDs had the negative consequences of delay in raising of indents, placement of orders leading to inability of WEDs to supply weapon stores to ships etc. with adverse impact on operational capability. Late ARDs also resulted in the requirement getting included in the next ARD. This obviously would have adverse impact on cost apart from delayed procurements.

4.1.6.4 Errors and omissions in preparation of ARD

Despite the delay, the ARDs prepared by the WEDs were not free from errors and omissions. Our findings are tabulated in the Table below:

Table D

Sl. No.	Requirement with regard to preparation of ARDs	Audit findings
1. Non-adherence to calendar year format	According to IHQ MoD (Navy) guidelines (July 2008 and 2011), ARDs are to be prepared for a calendar year, <i>i.e.</i> for the period from 01 January to 31 December.	<p>Scrutiny of ARDs at WED (MB) (September 2013) showed that there were deviations in this, and the Depot did not adhere to this requirement. Out of 84, 94 and 85 ARDs prepared for the years 2009, 2010 and 2011 respectively, 27, 10 and 03 ARDs did not adhere to the calendar year format. These 40 ARDs were prepared for the cycles ranging between 8 months to 31 months.</p> <p>Similar scrutiny of ARDs (October 2013) at WED (V) for ARD 2009, showed that 30 ARDs did not adhere to calendar year cycle, as these ARDs for 2009 were forwarded during 2009 itself. The cycle of preparation for these 30 ARDs was undefined.</p>

IHQ agreed (August 2014) with the findings but clarified that due to operational emergencies urgent procurements are resorted to, so ARD schedule was advanced in 2009. They added that there had not been any financial loss or irregularity.

While the issue of financial loss or irregularity is irrelevant, since the issue brings out lack of robustness in ARDs, the advancement of ARD schedule was not backed by any documented evidence. Additionally, the reply was silent on ARDs that exceeded the calendar year period.

2. Non-consideration of dues-in while preparing ARDs.	As per IHQ MoD (Navy) guidelines (July 2008 and 2011), items already indented/ordered shall be shown as Dues-In while preparing ARDs.	Audit scrutiny showed that for equipment Garpun Bal of P-15, 3 types of spares ordered in June 2010 against ARD 2007 were not considered as Dues-in while forwarding ARD for the period 1 January 2009 to 31 October 2010 in December 2010. This led to procurement of spares costing ₹86.81 lakh, against contract in March 2012.
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IHQ MoD(Navy) stated (December 2013) that stock position would be ascertained from Depots in future procurements, and accepted (August 2014) the findings as inadvertent error.

3. Non-consideration of available stock while preparing ARDs.	As per guidelines (July 2008 and 2011) due care needs to be exercised while calculating PQ and the basis for calculation should be consumption pattern, MSL, Dues Out, Dues In and Stock.	Audit scrutiny at WED (V) showed that, for equipment Garpun Bal E1, available stock was not considered by WED (V) while preparing ARD 2008, leading to excess procurement of spares worth ₹66.70 lakh.
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IHQ MoD(Navy) accepted (August 2014) the findings as inadvertent error.

4.1.6.5 Processing of ARDs at IHQ MoD (Navy)

Our scrutiny (November 2013) showed certain inefficiencies in processing of ARDs at IHQ MoD (Navy). Details follow:

DPM 2009 prescribes a time frame of 17 to 19 weeks for single bid system of procurement. We noticed (November 2013) that against ARDs 2009 and 2010, a total of 15 contracts were concluded as of November 2013, by IHQ MoD (Navy) and the time taken for conclusion of these contracts ranged from 34 weeks to 149 weeks. This translated into a delay of minimum of 15 to a maximum of 130 weeks in conclusion of contracts. In fact, none of the contracts could be concluded in the prescribed time frame. Further, submission of a case for AIP – a process internal to IHQ MoD (Navy), was being completed with delay, as we noticed (November 2013) that average time taken at IHQ MoD (Navy) even for submission of the case for obtaining AIP was 21 weeks, as against 19 weeks prescribed for conclusion of contract.

Our scrutiny (May 2014) further showed that the extent of delay in conclusion of contracts based on the ARDs at IHQ MoD (Navy) level was high and the procurement emanating from an ARD of the year was not complete even though next ARD had been received in the IHQ MoD (Navy) for the same equipment. Following table brings out the issue with greater clarity.

Table E

Sl No	ARD Cycle	Project	Equipment	Date of forwarding of ARD to IHQ MoD (Navy)	Date of contract	ARD Cycle and date of forwarding of next ARD from the Depot	
1	2009	P-15	T-91E	24.11.10	28.03.12	2010	25.08.11
2	2009	Western	BARAK	21.10.10	12.09.13	2010	08.10.12
3	2010	1135.6	Fregat MAE	09.05.11	26.12.12	2011	09.07.12
4	2009	1135.6	3R-91E1 sam fire control system	19.12.10	02.03.12	2010	28.04.11
5	2009	P-15	Kashmir Complex	24.11.10	13.03.12	2010	26.08.11
6	2009	1135.6	A-190E gun mounting FCS Puma	20.01.10	09.06.11	2010	09.05.11
7	2009	1135.6	RADAR Fregat M2(E)M	19.12.10	23.11.11	2010	09.05.11
8	2009	1135.6	ASOR	30.04.10	24.04.12	2010	28.04.11
9	2009	1241 PE	Positive E	04.10.10	20.09.12	2010	31.10.11

In response (August 2014), IHQ MoD (Navy) stated that :

- i) After an ARD was received at DWE, the first step for commencement of procurement process was generation of an indent, to establish the CFA, following which the case was initiated for AIP. Also, a Budgetary Quote (BQ) from the OEM is also required for raising an indent in case LPP is not available, so the process may take an extended timeline of 16-20 weeks, post receipt of ARD.

- ii) the best time for conclusion of contract from the receipt of ARD was 12 months. IHQ MoD (Navy)'s reply was not acceptable since our scrutiny (November 2013) of 15 contracts concluded by IHQ MoD (navy) showed that in 13 contracts, indents were not raised for procurement of ARD spares, the estimated cost of items were worked out on the basis of available LPP / POV rates only and BQs from the OEM were not called for at all. Out of 15 contracts above, IHQ MoD(Navy) had concluded only 2 contracts within 12 months.

In fact, the delayed procurement action against previous ARD, also led to disregarding the subsequent ARDs available with IHQ MoD (Navy). This led to a situation where current information / data which was available in the subsequent ARD with regard to the quantum of items to be procured, getting overlooked or disregarded. Clearly, the situation had the potential to lead to erroneous provisioning and procurement action. One such instance where over provisioning of items worth ₹2.11 crore was noticed, as detailed below:

IHQ MoD (Navy) processed ARD 2008 and concluded (June 2011) a contract for 17 types of spares for a Surface to Air Missile, Fire Control System (FCS) in June 2011 with M/s Rosoboronservice (India) Ltd. at a cost of ₹8.75 crore. In the meantime, next ARD 2009, which was forwarded to IHQ MoD (Navy) in December 2010, did not project a requirement for four types of spares, since in the meantime, by December 2010, there was no requirement to provision the spares. However, these four types of spares were procured in the contract (June 2011) with M/s Rosoboronservice (India) Ltd. This showed that disregard of subsequent ARD led to excess provisioning of spares worth ₹2.11 crore.

In its reply, IHQ MoD (Navy) accepted (December 2013) that during ARD 2009 demand for these spares were not projected. At the same time, IHQ MoD (Navy) also assured that for future ARDs, stock position at WEDs would be ascertained prior to processing of ARDs for procurement of spares.

However, IHQ MoD (Navy) changed their stand subsequently and stated (August 2014) that the observation was factually incorrect and added that once an item was under procurement in one ARD, the same might not be

reflected in the next ARD, however, it did not mean that item was no longer required.

We find that the reply of IHQ MoD (Navy) was misleading, as the four items did not figure in the ARD 2009 at all *i.e.* did not have a requirement for these items. This clearly showed that requirement did not exist leading to over provisioning.

4.1.6.6 Excessive delay in raising Indents by IHQ MoD (Navy) on WEDs

DPM 2009 prescribes a time frame of four weeks for vetting and registration of Indent to floating of RFP. However, our scrutiny (May 2014) showed that, 112 indents were raised (till October 2013) against the ARDs 2009, 2010 and 2011; with an inordinate delay from IHQ MoD (Navy), as they took more than 10 weeks to raise 48 out of 85 indents raised on WED (MB) (representing 56.47 per cent of indents raised). This figure was much higher for indents on WED (V), with IHQ MoD (Navy) taking more than 10 weeks for raising 18 out of 27 indents representing 66.67 per cent. Following Table summarises the above:

Table F

Depot	WED(MB)				WED(V)				Grand Total
	2009	2010	2011	Total	2009	2010	2011	Total	
ARD Cycle	28	33	24	85	5	12	10	27	112
No. of Indents Raised	28	33	24	85	5	12	10	27	112
In time (upto 4 weeks)	6	8	7	21	0	0	2	2	23
Delay (5 to 9 weeks)	5	6	5	16	0	3	4	7	23
Delay (10 weeks and above)	17	19	12	48	5	9	4	18	66

In its reply IHQ MoD (Navy) accepted (August 2014) the facts, however, stated that the timeframe indicated by audit was excluding the timeframe for issuance of indent.

The reply of IHQ MoD(Navy) was not acceptable because the timeframe indicated by audit was as per Appendix A to DPM-09 which provided one week for vetting and registration of indent.

4.1.6.7 Delay in procurement against the Indents

As per DPM 2009, the timeline prescribed from vetting and registration of indent to placement of supply order/ signing of contract procurement, is 23 weeks. However, scrutiny (May 2013) showed that against 112 Indents raised by IHQ MoD (Navy) (till October 2013) for ARDs 2009, 2010 and 2011, Purchase Orders could be placed (till October 2013) against 20 indents only. Thus, only 17.85 *per cent* of the indents raised got activated / converted into a supply order.

This apart, the placement of supply orders was inordinately delayed. While the number of indents which materialized as POs within 23 weeks were one each at WED (MB) and WED (V), the number which materialized as POs beyond 23 weeks were 13 at WED (MB) and 05 at WED (V) respectively. Table G below summarises the findings:

Table G

Depot	WED(MB)				WED(V)			
	2009	2010	2011	Total	2009	2010	2011	Total
ARD Cycle								
No of Indents Raised	28	33	24	85	5	12	10	27
No of Indents against which POs were placed	10	3	1	14	4	1	1	6
No of Indents against which POs placed within the DPM prescribed limit (23 weeks)	Nil	Nil	1	1	1	Nil	Nil	1
No of Indents against which POs placed beyond the DPM prescribed limit (23 weeks)	10	3	Nil	13	3	1	1	5

IHQ MoD (Navy) in its reply (August 2014) accepted the findings above and attributed the reasons for delay to delay in obtaining BQs, small vendor base, multiple iterations while obtaining financial concurrence for vetting and shortage of manpower.

4.1.6.8 Rate of Materialisation of ARDs

Since we observed delay in preparation and processing of ARDs, we attempted to assess the impact of these delays on materialisation of ARDs and found that the rate of materialization of ARDs (October 2013) was as under :

Table H

Depot	WED (MB)			WED (V)		
	2009	2010	2011	2009	2010	2011
ARD Cycle	2009	2010	2011	2009	2010	2011
Total Items projected in ARD	2376	4308	1307	2613	2523	1862
No. of Items in the ARD for which contracts concluded by IHQ MoD (Navy)	396	38	Nil	Nil	42	Nil
No. of items in the ARD for which Purchase Orders placed against Indents raised by WEDs	226	22	1	671	78	1
Total No. of Items for which Contracts concluded and POs placed	622	60	1	671	120	1
Rate of Materialisation in <i>per cent</i>	26.18	1.39	0.08	25.68	4.76	0.05

The above Table brings out that the rate of materialisation of weapons spares through the ARD route was rather low, that too with considerable delay. For e.g. against the ARD 2009, the rate of materialisation was about 26 and 25 *per cent* for WED (MB) and (V) as of October 2013 *i.e.* about three years after the ARD cycle projected the requirements.

IHQ MoD (N) accepted (August 2014) that there were indeed delays in preparation of ARDs and major delays in conclusion of contracts and attributed the reasons to availability of manpower, constraints of revenue budget etc, and contended that delays were external to them.

4.1.6.9 Compliance to the Demands raised

One of the primary functions of WEDs is issue of stores to ships, submarines, missile technical positions, establishments and dockyards, *i.e.* meeting the demands for weapon equipment spares raised by ships and the establishments. A demand is a quantified and time scaled requirement for an item placed by a demanding unit (ship, submarine or establishment) on a stocking depot *i.e.* a definite requirement expressed in numbers for a specific item, to be supplied timely.

The Navy Order 08/2010 stipulated that the annual report of the WEDs to IHQ MoD (Navy), should contain the compliance rate achieved by the WEDs. However, clear directives by IHQ MoD(Navy) for working out compliance rate by WEDs were not in place.

WED (MB)

On our requisition (July 2013) for details of compliance rate, WED (MB) intimated that their compliance rate was 84.98, 84.20 and 78.20 *per cent* for the years 2010-11, 2011-12 and 2012-13 respectively.

However, our scrutiny (October 2013) showed that the depot computed demand compliance by including 'Inter Depot Transfers' and excluding 'Returned Demands' and 'Not Stocked Before (NSB) Demands', which was not a sound practice as :

- i) Inter Depot Transfers (IDTs) represent transfer of spares from one depot to another on the orders of IHQ MoD (Navy). Once effected, issues made against the IDTs would get reflected in the receiving depot's compliance, also leading to double counting of transferred spares. In response, IHQ MoD(Navy) replied (August 2014) that IDT's had to be reflected in overall depot performance, yet accepted that they indeed gave rise to double compliance accounting.
- ii) Demands not accepted by WED and returned to users are termed as Returned Demands. However, authority and reasons for returning demands as invalid were not available on record. In response, IHQ MoD(Navy) stated (August 2014) that demands were returned as

invalid if items demanded were not authorized to the user, item identification was incomplete and was not accompanied by survey details or approval of competent authority or even if the item did not belong to the WED inventory. However, IHQ MoD(Navy) accepted (August 2014) that reasons for return were not on record.

Returned demands were not met, so their non-consideration without recording the reasons for return, was indicative of lack of synchronization of inventory identification between units and depots and did not provide for a realistic feedback mechanism from WEDs to users so as to prevent recurrence of such demands by users in future.

- iii) Not Stocked Before (NSB) items are items which are not a part of the WEDs inventory. However, demands for such items indicated a need for the items by the users. In its response (August 2014), IHQ MoD(Navy) stated that NSB items were not part of WED inventory and WEDs were not tasked to store them.

Non-cognizance of demands for NSB items on the ground that they did not form part of the WED inventory lacked justification, as even if these items did not form part of the WED inventory, these demands were necessarily to be met, being valid demands raised against actual requirement by demanding units. Their exclusion only served to inflate demand compliance without fulfilling the users' requirement and necessity of analyzing reasons for not stocking these items in the WEDs.

WED (V)

At WED (V), we observed (August 2013) that though an Annual Report along with the compliance rate is required to be prepared annually in terms of Navy Order 08/2010, such report was not prepared for the years 2010-11 to 2012-13.

In absence of the Annual Report and compliance rate, we attempted to prepare the compliance rate for WED (V) (August 2013). During the course of audit, WED (V) however supplied different figures for number of total demands received by WED (V) and the number of items supplied against these demands in their responses (September 2013, January 2014 and March 2014).

In the absence of reliable data, we could not ascertain compliance rate of WED (V).

IHQ MoD (Navy) stated (August 2014) that WED (V) had been directed to forward the Annual Report from 2014 onwards.

IHQ stated (August 2014) that clear directives/procedures for working out compliance rate by WEDs had now been issued.

The reply clearly showed that there was absence of clear directives by IHQ MoD (Navy) regarding methodology for computing compliance rate by depots. Since one of the functions of the WEDs was meeting the demands raised by ships etc., absence of a clear methodology deprived the IHQ MoD (Navy) of proper assessment of this function.

4.1.6.10 Inadequate Monitoring and control

Replenishment Provisioning, carried through ARDs, is the yearly process of determining acquisition requirements of spares with the objective that three years average consumption is stocked. As “stock outs” seriously impair capability, demand satisfaction level has to be at its optimum best. As brought out earlier, there were considerable delays in preparation of ARDs, which in turn, considerably delayed the procurements of Weapon and Equipment spares. DWE IHQ MoD (Navy), though, issued advisories to WEDs for adhering to prescribed timelines for preparation and finalisation of ARDs, yet this did not lead to any improvements.

Additionally, lax internal controls within DWE, IHQ MoD (Navy) led to non-conclusion of contracts for 74 *per cent* spares projected in ARD 2009.

With an institutionalised mechanism in place for supervision of ARDs, the delays in preparation and finalisation of ARDs could have been obviated, leading to timely finalisation of contracts for procurement of weapon equipment spares. Against this backdrop, we noticed (August 2014) that there was no institutionalised mechanism in place either at WEDs or at DWE IHQ MoD (Navy) to monitor/supervise the preparation, vetting and timely finalisation of ARDs.

In its reply IHQ MoD (Navy) stated (August 2014) that:

- i. During Annual Inspection of WEDs by DWE, the report of review of all items in inventory furnished to IHQ MoD (navy) is verified.
- ii. Status of materialization and progress of ARDs is monitored at DWE quarterly.
- iii. Necessary communication to Command HQrs and WEDs was made where the ARDs were delayed.
- iv. DWE maintained a database of procurement cases viz. details of status, RFP issued, benchmarking, CNC *vis a vis* status of ARDs and the Controller of Material was apprised of the progress quarterly.

We requested (August 2014) IHQ MoD (Navy) to furnish copies of annual inspection report, copies of quarterly reports of status of materialsation and progress of ARDs monitored by DWE, copies of reminders to expedite the ARDs and copies of the quarterly report regarding monitoring of ARD cases at DWE. However, reply was not received (September 2014).

4.1.6.11 Liquidation of Repairable Inventory

One of the functions of WEDs is to arrange for repairs of all weapon spares held in repairable stock either through dockyards, or by offloading the repair to trade, including OEMs. If repair cost exceeds financial powers of the WED, necessary sanction is sought from respective Command Headquarters or IHQ MoD (Navy) as appropriate.

Necessity for repairs arises from the fact that items declared repairable are required to be repaired and added back to the stock. Repairs are also taken up because procurement of new items would be more expensive and has a long lead time attached to it.

The status of repairable inventory of WED (MB) and WED (V) for the years 2010-11 to 2012-13 was as given in the Table below :

Table J

Year	WED (MB)				WED (V)			
	2010-11	2011-12	2012-13	Average	2010-11	2011-12	2012-13	Average
BLR ¹ items outstanding at the beginning of the year (A)	2151	2860	3388	2800	99	250	276	208
Additions during the year (B)	723	542	594	620	218	153	140	170
Total items for repair (A+B)	2874	3402	3982	3419	317	403	416	379
No. of items repaired	14	14	41	23	67	127	73	89
Total outstanding at the end of the year	2860	3388	3941	3396	250	276	343	290

¹ BLR : Beyond Local Repair

As can be seen from the Table above, for WED(MB), number of items repaired and merged with stock to the total number of items requiring repair expressed as a percentage, ranged from 0.41 *per cent* (2011-12) to 1.03 *per cent* (2012-13). While, for WED(V), this percentage, ranged from 17.55 *per cent* (2012-13) to 31.51 *per cent* (2011-12).

IHQ MoD (Navy) accepted (August 2014) that it was the responsibility of WEDs to arrange for repair of the inventory however, stated that manpower was indeed required for completing the paperwork and procedural requirements even when the items were got repaired through the dockyards or through private trade. IHQ MoD (Navy) also stated that delay in commissioning of certain repair facilities, lack of manpower and delays in obtaining the financial concurrence to repair to be got done through private trade, contributed to increase in repairable inventory. However, it was added that necessary directions have been issued to WED (M) and (V) draw out a time bound action plan to clear the inventory.

4.1.6.12 Conclusions

ARD is the standard method for provision and procurement of weapon equipment stores carried out by the WEDs, by means of forward planning and replenishment. Our scrutiny has showed that almost 94 *per cent* of ARDs of WED (MB) were submitted to IHQ MoD (Navy) with a delay, in the three years reviewed by us. The corresponding figure for WED (V) was 83.72 *per cent*. The DWE in the IHQ MoD (Navy) on its part could not ensure greater timeliness. Despite the extra time being taken, the preparation of ARDs witnessed inefficiencies and errors. Our test check has showed instances where some ARDs, both of WED (MB) and WED (V) did not adhere to the calendar year format, the items already contracted and available stocks were not considered while projecting next year's requirements. Such deficiencies had the potential of leading to over provisioning of stocks. Our test check has brought out the value of such over provisioning at ₹1.53 crore.

Considerable delays were witnessed at DWE, IHQ MoD (Navy), in actual provisioning and procurement action. None of the 15 contracts concluded against ARDs 2009 and 2010 could be finalised within the prescribed time frame of 17 to 19 weeks, with the actual time taken ranging between 34 and 149

weeks. The delayed conclusion of contracts at IHQ MoD (Navy) level also led to a situation where the next ARD was also received in DWE, IHQ MoD (Navy) before a contract could be concluded for the required items projected in the previous ARD, leading to disregard of latest available information contained in the subsequent ARDs. Our test check has brought out the excess provision of ₹2.11 crore in one case alone.

Raising of indents was delayed, with 79 *per cent* of total indents raised with a delay, against the norm of four weeks, for vetting / registration and issue of RFP. After the receipt of indents, the procurement action at WEDs was also delayed, with only about 17 *per cent* indents actually leading to supply orders.

The above had a cascading effect on the ability of the WEDs in meeting demands raised by the users. Our review has indicated that in absence of clear directives for computing demand compliance, the methodology adopted by depots did not aid IHQ MoD(Navy) to ascertain the efficacy of one of the functions of WEDs viz. issue of weapon equipment stores to demanding units.

Our review also showed that there was tardy progress in liquidation of repairable inventory.

Recommendations

1. There is need on the part of Ministry and IHQ MoD (Navy) to comprehensively review the current system of forward planning for supply and stocking of weapon equipment spares, to ensure that bottlenecks and constraints in timely preparation of ARDs, are indentified and addressed and inaccuracies in preparation of ARDs by WEDs are removed by analysis of causes that lead to such inaccuracies.
2. IHQ MoD (Navy) should endeavour to liquidate all pending ARDs with it, by ensuring that procurement action for an ARD is completed and in the cases, where previous ARD is un-actioned, the information available in the latest available ARD should be used fruitfully.

3. The raising of indents for local purchase of items by the WED should be expedited at IHQ MoD (Navy) level.
4. A well defined criteria of demand satisfaction needs to be put in place.
5. The repairs to the repairable inventory should be expedited by concerned efforts at IHQ MoD (Navy) and the WEDs, in the interest of a better managed weapon equipment inventory system.

Procurement/Contract Management

4.2 Avoidable expenditure due to failure to invoke the repeat order option

Failure to invoke the repeat order option available in an existing contract for purchase of one set of main engines for INS Cheetah led to an avoidable expenditure of ₹0.70 crore but also led to delayed supply of fresh main engines which could not be made available to the ship for about 5 years. In the interim, the Indian Navy was forced to give extensive and additional routines to the main engines fitted onboard INS Cheetah to keep the ship operational.

General Financial Rules, *inter alia*, stipulate that the purchases should be made in the most economic manner in accordance with the definite requirements of the public service. Further, the Defence Procurement Manual (DPM-2005) provides that repeat order against a previous order is a viable option, subject to the fact that there is no downward trend in price as ascertained through market intelligence.

Our scrutiny of procurement of main engines alongwith spares for INS Cheetah revealed the following:

Directorate of Procurement (DPRO), IHQ MoD (Navy), in December 2006, floated a tender enquiry on Proprietary Article Certificate (PAC) basis to M/s Kirloskar Oil Engines Limited, Nashik for procurement of one set of main engines along with onboard spares for INS Cheetah. The firm, in January 2007, submitted to DPRO, IHQ MoD (Navy) its techno-commercial offer for ₹11.25 crore. DPRO noticed (March 2007) that the indent would require

approval of the Ministry of Defence as the indent value at ₹11.25 crore (inclusive of VAT) was beyond the powers delegated to Controller of Logistics (COL) in the Indian Navy. It was, therefore, decided (March 2007) by DPRO, IHQ MoD (Navy) to combine another indent, for identical requirement of INS Guldar, to extract maximum possible discount and process the cases in one go with the Ministry of Defence. The consolidated case for procurement of two sets of main engines and spares for INS Cheetah and INS Guldar was referred to the Ministry of Defence in May 2007. The proposal was, however, approved by the Ministry only on 23 January 2008. DPRO, IHQ MoD (Navy) concluded two separate contracts in May 2008 with M/s Kirloskar Oil Engines Ltd. at a cost of ₹11.23 crore each (inclusive of VAT) for supply of two sets of main engines and spares. The engines were to be delivered for INS Cheetah by February 2010 and for INS Guldar by November 2009. The engines were actually delivered in October 2009 (INS Guldar) and March 2010 (INS Cheetah).

However, our scrutiny (April 2011) showed that DPRO, IHQ MoD (Navy) had concluded a contract, in November 2005, on PAC basis, at a cost of ₹9.65 crore, with M/s Kirloskar Oil Engines Limited, Nashik for procurement of one set of main engines for INS Kumbhir. The contract, contained a repeat order clause, under which, the buyer had the right to place order on the seller for supply of up to 100 *per cent* quantity within 12 months from the date of successful completion of the contract at the same terms / conditions and cost. The set of engines contracted in November 2005, were received in August 2006 and, therefore, DPRO had an option to procure one more set of engines at same terms / conditions and rates till August 2007.

DPRO, IHQ MoD (Navy) while processing the procurement of one set of main engines for INS Cheetah, in December 2006 failed to take cognizance of and invoke the provision of repeat order clause of the contract of November 2005, for supply of one set of main engines. As a result, procurement under a fresh tender enquiry led to an avoidable expenditure of ₹0.70² crore excluding taxes.

Furthermore, the procurement of one set of main engines for INS Cheetah under a fresh tender enquiry resulted in supply of main engines only in

² Basic cost of main engine in the contract of August 2008 = ₹9.98 crore
Basic cost of main engine in the contract of August 2005 = ₹9.28 crore
Difference = ₹0.70 crore.

March 2010, whereas, the requirement for INS Cheetah was essentially required to be met by March 2008 during her refit. The Indian Navy was also forced to postpone the fitment of main engines onboard INS Cheetah to subsequent refit *i.e.* Medium Refit-13 (MR-13). Meanwhile, the existing engines onboard INS Cheetah had to be given extensive and additional routines³ during Short Refit-8 and Short Refit-10 (SR-10) so as to ensure operational availability of the ship in the next operational cycle.

In response to initial audit observation (April 2011), DPRO, IHQ MoD (Navy) accepted (July 2011) that repeat order clause could have been invoked; however, it was not exercised to achieve economy of scale and maximum discount. Further, it was admitted that the quoted rates were found high in comparison to earlier rates and therefore the desired economy could not be achieved.

Thus, failure to process procurement of one set of main engines for INS Cheetah under option of repeat order not only led to an avoidable expenditure of ₹0.70 crore excluding taxes, but also led to delayed supply of fresh main engines which could not be made available to the ship for about 5 years. In the interim, the Indian Navy was forced to give extensive and additional routines to the main engines fitted onboard INS Cheetah to keep the ship operational.

The matter was referred (May 2014) to the Ministry; reply was awaited (September 2014).

4.3 Unfruitful expenditure in repair of an aircraft

Adoption of piecemeal approach in repairs to a Sea Harrier trainer in making the aircraft airworthy, resulted in unfruitful expenditure of ₹6.26 crore as the aircraft remained unserviceable for want of spares.

A Sea Harrier trainer aircraft (HR 654) had remained unserviceable for over seven years due to adoption of piecemeal approach for its repairs by the Indian Navy. The aircraft continued to be robbed off spares over a period of time to make good the deficiencies in other aircrafts of Sea Harrier fleet. This led to a

³ Routines on engines are maintenance work that is undertaken on an engine at prescribed intervals.

situation, wherein, an expenditure of ₹6.26 crore incurred on fuel tank repair, cable audit and repair⁴ and painting of the aircraft proved unfruitful. Details follow:

Flag Officer Naval Aviation (FONA), Goa in August 2007 allotted the Sea Harrier trainer aircraft (HR 654) to Aircraft and Engine Holding Unit (A&EHU), INS Agrani for build-up⁵ by M/s Hindustan Aeronautics Limited (HAL). A&EHU, INS Agrani, in turn, placed a repair order in October 2007 on M/s HAL, Bangalore for undertaking the build-up of the aircraft. However, due to unscheduled loading of another Sea Harrier aircraft (SH 616) by the Indian Navy, which was required to be taken up on priority, the repair of the Sea Harrier trainer aircraft (HR 654) was postponed by M/s HAL, Bangalore. It was seen at Headquarters Naval Aviation (HQNA) Goa, that the Sea Harrier whilst at A&EHU, INS Agrani was robbed⁶ extensively of various spares to make good the deficiencies in the other aircraft (SH 616). The robbing of spares was authorised by HQNA, Goa in terms of the provisions contained in Indian Naval Air Publication (INAP-2).

Subsequently, in June 2008, the Sea Harrier trainer aircraft (HR 654) was shifted to repair hangar of Air Engineering Department (AED) for second line repairs. The build-up process of Sea Harrier trainer aircraft (HR 654) was however, not progressed till March 2011 by M/s HAL for want of spares, manpower and workload of other aircraft for modifications. Sea Harrier trainer aircraft (HR 654), thus even after having been identified for build-up, continued to be extensively robbed of items such as JPT Gauge, Brake Control Valve, Valve Air Brake Selector etc. on the authorisation of HQNA, Goa to meet the requirements of other Sea Harrier aircraft, whilst at AED. The robbing of spares from the Sea

⁴ Cable audit and repair is a procedure undertaken to inspect and repair the electrical wiring of an aircraft, wherein, deteriorated and worn / torn out wiring of the aircraft is replaced.

⁵ Build-up is a process, which includes complete production of an aircraft from a state of deep level repair and maintenance. In this process the main plane, engine and other major components are removed, detailed inspections are undertaken on them and necessary repairs and scheduled servicing is undertaken.

⁶ The transfer of air stores from one aircraft / equipment to another due to non-availability of the item in stock is known as Robbing. The transfer of robbed items between aircraft or equipment is only to take place in an extreme emergency or towards an operational requirement.

Harrier trainer aircraft (HR 654) were, however, accounted for and included in the aircraft inabilities⁷.

Meanwhile, HQNA, Goa, in October 2009, had proposed to Directorate of Naval Air Material (DNAM), Integrated Headquarters Ministry of Defence (Navy) and recommended repairs of fuel tanks of the entire fleet of Sea Harrier by M/s BAE Systems, UK, being the Original Equipment Manufacturer (OEM) of the aircraft. The proposal was mooted in light of the fact that recurring fuel leaks from the fuel tanks located in fuselage and the main planes had severely impacted the Sea Harrier fleet of the Indian Navy and was approved by DNAM, IHQ MoD (Navy). Post conclusion of Product Support Agreement in October 2009 with the OEM *i.e.* M/s BAE Systems UK, repairs to fuel tanks of four Sea Harrier aircraft were undertaken by the OEM in October 2010 and November 2011. DNAM, IHQ MoD (Navy) in November 2011 placed a repair order at PDS⁸ 1,199,479 equivalent to ₹10.35 crore (1 PDS = ₹86.30) for undertaking repairs on fuel tanks of another two Sea Harrier aircraft (one fighter SH 618 and one trainer HR 654). The repair of the aircraft (HR 654) was completed within the stipulated date *i.e.* by March 2012. In October 2012, full payment amounting to PDS 1,199,479 (₹10.35 crore) was made to the firm. Of this, a payment totalling ₹5.17 crore had been made in connection with repair of the aircraft (HR 654). Additionally, painting of aircraft and cable audit and repairs was undertaken in March 2012 and June 2012 at ₹0.09 crore and ₹1.00 crore respectively.

Notwithstanding the fact that an expenditure of ₹6.26 crore had been incurred on undertaking repairs on the Sea Harrier trainer aircraft (HR 654), the robbing of spares continued up till September 2013, from the repaired Sea Harrier trainer aircraft (HR 654). The fact of robbing of spares such as Hood Assembly Front, Jack Retraction Port etc. authorised by HQNA, Goa from the Sea Harrier trainer aircraft (HR 654) even though this aircraft stood approved for build-up by DNAM, IHQ MoD (Navy) and certain repairs at a total cost of ₹6.26 crore had already been undertaken on it, is indicative of flawed planning in the Indian Navy and thus lacked rationale.

⁷ Inabilities is a term used to indicate the total number of permanent, consumable and other type of spares necessary / required for build-up of an aircraft.

⁸ British Pound Sterling

Simultaneously, the inabilities of the Sea Harrier trainer aircraft (HR 654) were forwarded, in December 2010/January 2011, by HQNA Goa to DNAM, IHQ MoD (Navy). Based on these inabilities, one case for procurement of 391 by type spares⁹ was initiated by DNAM, IHQ MoD (Navy) in May 2011, under the powers of the Ministry of Defence and another case for procurement of 315 by type spares under delegated powers of Assistant Chief of Naval Staff (Air) [ACNS (Air)] was initiated in October 2012. By March 2013 *i.e.* in a period of approximately two and a half years, as against the period of 20 weeks authorised in Defence Procurement Manual-2009, the case for procurement of 391 by type spares reached 'Comparative Statement of Tender approval' stage at the Ministry of Defence, wherein, it emerged that valid quotes were available for only 301 out of 391 by type spares. In respect of the second case involving procurement of 315 by type spares, the Acceptance in Principle (AIP) was obtained in January 2013. The case was not progressed further. Clearly, neither the Ministry of Defence nor the Indian Navy showed any urgency in making the procurement of necessary spares for the build-up of Sea Harrier trainer aircraft (HR 654).

We observed (April 2014) from the records at Directorate of Aircraft Systems Engineering (DASE) IHQ MoD (Navy) that a decision was taken by DNAM IHQ MoD(Navy) in November 2012 to terminate the operations of Sea Harrier fleet in 2015 and phase out the aircraft. Therefore, in respect of both the above procurements, it was opined (March 2013) by DNAM, IHQ MoD (Navy) that the actual materialisation of spares may not be within the desired time frame, which may lead to accumulation of dead inventory post phasing out of the aircraft. Accordingly HQNA, Goa was requested (March 2013) by DNAM IHQ MoD (Navy) to review the inabilities to avoid procurement of non-moving inventory. Post detailed review, HQNA Goa in March 2013 forwarded to DNAM a revised and pruned down requirement of 48 consumable by type spares. The requirement was scrutinised and a case was initiated by DNAM, in January 2014, on Limited Tender Enquiry (LTE) basis for procurement of 45 consumable by type spares under delegated financial powers. The procurement was yet to be finalised (April 2014). The demands for remaining items were likely to be met from other aircraft after inter-cannibalisation.

⁹ The term is used in procurement cases of spares to indicate the number of spares of different description.

We further found (April 2014) in DASE, IHQ MoD (Navy) that the Sea Harrier trainer aircraft (HR 654) had an additional outstanding demand of 195 items of spares as of April 2014. The aircraft (HR 654) would need all its spares inabilities, to be in place, for its build-up. Besides, as the de-induction of Sea Harrier fleet had been programmed for 2015, the expenditure of ₹6.26 crore incurred on the Sea Harrier trainer aircraft (HR 654) on account of repair of integral fuel tanks, cable audit and repair, painting had proved unfruitful as the aircraft continued to be unserviceable and would have to remain so till the 45 consumable items of stores and 195 items of spares were contracted, delivered and fitted on board. Additionally, the timeliness of de-induction viz. 2015 left very little time for exploitation of the aircraft (HR 654), post her build-up.

Accepting the facts, Directorate of Aircraft Systems Engineering (DASE) IHQ MoD (Navy) attributed (June 2014) the situation to rescheduling of build-up of the Sea Harrier trainer aircraft (HR 654) as other aircraft were prioritized for build up and on-going limited upgrade programme of Sea Harrier fighter aircraft, which took priority.

Our further scrutiny (September 2014) of the Feasibility Study Report (August 2014) of the Board of Officers (Board) constituted (May 2014) by HQNA, Goa for undertaking feasibility study on build-up / production of Sea Harrier trainer aircraft (HR 654) revealed that the Board had recommended that looking into the likelihood of de-induction of the Sea Harrier Fleet by December 2015, production of HR 654 and allied procurement of spares be short closed.

In sum, the sequence of events reflected lack of comprehensive and coordinated planning on part of the Indian Navy which resulted in continued un-serviceability of the Sea Harrier trainer aircraft (HR 654) for over seven years. The fact that the aircraft continued to be robbed off spares even after having been earmarked for the built up and the procurement of deficient/robbed spares of Sea Harrier trainer aircraft (HR654) was abnormally delayed, underscores the point. Further, various repairs were carried out on the Sea Harrier trainer aircraft between March and June 2012; the decision to terminate the operations of Sea Harrier fleet was taken in December 2012. This also indicates lack of futuristic planning in the Indian Navy. Thus, an expenditure of ₹6.26 crore incurred on the

aircraft has been rendered unfruitful in view of the impending phasing out (2015) of the aircraft.

Meanwhile the matter had been referred to the Ministry (September 2014) and the reply was awaited (September 2014).

4.4 Abnormal delay in procurement of critical spares

Lack of due diligence in processing the procurement of critical spares of Type 'A' Complex delayed their procurement which resulted in consequential fallout on the maintainability / exploitation of 'X' class submarines of the Indian Navy. The spares projected in March 2007 could be contracted only in August 2010 at an extra cost of ₹2.94 crore. However, the deliveries were yet (April 2014) to materialise.

The relevant Naval Instruction, stipulates that all items in the service which need replenishment are reviewed at stipulated intervals or at least once a year to assess the quantity to be procured to make good the deficiency. Whenever such a review indicates a positive Procurement Quantity (PQ), the concerned agency must initiate prompt action to ensure that the required item is available at the right time and in right quantity and quality.

Type 'A' Complex generates and transmits information required for navigation, support weapon equipment, operation of technical facilities and systems of submarines. The information generated by the Complex is necessary for exploitation of the submarine. The Complex is fitted on 'M' numbers of 'X' class submarines of the Indian Navy.

Our scrutiny (May 2012 and October 2013) of procurement of spares/modules required for the Type 'A' Complex revealed the following:

(I) Inordinate delay in finalising the procurement entailed higher cost

Based on the Annual Review of Demands¹⁰ (ARDs) 2005-06 projected in March 2007, by Weapon Equipment Depot (WED), Mumbai, Commodore Commanding Submarine (West) [COMCOS (W)] recommended in July 2007, procurement of 21 types of spares / modules of Type 'A' Complex to Directorate of Weapon Equipment (DWE), IHQ MoD (Navy). DWE, IHQ MoD (Navy), in February 2008, issued the Request for Proposal (RFP) for 21 types of spares/modules on Limited Tender Enquiry (LTE) basis to four firms. However, only two firms viz. M/s FSUE Zvezdochka, Russia and M/s Rosoboronservices India Ltd. [ROS (I)], Mumbai responded. The quotes were opened on 17 June 2008. Both the firms, however, quoted for only 20 types of spares / modules and did not quote for 01 type of spare/module viz. Control Board ILY. The bids of the two firms were valid up till 01 December 2008 and 16 October 2008 respectively. M/s FSUE Zvezdochka, Russia was L-1 for 11 types of spares/modules at a total cost of USD 1,437,997 equivalent to ₹6.18 crore (1 USD = ₹43.00) and M/s ROS (I) was L-1 for 9 types of spares/modules at a total cost of ₹6.29 crore. However, M/s ROS (I) was over all L-1 for 20 types of spares/modules at ₹12.99 crore.

The Integrated Financial Advisor, Navy [IFA (Navy)], however, in July 2008, raised issues regarding applicability of Exchange Rate Variations (ERVs), taxes / duties / VAT and date of delivery etc. in respect of the bid of M/s ROS (I), Mumbai, whereas, M/s ROS (I), Mumbai in their quote had sought compensation for ERVs only. Incidentally, the Ministry of Defence had already issued (01 April 2008) relevant clarifications on the status of M/s ROS (I), Mumbai as an Indian company and applicability of ERVs, taxes / duties / VAT etc. in the contracts involving them. DWE, IHQ MoD (Navy), however, in August 2008 replied to the queries of IFA (Navy). Subsequently, IFA (Navy) on 18 August 2008 gave concurrence for holding negotiations by Contract Negotiation

¹⁰ Indian Navy follows a method of "Annual Review" in which provisioning of spares is done by Depots and procurement action is taken centrally at IHQ MoD (Navy) after a thorough scrutiny of each demand. It is standard method of procuring spares by means of forward planning and replenishment and these are prepared for a calendar year *i.e.* for the period from 01 January to 31 December.

Committee (CNC¹¹). /Weapon Procurement Committee-1 (WPC-1) with individual L-1 firms viz. for 11 types of spares/modules with M/s FSUE Zvezdochka, Russia and for 09 types of spares/modules with M/s ROS (I). Thereafter, DWE IHQ MoD (Navy) on 16 September 2008 requested M/s FSUE Zvezdochka, Russia to confirm the acceptability of issues viz. Performance Security, Liquidated Damages (LD) and arbitration in accordance with the provisions of the RFP because the firm had not indicated their compliance with these provisions in their bid / commercial offer, even though, they formed a part of the RFP. However, the firm in October 2008 regretted to abide by these provisions of the RFP. The firm also did not agree to extend the validity of their bid beyond 01 December 2008.

Meanwhile, on 07 October 2008, it was decided by DWE, IHQ MoD (Navy) to hold negotiations by CNC/WPC-I with M/s ROS (I), Mumbai for 9 types of spares/modules on 17 October 2008, even though, validity of offer of M/s ROS (I), Mumbai had expired on 16 October 2008. During the meeting, the firm was requested to review the decision for withdrawing the offer and revalidate the same so as to progress procurement of these critical spares. Thereafter, no action was taken by the Indian Navy. However, the firm *suo moto* submitted a revised offer in April 2009 for 20 types of spares/modules at ₹14.39 crore with validity upto 13 June 2009, which was subsequently extended upto 15 September 2009. However, as per the Central Vigilance Commission (CVC) guidelines, revision of price post opening of quotation is not permitted and in such eventuality, the case should be retendered. Accordingly, DWE, IHQ MoD (Navy) initiated a proposal (September 2009) and decided (November 2009) to retender all 21 types of spares / modules.

Thereafter, DWE, IHQ MoD (Navy), in November 2009, again issued RFP for 21 types of spares/modules *i.e.* the entire requirement of spares on LTE basis to the same four firms. In response, again the same two firms viz. M/s FSUE Zvezdochka, Russia and M/s ROS (I), Mumbai responded. M/s FUSE Zvezdochka, Russia quoted all the 21 types of spares/modules, whereas, M/s ROS (I), Mumbai again quoted for 20 types of spares/modules. M/s FSUE

¹¹ Price negotiation ensures that interest of the state is fully protected and price paid is reasonable. Such negotiations are conducted by CNC and determines L-1 and puts up recommendations to CFA for approval. In case of weapon spares, the role of CNC is performed by WPC.

Zvezdochka, Russia was L-1 for 03 types of spares/modules at a total cost of ₹1.15 crore and M/s ROS (I), Mumbai was L-1 for 18 types of spares / modules at total cost of ₹15.20 crore. M/s ROS (I) was again overall L-1 for 20 types of spares/modules at a total cost of ₹16.34 crore. The Contract Negotiation Committee (CNC), in July 2010, recommended the placement of order on M/s ROS (I), Mumbai for 20 types of spares/modules at a negotiated cost of ₹15.93 crore. DWE, IHQ MoD (Navy), in August 2010, concluded a contract at a total cost of ₹15.93 crore excluding VAT with M/s ROS (I), Mumbai for supply of 20 types of spares/modules. The remaining one type of spare/module viz. Control Board IYY was included in the next ARD.

Thus, indecisiveness in spite of clearly laid down procurement principles and clarification of April 2008 of Ministry of Defence, coupled with failure to conduct negotiations with ROS (I) during the validity of its bid, resulted in inordinate delay in finalising the procurement of these types of spares/modules which led to conclusion of contract for procurement of the same spares, at an extra cost of ₹2.94 crore¹², in August 2010 with the same firm which was overall L-1 in June 2008. This situation could have been avoided if 20 types spares/modules had been contracted, in 2008, with M/s ROS (I), being overall L-1 at ₹12.99 crore for 20 spares/modules against RFP issued by DWE, IHQ MoD (Navy) on 18 February 2008. Further, a total time period of 42 months from the date of projection of demand was taken as against the time frame of 19 weeks stipulated in the Defence Procurement Manual (DPM).

(III) The required spares/modules are still unavailable

As per the terms of the contract entered into with M/s ROS (I) in August 2010, the supplies were to be affected within 12 months from effective date of contract, *i.e.* by 15 August 2011, in not more than two lots. M/s ROS (I) initially requested (February 2011) for extension of delivery period to 15 December 2011 and subsequently again requested (September 2011) for further extension of delivery period to 30 June 2012 on the basis of delay in concluding corresponding supplementary agreement with OEM in Russia. Even though, conclusion of

¹² 20 spares / modules were available in October 2008 from M/s ROS (I) at ₹12.99 crore.
20 spares / modules contracted in August 2010 with M/s ROS (I) at ₹15.93 crore.
Difference = ₹2.94 crore.

supplementary agreement by M/s ROS (I) with OEM in Russia was not a contracted provision, yet DWE, IHQ MoD (Navy) accorded approval (November 2011) for extension of delivery period with imposition of Ligated Damages (LD). Meanwhile, the firm intimated (June 2012) that the consignment was ready for despatch with OEM since May 2012 and once again requested for grant of extension of delivery period upto 31 August 2012. The firm also sought waiver of LD owing to steep depreciation of the Indian Rupee. There was undue delay in processing the case and the Ministry of Defence, finally in July 2013 *i.e.* after one year, granted extension of delivery from 01 July 2012 to 10 September 2013 with imposition of LD.

The firm, however, in September, 2013 stated that because of non-availability of compensation for rupee depreciation and the imposition of LD, the execution of the contract had become impractical. The supplies against the contract had not fructified¹³ as of April 2014.

Meanwhile, Principal Director Weapon Equipment (PDWE), in response to an audit query, stated in September 2012, that delay in materialisation of spares has had an adverse impact on the functioning of 'X' class submarines.

(III) Incomplete documentation of the contract

The firm was required to furnish a Performance Bank Guarantee (PBG), against the contract concluded on 16 August 2010 within 30 days of receipt of the confirmed order. Additionally, the PBG is required to be valid upto 60 days beyond the date of warranty. M/s ROS (I), however, submitted the PBG valuing ₹1.59 crore on 11 April 2012, although, they were required to submit the PBG by 15 September 2010. We observed (October 2013) that the PBG expired on 02 July 2013, while the process of granting extension to delivery period was underway, but DWE, IHQ MoD (Navy) did not make any timely efforts to get the PBG extended. Given the fact that PBG lodged by the firm belatedly had also expired, DWE, IHQ MoD (Navy) were in a situation, wherein, they could not force the firm to make supplies against the contract. DWE, IHQ MoD (Navy), in its reply, informed (November 2013) that letter for extension of PBG was issued to the firm on 07 August 2013. The reply further vindicates the audit conclusion

¹³ Information furnished by DWE, IHQ MoD (Navy) under their letter no. WM/0468/Audit dated 29.04.2014 vis-a vis specific audit queries (April 2014)

as the letter for extension was written belatedly more than a month after expiry of the PBG.

In sum, not only were the spares contracted belatedly, costlier by ₹2.94 crore, but the delay also had an adverse fallout on the maintainability/exploitation and operational capability of the 'X' class submarines. In addition, the spares projected for procurement in March 2007 were yet to be delivered as of April 2014.

The matter was referred to the Ministry in May 2014; their reply was awaited (September 2014).

4.5 Procurement of an item at exorbitant cost

Navy procured generic Memory Cards on a resultant single tender basis at an exorbitantly high rate, on the plea that, the Memory Card was pre loaded with special to type software. This resulted in extra expenditure of ₹1.10 crore.

The Defence Procurement Manual 2009 (DPM-2009) stipulates *inter-alia* that the specifications of items to be procured should be clearly spelt out, keeping in view the specific needs of the procuring organisations, which would meet the basic needs of the organisation without including superfluous and non-essential features, which may result in unwarranted expenditure. The DPM also provides that the procuring authority should satisfy itself that the price of the selected offer is reasonable and that where there is lack of competition and there are clear grounds to believe, that the lack of competition was due to restrictive specifications, the possibility of reviewing the specifications to facilitate wider and adequate competition should be considered.

Our scrutiny (March 2013), of a procurement by Navy at Flag Officer Naval Aviation (FONA), Goa, revealed that 20 "Memory Cards" of SANDISK PCM CIA ATA were procured, on a resultant single tender basis, at an exorbitant price, causing an extra expenditure of ₹1.10 crore. Details follow:

The Sea Dragon Mission Suite (SDMS) and Flight Data Recorder (FDR) installed onboard the Ilyushin 38 (IL 38) SD aircraft require solid state memory cards (Part No. SanDisk PCM CIA ATA) to undertake recording of mission data.

Based on the Annual Review of Demands 2009-2010 (ARD 2009-10) in July 2009, a projection was made by Material Organisation, Goa (MO Goa), for procurement of 70 types of spares for IL-38 SD aircraft. The approximate cost of all the spares worked out to ₹31.15 lakh which included 20 numbers of Memory cards at an estimated cost of ₹1.50 lakh, based on the Last Purchase Price (LPP) for this item, earlier procured from M/s BAC Enterprises, Goa at ₹7250 per unit in the year 2008.

Accordingly, the Request for Proposal (RFP) was raised (October 2009) for the 70 items, including 20 numbers of Memory cards for the IL-38 SD aircraft. The RFP brought out the part number of the item as Sandisk PCM CIA ATA. The tender enquiry was floated (October 2009) to 12 short-listed bidders. M/s SPETS TECHNO EXPORT (M/s. STE), New Delhi (representative of M/s Spets Techno Export, Ukraine) was the only firm which bid (January 2010) for the Memory Card.

Our scrutiny (March 2013) showed that M/s STE, the resultant single tenderer for the Memory Card had quoted (January 2010) for 20 numbers of the item, at a total cost of USD 2,24,000 [@ USD11,200 per unit *i.e.* ₹5.30 lakh per unit @ 1 USD = ₹47.36]. For the same item, the LPP of M/s BAC Enterprises, Goa was ₹7250 in year 2008, which had been escalated by six *per cent* (approx) by Navy, to arrive at the estimated price of ₹7500. Thus, the resultant single tender offer was 6972 *per cent* higher than the escalated LPP. Despite this, no Price Negotiation Committee (PNC) was constituted, as required by the DPM. Thereafter, rate was accepted (August 2010) and the contract concluded (September 2010) with M/s STE. The items were received at MO (Goa) in August 2011.

We observed (March 2013), that though the item procured in 2008 and 2010 bore the same Part No. viz. "Sandisk PCM CIA ATA", but the description was changed (July 2009) by MO (Goa) from 'PCM CIA ATA with Interfacing Software' mentioned in the procurement of 2008 to 'Memory Card (Flash Disk) of TBN-K-4' in the procurement of year 2010. Further, our scrutiny

(March 2013) also revealed that despite the changed description, the required item was identical in its Part No. to the previous procurement. Thus, an item having the same Part No., procured by MO, Goa in 2008 at ₹7250 per unit was procured by FONA, Goa in 2010 at an exorbitantly high rate @ USD 11,200 per unit *i.e.* ₹5.57 lakh per unit. This resulted in an extra expenditure of ₹1.10 crore.

In response to our observations (March 2013) FONA, Goa sought to justify (February 2014) the high cost of the item procured in 2010 as compared to the item procured in 2008, stating that this was because of special to type software (KARTA) installed in the Memory Cards, used on aircraft FDR.

The reply is not acceptable, as at no stage of the procurement process, the installation of the special to type software (KARTA) in the Memory Card was shown as requirement. Even the RFP did not specify requirement for software to be installed in the Memory Card. Further, our scrutiny (March 2013) also revealed that despite the changed description, the required item was identical in its Part No. to the previous procurement. The users of the item in the Navy, accepted (April 2014) that the inter-changeability and usage of memory cards issued to them in 2008 is the same as the memory card issued to them in 2014. In any case, with the difference in price between the escalated LPP and the resultant single tender at 6972 *per cent*, negotiations should have been resorted to, if necessary, as proposed by SSTO and CSO (T) in April 2010. However, this was not done.

Thereafter, FONA, Goa (May 2014) while accepting the Audit observation (April 2013) agreed that the firm M/s Spets Techno Exports had charged exorbitant rates as compared to LPP and also not supplied memory cards of the make and description as stipulated in the supply order. FONA, Goa, however, stated that necessary corrective actions such as introducing the memory card with generic description, incorporating LPP and Last Purchase Year (LPY) in the Comparative Statement of Tender (CST) and that single quote items would be accepted based on LPP/LPY *etc.* were being contemplated. Thus, deviation from laid down norms of procurement, resulted in an extra expenditure of ₹1.10 crore.

The matter was referred to the Ministry (May 2014); their reply was awaited (September 2014).

4.6 Excess procurement of electrode

While concluding a Rate Contract with a supplier, Material Organisation, Visakhapatnam, did not insist on staggered supply of quantities. This led to excess procurement and consequent expiry of the item worth ₹1.68 crore.

As per Defence Procurement Manual (DPM-2009), a Rate Contract (RC) enables procurement of indented items promptly, with economy of scale and also cuts down the order processing and inventory carrying cost. RC is considered suitable for fast moving items having short shelf life etc. This apart, the Material Planning Manual of Navy prescribes staggered deliveries in case of shelf life items.

We observed (September 2013) deviations from the above provisions, in RC concluded (August 2009) and operated by Material Organisation, Visakhapatnam [MO (V)] for procurement of Welding Electrodes, MO (V) procured (April 2011) huge quantities of the item instead of procuring the item progressively. This led to excess procurement and consequent loss to exchequer due to shelf life expiry of the item worth ₹ 1.68 crore. Details follow:

MO (V) raised (June 2008) an indent for procurement of 30,000 kg of Welding Electrodes¹⁴. The Welding Electrode has a limited shelf life of 24 months from the date of manufacturing. MO (V) concluded (August 2009) a Rate Contract (RC) with M/s Honavar Electrodes Pvt. Ltd. Mumbai for the period from August 2009 to December 2010, which was extended from time to time up to August 2012.

We noticed (September 2013) that Headquarters, Eastern Naval Command [HQ ENC (V)] had promulgated (December 2008) the Admiral Superintendent's (ASDs) Critical List¹⁵ consisting of 542 items which included 10,000 kg of the Welding Electrodes. However, in view of forthcoming refits of INS Jalashwa and INS Rajput, scheduled to be undertaken in 2011, Naval Dockyard, Visakhapatnam [ND(V)] sought (January 2011) one time approval of HQ ENC

¹⁴ Welding Electrode 48 x N4 of 4 MM dia and 450 mm length

¹⁵ ASD Critical List- is drawn up by the Dockyards in consultation with Material Organisations, for items which are required for the Refit of Ships.

(V), for additional quantity in respect of 26 items mentioned in the ASD Critical List. Of these 26 items, one of the items was Welding Electrodes, for which ND (V) had projected (January 2011) requirement of 1,28,860 kg (including 65,000 kg for INS Rajput and 53,860 kg for INS Jalashwa) for their refits, as against the approved quantity of 10,000 kg as per ASD Critical List. At this point (January 2011), MO (V) held a stock of 30,802 kg of this item.

The refits were scheduled from April 2011 to September 2013 and MO(V) was aware of this refit schedule. Accordingly, MO (V) raised an indent in January 2011 for 1,30,000 kg of the Electrodes based on the additional ASD Critical items. MO (V) placed (April 2011) the purchase order for 1,30,000 kg on M/s Honavar Electrodes Pvt. Ltd. Mumbai, based on an existing Rate Contract. The unit cost was ₹184.19 per kg, with total order aggregating to ₹2.39 crore to be supplied by August 2011. The entire quantity of 1,29,991 kg was supplied by the firm in May - June 2011 itself.

We observed (September 2013) from the Electronic Bin Card that between July 2011 and July 2013, MO (V) issued 39320 kg of welding electrodes to ND (V).

We took up the matter (September 2013), both with ND (V) and MO (V). ND (V), while accepting the fact that only 20,824 kg of electrode was actually consumed under both the refits, replied (October 2013) that the initial estimate was based on the predicted plate renewal anticipated during the refit; however the actual need for renewal was known only after commencement of refit. The fact remains that the estimate made by ND(V) was abnormally high and was approximately 13 times the welding electrodes requirement as per the ASD critical list of approximately 10,000 kg. This showed grossly incorrect projections made by ND (V).

MO (V) (October 2013), admitted that based on previous consumption and experience, approximately 35,000 kg of the item was required to be procured. However, based on the ND (V)'s projections, quantity of 1,28,860 kg was provisioned. MO (V) also stated that the item was also being offered to other depots for utilisation within the shelf life.

The reply of MO (V) is not acceptable as despite the available RC, which could have been used for staggered deliveries, to meet actual requirements of ND (V), MO(V) procured the entire quantity in one go, though received in two lots within a span of less than a month (31 May 2011 to 28 June 2011). Moreover, MO(V) was aware that the refits were scheduled from April 2011 to September 2013 *i.e.* spanning more than two years. This resulted in overstocking of the items with resultant expiry during storage.

Further scrutiny (June 2014) of the Electronic Bin Card revealed that 10040 kg were issued in December 2013 and April 2014. Thus, a total of only 49360 kg of welding electrodes was issued. This left a balance of 91020 kg at MO (V) as on June 2014.

The shelf life of these electrodes supplied in May-June 2011, was 24 months from the date of manufacture and if stored in specific conditions the shelf life could be extended by one year *i.e.* upto May 2014. This implied that the shelf-life of the entire stock of 91020 kg valuing ₹1.68 crore which was lying unutilised (June 2014) had expired.

In its reply, Ministry agreed (August 2014) that standard shelf life of the welding electrode was 24 months, however, contended based on manufacturer's claim that the welding electrodes in this particular case could be utilised with prior in-house heating. Ministry also contended that delivery of the item was staggered in two lots, to cater to two refits.

The reply of the Ministry is not acceptable. The shelf life of the item was 24 months, which could be extended by another year, if the item is stored in specific conditions. The contention of the Ministry that the item could be used with heating was solely based on the manufacturer's claim and is in deviation of extant stipulations wherein the promulgation of shelf life was the responsibility of Controller of Material Planning. Also, the Ministry's contention that the item was received in two lots has to be seen in the light that the period of refits were scheduled from April 2011 to September 2013, and that the purchase order was placed for complete supply at one go, though delivered in two lots within a span of a month in May - June 2011 itself, which is hardly staggered deliveries and were not compatible with the refit schedule.

Thus, exaggerated projected requirements of 1,28,860 kg by ND(V) and due to MO(V) resorting to one-time procurement in contravention to the provisions contained in the Material Planning Manual of Navy, led to holding of shelf life item of ₹1.68 crore despite having a rate contract against which the item could have been procured in a staggered manner. In fact, the stock available with MO (V) (30,802 kg) in January 2011, before placing of the indent, was sufficient to meet the refit requirement of both the ships since only 20,824 kg of electrodes was consumed under both the refits.

Miscellaneous

4.7 Recovery at the instance of Audit

Delay in crediting the proceeds of scrap sale, resulted in accrued interest of ₹39.23 lakh which was recovered from M/s Mazagaon Dock Limited (M/s MDL) at the instance of Audit.

Government of India accorded (January 1998) sanction for acquisition of three CODOG (Combined Diesel Or Gas) Frigates from M/s Mazagaon Dock Limited, Mumbai (M/s MDL) and the Project was commenced in December 2000. Based on the Government sanction, Ministry of Defence concluded (June 2008) a contract with M/s MDL for acquisition of three CODOG Frigates at a cost of ₹7884 crore. As per Article 3.9.3 of the contract, all scrap arising from the work under this contract belonged to the Owner *i.e.* the Indian Navy, and the Builder (M/s MDL) was required to arrange disposal of the scrap as authorised by the Owner, progressively in each year, and credit the proceeds to the Owner.

Our scrutiny (April 2013) showed that though the scrap was being sold by the Shipbuilder each year from 2007-08 to 2011-12¹⁶, the credit was not being passed on to the Navy. It was noticed that scrap valuing ₹1.96 crore had been disposed off by M/s MDL since 2007-08 onwards up to 2011-2012. However, action to credit this accrued amount of ₹1.96 crore by way of three even dated credit Bills

¹⁶ Value of scrap amounting to ₹1.96 crore for the period 2007-08 to 2011-12 against contract No. 016/DND/C/98-99/P-17 dt 10.06.2008, as per MDL Bill Nos: (a) 12617/2711 dt 01.06.2012 (b) 12627/2592 dt 01.06.2012 and (c) 12637/2106 dt 01.06.2012

was initiated by M/s MDL only in June 2012, belatedly on their own accord, without any demand for the same by Navy. The amount of ₹1.96 crore accrued with M/s MDL since 2008 was credited to the Government accounts only in August 2012, *i.e.* after almost five years.

We pointed out (April 2013) that as per the contract, the proceeds from disposal of the scrap were to be credited progressively each year. Since this was not done, interest on the amount retained was to be recovered from M/s MDL at the average rate specified each year for interest payable on advance taken, which worked out to ₹39.23 lakh.

This was accepted by Navy (May 2013) and amount recovered (May 2013) from M/s MDL.

The matter was referred to the Ministry in April 2014. We further enquired (June 2014) reasons for failure of the Navy to ensure the credit of proceeds from scrap in the same year of sale, however, the reply was awaited (September 2014).

Reply of the Ministry to the paragraph (April 2014) was also awaited (September 2014).

4.8 Recovery/Saving at the instance of Audit

Recoveries/Savings to the tune of ₹1.55 crore were effected at the instance of Audit.

DPM 2009 prescribes that the procuring authority should satisfy itself that the price of the selected offer is reasonable and that the purchases of stores are made in the most economical manner.

Case I: Recovery of excess payment of ₹79.85 lakh at the instance of audit

Audit noticed (January 2013) violation of the norm by Material Organization, Visakhapatnam [MO (V)] in purchase (September 2011) of 57 types of spares for two Air Conditioned (AC) compressors from a Proprietary Article Certificate (PAC) firm viz. M/s York India Ltd at a cost of ₹1.88 crore (exclusive of Value Added Tax (VAT) and discount) and pointed out an excess payment of ₹79.85 lakh due to non-verification of the firm's rate with the Original Equipment Manufacturer (OEM)'s rate. MO (V) accepted (May 2013) the omission and recovered (July 2013) ₹79.85 lakh from the firm.

Case II: Savings of ₹40.71 lakh at the instance of audit

In pursuance of the Audit observation (January 2013), MO (V) amended another Purchase Order (September 2011) for 56 types of spares of Refrigeration Compressor on the same Proprietary Article Certificate (PAC) firm viz, M/s York India Ltd at a cost of ₹1.13 crore in August 2013 to ₹71.54 lakh. MO (V) confirmed (January 2014) to audit that the unit rate and total order value was amended and a saving of ₹40.71 lakh was effected at the instance of audit.

Case III : Savings of ₹34.26 lakh due to cancellation of purchase order at the instance of audit

Rule 137 (i) of General Financial Rules prescribes care to avoid purchasing quantities in excess of requirement to avoid inventory carrying costs.

Audit observed (September 2011) violation of this Rule in a Purchase Order for three types of spares for Radar Rashmi, placed (November 2010) by MO (V) on M/s Bharat Electronics Ltd (M/s BEL) as the quantity ordered was in excess of requirement. Audit suggested (September 2011 and September 2012) MO (V) to review/cancel the PO. MO (V) cancelled (December 2012) the PO and intimated (July 2013) audit that PO was

cancelled based on audit observations (September 2011 and September 2012). Thus, a saving of ₹34.26 lakh was achieved after audit pointed out the incorrect assessment of requirement of spares made by MO (V).

The matter was referred to the Ministry (May 2014) and the reply is awaited (September 2014).

Works Services

4.9 Idling of investment due to non-synchronisation of civil works and provisioning of specialised equipment

The urgent requirement of Advanced training facilities for Marine Commando East (MARCOS) sanctioned at a cost of ₹20.21 crore in March 2010, is yet to be fulfilled. Non-synchronisation of civil works and provisioning of specialised items has also led to idling of investment of ₹6.98 crore.

As per Defence Works Procedure (DWP) 2007 stipulates that “Special” works require close interaction with user, specialist design consultants and vendors of plant and equipments. The DWP also requires that for planning New Works, the Statement of Case should also contain whether the proposed project includes procurement/ installation / storage of new or special equipments or armaments, with which the civil works have to be integrated.

At Headquarters, Eastern Naval Command, Visakhapatnam [HQENC (V)] we noticed (June 2013) inefficiencies in implementing a special work ‘Provision of covered work up station at MARCOS East (E), Visakhapatnam’.

MARCOS (E) is the premier Special Operations unit under the direct operational command of the Flag Officer Commanding-in-Chief, Visakhapatnam. The force is mandated to undertake special operations in all the three dimensions, *i.e.* sea, air and land which demand a high level of professional competence and regular training.

Due to lack of requisite infrastructure, the unit had been dependent on Army facilities for conduct of training, or when Army facilities were not available, in temporary makeshift arrangements. This resulted in dilution of training standards to a large extent. Accordingly, a Board of Officers (BOO) was convened (January 2008) to examine and recommend the required works services, by the HQ, ENC. Based on the proceedings, the HQ, ENC (V) recommended (June 2009) 'Provision of covered work up station at MARCOS East, Visakhapatnam' to the Directorate of Works, IHQ MoD (Navy), including the recommendation that:

- a. Covered Work Up Station comprising the Advanced Training Skills Section / Ancillaries and Indoor Urban Firing Range is essential services,
- b. For the Indoor Urban Firing Range, MES would be required to construct the structure only and provision of associated basic facilities only. Rest of the Range components were to be provisioned by single point agency (OEM) as a complete shooting range solution, and
- c. OEM should be a well known supplier with at least 15-20 similar projects executed with special forces / law enforcement agencies etc. Alternatively, the project be undertaken by a PSU.

In the meantime, while perusing the draft Board Proceedings, the Chief Engineer (Navy), Visakhapatnam [CE, (N) (V)] had opined (May 2009) that indoor range target system and associated hardware and software did not form part of MES Works Services.

Though the Board Proceedings clearly showed two separate components in this special work *i.e.* works services and non-work services; the two were clubbed together as work services by HQ, ENC and forwarded (June 2009) to Directorate of Works in the IHQ MoD (Navy) for approval. The distinction made by the Board was also lost sight of at the IHQ MoD (Navy) level and Ministry too, sanctioned both the components as works services to be undertaken by MES.

Subsequently, Ministry accorded (March 2010) Administrative Approval for the work "Provision of Covered Workup Station at MARCOS (E), INS Kalinga,

Visakhapatnam” at a cost of ₹20.21 crore, to be carried out by MES. Despite being aware that the subject special work required selection of a vendor for the Weapon Training Simulator, Indoor Urban Shooting Range and Flexibility Training Fixtures and that the specifications were to be made available by the vendor, even before selection of such supplier, the CE (N) (V) concluded (December 2010) a contract with M/s K. Kumar Raza Projects (P) Ltd, Visakhapatnam for civil works for ₹6.97 crore. This was contrary to the requirement that special works require interaction with consultant / vendor for the equipment, which were yet to be identified. Work commenced in January 2011 and was completed in April 2014.

Further, instead of finalising the supplier for the equipment, the HQ ENC (V) forwarded (November 2011) a list containing known sources of supply with respect to proposed OEM items *i.e.* non-MES works to CE (N) (V). However, CE (N) (V), requested (February 2012) the HQ ENC (V) to finalise and forward detailed specifications of equipment, to enable its inclusion in the tender.

After much delay and when the construction of the building was at an advance stage, the CE (N) (V) requested (May 2012) that a technical expert be deputed from the user unit to inspect the building for feasibility of installation of equipment and to take necessary corrective measures. CE (N) (V) stated (May 2012) they were finding it difficult to take up tender action for provision of the three items of work - Weapon Training Simulator, Indoor Urban Shooting Range and Flexibility Training Fixtures, as these items did not fall under the category of ‘works services’. CE (N) (V) requested (May, August and December 2012) HQ ENC to execute these items of work.

After considerable correspondence among the HQ, ENC, CE (N) (V) and the E-in-C Branch during May 2012 to April 2013, HQ, ENC decided (April 2013) to revise the Administrative Approval by reducing the scope of work only to civil works for the building and raise a reduction statement. Accordingly, CE (N) (V) prepared (April 2013) the reduction statement, reducing the sanctioned amount to ₹11.24 crore.

Audit observed (June 2013) that MARCOS (E) forwarded only in April 2013 detailed Naval Staff Qualitative Requirements (NSQRs) for the Indoor Urban Firing Range to HQ ENC (V), which in turn, forwarded (April 2013) the same to IHQ MoD (Navy). Thus, MARCOS (E) took almost five years to communicate their technical requirements, after the need for the covered work station was raised in year 2008.

On its part, though CE (N) (V) had observed (May 2009) that this was not part of MES work services, it was only later when the entire work had been tendered out and reached an advanced stage, did the CE(N)(V) express inability to undertake the non-works portion of the sanction especially when this work critically required integration of civil works with the special equipment to be procured. Resultantly, the non-works package *i.e.*, provision of special equipment is yet (July 2014) to be sanctioned when an expenditure of ₹6.98 crore, has already been incurred (March 2014) on the civil structure rendering the investment idle.

More importantly, the MARCOS (E) is yet to have its own advanced professional training facility, need for which was expressed in October 2008.

To our observations (June 2013) HQ ENC (V) admitted (July 2013) that as per Board Proceedings, MES was required to construct the structure only and provide basic facilities, while the rest of the components were required to be positioned by the selected OEM as a complete shooting range solution. HQ ENC (V) further added that MES were associated with the Board Proceedings and should have raised their objection during the Board stage. HQENC (V) also stated that only one OEM could produce the Qualitative Requirements (QRs) of the equipment which was projected by the Board and inputs for the civil work were obtained from them.

The HQ, ENC's statement that MES did not object to inclusion of non-MES portion at the time of Board Proceedings, was factually incorrect as CE (N) (V) had observed (May 2009) to MARCOS (E) that the indoor range target system and associated hardware and software did not form part of MES work service .

In sum, the indifferent approach of both HQ ENC (V) and MES authorities by not taking into account all pertinent factors in the special work led to

non-synchronisation of civil works and procurement of specialised items thereby leading to idling of investment of ₹6.98 crore on civil works.

The matter was referred to Ministry in May 2014; their reply was awaited (September 2014).

4.10 Non-availability of a dedicated fuel pipeline and blocking of funds

Lack of co-ordination between Coast Guard and Navy over the alignment of pipeline led to idling of ₹2.20 crore, since April 2004. Besides, fuel pipeline to a jetty could not be provided.

Government of India, Ministry of Defence (MoD) accorded (March 1998) administrative approval for construction of a jetty for Coast Guard Ships at Port Blair, at a cost of ₹24.81 crore. This inter-alia included an amount of ₹28.75 lakh for laying of a fuel line up to Indian Oil Corporation (IOC) terminal, to enable round the clock availability of fuel with ease to the Coast Guards ships and vessels. The Coast Guard jetty was commissioned in July 2002 without the fuel pipeline as the same was required to be laid after completion of the jetty.

In February 2004, MoD enhanced the cost of the project to ₹26.77 crore. The increase of ₹1.96 crore in the project, was reportedly due to increase in cost of laying the fuel pipeline from ₹28.75 lakh to ₹2.20 crore. This increase was based on firmed up costs (September 2002) after finalising the alignment of fuel pipeline. The work was to be executed by the Military Engineer Services (MES) authorities or under arrangements made by them, as per the Regulations for MES.

As IOC had committed that pipeline work would be done by them, accordingly, MES offloaded the work to IOC. The MES authorities deposited (March 2004) an advance amount of ₹2.20 crore with M/s IOC for laying of pipeline. Since the pipeline was required to be routed through naval area, M/s IOC requested (August 2004) MES to obtain necessary permission/ approval from competent authority. Accordingly, Headquarters Coast Guard Region (Andaman & Nicobar) Port Blair [HQ CGR (A&N)] requested (September 2004) Headquarters Andaman & Nicobar Command, Port Blair [HQ ANC] to issue the

necessary No Objection Certificate (NOC). The Integrated Headquarters Ministry of Defence (Navy) granted the NOC after almost a year and half in January 2006.

In the meantime, based on the Ministry sanction of March 1998 as revised in February 2004, a Memorandum of Understanding (MoU) was entered into (October 2005) between the Navy and the Coast Guard for the purpose of laying a new fuel pipeline from IOC Terminal to the Coast Guard Jetty through Naval land at Port Blair. The MoU stipulated that the fuel pipe line would pass through the Naval land via Horn Bill Nest (Officers' Mess).

The work was commenced by M/s IOC in March 2006, and pedestals for pipeline support upto 90 meter were constructed and painting of certain portions of pipes was also undertaken at a cost of ₹70 lakh. However the work had to be halted in October 2006, due to a major landslide.

After three years, M/s IOC proposed (September 2009) an alternate route for laying the pipeline for which technical approval was given by Chief Engineer (A&N) Zone (December 2009). The alternate alignment proposed by M/s IOC was away from the landslide prone shoreline and was to cross the road in front of the Hornbill Nest House (Officers' Mess).

HQ ANC expressed (May 2010) reservations on the new alignment and suggested that keeping in view the safety and security aspects, the pipeline passing through naval area should be laid buried in the ground. However, IOC held that this was not technically feasible, as they did not lay pipelines underground along the shoreline. Thereafter, a joint study board, convened by HQ, ANC had also recommended that the fuel pipeline may be routed through the road leading to Hornbill Nest through a metal conduit. This was also not agreed to by the Navy, as Navy wanted an alternate plan around Hornbill Nest and not breaking the road in front of Nest. An impasse was reached and could not be resolved.

Meanwhile, the Chief of Staff at HQANC decided (January 2011), not to give NOC to Coast Guard, as Navy had taken up (May 2010) the case for shifting the IOC terminal from its present location, due to safety hazards the terminal posed.

CE (A&N) was also directed (January 2011) by HQ ANC to take up the matter with IOC for refund of money. This was also endorsed (March 2011) by the Commander-in-Chief HQ ANC [CINCAN] who directed CGHQ that the work be foreclosed and to initiate action to obtain refund of ₹2.20 crore from IOC. After protracted correspondence, HQ CGR (A&N) once again took up the case (June 2013) with HQ ANC to reconsider the case and issue the NOC.

We observed (November 2013) that non-issue of NOC resulted in blocking of ₹2.20 crore which was deposited with M/s IOC in March 2004 with no resultant progress in the last nine years. Our scrutiny (November 2013) in fact, revealed that HQ ANC, had opined (October 2013) to Director General, Indian Coast Guard, that the alignment/ route proposed by IOC was not acceptable to Navy as it goes through or close to the Naval infrastructure.

This stand was however adopted subsequently by Navy as during the initial MoU stage itself Navy had agreed and was well aware that the fuel pipe line would pass through the Naval land via Horn Bill Nest. At that stage Navy did not raise concerns about the proximity to the Naval land and safety hazards/ security aspects. Even the alternate line proposed by IOC was to pass through the same Naval area for which Navy had no reservations in the early stages and had issued the NOC (January 2006).

In reply, the CG authorities stated (December 2013) that the payment was made in anticipation of NOC from Navy and IOC had even procured pipelines and other fitments worth approximately ₹70 lakh. An amount of ₹26 lakh had been also incurred for transportation of fuel through bowsers¹⁷ during the period.

Thus, the major benefit envisaged of round-the-clock availability of fuel, could not be achieved due to the change in the stand taken by HQ ANC regarding the laying of fuel pipeline, required for supply of fuel to ICG vessels. Navy/Coast Guard will thus, have to continue with the existing system of replenishment of fuel to the jetty by bowsers. This despite the fact that the administrative approval given by MoD in 1998 for construction of the jetty also included the laying of the fuel line up to Indian Oil Corporation (IOC) terminal, to enable

¹⁷ Bowser: Tanker used for fuelling Aircraft or other vehicles or for supplying water.

round the clock availability of fuel with ease to the Coast Guards ships and vessels.

An amount of ₹2.20 crore has been blocked for the past ten years, with no tangible benefit. Also till such time, the fuel pipeline is laid, the recurring expenditure on transporting fuel through bowsers would continue to be incurred. Moreover, due to the absence of enough bowsers the supply of fuel to the ships is delayed, affecting the operational flexibility of both Coast Guard and Naval ships.

The matter was referred (May 2014) to the Ministry; their reply was awaited (September 2014).

CHAPTER V: COAST GUARD

5.1 Avoidable payment of late fee by Indian Coast Guard

Coast Guard did not reconcile the payment terms offered by Maharashtra Housing and Area Development Authority with the terms sanctioned by the Ministry, in its acquisition of flats, which resulted in payment of late fees of ₹3.74 crore including ₹0.98 crore of the late fees due to delay in processing the payment of balance amount of ₹3.97 crore. Payment of interest of ₹0.45 crore due to delay in payment of service charges of ₹0.33 crore was also avoidable. Besides sanction from Competent Financial Authority (CFA) was not obtained for these payments totalling to ₹4.19 crore.

The General Financial Rules, stipulate that no authority may incur any expenditure or enter into any liability involving expenditure from government account unless the same has been sanctioned by a competent authority. Also, Financial Regulations exist which stipulate that the terms of contracts must be precise and definite and there must be no room for ambiguity or misconstruction therein. The general principles further stipulate that even in cases where a formal written contract is not made, no order for the supplies etc. should be placed without at least a written agreement as to the price.

Based on the proposal for acquisition of 224 flats submitted by the Coast Guard in March 1997, Ministry of Defence (Ministry) accorded two sanctions in September 1997 and March 1999 for the purchase of 79 and 144 flats at a total cost of ₹19.13 crore and ₹15.90 crore respectively. The sanctions also stipulated payment of lease rent of the land, Non Agriculture assessment charges etc. payable to the State Government as per rates mentioned in the sanction or as per rates revised by Mumbai Housing and Area Development Board, a unit under Maharashtra Housing & Area Development Authority (MHADA) from time to time. Accordingly, Coast Guard purchased these flats and took over 79 flats in December 1997 and 144 flats in May 1999.

Our scrutiny (June 2012 and May 2014) revealed that non-observance of the above mentioned financial principles led to the avoidable payment of late fee and interest by Coast Guard:

1) Avoidable payment of late fee without obtaining approval of CFA

In the first instance, Coast Guard initiated (June 1998) a proposal for purchase of 144 flats at a net cost of ₹17.89 crore after deducting 10 *per cent* discount offered on the price of ₹19.87 crore. After receipt of the proposal for approval in the Ministry, a committee was formed (November 1998) by Ministry for verifying the reasonableness of the prices. The committee recommended (March 1999) that as the prices of properties were falling in Mumbai, MHADA should be asked to provide at least 20 *per cent* discount on the flats. It was also decided (March 1999) by the Ministry to make payment in two instalments *i.e.* 50 *per cent* payment during the year 1998-1999 and balance payment during next financial year after all the defects in the flat were rectified. Accordingly, Coast Guard requested (March 1999) MHADA for the 20 *per cent* discount on the quoted price. However, the condition laid down by the Ministry relating to the payment terms *i.e.* second instalment of 50 *per cent* would be payable only after defect rectification in the flats was carried out by MHADA was not communicated to MHADA.

In March 1999, MHADA agreed to offer a discount of 20 *per cent* on the total price of ₹19.87 crore subject to the condition that the entire payment towards the flats was made before 31 March 1999. MHADA also specifically stated that to avail the discount of 20 *per cent*, Coast Guard might not wait till the completion of defect rectification. On the basis of this final offer (March 1999) of MHADA, the case was submitted (March 1999) in the Ministry for approval of the Defence Secretary as CFA. However, the CFA was not apprised of the payment conditions stipulated by MHADA for availing the 20 *per cent* discount. The CFA approved (March 1999) the proposal and sanction was accorded (March 1999) for purchase of 144 flats at a cost of ₹15.90 crore, with payment terms of 75 *per cent* of cost at the time of handing over of flats and balance 25 *per cent* in next financial year, after rectification of defects.

We observed (May 2014) that even though, the payment terms sanctioned by the Ministry were at variance with the terms offered by MHADA, Coast Guard neither brought the fact to the notice of MHADA nor did it deliberate and negotiate the sanctioned terms of payment with MHADA. The terms and conditions of MHADA with regard to the payment of sale price were also reiterated by MHADA to the Coast Guard while the flats were handed over to Coast Guard in May 1999. Further, the terms and conditions of sale of flats stipulated that *"for delay in payment of any instalment over due date as per time schedule given in offer letter, the allottee shall be liable to pay interest at the rate of 16 per cent per annum for the period of delay in payment of particular instalment"*.

Thereafter, in accordance with the Ministry's sanction, Coast Guard released the first instalment of 75 per cent of sale price amounting to ₹11.92 crore in March 1999 and withheld the balance amount of ₹3.97 crore to be paid after the completion of defect rectification ignoring the stipulation of MHADA. After completion of defect rectification in August 2003 by MHADA, the works officer (LA&O) of CGHQ requested to release the balance amount to MHADA in September 2003 and the same was approved by the DG Coast Guard in October 2003. The sanction for release of the second instalment of ₹3.97 crore could be obtained from the Ministry only in March 2004 and the balance amount was paid to MHADA in February 2005. Further no correspondence from MHADA for demanding release of remaining amount during March 1999 to February 2005 was found on record.

In April 2006, however, MHADA demanded late fee of ₹3.74 crore i.e. @ 16 per cent per annum on the balance amount of ₹3.97 crore for the period from 02 April 1999 to 17 February 2005. Coast Guard, in November 2007, requested MHADA for waiver of the late fee on the grounds of being a defence organisation. Defence Estate Officer (DEO) Mumbai also requested MHADA (February 2008) for waiver of the late fee on similar grounds. However, MHADA did not agree to waive this late fee. Finally, in March 2008, on the basis of funds released by Coast Guard Headquarters in March 2008, DEO made a payment of late fee of ₹3.74 crore to MHADA. Further, no sale deed and lease deed was signed with MHADA for the flats purchased in 1997 and 1999, till July 2012 and December 2013 respectively. The present status of the lease deeds are

awaited (September 2014) from the Dte of Infra and Works at CGHQ, New Delhi.

We observed (May 2014) that differences in the offered and accepted terms of payment for purchase of these flats resulted in a committed liability for payment of the late fees leading to an avoidable payment of late fees. However, this was not done. Had the balance amount of ₹3.97 crore been released promptly when the flats were handed over after rectification of defects in August 2003, payment of ₹0.98 crore (included in ₹3.74 crore) could have been avoided. The payment of the balance amount of ₹3.97 crore was made to MHADA only in February 2005 *i.e.* 18 months after the completion of defect rectification, despite being aware of the provision of payment of late fees at a rate of 16 *per cent per annum*, Coast Guard took 18 months (from 02 August 2003 to 17 February 2005) in processing the payment of the second instalment which resulted in avoidable payment of late fees of ₹0.98 crore (part of ₹3.74 crore) to MHADA for the said period. Moreover, no sanction from the CFA was sought for payment of late fees of ₹3.74 crore to MHADA by Coast Guard. Since, the sanction as accorded by the CFA for acquisition of flats in March 1999 stood modified due to payment of late fees, a revised sanction of CFA was required.

2) Avoidable Payment of interest of ₹0.45 crore on Service Charges

Offer letter of MHADA for allotment of flats to Coast Guard had a provision of payment of Lease Rent and Non Agriculture Assessment Charges at prescribed rates or as per the rates revised by MHADA from time to time. The sanctions accorded by Ministry in 1997 and 1999 also provided for these payments.

Coast Guard did not pay these service charges till July 2007 to MHADA. Consequently, MHADA claimed (July 2007) unpaid service charges (Lease rent, NA Charges etc.) on 223 flats for period up to July 2007 amounting to ₹0.33 crore and interest on the unpaid amount *i.e.* ₹0.45 crore. Coast Guard again sent a request (November 2007) for waiver of interest on these service charges to MHADA but the request was not acceded to. Therefore, Coast Guard had to pay (March 2008) interest on service charges of ₹0.45 crore along with the late fee to MHADA. As the payment of these service charges was provided in the sanctions, delay in payment of the same resulting in levy of avoidable

interest charges was not justified and hence avoidable. Further no approval of CFA was taken for payment of this interest to MHADA.

To sum up, lapses in communication resulting in failure to reconcile the payment terms offered by MHADA and those sanctioned for purchase of flats resulted in the payment of late fee amounting to ₹3.74 crore on balance payment of second instalment of ₹3.97 crore. Payment of ₹0.98 crore of the late fee was avoidable as it was incurred due to delay in processing of payment of the second instalment. Further, non-observance of the sanctioned provisions relating to the payment of service charges by the Coast Guard resulted in avoidable payment of interest of ₹0.45 crore on service charges. In addition, sanction of the CFA was not taken for these payments of ₹4.19 crore.

The matter was referred to the Ministry in May 2014; their reply was awaited (September 2014).

5.2 Blocking of funds and recovery of interest from a Shipyard

In deviation of laid down policy, Indian Coast Guard Headquarters (ICGHQ) sought to procure additional On Board Spares (OBS) from M/s Goa Shipyard Ltd. (M/s GSL), after the delivery of the vessels in order to utilise unspent funds of ₹1.19 crore. M/s GSL could not supply the additional OBS and the ICGHQ instead of recovering the unspent balance, let the funds remain with the shipbuilder for almost five years, leading to blocking of funds of ₹1.19 crore. On being pointed out by Audit, an amount of ₹56.53 lakh was recovered towards interest on outstanding advances.

As per the extant procedure¹ for procurement of On Board Spares (OBS) for under construction Coast Guard Ships, the OBS, as recommended by the Original Equipment Manufacturer (OEM) and approved by the Indian Coast Guard Headquarters (ICGHQ), are to be procured by the shipbuilder. Further, the policy stipulates that OBS should be procured prior to delivery of each vessel. There is no provision for procurement of OBS, through the shipbuilder, after delivery of the vessel.

¹ As per procedure stipulated vide CGHQ No.SA/0100/B &D SPARES/GEN dated 25 October 2007

Audit scrutiny (July 2012) revealed that in deviation of this stipulation, ICGHQ requested (May 2007) the shipbuilder to procure additional OBS after delivery (September 2006) of the Fast Patrol Vessels (FPVs), as unspent funds remained with the shipbuilder. However, the shipbuilder did not procure and deliver/supply the spares, and the funds continued to remain outside the exchequer for inordinately long period *i.e.* May 2007 to February 2012. Details follow:

Ministry of Defence (MoD) accorded (March 2004) sanction for acquisition of five Fast Patrol Vessels (FPVs) from M/s Goa Shipyard Ltd. (M/s GSL) at a total cost of ₹222.86 crore, inclusive of Onboard Spares (OBS) and Base & Depot (B&D) Spares. Accordingly, ICGHQ concluded (March 2005) a contract with M/s. GSL for construction and delivery of five FPVs at a total cost of ₹194.28 crore, inclusive of OBS for ₹3.81 crore for the five vessels.

The contract provided, *inter alia*, that OBS shall be procured as per owner's (ICGHQ) requirement within the stipulated cost along with the equipment and would be delivered with the vessel and that the builder (M/s GSL) shall supply a comprehensive list of "On Board" spares at the time of commissioning.

The last of the FPVs was delivered in September 2006 and the contractual requirement to supply the OBS with the vessel was fully met by M/s GSL by September 2006. However, against the total amount of ₹3.81 crore available for OBS, only ₹ 2.61 crore were utilised, leaving an unspent amount of ₹1.19 crore with M/s GSL. We observed that, instead of recovering the unspent balance of ₹1.19 crore, ICGHQ decided (May 2007) to procure additional OBS items, in deviation of the procurement procedure of OBS and the contract. ICGHQ requested (May 2007) M/s. GSL Goa to procure additional OBS under the remaining budget limit against OBS ignoring the fact that the ship had already been delivered.

It was observed that the supply of OBS worth ₹1.19 crore was still pending (September 2011), when the ICGHQ decided, that since M/s GSL had not initiated any action for supply of these spares, as per the May 2007 rates, the amount be deducted from next payment of ongoing projects. Accordingly, Coast

Guard Refit and Production Team (CGRPT) Goa, requested (January 2012), Principal Controller of Defence Accounts (Navy) [PCDA (Navy)] Mumbai for recovery of ₹1.19 crore towards non-supply of additional OBS. The amount was finally recovered from M/s GSL only in February 2012. We observed (July 2012) that since the funds of ₹1.19 crore were lying with M/s GSL for a period of more than five years, an interest of ₹56.53 lakh² @ 10 per cent should be recovered from M/s. GSL. The same was recovered in April 2014 by the office of the Deputy Controller Defence Accounts (Navy), Goa.

Ministry, while acknowledging (June 2014) that the recovery (April 2014) of ₹56.53 lakh towards interest due from M/s GSL, was because of the Audit recommendation, also stated (June 2014) that the initial list of OBS was prepared based on the consumption pattern of the spares for two years of operational requirement and there could have been under estimation due to forecast limitations. Ministry further contended that, since the contract did not prevent procurement of additional OBS within the overall financial ceiling prescribed, there was therefore no deviation to the contractual provisions.

Ministry's contention is not pertinent since the ICGHQ procedure for procurement of OBS clearly specifies, that procurement of OBS is to be made prior to delivery of vessel. Therefore, ICGHQ's action to procure additional OBS, after delivery of the vessels was incorrect. Additionally, the contract required that at the time of commissioning, OBS should be supplied along with the vessel.

Thus, though ICGHQ had a specific policy which stipulated that OBS should be procured prior to delivery of each vessel, the ICGHQ deviated from the same to procure additional OBS, only to utilize the balance extra funds after delivery of all five contracted vessels besides allowing the public funds to remain parked with M/s GSL for nearly five years. It was only at the instance of audit that an interest of ₹56.53 lakh was recovered in April 2014.

² 10% of ₹1.19 crore = ₹ 1190000

₹ 1190000 for 4 years (May 2007 to April 2011) = ₹ 4760000

₹ 1190000 for 9 months (May 2011 to January 2012) = ₹ 892500

Total Interest to be recovered = ₹ 5652500

5.3 Lapses in recovery of advances to Coast Guard personnel

There were lapses in timely recovery of advances totaling to more than ₹1 crore granted to Coast Guard personnel. The lapses were attributable to systemic deficiency in the office of the Principal Controller Defence Accounts (Navy), Mumbai.

The Defence Accounts Department (DAD) is under the administrative control of the Ministry of Defence (Finance) and the office of the Principal Controller of Defence Accounts (Navy) Mumbai [PCDA (N)] is one of the field offices under the Controller General of Defence Accounts (CGDA) of the DAD.

As per the provisions of Defence Accounts Department Coast Guard Manual, office of Principal Controller of Defence Accounts (Navy) Mumbai, Coast Guard Section (CG Section) is responsible for the maintenance of the pay accounts of all Coast Guard Officers, Sub-ordinate Officers, Naviks and Coast Guard Civilians. Further, as per the *ibid* Manual, the Imprest Audit sub-section of Coast Guard Section in office of PCDA (N), Mumbai is responsible for payment of various advances viz. House Building Advance, Motor Car / Motor Cycle Advance, Personal Computer Advance etc. and the recovery thereof along with interest till the entire amount is liquidated.

In contravention to the laid down provisions, our scrutiny (April 2013) of the records at the office of the PCDA (N) revealed a number of lapses in recovery of the advances granted/ recovery of the interest thereof in respect of Coast Guard Service personnel as well as Coast Guard Civilians. Lapses pertained to House Building Advance, Personal Computer Advance, Motor Car Advance, and Scooter Advance. We suggested (May 2013) the PCDA (N) that a review of such instances of non-recoveries be carried out to protect the interest of the Exchequer and results intimated to audit.

The office of the PCDA (N) in its reply (May/June 2013) agreed to our observations and assured full recovery of advances granted and interest thereof. Subsequently, office of the PCDA (N) intimated (December 2013) that review of all Statements of Entitlement (SOE) of CG section, regarding recovery of

interest against various advances taken by Officers / Naviks had been carried out and no lapses were found.

However, our further scrutiny (March-April 2014) revealed that the situation had not improved and the lapses in recovery of Advances and interest persisted as brought out in the following Table:

Table

Sl No.	Type of Advance	Quantum of advance where lapses were noticed	Audit Observation
1.	House Building Advance (HBA)	₹58.26 lakh involving 17 cases	<ul style="list-style-type: none"> • Recovery of interest not effected. (last recovered in November 2003) • In 5 cases even the principal amount of HBA had not been recovered.
2.	Personal Computer Advance (PCA)	₹ 25.73 lakh in 49 cases	<ul style="list-style-type: none"> • Non-recovery of interest on PCA, including one advance of November 1997. • In respect of 5 cases even the principal amount of PCA was not recovered. • The number of instalments to be recovered on interest on PCA was shown incorrectly. For e.g: <ul style="list-style-type: none"> i) Instead of, 5th instalment it is shown as 8th instalment. ii) 18th instalment is shown as 21st instalment. <p>These lapses resulted in incorrect calculation of interest.</p>

3.	Motor Car Advance (MCA)	₹ 22.95 lakh in 19 cases	<ul style="list-style-type: none"> ◦ Non-recovery of interest on MCA- where the advance was sanctioned in June 1999. ◦ In respect of 7 cases, even the principal amount was not recovered. ◦ The number of the instalment to be recovered is shown incorrectly: <ul style="list-style-type: none"> i) Instead of 165th instalment of MCA, it is shown as 168th instalment. ii) 21st instalment is shown as 24th instalment. <p>These lapses resulted in incorrect calculation of interest.</p>
4	Scooter Advance (SCA)	₹4.05 lakh in 17 cases	<ul style="list-style-type: none"> ◦ Recovery of interest not effected. (oldest case pertains to May 2003)
	Total of Sl.No.1,2,3,4	₹1.10 crore approximately	

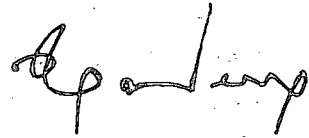
When the matter was taken up (May 2014) with the office of the PCDA (N), they admitted (May 2014) that there was no provision in the existing computer program wherein calculation as well as recovery on interest on HBA, PCA, MCA and SCA could be done and recovery be started after completion of recovery of principal amount. In addition, it was mentioned (May 2014) that review of the cases having outstanding amounts of advances, where recovery is not affected, would be carried out. The office of the PCDA (N) also acknowledged the flaw in their systems, and assured remedial action.

In fact, the system of recovery of principal amount and interest thereon suffered from inadequate internal control and lack of monitoring.

Thus even after a lapse of an year since initial Audit observation; no concrete action was taken by the office of PCDA (N). This resulted in persistence of lapses in recovery of advances totaling to ₹1.10 crore (approx) to Coast Guard personnel. It was only when Audit pointed out the issue again in March-April

2014, that the office of PCDA (N) agreed (May 2014) to work on rectifying the systemic error. As on July 2014, an amount of ₹45.57 lakh remained to be recovered pointing to the need for early rectificatory measures.

The matter was referred to the Ministry in May 2014; their reply was awaited (September 2014).



New Delhi

Dated: 27 November 2014

(RAJIV KUMAR PANDEY)
Principal Director of Audit
Air Force

Countersigned



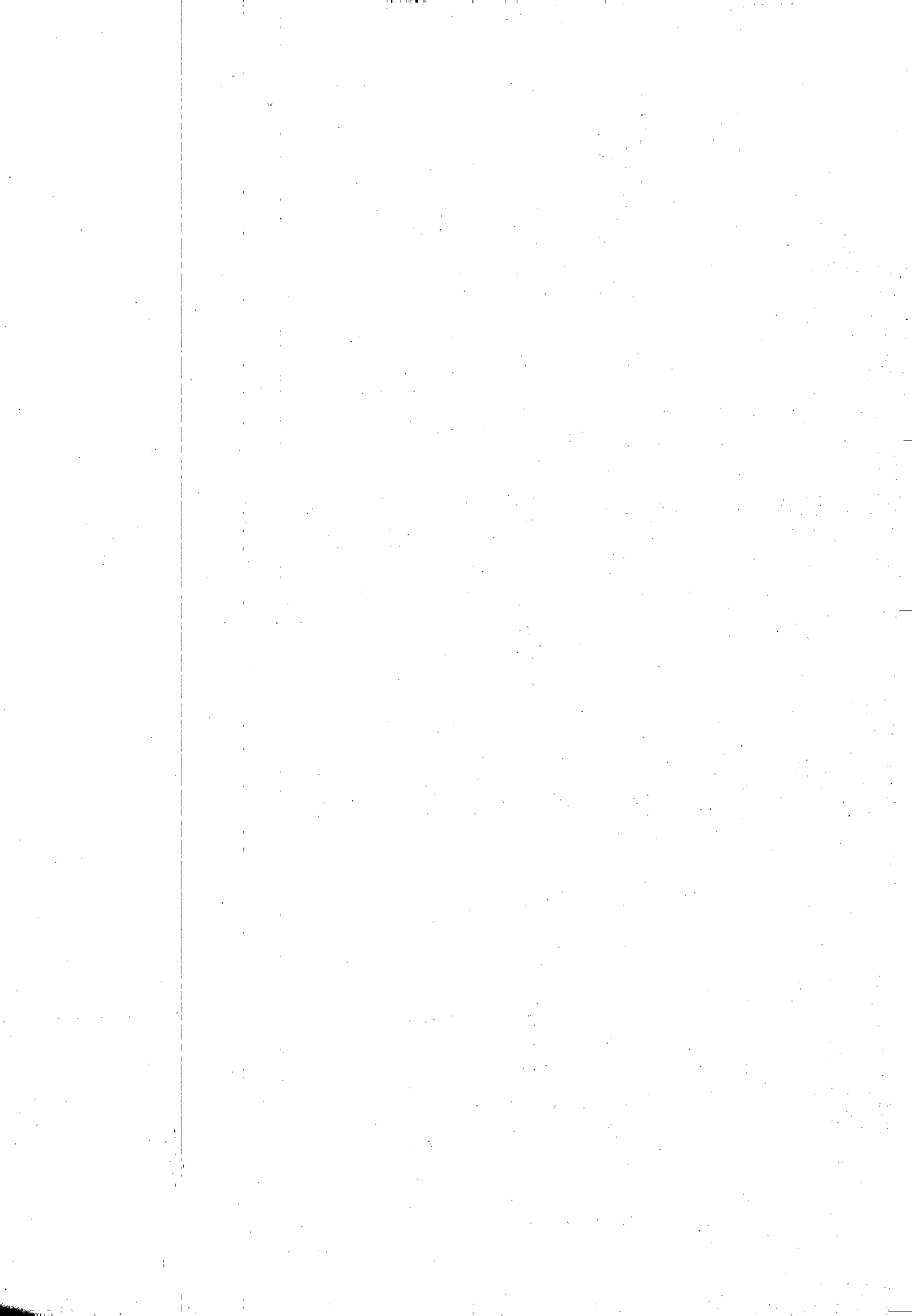
New Delhi

Dated: 27 November 2014 Comptroller and Auditor General of India

(SHASHI KANT SHARMA)

Comptroller and Auditor General of India

ANNEXURE ▶▶▶



Annexure -I

(Refers to in Para No.1.11.2)

List of Action Taken Notes not received as on 30 September 2014

Sl. No.	Report Nos. and Year	Para No.	Pertains to	Brief Subject
1.	No.10 of 2013	Entire Report	MOD (Air Force)	Acquisition of helicopters for VVIP
2.	PA 31 of 2013	Entire Report	MOD (Navy)	Planning and Management of refit of Indian Naval Ships

ANNEXURE-II

(Referred to in Para No. 3.8.7.2.1)

- (i) **Mi-17 Helicopter** crashed (November 2010) near station 'A' and all the 12 passengers (2 Pilots, one Army Officer and 09 PBOR) suffered fatal injuries. The accident occurred due to breaking of a blade in flight. Defence Metallurgical Research Lab in its report stated that main rotor experienced a flat fracture indicative of an impact overload in air. In the absence of Flight Data Recorder and Cockpit Voice Recorder, the exact cause of the breaking of blade remained inconclusive.
- (ii) **MiG-27 aircraft** met with an accident (July 2010) at Station 'B' due to material failure of blade caused due to fatigue resulted from failure of Engine. The blade got detached and caused collateral damage to the Low Pressure Turbine Rotor (LPTR) assembly leading to reduced efficiency of the LPTR. A small dent on the leading edge near the root of blade initiated the fatigue crack and resulted in failure of blade. CoI found that the dent could have occurred due to mishandling/transportation during manufacture/ assembly or due to Foreign Object Damage (FOD) during exploitation. However, CoI failed to ascertain the exact cause of the dent.
- (iii) **MiG-27 aircraft** met with an accident (September 2010) at Station 'C' due to failure of compressor disc owing to fatigue fracture, resulting in dislodgement of nose bullet and fairing got ingested. CoI could not conclusively establish the nose bullet factor as primary reason due to lack of material evidence.
- (iv) **MiG-21 aircraft** met with an accident (February 2011) at Station 'D' due to flame out of engine caused due to shearing off of the teeth of the Main Spiral Bevel Pinion in the Accessories Gear Box leading to loss of drive to the accessory gear box. CoI assessed that Shearing – off of the teeth of the spiral bevel pinion was due to tooth bending fatigue. However the exact cause of tooth bending fatigue could not be conclusively established by CoI.

- (v) MiG-21 BiS aircraft met with an accident (September 2011) near Ganoor due to Engine surge but CoI failed to deduce the reasons for 'Engine Surge'.
- (vi) Kiran MK-II met with an accident (January 2012) at AFS Tambaram due to engine flame out. The accident is classified as un-resolved.

ANNEXURE-III

(Referred to in Para No.3.8.7.2.2)

Causes of Human Error (HE)

Sl. No.	Name of aircraft	Exact Cause of Human Error
1.	MiG-21	Due to situational overload
2.	MiG-21	Error of Skill, Inexperience and inaccurate appreciation of approach
3.	Kiran MK-I	Due to delayed take over and improper transfer of controls
4.	Hawk	Delayed flare out while landing the air craft
5.	MiG-21	Incorrect actions by the pilot starting with incorrect approach management
6.	MiG-21	Delayed emergency action by the pilot
7.	Kiran	Incorrect procedure followed by Flight Commander. The pilot posture during the ejection was incorrect
8.	MiG-21	Error of skill, inexperience of the pilot
9.	MiG-21	Type-I disorientation
10.	SU-30 MK-I	Incorrect maintenance practice followed by technicians during servicing
11.	Kiran MK-I	Not holding the correct touchdown attitude by pilot
12.	Jaguar	Disorientation of the pilot
13.	Chetak	Incorrect decision of the pilot to continue flight in adverse weather in clear violation of laid down SOPs
14.	ALH	Mishandling of controls at Low Height by the Pilot
15.	MI-17	Due to error of judgment, procedural and decision making errors
16.	MiG-29	Incorrect retraction by the pilot before the aircraft had lifted off the RW
17.	Jaguar JS-201	Disorientation of the pilot
18.	Chetak Z1417	Lack of situational awareness
19.	MI-26 Z-3076	Incorrect carrying of load.

ANNEXURE-IV

(Referred to in Para No.3.8.7.5.3 refers)

Sl. No.	Aircraft No. and Type	Date of accident	Name of unit	Cause of Accident	Remedial measure yet to be implemented	Agency responsible for implementation
	MiG-21 T-96 C-1545	01.03.11	37SQN 5 FBSU	Cat I HE(A)	<p>1. The issue regarding equipping the crash crew with modern firefighting equipment was being actively pursued. The case for scaling of FR clothing was also under process.</p> <p>Ops branch was to issue necessary instruction to all MOFT Units on the followings:</p> <p>2. All important aspects regarding necessity of checks and procedures, knowledge of systems, meticulous reporting of weaknesses must be reiterated.</p> <p>3. Circuit flying/rejoin procedures and various kinds of circuits must be emphasized in the units. The units must utilise GPS as a debrief aid to specifically debrief the circuit flown by the trainees.</p> <p>4. The publications must be devoid of any ambiguity regarding flying techniques of briefings.</p> <p>5. The demonstration of flying with Auto Pilot Mode 'On' needs to be given more emphasis in the MOFT units, especially during pre-solo dual checks.</p> <p>6. DGMS (Air) was to issue necessary instructions for reinforcing the methodology for evacuation of injured aircrew.</p>	<p>IAF (D Ops)</p> <p>IAF (D Ops)</p> <p>IAF DGMS (Air)</p>

Report No. 34 of 2014 (Air Force and Navy)

					7. Fresh instructions for reiterating procedures laid down in the Chapter 3 of IAP 4305 were to be issued.	IAF DGMS (Air)
	MiG-27 ML TS-572	24.07.10 6/10-11	22SQn 16 WG	Cat I (TD)	1. Ops Branch: - The DG (I&S) branch was to actively and expeditiously pursue the issue of light weight integrated Helmets (LWH). The new indigenous helmet was to be commissioned as early as possible, preferably within the next six months. Maintenance Branch:- The following remedial measures need to be actioned by the maintenance branch 2. Lack of Data on failed blades. 3. PSP/CSP contents 4. SARBE 8.	IAF DG (I&S)+ Local agency IAF IAF OEM
	MiG-27 ML TS-579	24.09.10	18SQN 5 WG	Cat I (TD)	1. The fitment of SSFDR on MiG-27 (UPG) is to be completed at the earliest by HAL. 2. A study is to be carried out by Maintenance branch to check the feasibility of fitting SSFDR in all remaining (non-upgraded) MiG - 27 ML aircraft.	(HAL) DEng A4/A6 (T) (HAL KWD)
	MiG-21 CU 2818	04.02.11 17/10-11	TACDE 40 WG	Cat I (TD)	As the pilot's crash helmet flew off during the ejection, DQAS at Air HQ (RKP) was to initiate a case for modification of the flying helmets on a fast track basis. DG(I&S) is also to hasten testing and certification of indigenous common MiG-series helmets in liaison with DEBEL and CEMILAC.	IAF+ Local agency DG (I&S) and DAS
	Hawk MK 132 'A' 3628	30.5.11 2/11-12	406 AFS	Cat I (HE)	Training Dte:- The following remedial measures are to be instituted by Trg Dte:- 1. Issue instruction to introduce the 'Mechanics of PIOs' as part of ground training syllabus. It should be included in the 'Application of Aerodynamics to Practical	IAF D Trg

					<p>Problems of flying' chapter of the aerodynamics précis issued by FIS. The same should to be covered during relevant stages of flying training.</p> <p>2. Issue amendments to the operator's manual to elaborate the fact, that while carrying out flare out, the pilot must concentrate on visual cues for flare out rather than rely on HUD inputs viz to raise the-'VV' to the inertial horizon:-</p>	IAF D Trg
	Mig-21 BISON CU-2089	08.8.11 6/11-12	23 SQN 35 WG	Cat III HE (A)+TD(A)	<p>HAL along with RCMA and DDGAQA has been approached vide Air HQ/81756/8/CU-2089/EA2(T) dt. 30 April 12 to conduct an endurance test on the brake cable along with Bowden and also study the feasibility of providing speed indication replication on HUD along with the MFD.</p>	HAL Eng A2(T)
	Kiran MK-I U-679	22.8.11 7/11-12	AFS Hakim- pet	Cat I HE (A)	<p>1. A separate chapter on all procedures/profiles (Rejoin procedure) is to be added in the SOP for Kiran ac by Dte of Trg</p> <p>2. Dte of Projects was to be look in to the feasibility of pilots carrying a Dictaphone connected to the helmet in ac where CVR is not fitted.</p>	IAF D Trg IAF D Prog
	MiG-29 KB 703	18.10.11 11/11-12	47 SQN 8 WG	Cat I (F) HE(A)	<p>1. Procurement process of Fire Retardant Aircrew Survival Jacket (FR ASJ) for carrying SARBE-8 PLB by Ftr/Tr aircrew has been initiated.</p>	HAL/OEM D Store
	SU-30 MK-I SB-142	13.12.11 14/11-12	20 SQN 2 WG	Cat I HE(S)	<p>1. Maintenance Branch was to issue directions to CSDO to propose a methodology of referring to task cards while carrying out the activity. In addition Maint Branch is to study the Rectification Log Card concept and feasibility of its implementations.</p>	IAF D Eng A1

					<p>2. Maintenance Branch was to approach OEM to provide detailed FBW publications of Su-30MKI aircraft, which include system logic signal path and Fault Analysis Tree (FAT).</p> <p>3. Maintenance Branch is to approach National Aerospace Laboratory (NAL) to conduct capsule course for AE officers on FBW control law at 9 TETRA School. In the interim period 10 TETRA School could conduct this module for AE officers detailed for Su-MKI training.</p> <p>4. MOD 30044 is being implemented for relocation for Crash Survivable Memory Unit (CSMU) on Su-30MKI fleet by HAL Nasik.</p> <p>DCAS Branch: The following remedial Measures have been/need to be instituted by DCAS Branch:-</p> <p>5. SDI and ADA have been tasked to design Mathematical model for FBW of Su-30MKI vide Air HQ/S. 96256/1/Proj (Su-30)BM-1412 dt. 10 Apr 12</p> <p>6. Design deficiencies observed in Su-30MKI FBW system are to be addressed as part of Super-30 project.</p> <p>7. FBW study group has been constituted vide ACAS (Proj) Task Directive no. 13 of 2012 dt. 11 July 12.</p> <p>8. HAL has been tasked to study the feasibility of mapping FBW data on FDR of Su-30MKI.</p>	<p>OEM D Eng A1</p> <p>IAF/NAL D Eng A1</p> <p>HAL D Eng A1</p> <p>IAF/SDI/ADA (DCAS Br)</p> <p>OEM (DCAS Br)</p> <p>IAF/OEM</p> <p>HAL (DCAS Br)</p>
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					9. HAL to be approached to provide a detachable connector between memory module on PCB and flexible cord inside the metal cylinder of CSMU as part of development of SSFDR.	HAL (DCAS Br)
	MiG-21 BIS ac CU-2189	06.09.11 8/11-12	3 SQN 8 WG	Cat I (TD)	Maintenance branch to explore feasibility of integrating anti surge system 'SPP 25' to all modes of operation in MiG-21 Bison aircraft.	OEM D Eng A2 (T)
	Kiran MK-II U 2462	31.01.12 16/11-12	AFS Tambaram	Cat I (TD)	Personnel Branch:- The following measures needs to be instituted by personnel branch: 1. Importance of correct ejection procedure needs to be reiterated to all Aircrews in FTEs, periodically. 2. Instructions for all pilots to carryout periodic ejection drills to be issued by Air HQrs Dte of Trg to all FTEs.	IAF D Trg IAF D Trg
	Mirage2000 KT-210	05.03.12	40 WG	Cat I (TD)	1. Case for procurement of GPS enabled: Aircrew wrist watches be processed expeditiously and the watches be issued to pilots at the earliest to aid search and rescue. 2. Maintenance branch is to ensure that Mod 500-2 modification on the AB fuel pumps of the Mirages fleet is accomplished at the earliest.	IAF D OPAG IAF D Eng Mirage
	Jaguar Twin Seater JT 061	11.06.12 2/12-13	27 SQN 15 WG	Cat III HE(A)	Maintenance Branch is to ensure the following 1. An IAF team comprising reps from DASI Ops and maintenance has undertaken an audit of Jaguar bases, HAL, ADL OH Div. and HAL engine Div. to ascertain reasons for debris in fuel	HAL/ADA D Eng J

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					<p>cooled Hydraulic oil cooler, LP Filter and their possible sources. The recommendation of the study reports are to be implemented.</p> <p>2. An audit team has been constituted at HAL, ADL with reps from IAF, RCMA and CRI of both HAL Div. as well as HAL Engine Div. to ascertain assembly and production related issues, if any, and to ascertain sources of debris found in the engine fuel system besides suggesting preventive measures. The preventive measures as suggested by the team are to be implemented.</p>	<p>HAL D Eng J</p>
	Z-3026 MI-17	19/11/10 1206 hrs 14/10-11	19 Wg	Cat I (F)	<p>1. DCAS branch to give due priority to procurement of automatic portable ELTs for helicopter fleet.</p> <p>Maintenance Br to:-</p> <p>2. Pursue with the OEM replacement of existing FDR and CVR with two solid state combinations FDR/CVR (one in front and one at rear). In case not feasible, to take up relocation of FDR to avoid damage destruction due post-crash aircraft fire.</p> <p>3. Follow up on in flight monitoring of spar failure warning and NDT on MRBs with OEM.</p> <p>Ops Branch to:-</p> <p>4. To provision AFTR/suitable recording and storage devices to record the R/T with the aircraft at regularly manned ALGs.</p>	<p>IAF/HAL/ OEM</p> <p>OEM</p> <p>OEM</p> <p>IAF</p>

	Z-3076 MI-26	14/12/10 0929 hrs 15/10-11	126 23 23 Wg	CAT-I/HE/ HE(A)	<p>1. Air HQ (VB) Dte of Eng (H) to expedite development of the Flight Data Recorder Milking System used by 126 HF to ensure better consistency and utilisation.</p> <p>2. 126 HF to procure load cells to accurately determine the CG of load.</p>	IAF/OEM D Eng (H) IAF 126 HF
	Z-2904 & Z-3089 MI-17	30/8/12 1205 hrs 5/12-13	40 Wg	Cat I HE/HE (A)	<p>1. Ops branch had to Initiate a case for provisioning of satellite phones for helicopter units.</p> <p>Maintenance Branch</p> <p>2. Provide solid state FDR/CVR and area mikes on Mi-17 helicopters</p> <p>3. Cohesiveness of maintenance team earmarked for servicing of helicopters attached to TACDE for composite courses by tasking a single command to provide maintenance support.</p> <p>DG(I&S)Branch</p> <p>4. To take up psychological study of aircrew involved in Cat I accidents so as to suggest changes to psychological profiling template used at selection boards.</p>	IAF IAF IAF IAF

