



**REPORT OF THE
COMPTROLLER AND AUDITOR GENERAL
OF INDIA**

**FOR THE YEAR ENDED 31 MARCH 1995
NO.9 OF 1996**

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**UNION GOVERNMENT - DEFENCE SERVICES
(AIR FORCE AND NAVY)**

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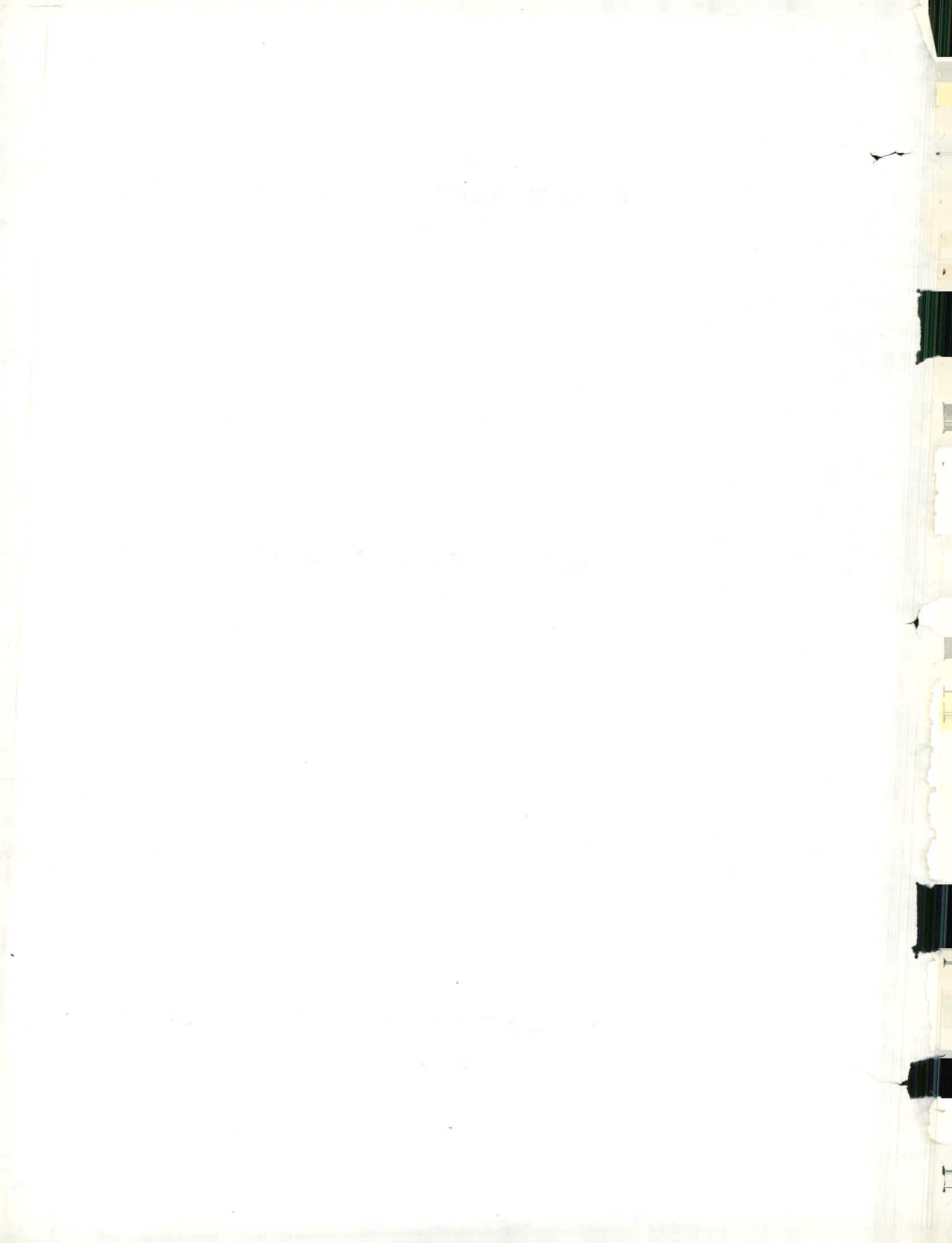


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PREFATORY REMARKS

1. This Report for the year ended 31 March 1995 has been prepared for submission to the President under Article 151 of the Constitution. It relates mainly to matters arising from test audit of the financial transactions of Ministry of Defence, Air Force, Navy, Coast Guard and associated Defence Research and Development Organisation.

2. The Report includes 35 paragraphs and four reviews on **(i) Recruitment and training of Airmen, (ii) Development and manufacture of a trainer aircraft, (iii) Working of Controllerates of Procurement of Navy and (iv) Working of Naval Research and Development Laboratories.**

3. The cases mentioned in the Report are among those which came to notice in the course of audit conducted during the year 1994-95 and early part of 1995-96. It also includes cases noticed during earlier years but could not be included in the previous Reports.

OVERVIEW

The expenditure of Air Force and Navy during the year 1994-95 was Rs 6,574 crores and Rs 3,026 crores respectively which together represents 39.54 *per cent* of the total expenditure of the Defence Services. Some of the major findings of audit of accounts of Air Force and Navy and associated Research and Development Organisations included in the Report are mentioned below:

I. Recruitment and training of Airmen

Planning weakness in Air Headquarters led to persistent excess recruitment of Airmen in a few trades, while there were deficiencies in others. Recruitment of more than authorised strength in some trades involved a financial implication of Rs 12.92 crores during 1992-94. Moreover, flouting the approved ratio of Airmen to civilians in favour of the former entailed an avoidable additional expenditure of Rs 3.92 crores in one year alone. Non-availability of firing range for one year compelled four training institutes to complete training of 146 Airmen without any firing practice and 3248 with partial firing practice. The deficiency of training aids in the training schools ranged between 5 and 92 *per cent*, which resulted in compromising the quality of training. One of them imparting training on servicing of aircraft did not possess a serviceable aircraft and another imparting training on five types of air defence radars had only three of them. One of the schools continued to impart limited training on surveillance radar equipment at other unit due to non-installation of the radar for non-completion of civil works for two years.

(Paragraph 5)

II. Working of Naval Research and Development Laboratories

Review of the performance of three Naval Research and Development laboratories revealed instances of defective budgetary procedure and inadequate monitoring of projects leading to time overrun. The laboratories did not have a common stores accounting procedure. Due to change in user requirement, incorrect projection of requirements by the Navy and products developed failing to meet requirements, no benefit of the R & D projects completed at a cost of Rs 27.24 crores could be derived. A research ship built by a shipyard at a cost of Rs 63 crores and delivered to a laboratory in July 1994 was never put to the intended use due to defects yet to be rectified.

(Paragraph 38)

III. Working of Controllerates of Procurement of Navy

A review of the working of the Controllerates of Procurement of Navy revealed instances of non-implementation of the recommendations of Public Accounts Committee in matters relating to registration of vendors, creation of market survey team/finance section and minimising of local purchases; violation of procedures for invitation of tenders; irregular import of sanitary spares (Rs 10.64 lakhs); avoidable procurement of stores (Rs 11.09 lakhs) and non-adjustment of advances (Rs 92 lakhs) drawn for making payments to suppliers.

(Paragraph 20)

IV Development and manufacture of a trainer aircraft

Piecemeal placement of orders for manufacture of a trainer aircraft on a public sector undertaking (PSU) led to substantial increase in cost of manufacture due to interruption in their production lines. Slippages in the delivery schedule by the PSU not only resulted in cost escalation but also aggravated shortage of aircrafts for training for which the IAF had to continue initiation training on another type of aircraft involving an extra expenditure of approximately Rs 20 crores *per annum*. Moreover, trainer aircrafts manufactured by the PSU were deficient in their performance requiring further modifications to impart proper training in addition to improving its crash survivability.

(Paragraph 6)

V. Delay in development-cum-production of a system

Navy acquired an electronic warfare system manufactured by a public sector undertaking based on technology developed by a Defence Research and Development laboratory. The system, however, failed to meet the sea acceptance tests and could not be exploited for operational use. Thus, the operational requirement of the Navy felt in the early eighties was not met even after a lapse of 13 years, though an expenditure of Rs 4.39 crores had been incurred on development and Rs 17.93 crores on production of the system.

(Paragraph 39)

VI. Delay in operational deployment of imported systems

Owing to the acceptance of certain defective systems by the Navy, the systems imported at a cost of Rs 24.45 crores could not be operationally exploited for periods ranging upto 10 years. One system for which an advance of Rs 1.47 crores was paid in June 1986 had not been supplied as yet. Though the Navy required state-of-the-art systems for deployment in vital operational field, the systems imported were in fact of seventies vintage. Naval Headquarters had also waived penalties of Rs 3.28 crores leviable under one contract. Ministry of Defence had taken a serious view of the lapses in the execution of the contract and ordered a special inquiry to fix responsibility.

(Paragraph 21)

VII. Delay in manufacture of a tanker

Construction of a tanker required for enhancing operational capability of Naval ships was yet to be completed by a shipyard even after a delay of about four years entailing an estimated cost overrun of Rs 142 crores. The shipyard had already been paid Rs 143.64 crores, of which Rs 78.64 crores was paid without sanction of Government.

(Paragraph 23)

VIII. Delay in setting up of a missile complex.

Owing to poor planning and execution of works, the creation of a missile complex required to obviate the operational limitations of the Navy was yet to be completed eventhough sanction for its creation had been issued by Government as early as in March 1985. An interim facility created in 1982 at cost of Rs 50.34 crores which included equipment worth Rs 47 crores imported in 1980, could also not be fully activated, thereby compromising operational preparedness.

(Paragraph 24)

IX. Non-installation of an imported communication system

Five sets of a communication system were imported by Ministry of Defence in 1987-88 at a cost of Rs 8.20 crores but could not be installed within the time stipulated in the contract due to their failure to complete site preparation. Taking advantage of this failure, the supplier repudiated his contractual obligations to commission the system. Meanwhile, an expenditure of Rs 3.04 crores was incurred on site preparation, etc. and

three of the five sets stand partly installed while the balance two are in their original packing. The delay in installation has resulted in the system becoming outdated as a result of which the entire expenditure of Rs 11.24 crores on procurement and site preparation has become pointless.

(Paragraph 2)

X. Delay in establishment of an aircraft base

Despite payment of Rs 6.42 crores made between 1989 and 1995, the land required for establishment of a transport squadron at an Air Force station was not taken over. The squadron had consequently to be based at another station compromising its vulnerability to a certain extent. Delay in acquisition of land had also resulted in escalation of cost by Rs 1.18 crores.

(Paragraph 7)

XI. Delay in computerisation of an Indian Air Force Command

Computerisation of an IAF Command and its units sanctioned in March 1991 had been delayed. Equipment valuing Rs one crore had been supplied to only 11 out of 16 units but were installed in five units where these were plagued by persistent problems and recurrent faults. Failure to install the computer network successfully had affected the inventory management of IAF. Delay in supply and installation of the system had rendered the system outdated due to rapid advancement in computer technology.

(Paragraph 13)

XII. Import of defective systems

Navy unauthorisedly altered the scope of the contract concluded by Ministry of Defence and accepted defective systems supplied by a foreign firm. As a result, the systems valuing Rs 11.39 crores received in July 1994 were lying unused though these were required urgently for protecting Naval vessels from new generation missiles.

(Paragraph 22)

XIII. Non-installation of a training equipment

Due to non-procurement of certain essential items, training equipment valuing Rs 20.04 crores received by February 1994 could not be installed and commissioned

indicating lack of planning. Non-commissioning of the equipment denied the Navy a cost effective training facility to improve the operational preparedness.

(Paragraph 33)

XIV. Irregular employment of local staff

Employment of staff in excess of the sanctioned strength in Embassy of India, Washington resulted in unauthorised expenditure of Rs 40.87 lakhs in disregard of the economy measures taken by the Ministry.

(Paragraph 14)

XV. Loss due to delay in preferring claims

Delay in raising discrepancy reports for short receipt of stores resulted in a loss of Rs 38.13 lakhs.

(Paragraph 17)

XVI. Avoidable import of sub-assembly of a radar

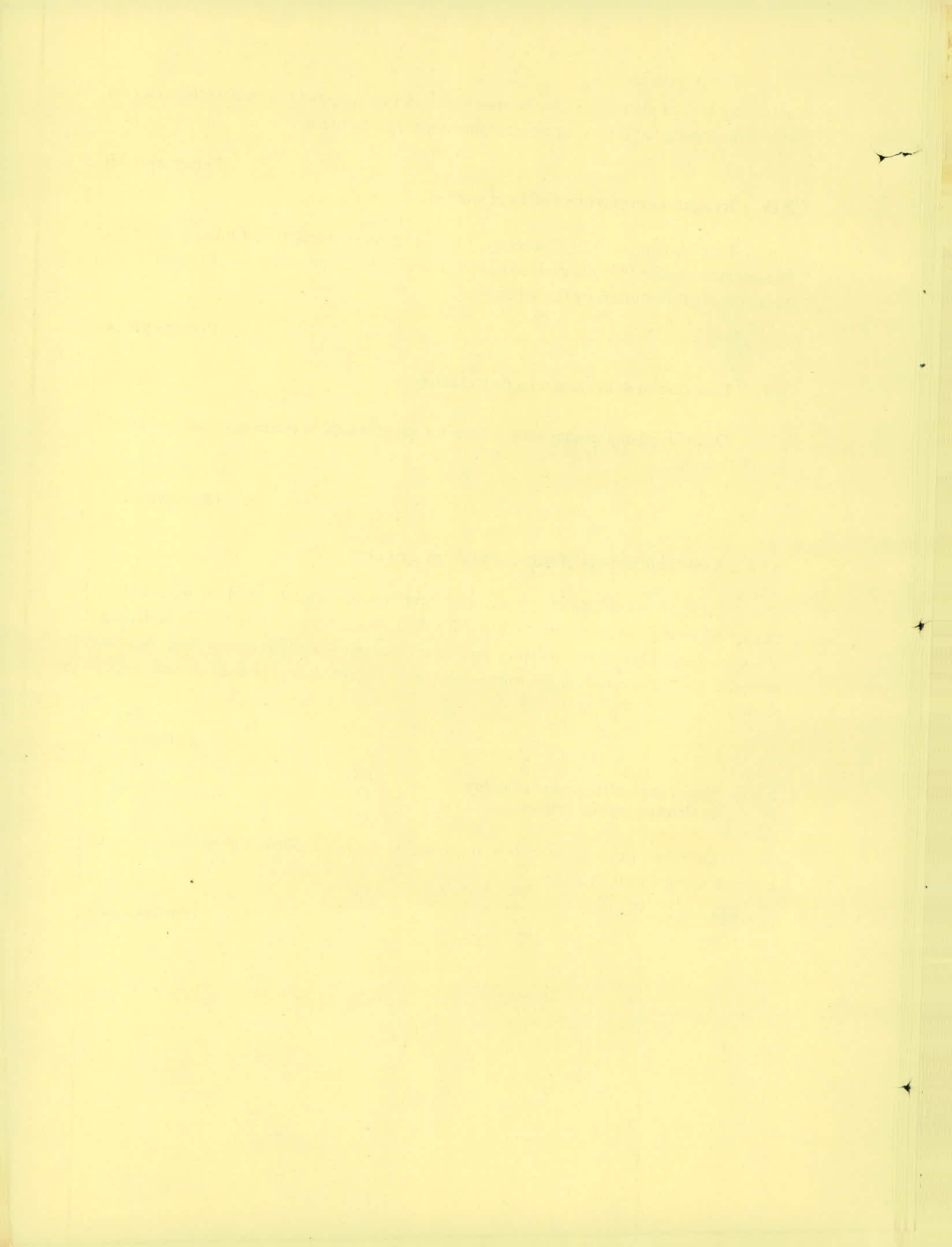
Lack of co-ordination in planning and implementation resulted in avoidable import of aircraft radar spares costing Rs 2.10 crores. Out of this Rs 27 lakhs paid towards charges for urgent delivery proved infructuous since the spares were received after the foreign specialists, for whom these were imported, had already carried out the repairs.

(Paragraph 8)

XVII. Extra expenditure due to delay in firming up the orders

Delay in firming up orders on a public sector undertaking resulted in extra expenditure of Rs 40.54 lakhs.

(Paragraph 9)



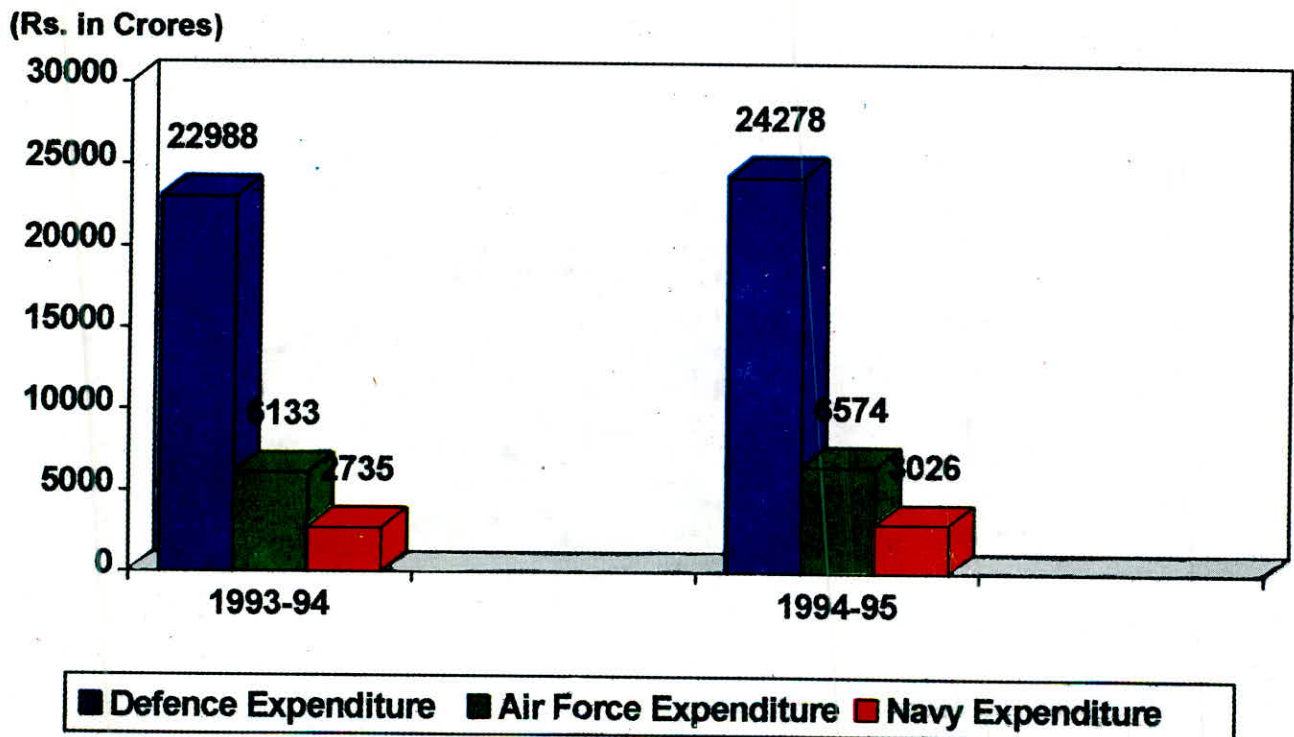
CHAPTER I

FINANCIAL ASPECTS

1. Financial Aspects

1.1 The expenditure on Defence Services during 1994-95 was Rs 24,278 crores which was higher by 5.61 per cent over the expenditure during 1993-94. The share of the Air Force and Navy in the expenditure on Defence services for 1994-95 was Rs 6,574 crores and Rs 3,026 crores respectively, representing an increase of 7.19 per cent and 10.64 per cent over the expenditure during the preceding year as indicated below:

SHARE OF EXPENDITURE
AIR FORCE AND NAVY

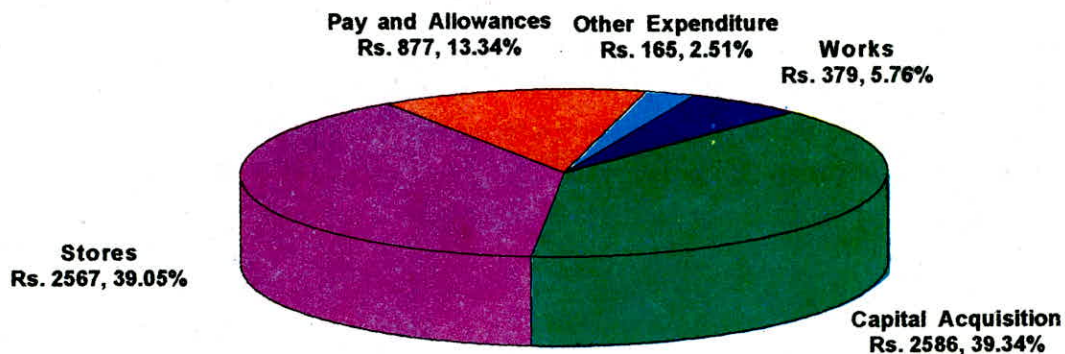


1.2 The distribution among the major areas of expenditure like capital acquisition,

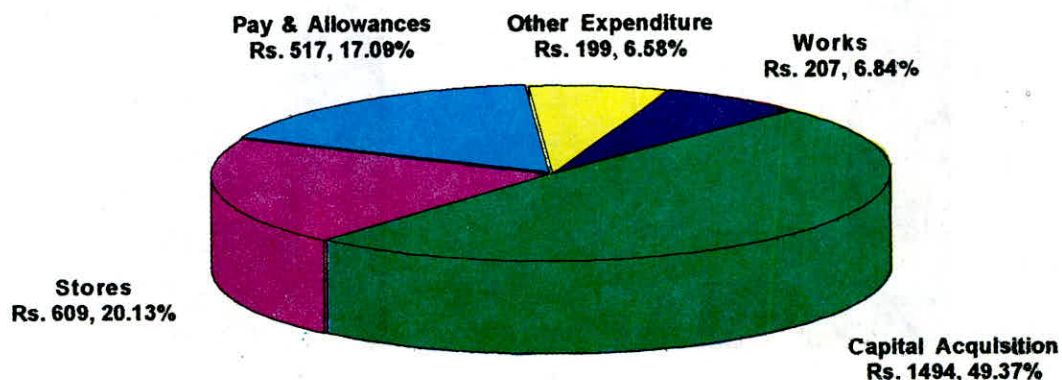
stores, pay and allowances and works during 1994-95 in Air Force and Navy was as under:-

PROPORTION OF EXPENDITURE (Rupees in Crores)

AIR FORCE



NAVY



1.3 The Air Force continued to be vigilant in its efforts to guard our national frontiers in addition to assisting civil administration when required. In order to keep pace with technological advancements, the Air Force initiated mid-life upgradation of certain aircraft and indigenisation of various equipment. It also, continued to progress the

developmental activities to enhance self reliance in association with Defence Research and Development Organisation. For meeting the training requirements of Indian Air Force, advanced jet trainers were under acquisition.

1.4 The Indian Navy too continued its efforts to maintain adequate force structure to discharge its responsibility of guarding the nations' maritime interests. In its efforts towards indigenisation programmes, Navy inducted one indigenously built submarine and a research ship into its fleet during 1994-95. It was in the process of progressively introducing a new system of managing its budgetary allocations by instituting the spirit of decentralisation with the objective of curtailing time and cost-overruns and wasteful expenditure.

1.5 Defence Research and Development Organisation was engaged in design and development leading to production of indigenous state-of-the-art weapons, equipment, sensors and platforms to achieve progressive self-reliance in critical defence technologies. The organisation also builds up competence in frontier/diverging technologies of relevance to the future.

1.6 Test check of transactions and review of certain selected organisations relating to the Air Force, Navy, Coast Guard and associated Research and Development Laboratories revealed instances of injudicious planning, weaknesses in project implementation, flaws in import of costly equipment of operational importance, cost and time overruns in creation of facilities, avoidable procurement resulting in idle investment, non-utilisation of assets, failure or delays in exploitation of the indigenously developed technologies, weaknesses in training of personnel etc.

An amount of Rs 45.91 lakhs was recovered at the instance of Audit during the year.

CHAPTER II

MINISTRY OF DEFENCE

2. Non-installation of an imported communication system

In December 1986, Ministry of Defence (Ministry) concluded a contract with a foreign firm for supply, installation and integration of a communication system at five stations at a cost of Rs 8.20 crores. The contract, *inter alia*, stipulated that sites at these stations should be made ready within one year of the receipt of the equipment of the system, failing which, the supplier would stand discharged from his contractual obligations to install, integrate and prove the system in its entirety.

Though the system was to be supplied by April 1988 and installation was to commence from July 1988, in the same month the delivery was rescheduled for August 1988 with the consent of the supplier and installation postponed to October - December 1989, as delay was anticipated in completing site preparation. However, *no formal amendment to the contract* was made in this regard.

The equipment was despatched in three batches between December 1987 and August 1988, but the firm submitted in May 1988 a certificate of fulfilment of all conditions for encashment of the letter of credit. It was noticed that even before despatching all the batches, full payment of Rs 8.20 crores was obtained by the firm on the basis of this improper certification.

The sites were made ready in March 1990 and the firm commenced installation at three stations in April 1990, but after completing only part installation, abandoned the work in July 1990. The equipment for the other two stations remained in original packing since its receipt in 1987-1988.

In August 1990, the firm intimated to the Ministry that their obligations under the contract stood discharged due to non-availability of the sites in time and thus, renegeed on the understanding reached between the parties in July 1988. However, the firm offered in August 1990 to complete the installation on payment of an additional amount of Rs 82 lakhs. But the Ministry reacted in September 1990 by demanding a compensation of Rs 8.89 crores for non-fulfilment of the contract. The firm did not agree, precipitating a stalemate which has continued till date (October 1995). The Ministry has decided (June 1995) to refer the matter to arbitration which

was yet to be done. In the meantime, the equipment had become outdated.

In addition to the cost of the equipment, an expenditure of Rs 3.04 crores was incurred upto March 1995 on manpower, civil works, maintenance and support services. The Ministry estimated in March 1995 an additional expenditure of Rs 5.74 crores, including Rs 22 lakhs for training to make the outdated system operational.

It is, therefore, evident that there was failure on the part of the Services on two counts, namely, (a) to make the sites available in time for installation and (b) to formalise, by amendment of the contract, the understanding reached between the parties about the rescheduled delivery and installation of the equipment. For these failures, no benefit could be derived from a total expenditure of Rs 11.24 crores incurred (upto March 1995) for equipment and support services. Moreover, the delay has caused the equipment to become outdated involving an additional expenditure of Rs 5.74 crores.

The matter was referred to the Ministry in July 1995; their reply was awaited as of November 1995.

3. Avoidable expenditure due to incorrect claims

Indian Navy participated in the UN operations in country 'X' and deployed Naval ships during the period from December 1992 to May 1993. The terms of participation in the operation envisaged, *inter alia*, reimbursement of cost of transportation of military personnel, stores, clothing, rations, vehicles, petroleum supplies etc.

While submitting the claim in November 1993, Navy claimed Rs 82.40 lakhs only towards cost of fuel and transportation of stores. It failed to include the cost of fuel amounting to Rs 56.48 lakhs drawn by Indian Naval ships from foreign ships during the operations. The UN reimbursed Rs 82.40 lakhs in January 1994 as final settlement of the claim. As the claims were to be submitted latest by 15 November 1993 to the UN, there was no scope for any supplementary claim. The cost of fuel (Rs 56.48 lakhs) drawn from foreign ships had, therefore, to be borne by the Navy. While payment of Rs 40.20 lakhs to the foreign countries has already been made by Government of India, invoice towards remaining Rs 16.28 lakhs is yet to be received as of June 1995.

Thus, failure to include cost of fuel drawn from foreign ships in the claim submitted to the UN for reimbursement resulted in an avoidable financial burden of Rs 56.48 lakhs.

The matter was referred to Ministry of Defence in June 1995; their reply was awaited as of November 1995.

4. Follow up on Audit Reports

Lok Sabha Secretariat issued instructions (April 1982) to all the Ministries requesting them to furnish notes indicating remedial/corrective action taken by them to the Ministry of Finance (Department of Expenditure) on the various paragraphs, contained in the Audit Reports, as soon as they were laid on the Table of the House, duly vetted by Audit.

A review of the position regarding receipt of Action Taken Notes (ATN) on the paragraphs included in the Audit Reports upto the period ending 31 March 1994, revealed that the Ministry of Defence (Ministry) has not submitted the remedial/corrective ATN on the following 41 paragraphs (details in Annexure-I) as of December 1995.

Audit report No. and year	No. of Paragraphs on which ATNs were awaited	Remarks
9 of 1992	1	
9 of 1993	8	Final ATN in respect of 2 paragraphs awaited
9 of 1994	8	Final ATN in respect of 1 paragraph awaited
9 of 1995	24	Final ATN in respect of 4 paragraphs awaited

Of the 41 paragraphs, ATNs in respect of 34 paragraphs had not been received even for the first time. In respect of the remaining seven paragraphs, final ATNs after taking into account the vetting comments of Audit were awaited.

The matter was referred to the Ministry in October 1995; their reply was awaited as of November 1995.

CHAPTER III

AIR FORCE

5. Recruitment and training of Airmen

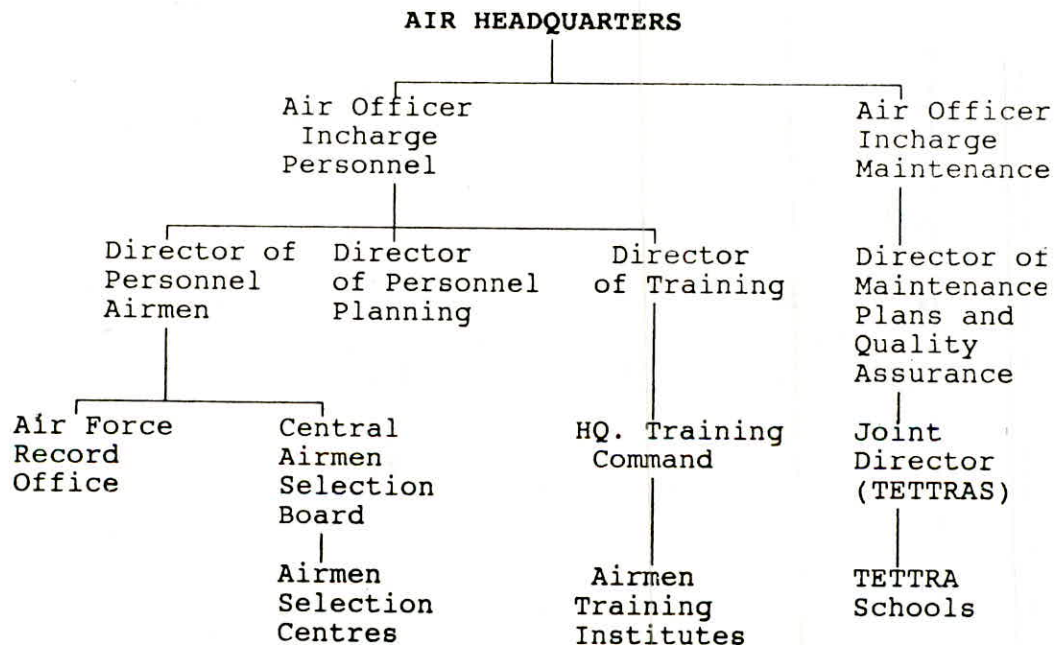
5.1 Introduction

Airmen are recruited in accordance with demands for various trades in Indian Air Force (IAF). The demands are based on authorised and actual holdings of Airmen and wastages by way of their retirements, discharges, releases, promotions, strength of trainees and due to unforeseen circumstances.

After selection, the recruits are sent by different Airmen Selection Centres (ASCs) to the concerned Airmen Training Institutes (ATIs) for basic and trade training, on satisfactory completion of which they are posted to different Air Force units. Trainees belonging to highly skilled technical trades are, however, sent to Technical Type Training (TETTRA) Schools for specialised training before their deployment.

5.2 Organisational set up

The overall responsibility for recruitment and training lies with Air Officer In-charge of Personnel (AOP) at Air Headquarters (HQ). Air Officer In-charge of Maintenance (AOM) among others is responsible for imparting training in TETTRA schools. An organisational chart for recruitment and training of Airmen is given below:



5.3 Scope of Audit

The review covers aspects relating to recruitment and training of Airmen during the period from 1990 to 1995 including functioning of TETTRA Schools.

5.4 Highlights

- **Despite constant surpluses in the strength of Airmen in two trades ranging from 3 to 24 per cent during 1990-95, fresh inductions continued to be made in these trades, which involved financial implication of Rs 12.92 crores on surplus holdings during 1992-94, whereas there were persistent deficiencies in other two trades. This was indicative of improper planning in recruitment and management of human resources.**
- **Non-observance of prescribed ratio of Airmen to civilians in five trades resulted in an extra expenditure of Rs. 3.92 crores during 1994 alone.**
- **Inadequacies either in recruitment methodology or effectiveness of training resulted in continued back-phasing of trainees in certain technical trades to a maximum of 19 per cent entailing additional expenditure of Rs 4.44 crores.**
- **Despite shortage of officer instructors of 17 to 100 per cent during 1990-95 in TETTRA schools, they were posted to other units on temporary attachment.**
- **TETTRA schools faced shortage of vital training aid ranging between 5 and 92 per cent which imposed limitations on their practical training.**
- **Due to delay in sanction of civil works, radar equipment costing Rs 3.13 crores received between May 1994 and March 1995, could not be installed in No. 7 TETTRA school.**

5.5 Recruitment

5.5.1 The nodal agency for recruitment of Airmen is the Central Airmen Selection Board (CASB) which is assisted by various Airmen Selection Centres (ASCs). CASB conducts selection tests of the recruits and after medical examination of the successful candidates, prepares an All India merit list for enrollment of the recruits.

CASB by and large had achieved the target of recruitment of Airmen as per demands during 1990-95. However, there were surpluses in some trades, while others had deficiencies. Analysis of a few of a total of 56 trades revealed the following:

5.5.2 Surpluses/deficiencies

5.5.2.1 Surpluses

While framing annual training programmes for induction of trainees in various trades, a stipulation is invariably made by Government that the actual strength of Airmen in any trade should not exceed the sanctioned strength at any time. An analysis of trade-wise holding of Airmen in two trades revealed that fresh inductions continued to be made while there had been constant surpluses as shown below:

Position as at the beginning of	<u>Tradesmen</u> Sanct- ioned	Posted	Surplus	Perc- entage of surplus	Number of trainees passed out from the Training Institute
Trade T1					
1990	4,908	4,914	06	-	845
1991	4,906	5,075	169	3	115
1992	4,919	5,143	224	5	359
1993	4,919	5,056	137	3	390
1994	4,796	5,143	347	7	114
1995	4,773	5,328	555	12	92

Trade T2

1990	3,069	3,653	584	19	214
1991	3,072	3,746	674	22	214
1992	3,085	3,710	625	20	209
1993	3,078	3,813	735	24	194
1994	3,321	3,844	523	16	130
1995	3,400	3,897	497	15	83

=====

Air HQ stated, in April 1995, that induction in trade T1 had been discontinued in 1995 till the excess holding was neutralised. The induction in respect of trade T2 was being reviewed and reduction in its intake was being contemplated to neutralise the excess holdings during the courses commencing from 1995-96.

Thus, timely action was not taken to neutralise the surpluses, the financial implication of which for the period January 1992 to December 1994 was Rs 12.92 crores.

5.5.2.2 Deficiencies

There were persistent deficiencies in the following trades in respect of years indicated in the table below:

Position as at beginning of	Sanct- ioned	<u>Tradesmen</u> Posted	Defic- iency in per- centage	Induction made during the fin- ancial year
-----------------------------	-----------------	----------------------------	---------------------------------------	---

Trade T3

1992	3,666	3,615	1	300
1993	3,732	3,441	8	200
1994	3,920	3,426	13	200
1995	4,077	3,429	16	310 to be inducted during 1995- 96.

Trade T4/T4A

1990	9,562	9,281	3	150
1991	9,608	9,466	1	250
1992	9,737	9,322	4	250
1993	9,856	9,195	7	250
1994	9,876	8,848	10	250
1995	10,195	8,536	16	440 to be inducted during 1995-96

This indicated lack of proper planning in manpower recruitment and management of resources. Admitting such deficiencies in the respective trades, Air HQ stated, in July 1995, that the existing personnel had to work over time on several occasions to accomplish the required tasks. It added that efforts were being made to make up deficiencies in these trades.

5.5.3 Non-observance of authorised ratio of Airmen to civilians

The ratio of Airmen to civilians in respect of certain trades as on 01 January 1995 exceeded the authorised limit as shown below:

Sl. No.	Trade/ Branch	Authorised Number/ ratio of		Actual Number/ ratio of	
		Airmen :	Civilian	Airmen :	Civilian
1.	Logistic branch in AF static units/formations (Equipment Assistant (Airmen) and civilian stores-keepers)	7,243 (80)	1,811 (20)	7,670 (85)	1,384 (15)
2.	Logistic branch at Air HQ. (Equipment Assistant (Airmen) and civilian storekeepers)	253 (50)	253 (50)	353 (70)	153 (30)

3. Telephone operator at AF static units/ formations	2,170 (80)	542 (20)	2,610 (83)	102 (17)
4. Fire personnel at AF static units/ formations.	1,597 (80)	399 (20)	1,718 (96)	278 (4)
5. Mechanical transport drivers at AF static units/ formations	4,207 (70)	1,803 (30)	5,006 (86)	1,004 (14)

Excess employment of Airmen in these five trades had resulted in an extra expenditure of Rs 3.92 crores during 1994 alone since the deployment of Airmen involved more expenditure than deployment of civilians.

5.6 Training

5.6.1 Introduction

All personnel recruited in IAF as combatants are required to undergo training for periods ranging from 26 to 104 weeks depending on the requirements of the trades. Such training is imparted in two phases comprising of basic training and trade training.

5.6.2 Training wastages

Based on the requirement of Airmen projected by Air HQ, Government approved the Airmen training plan for technical trades for the period 1991-92 to 1994-95 in December 1990. The plan envisaged a training wastage of five *per cent*.

Analysis of induction of trainees in various trades in Audit revealed that the percentage of wastage of trainees worked out to eight as against five envisaged in the approved plan. The wastages were attributed to poor performance of trainees, medical grounds, conversion of trade and discharge of trainees on their own request.

Since training wastages have financial repercussions in terms of resources deployed on training besides contributing to shortages, it would be desirable to improve the recruitment methodology to minimise wastages. The excess wastage involved an expenditure of Rs 1.77 crores during the period under review.

HQ Training Command stated, in May 1995, that efforts were being made to reduce wastages.

5.6.3 Back-phasing

As per orders, a Unit Review Board reviews all cases of failures in the examinations and recommends back-phasing, re-allocation of trade and discharge of trainees on the basis of their findings. Back-phasing denotes the phase of training to be repeated by a trainee whose performance had been found below the prescribed standards. The extent of back-phasing in different training institutes during 1991-95 was as under:

Name of the Institute	Total number of trainees	Number back-phased once	Number back-phased twice	Period of back-phasing per trainee (weeks)	Percentage of back-phasing
1	2	3	4	5	6
Technical Trades					
WTI	1,349	42	2	13	3
MTI	4,680	581	90	13	14
MTTI	2,207	187	-	13	8
E&TTI	6,040	988	138	13	19
ETI	2,685	408	60	13	17
CTI	3,875	601	99	13	18
MTC	897	71	-	13	8
Non-technical Trades					
ATI	4,715	390	25	13	9
Total	26,448	3,268	414	-	-

It was also seen that the back-phasing was much higher in the technical trades as compared to non-technical ones (an average of 9 *per cent* in non-technical trades, as against an average of 15 *per cent* in technical ones). In certain technical trades like radio technician, radio fitter, missile fitter (electronics), electrical fitter and instrument fitter, back-phasing was as high as 19 *per cent*.

The continued back-phasing would signify inadequacies either in recruitment

methodology or effectiveness of training as a result of which additional expenditure of Rs 4.44 crores on training inputs during periods of back-phasing had to be incurred.

5.7 Weapon training

Safe and confident handling of small arms constitutes an essential element of training.

Four training institutes shared a firing range at an Air Force station for practical training in weapons. Due to non-availability of firing range for necessary training during September 1992 to August 1993 on account of repairs, the training institutes were advised in September 1992 to make alternative arrangements. No such arrangements could be made and the institutes allowed trainees to pass out without completion of practical weapon training. Out of 3,394 trainees, 146 trainees passed out without any firing practice and 3248 trainees with partial firing practice.

5.8 Deviations from syllabus

In October 1992, Air HQ prescribed new syllabus for electrical fitter and instrument fitter trades for a fighter aircraft for implementation from November 1992. As the institute did not have the technical publication for the concerned aircraft, the matter was taken up with Air HQ in November 1993, which pointed out in January 1994 that as per the scales, the institute was not authorised to get the above publication. The justification for authorisation of the technical publication was furnished to Air HQ in April 1994 but the scale for publication for the institute was yet to be finalised (March 1995). Hence, the institute continued to train the tradesmen as per the old syllabus. Thus, the revision of syllabus contemplated in October 1992 was yet to be implemented and the tradesmen continued to be trained as per the old syllabus.

5.9 Holding of excess typewriters

Administrative Training Institute had been holding 127 English and 84 Hindi typewriters valued at Rs 6.60 lakhs in excess of their authorisation over the years, out of which 84 Hindi typewriters valuing Rs 1.90 lakhs procured during 1981-83 had not been used at all. As of March 1995, no action has been taken to either transfer or dispose of the surplus typewriters.

5.10 Performance of TETTRA Schools

5.10.1 Introduction

With a view to imparting training on aircraft and ground systems to engineers, technicians and aircrew to enhance flight safety and improve first and second line servicing ability, nine TETTRA Schools were set up in IAF during 1987-89. These schools were also imparting technical type training to pilots/aircrew/flight cadets of IAF.

5.10.2 Availability of Instructors

As per extant orders, TETTRA schools were to be provided with hundred *per cent* sanctioned strength of instructors. The position regarding availability of instructors vis-a-vis their sanctioned strength is indicated in Annexure-II which revealed that there were persistent deficiencies of officer instructors ranging from 17 to hundred *per cent* in all the schools during 1990-95 whereas the Airmen instructors were in excess of authorisation ranging from 4 to 65 *per cent* in some of the schools.

Despite general shortage of officer instructors, some of them had been posted on temporary duty/attachment to other units/schools or were assigned secondary station duties during the course of the training. One of the schools had been assigned, in April 1990, additional task of periodical calibration of 'specific to type' testers of aircraft. Though 12 tradesmen were posted to the school on *ad hoc* basis in 1989 for this purpose, they were withdrawn during August 1992 but the additional task continued with the school (March 1995), compounding the shortage further.

Air HQ stated, in April 1995, that the concerned authorities were being advised not to detail the instructional staff for secondary/station duties.

5.10.3 Unqualified Instructors

Successful completion of a Qualified Technical Instructors Course is a qualitative pre-requisite for Airmen posted to TETTRA schools as instructors. Test check in six out of nine schools revealed that the percentage of Airmen instructors without the required qualification ranged between 20 and 74 as of December 1994.

5.11 Training aid

In order to impart training effectively, TETTRA schools require a large quantity

of training/teaching aid and ground equipment. The training aid for different TETTRA schools had been authorised by Ministry of Defence (Ministry)/Air HQ in terms of its money value as per estimated cost from time to time. The value of training aid actually held by the nine schools indicated a shortage of 5 to 92 *per cent* as shown in Annexure - III. The difficulties experienced by TETTRA schools on account of such deficiencies are highlighted below, which are only illustrative.

No. 5 TETTRA school was authorised to hold one trainer aircraft, demand for which was placed in September 1992. The aircraft had not been provided till November 1995. Besides, due to non-availability of certain critical tools, testers and ground equipment (TT&GE), complete facilities for second line servicing of the aircraft had not been established in the school.

As against the authorisation of one serviceable aircraft, No. 9 TETTRA School was holding one repairable aircraft since its inception which hampered practical training on critical maintenance activities. The school was dependent on the local Air Force Wing which had its own limitations due to operational commitments.

No.8 TETTRA School imparts type training on five types of air defence radars and associated equipment. However, it held only three types of radars and associated equipment. This necessitated practical/on job training on the balance two radars and associated equipment in units at an out-station involving extra expenditure on movement of men and material. According to the School, the units imposed restrictions on carrying out training relating to certain complex checks/maintenance activities due to apprehension of equipment becoming unserviceable.

5.12 Approval of scales for TT&GE

The scales of physical holding of training aid only for four TETTRA Schools had been approved by the Ministry so far. Consequently, the schools had not been able to obtain necessary ground and test equipment, spares etc., essential for effective training in maintenance/servicing.

5.13 Accommodation

Acute shortage of accommodation in certain TETTRA schools necessitated reduction in intake of trainees with possible future repercussion on the desired supervisor Airmen ratio.

5.14 Non-installation of a radar

Based on Ministry's sanction of November 1989, Air HQ placed an order on a public sector undertaking (PSU) in February 1990 for supply of surveillance radar element (SRE) to No.7 TETTRA school at a revised cost of Rs 3.13 crores by September 1992.

A Board of Officers recommended (December 1992) execution of civil works at an estimated cost of Rs 60.01 lakhs for installation of SRE. As the said civil works had not yet (August 1995) been sanctioned, SRE equipment received between May 1994 and March 1995 were lying unutilised.

The school authorities stated, in March 1995, that due to non-installation of SRE equipment, the on-job training was being imparted at another unit which had its own limitations.

5.15 Post-training utilisation

After completion of training at TETTRA schools, the trained personnel are required to be posted to various AF units/squadrons for deployment on the type of jobs in which they were trained.

Out of 483 trainees who passed out in June 1993 from No. 5 TETTRA school, feed-back reports on deployment were received in respect of only 183 technicians which showed that 45 technicians had not been deployed on the jobs for which they were trained.

The matter was referred to the Ministry in October 1995; their reply was awaited as of November 1995.

6. Development and manufacture of a trainer aircraft

6.1 Introduction

In order to replace the aging and obsolete basic trainer aircraft by a modern one for imparting initiation training to pilots, Government sanctioned in February 1976 the design and development of aircraft 'A' (aircraft) by a public sector undertaking (PSU). The development was completed during late seventies at a cost of Rs 5.53 crores. The

initial requirement, as assessed by Air Headquarters (HQ), was 161 trainer aircrafts.

6.2 Development of the aircraft

The initial assessment of the first prototype of the aircraft developed and flown in January 1977 revealed a number of shortcomings in its performance. While some of the deficiencies were made good, the PSU expressed its inability to meet other parameters laid down in Air Staff Requirement (ASR). In order to keep the project alive, a number of concessions had to be made in the ASR by Air HQ. The second prototype flown in March 1979 had revealed that despite the concessions in the ASR, the aircraft was still wanting in several aspects particularly the spin characteristics.

6.3 Placement of orders

Air HQ evaluated three other types of aircraft along with the one developed by the PSU and decided to place order on the PSU on cost considerations.

6.3.1 First batch

Since the spin characteristics were not found acceptable during further flight evaluation of the aircraft carried out in 1980, Air HQ proposed to procure only 10 aircraft initially. This was, however, not found a viable proposition by Department of Defence Production. An order for 40 aircraft was, therefore, placed on the PSU in October 1981 to be supplied by 1985-86 at an estimated cost of Rs 7.70 crores (unit cost Rs 19.25 lakhs). Instead of quoting a fixed price within 18 months from the date of the order as stipulated in the Government sanction, the PSU asked for a total amount of Rs 21.12 crores for 40 aircrafts in June 1985. While processing the proposal, Air HQ was of the view that the rates demanded by the PSU were highly inflated and about three fold increase in the price demanded implied that the PSU had misled the IAF by initially quoting lower rates for securing the order. The Air HQ was, therefore, unwilling to pay higher price for an inferior aircraft which was likely to have an adverse impact on the quality of training. However, the amount payable to the PSU was finalised at Rs 19.51 crores (average unit cost Rs 48.78 lakhs) in a high level meeting in December 1987. The aircraft ordered were delivered in batches between 1985 and 1988.

6.3.2 Second batch

Despite the shortcomings in performance of the aircraft, Air HQ proposed in May 1983 procurement of 150 additional aircrafts by 1991 for meeting their training requirements. Ministry of Defence (Ministry), however, sanctioned in December 1984 procurement of only 40 aircraft and associated spares to be supplied by 1987-88 at a

total cost of Rs 11.28 crores (unit cost Rs 25.62 lakhs). The order for the second batch was placed in August 1988 after a delay of 43 months. In September 1989, Government sanctioned payment of a total amount of Rs 23.70 crores (unit cost Rs 59.25 lakhs) for the 40 aircraft delivered between 1988-89 and 1992-93 after a delay of two to five years.

6.3.3 Third batch

In June 1988, Air HQ projected requirement of another 56 aircrafts. Government, however, sanctioned in December 1989 procurement of 30 aircrafts and the associated equipment at a cost of Rs 25.74 crores (unit cost Rs 78 lakhs). The order for the third batch was placed on the PSU in January 1990. While all the 30 aircraft were scheduled to be delivered by 1992-93, only 26 aircraft had been delivered as of November 1995.

6.3.4 Fourth batch

Within four months of placing the order for the third batch, Air HQ projected yet another requirement of 32 aircrafts in April 1990 against which Government sanctioned in December 1991 procurement of 24 aircrafts and associated equipment at a total cost of Rs 31.09 crores (unit cost Rs 117.77 lakhs). Accordingly, an order was placed on the PSU in March 1992 for supply of 14 aircraft by 1994-95 and 10 aircraft by 1995-96. However, no aircraft had been delivered as of November 1995 as per this order.

6.4 Cost escalation

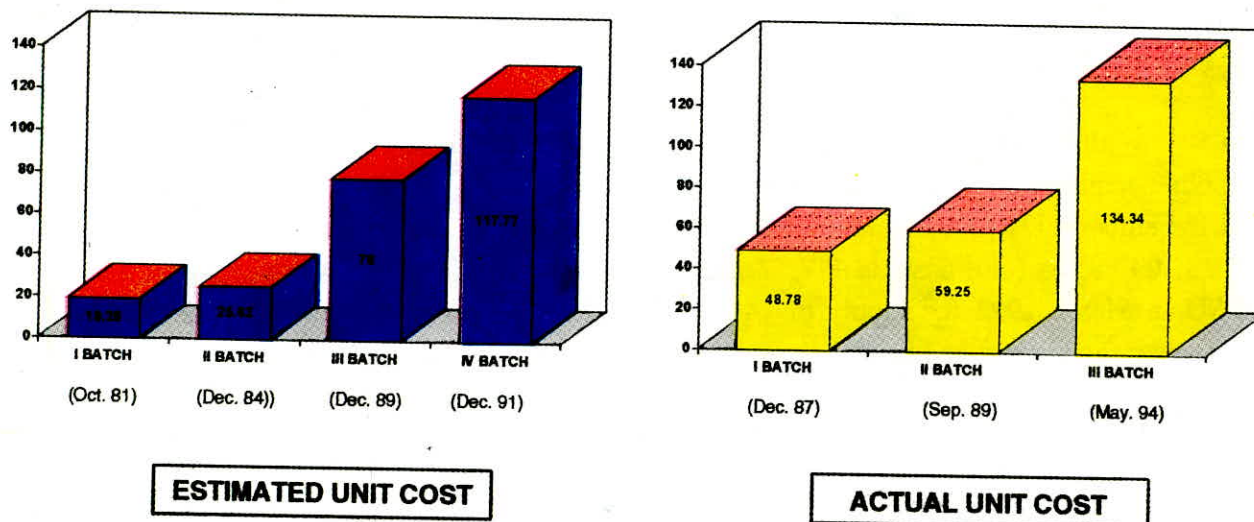
While processing the procurement of the aircrafts ordered against the third batch, the PSU stated that since their production line would close by March 1989 and considering the lead time of 24 months for manufacture, there would be break in production as a result of which benefit of learning of the staff engaged in the production of the aircraft cannot be utilised for the third batch. They indicated that an average 24,500 man-hours per aircraft would be required for execution of the order. Air HQ/Ministry, however, was of the view that since the PSU had consistently been apprised of the additional procurement, the maximum man-hours for production of the aircraft should not exceed 19,550. Government, however, relented and approved the price demanded by the PSU without taking into account the benefit of learning.

As per Government sanction, final payment to the PSU was to be made on the basis of approved fixed quotation for the year in which the aircraft were delivered. It was seen that Government approved the unit cost of aircraft delivered during 1993-94 (10 aircrafts) and 1994-95 (15 aircrafts) at Rs 134.34 lakhs and Rs 132.21 lakhs taking into account 24,600 and 26,285 man-hours respectively for the manufacture each of the aircraft. This resulted in an extra expenditure of Rs 3.48 crores in respect of 25 aircrafts

delivered during 1993-94 and 1994-95 due to loss of benefit of learning. Moreover, the composite man-hour rate was raised from Rs 154 in 1988 to Rs 231 in 1993-94, the reasonability of which was not transparent.

The price escalation in the procurement of the aircraft in batches from the placement of order for the first batch vis-a-vis the actual price paid is shown in the bar charts below:

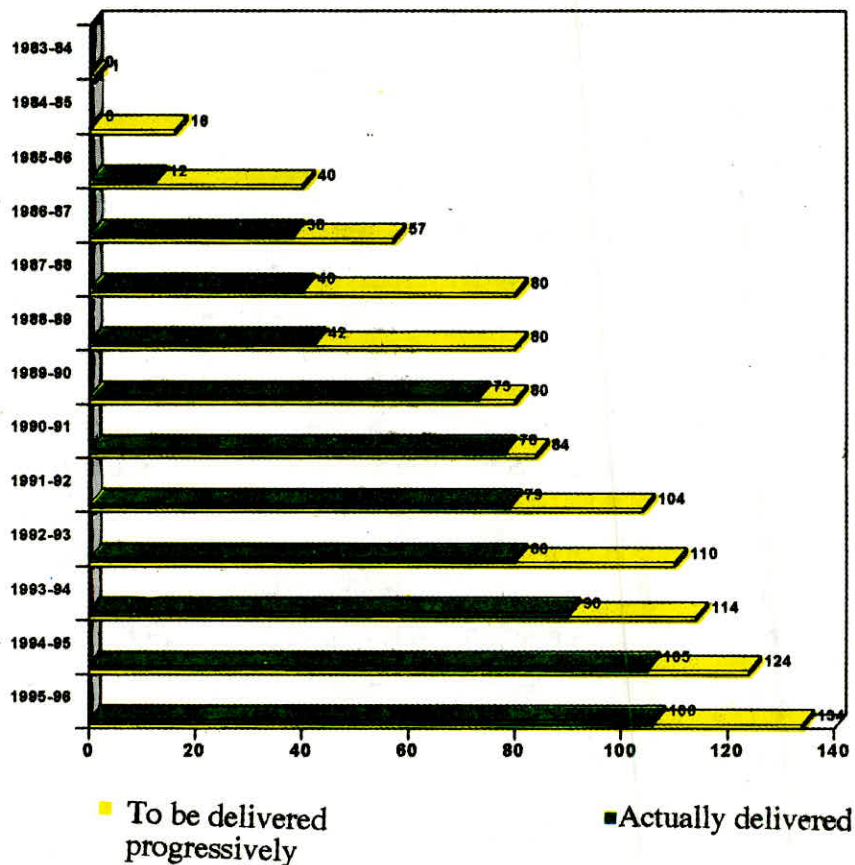
(Rupees in lakhs)



It is evident from the foregoing that piecemeal placement of orders from 1981 to 1992 and the time overrun in each case had resulted in increase of the estimated unit cost of the trainer aircraft from Rs 19.25 lakhs to Rs 117.77 lakhs while the actual cost increased from Rs 48.78 lakhs to Rs 134.34 lakhs. As the actual cost of aircraft was related to the year of delivery, such cost against the fourth order was not known as no delivery had taken place upto November 1995.

6.5 Delay in delivery of aircraft

Of the total 134 aircraft ordered on the PSU, it had delivered only 105 aircraft against 124 due by March 1995. It was noticed in Audit that PSU had not even on a single occasion delivered the aircraft on schedule as shown in the chart.



As the final payment was linked to the year of actual delivery of the aircraft, IAF had to pay higher cost due to such delays. Further, piecemeal sanctioning of procurement of aircraft coupled with delay in placement of orders and slippages in delivery by the PSU led to shortage of aircraft for training for which IAF had to use another type of aircraft, involving a much higher operating cost. The average extra cost of training of pilots on the other type of aircraft worked out to Rs 20 crores per annum during 1987 to 1990 as commented in paragraph 4 the Report No.9 of 1993 of the Comptroller and Auditor General of India, Union Government, Defence Services (Air Force and Navy). The extra expenditure for lack of adequate basic trainer aircraft continued to be incurred till June 1994.

6.6 Modification of the aircraft

It was also noticed that after three accidents between 1986 and 1991, certain design modifications were considered essential for incorporation in the aircraft fleet to improve crash survivability. The trial modification of one aircraft to be completed by August 1993 was sanctioned in November 1992 at a cost of Rs 48 lakhs (revised to Rs 65 lakhs). The trial modification was completed in only May 1995 and was under

evaluation (November 1995).

The Ministry accepted the facts and stated in December 1995 that IAF had to pay more due to delayed delivery of the aircraft by the PSU as the payment was linked to the year in which the aircraft was actually delivered. It added that modification of the aircraft fleet would be taken after acceptance of the trial modification.

To sum up:

In respect of the first and second batches, the difference between the total estimated cost and actual for 80 aircraft worked out to Rs 24.23 crores. The same difference in respect of the third batch cannot be worked out as full delivery has not been completed. Delay in placement of order for the third batch led to extra financial burden of Rs 3.48 crores in respect of 25 aircraft delivered upto March 1995 towards cost of increased man-hour consumed in the manufacture of the aircraft due to break in production at the PSU and consequential loss of benefit of learning. Besides, lack of adequate number of trainer aircrafts, forced IAF to continue initiation training on another type of aircraft till June 1994 involving extra expenditure of Rs 20 crores approximately *per annum*. Further, the aircraft continued to be deployed for initiation training of pilots without essential modification, entailing not only a compromise of proper training but also flight safety hazards.

WORKS SERVICES

7. Delay in establishment of an aircraft base

A Heavy Transport Squadron located at a station was decided to be shifted to a less vulnerable station 'A' for which Government sanctioned in November 1985 formation of a flying wing to provide maintenance support to the said squadron. In order to create the required infrastructure, Government also sanctioned acquisition of 363 acres of land at an estimated cost of Rs 3.27 crores in September 1988. However, for acquisition of the re-assessed requirement of 345 acres including 115.3 acres to be acquired under Urban Land Ceiling (ULC) Act, necessary notifications were issued by August 1989 and Rs 1.07 crores paid as advance to land acquisition authorities in October 1989. Some land owners filed a writ petition in the High Court and obtained a stay order in December 1989 which could be vacated only in April 1992.

Although, the authorities were not responsible for the delay of two and a half years on account of the stay order, the cost of the land had increased to Rs 5.10 crores for which revised Government sanction was sought in March 1993. On receipt of the said

sanction accorded in July 1993, land acquisition award in respect of land other than ULC land was declared in August 1993 and an amount of Rs 3 crores was paid in August 1993 to the land acquisition authorities, in addition to the earlier payment of Rs 1.07 crores. Thus, a total of Rs 4.07 crores was paid for land other than ULC land.

In respect of the ULC land of 115.3 acres, the cost escalation necessitated revision of the Government sanction raising the total cost of acquisition from Rs 5.10 crores to Rs 6.28 crores. After the Government sanction in November 1994, however, Rs 2.35 crores for the ULC land was paid to the land acquisition authorities in March 1995 instead of Rs 2.21 crores, which resulted in an excess payment of Rs 14 lakhs.

Despite payment of Rs 6.42 crores (including the over-payment of Rs 14 lakhs), the land had not yet (September 1995) been handed over. As a result of these protracted and yet unsuccessful efforts to possess the land, the heavy transport squadron had to be based at another station 'C', although necessary complement of staff and officers of the wing was deployed at station 'A' from 1987, the present number being 20 officers and 339 staff.

The time taken to acquire the land after vacation of the stay order of the High Court has resulted in escalation of the cost by Rs 1.18 crores. Furthermore, non-possession of the land till date (September 1995) had not only compromised the vulnerability of the heavy transport squadron to a certain extent but also resulted in deployment of staff and officers of the wing at station 'A', while the infrastructural support to the heavy transport squadron was being provided by the staff and officers of station 'C'.

The matter was referred to Ministry of Defence in June 1995. While accepting the facts, the Ministry stated in September 1995 that possession of the plot was now held up as the State Government had temporarily stayed the acquisition.

PROVISIONING

8. Avoidable import of sub-assembly of a radar

Foreign supplier of an aircraft intimated in November 1991 that five numbers of item 'A' and two numbers of item 'B' of the aircraft's radar system should be positioned in a Base Repair Depot (BRD) before arrival of foreign specialists to undertake desired

repairs. BRD, however, intimated Air Headquarters (HQ) in January 1992 that adequate expertise was available with them and the requirement of items 'A' and 'B' could be met by repairing the existing unserviceable stock, subject to certain spares being made available. Instead of utilising the expertise available at BRD, Air HQ finalised import of items 'A' and 'B' in August 1993 at a total cost of Rs 2.10 crores including Rs 27 lakhs for urgent delivery. These items which were required to be put to use by the foreign specialists, were received in BRD in September 1994, although the specialists visited BRD between August 1992 and February 1993. During this visit, 13 numbers of item 'A' and 6 numbers of item 'B' were repaired by cannibalising spares from unserviceable stock. It was further noticed that both items 'A' and 'B' were slow moving ones and seven numbers of item 'A' and six numbers of item 'B', including the items imported in September 1994, were lying unutilised as of June 1995.

Ministry of Defence stated in September 1995 that urgency of importation arose for making items 'A' and 'B' available to the foreign specialists during their visit. But, there was a mismatch between the two events and as the specialists arrived earlier than importation and succeeded in repairing the unserviceable stock by cannibalising, the question of cancellation of supply orders placed in August 1993 was taken up with the foreign firm in December 1993, which, however, did not succeed as the supplier had already shipped the items.

The case ex-facie revealed lack of coordination in planning and implementation which resulted in an avoidable import of aircraft radar spares at a cost of Rs 2.10 crores out of which Rs 27 lakhs towards charges for urgent delivery became wholly infructuous.

9. Extra expenditure due to delay in firming up the orders

Delay by Air Headquarters (HQ) in firming up the orders placed on a public sector undertaking (PSU) resulted in extra expenditure of Rs 40.54 lakhs in three cases noticed by Audit. The details are as under:

Case I

Air HQ placed an order in February 1991 on a PSU for supply of two items of spares 'A' and 'B' for a radar at a total cost of Rs 13.12 lakhs, the delivery of which was to be completed by February 1992. The PSU which was the sole indigenous manufacturer of the spares, sought a price increase in November 1991 to the extent of 175 per cent for item 'A' and 151 per cent for item 'B' on the ground of exchange rates

adjustment for imported inputs in spite of a firm quotation by them in December 1990. In March 1992, Air HQ called for supporting details to assess the reasonableness of the revised price and in spite of having failed to obtain the same, the price increase was agreed to. As a result, the total amount payable to the firm was revised from Rs 13.12 lakhs to Rs 35.27 lakhs in November 1992. The supplies were effected in April 1995.

While accepting the facts, Ministry of Defence (Ministry) stated, in October 1995, that Air HQ had been directed to issue suitable instructions to ensure reasonableness of prices/revised demands before their acceptance to prevent recurrence of such cases in future.

Thus, due to lack of analysis of the cost, Air HQ was not in a position to reject the demand of the PSU for price increase and had paid an amount of Rs 22.15 lakhs over the initially agreed price. Further, the indigenous and imported material together constituted 49 *per cent* of the total cost and while the exchange rate adjustment during the relevant period could account for a maximum of 20 *per cent* increase of the imported input, the increase accepted for items 'A' and 'B' was 175 *per cent* and 151 *per cent* respectively of the original price.

Case II

Air HQ placed an order on a PSU in April 1990 for procurement of 57 connector assembly. The PSU quoted Rs 5.83 lakhs in August 1990 and confirmed it in February 1991. However, Air HQ did not firm up the order. The PSU revised its rates in February 1992, increasing the value of order from Rs 5.83 lakhs to Rs 18.34 lakhs. Accordingly, Air HQ amended the order in March 1992. The items were received between November 1992 and March 1994.

The Ministry stated, in October 1995, that the rate offered by the PSU in February 1991 was budgetary and not a firm rate which was offered only in February 1992. This contention is not tenable as the PSU in February 1991 had converted the budgetary quotation of August 1990 into a firm quotation.

Thus, delay on the part of Air HQ in firming up the rates of February 1991 resulted in an extra expenditure of Rs 12.51 lakhs.

Case III

Air HQ placed an order on the PSU in February 1990 for supply of four units of

load assembly at a budgetary cost of Rs 0.46 lakh each among other items. In November 1991, the PSU quoted a firm unit rate of Rs 1.46 lakhs. However, Air HQ did not firm up the order. After a lapse of one year, in November 1992, the PSU increased the unit rate from Rs 1.46 lakhs to Rs 2.93 lakhs stating that validity of its earlier quotation had expired. Air HQ firmed up the order in December 1992 at a unit cost of Rs 2.93 lakhs. The items were received in July 1995.

The Ministry stated, in October 1995, that the load assembly formed part of the order which included procurement of another item also and firming up the order for load assembly alone would have amounted to splitting up of the indent to bring it within the powers of the competent financial authority. This contention is not tenable as in both the situation of ordering items jointly or severally, competent financial authority remains the same.

Thus, delay in firming up the rate had resulted in an extra expenditure of Rs 5.88 lakhs.

10. Extra expenditure in procurement of piston assembly

Based on the requirement projected by an Equipment Depot (Depot), Maintenance Directorate, Air Headquarters (HQ) raised an indent in April 1992 on Directorate of Purchase (DOP), Air HQ for procurement of 285 piston assembly (assembly) required for overhaul of aeroengines. The unit rate of Rs 27,248 quoted by a foreign firm 'A' in July 1993, was valid upto February 1994.

Meanwhile, another demand projected by the Depot in October 1992 for procurement of 247 assembly was sent to DOP by Maintenance Directorate in November 1993. Instead of clubbing both the demands of April 1992 and November 1993, Air HQ concluded a contract with the firm 'A' in February 1994 for supply of 285 assembly at the unit rate of Rs 27,248 and a separate contract for supply of 247 assembly with the same firm in May 1994 at a unit rate of Rs 33,139 quoted in January 1994 within the validity of the earlier offer. This resulted in avoidable extra expenditure of Rs 14.55 lakhs on the procurement of 247 assembly.

Ministry of Defence stated, in October 1995, that they had taken a note of the lack of coordination between the indenting Directorate and the DOP and necessary instructions were being issued to obviate recurrence of such lapses in future.

11. Extra expenditure due to incorrect assessment of requirement of pads

For provisioning of pads outer (pads) used in Aircraft 'A', Air Headquarters (HQ) assessed in March 1989 that the net requirement of pads was 13,744 but within 4 months reduced the same to only 900. Accordingly, an order for supply of 900 pads on a foreign firm 'X' at a unit rate of Rs 191 was placed in August 1990. Before placement of this order, however, Air HQ raised another indent for procurement of 20,000 more pads in June 1990, which was processed at a unit rate of Rs 268 on another foreign firm 'Y' and three supply orders were placed between December 1990 and February 1992. All the pads were received by March 1992.

It would, thus, be seen that Air HQ's assessment about the requirement of pads fluctuated widely between March 1989 and June 1990. Had the requirement been properly assessed before placing the order on firm 'X' in August 1990, an extra expenditure of Rs 14.71 lakhs for the procurement of 20,000 pads could have been avoided.

Air HQ stated, in July 1994, that as Aircraft 'A' was being phased out, they endeavoured to avoid over-provisioning by reducing the requirement to 900 pads in July 1989. The reply revealed lack of planning as the life of Aircraft 'A' had been extended beyond March 1990 in April 1989 itself.

Admitting the facts, Ministry stated, in September 1995, that the decision to wind up one of the operating units and extension of its life appeared to have over-lapped, which was not taken into account while reducing the requirement of pads to only 900 in July 1989.

12. Excess procurement of communication sets

In order to meet the air defence requirement of Indian Air Force (IAF), Air Headquarters (HQ) planned in January 1986 to induct 9 radars of type 'A' and 8 radars of type 'B'. Out of 9 radars of type 'A', 8 radars were to be deployed in mobile configuration and one as static. All type 'B' radars were to be deployed in static configuration. Mobile configuration requires four communication sets each, while static deployment requires three. Thus, in all 59 communication sets were required for eight mobile units and nine static units. Accordingly, Radar and Communication Project Office (RCPO) placed two separate orders on a public sector undertaking (PSU) in

January and February 1989 at a total cost of Rs 1.20 crores.

In April 1989, a steering committee in consultation with RCPO and Air HQ decided to reduce the requirement of radars of type 'B' to six only. However, RCPO did not take action to reduce the number (six) of communication sets accordingly. All communication sets were received by July 1990. This resulted in avoidable procurement of six sets costing Rs 12.51 lakhs.

Out of the 32 sets procured for deployment in mobile configuration, 24 sets costing Rs 48.98 lakhs had not been installed upto October 1995 after their receipt in July 1990 as necessary deployment plan was awaited from Air HQ.

RCPO stated, in February 1995, that decision of April 1989 to reduce the requirement of radars was conveyed to them by Air HQ only in May 1991 but reduction in the quantity of sets ordered was not considered. RCPO who was also a member of the steering committee which decided to reduce the number of radars in April 1989, failed to notice the altered requirement of communication sets.

Thus, excess procurement of six communication sets led to avoidable expenditure of Rs 12.51 lakhs. Besides, 24 sets costing Rs 48.98 lakhs procured in July 1990 were awaiting installation in the absence of deployment plan as of October 1995.

OTHER CASES

13. Delay in computerisation of an Indian Air Force Command

In August 1987, Air Headquarters (HQ) proposed computerisation of Indian Air Force Maintenance Command (MC) and units thereunder to meet information requirements speedily. The configuration of the computer system required was finalised in March 1988. Government sanction was issued in March 1991. Accordingly, a supply order was placed on a public sector undertaking (PSU) during the same month for supply and installation of the system in 16 Air Force units by September 1991 at a cost of Rs 2.99 crores. An advance of Rs 59.82 lakhs was paid to the PSU in March 1991 as per terms of supply order.

The PSU failed to effect any supplies by due date and instead asked for price increase of Rs 62 lakhs in July 1991. This was, however, not agreed to by Ministry of

Defence (Ministry). After negotiations, the supply order was amended in October 1993 omitting certain software packages and finalised at a total cost of Rs 2.64 crores. The delivery of the systems was re-scheduled to be completed by January 1994, local area network (LAN) integration at all the units by March 1994 and wide area network (WAN) integration by April 1994.

The PSU failed to adhere even to the revised schedule. Considering that the PSU had repeatedly defaulted, Air HQ apprehended that the PSU was not in a position to complete the work and approached (July 1994) the Ministry to intervene and consider other options including fore-closing of the contract. However, no action was taken to cancel or foreclose the contract (August 1995).

Upto August 1995, the PSU supplied computer systems valuing approximately Rs One crore to only 11 units, out of which 5 were installed. It was noticed that only three of the five installed systems were tried by users who faced persistent problems and recurrent faults and thus, the introduction of LAN and WAN remained a remote possibility. Air HQ admitted that failure to install the computer network successfully had affected the inventory management and acknowledged that for delayed delivery and rapid technological advancements, the system ordered by Air HQ even if installed now, had already become outdated.

The matter was referred to Ministry in August 1995; their reply was awaited as of November 1995.

14. Irregular employment of local staff

Ministry of Defence (Ministry) had sanctioned, in April 1967, three posts of local clerks in Air Wing of the Embassy of India (Mission), Washington. This was reduced to two in September 1969 and further to one in April 1988, the sanction for which expired on 31 December 1991. Further continuance of the post was not approved by the Ministry and instructions were issued to hold these posts in abeyance till 31 March, 1995.

Notwithstanding the instructions of the Ministry, the Air Wing of the Mission employed two local clerks from 1 January, 1992 to 23 August, 1995. On being pointed out by Audit, the Mission discontinued the appointment of two local clerks from 24 August, 1995. Employment of staff in excess of the sanctioned strength resulted in unauthorised expenditure of US \$ 136,767 (Rs 40.87 lakhs) and also negated the economy measures taken by the Ministry.

The Ministry stated, in August 1995, that Air Headquarters had been requested to look into the matter and fix responsibility for the lapse. Further progress was awaited as of November 1995.

15. Infructuous expenditure on acquisition of land

For setting up a radar unit at a station, a Board of Officers (Board-1) assembled in May 1985 and identified 66 acres of land for the purpose. In October 1986, another Board of Officers (Board-2) assembled for siting and costing of the radar complex including accommodation for personnel of the Unit and found that topography of 44 out of 66 acres identified by Board-1 was not suitable for construction of accommodation. Board-2, therefore, recommended that the acquisition of the exact area should be determined on the basis of the contour plans.

In April 1987, Government issued separate sanctions for acquisition of the already identified 66 acres and an additional 19 acres for construction of married accommodation. The land was taken over in July 1987 after depositing an amount of Rs 1.07 crores with the concerned authorities. The land had since been utilised for part construction of roads, key personnel accommodation and external services and an expenditure of Rs 2.65 crores had been incurred upto June 1995. But as of October 1995, no radar had been installed at the station.

Admitting the facts, Ministry of Defence stated, in October 1995, that due to limited resources, the radar could not be located at the station and would be installed depending on 'tactical need'.

Commencing from the acquisition of the land in 1987, an expenditure of Rs 3.72 crores had been incurred until June 1995 for the radar station but the 'tactical need' to instal the radar had not been felt as of October 1995.

16. Import of unsuitable item

Air Headquarters (HQ) concluded a contract with a foreign firm 'X' in September 1993 for supply of overhaul spares of engine 'V'. The contract included supply of pre-modified version of items 'A' and 'B' of the spares at a cost of Rs 18.93 lakhs, although Maintenance Directorate of Air HQ had indented for modified versions in November 1991. Attempts of Air HQ for modification of the contract to stop supply of pre-modified

version of items 'A' and 'B' failed. Firm 'X' supplied the overhaul spares, including the pre-modified versions between February 1994 and April 1995.

While admitting the facts, Ministry of Defence (Ministry) stated, in October 1995, that the pre-modified version of items 'A' and 'B' would fulfil the requirement and were to be utilised during the maximum potential establishment (MPE) period. The reply of the Ministry is, however, inconsistent with the fact that the pre-modified versions were unsuitable and not acceptable to the user units as per confirmation of Air HQ in July 1995. As regards utilisation during MPE, it was seen that, between June 1991 and June 1995, 62 numbers of item 'A' and 72 numbers of item 'B' were utilised while 778 numbers of the first item and 762 numbers of the second were held in stock as of October 1995.

Thus, failure to stop supply of pre-modified version of items 'A' and 'B' valuing Rs 18.93 lakhs resulted in unnecessary expenditure.

17. Loss due to delay in preferring claims

Test check in Audit revealed that in the following two cases where discrepancy reports (DR) in respect of stores received were not filed within prescribed time resulted in a loss of Rs 38.13 lakhs:

Case I

Thirty one sets of indicators valuing Rs 24.61 lakhs were received from a foreign supplier in a Base Repair Depot (BRD) in August 1992, but the package was opened after 90 days in November 1992, when BRD noticed that Indicators received were different from those contracted for. BRD sent the DR to Air Headquarters (HQ) in December 1992 for taking up the matter with the supplier for free replacement of items wrongly supplied. Air HQ, forwarded the DR to the supplier's representative in India in January 1993. Efforts made to obtain replacement did not succeed as it had become time-barred. This resulted in a pointless expenditure of Rs 24.61 lakhs.

Case II

Based on an indent of Air HQ, Hindustan Aeronautics Limited (HAL) placed an order in May 1984 on a foreign firm for supply of certain spares. The firm despatched three items of spares in two packages in December 1984 through Air India. However, only one package was received at a Depot through a Movement Control Unit in April

1985. The package contained only one item and other two items costing Rs 13.52 lakhs was not received. Depot took about four month to report the discrepancy to Air India in August 1985. The handling agents also did not agree to accept responsibility stating that only one package was handed over to them by Air India. The matter was again taken up with Air India in December 1987 who turned down the claim stating that the claim was "time barred" as per the condition of contract of carriage, since it was not preferred within 90 days.

Government had, therefore, to regularise the loss of Rs 13.52 lakhs in April 1990.

Ministry of Defence stated, in November 1995, that Air HQ have since issued necessary instructions to ensure that such instances did not recur in future.

18. Loss of items despatched through service aircraft

Test check revealed that certain aircraft spares packed, loaded and despatched in August 1992 through a service aircraft in the presence of a Board of Officers (Board) were short-received at the destination. The value of items lost in transit was Rs 9.87 lakhs. Even though a Court of Inquiry (COI) was required to be conducted and completed within a year of detection of the loss, no such COI had been ordered as of October 1995.

In a similar case, equipment despatched by a service aircraft in the presence of a Board in July 1991 were received in damaged condition at the destination. While the cost of the equipment was Rs 6.92 lakhs, the estimated cost of repair was Rs 1.32 lakhs. In this case, COI investigated the matter and opined in September 1991 that damage occurred due to improper packing and did not recommend regularisation of the loss without assessing the cost-effectiveness of repairing the equipment and ascertaining complete facts by holding an additional COI.

Ministry of Defence accepted the facts in both cases and stated, in October 1995, that in respect of second case COI proceedings were under finalisation.

19. Recovery at the instance of Audit

An order to import and supply different types of modules for an aircraft at a total cost of Rs 490.94 lakhs including agency charges of Rs 27.79 lakhs at the rate of 6 per

cent of the cost of the modules was placed on a public sector undertaking (PSU) in November 1985. At the request of the PSU, the said order was converted to a repair, manufacture and supply order in May 1986, which did not entitle the PSU to any agency charges.

Test check revealed that, out of a total payment of Rs 437.36 lakhs for supply of the aforesaid items during 1992-94, an amount of Rs 20.53 lakhs was paid as agency charges. On this being pointed out by Audit in March 1995, the said amount was recovered from the PSU during the same month.

While confirming the facts, Ministry of Defence stated, in October 1995, that necessary instructions had since been issued to avoid such lapses in future.

CHAPTER IV

NAVY

20. Working of Controllerates of Procurement of Navy

20.1 Introduction

Controllerates of Procurement (CPRO), Bombay and Visakhapatnam were established in 1971 and 1979 respectively with the objective of timely procurement of various stores for ships and Naval units from indigenous sources based on indents by competent authorities. The average annual procurement by these CsPRO during 1990-95 aggregated to Rs 121.89 crores (involving 8,262 items) and Rs 22.35 crores (involving 7,847 items) at Bombay and Visakhapatnam respectively.

20.2 Organisational set up

CsPRO are part of the respective Material Organisations at Bombay and Visakhapatnam and are headed by a Material Superintendent under the overall administrative control of Flag Officer Commanding-in-Chief, Western Naval Command, Bombay and Eastern Naval Command, Visakhapatnam respectively.

20.3 Scope of Audit

Paragraph 32 of the Report of the Comptroller and Auditor General of India, Union Government (Defence Services) for the year 1983-84 had brought out shortcomings in the functioning of CPRO, Bombay. Public Accounts Committee (PAC) had examined this paragraph and recommended remedial measures in their fifty first Report (Eighth Lok Sabha) - 1986-87 for improving its working.

Action on the recommendations of the PAC and working of CsPRO during the period 1990-95 was reviewed in Audit in 1995.

20.4 Highlights

- **Despite recommendations of the PAC, both CsPRO did not maintain proper records for central and local purchase and also accorded low priority in registration of firms which resulted in placement of orders on unregistered firms.**
- **Market survey team and finance section had not been set up despite the recommendations of Defence Institute of Works Studies and the PAC.**
- **Non-adherence of standard lead time of 3 - 4 months for local purchases and 6 - 8 months for central procurements had affected compliance of demand which increased local purchases.**
- **Despite the recommendation of the PAC, the Ministry had not evolved effective procedure to reduce the quantum of local purchase.**
- **CPRO, Bombay manipulated records for covering irregular import of sanitary spares costing Rs 10.64 lakhs.**
- **Procurement of stores of wrong specification, in excess of requirement and at higher rates had resulted in wasteful/avoidable expenditure of Rs 20.03 lakhs.**
- **Rs 92 lakhs drawn as advance for payment to the vendors remained unadjusted even after expiry of over 3 to 9 years.**

20.5 Registration of firms

Based on the recommendations of the PAC contained in their fifty first Report (Eighth Lok Sabha) 1986-87, Naval Headquarters (HQ) issued instructions in November 1986 for maintenance of separate records for registration of firms/suppliers for central and local purchases. These instructions also provided for periodical review of the approved lists of suppliers to facilitate their rating based on the past performance and capability, so that their registration could be considered for renewal on expiry of three years.

Test check revealed that the requisite records in respect of suppliers for central as well as local purchases were not maintained properly in both the CsPRO. The records maintained did not contain details of registration, renewal of registration, range of products for which registered, etc., showing that the work of registration was accorded low priority. At CPRO Bombay, as many as 486 applications were still to be processed for registration (May 1995). Of these, 429 applications had been received prior to 1992. Similarly in CPRO Visakhapatnam, 606 applications received during 1991-94 were pending. Ministry stated, in May 1995, that the slow progress in registration was due to shortage of manpower.

Test check of 375 supply orders for Rs 6.09 crores placed by CPRO, Bombay during December 1994-January 1995 revealed that 303 orders for Rs 5.26 crores were placed on unregistered firms. In other words, unregistered firms were favoured with 80 per cent of these orders, constituting 86 per cent of the value of the orders.

20.6 Establishment of market survey team/ finance section

An expert team from Defence Institute of Works Study, Mussoorie (DIWS) had, *inter alia*, recommended in 1980 formation of a market survey team and a full fledged finance section headed by a Financial Controller at CPRO, Bombay. Taking note of the delay in forming of the team/section, the PAC had recommended in June 1986 that action on the recommendations should be taken within six months. The market survey team and finance section had, however, not been set up in CPRO as of October 1995. The Ministry accepted the need of a dedicated market survey team in May 1995. However, it added that the team could not be established for want of adequate manpower. Such a contention can barely hold water. Thus, despite recommendations of DIWS and the PAC made about 15 and 9 years ago respectively, neither the market survey team nor a finance section had been set up.

20.7 Tender enquiries

All purchases exceeding Rs 20,000 are to be made through open tender system by issuing tender enquiries to a minimum of fifteen firms.

Test check of 96 cases of tenders opened during December 1991, July 1992, and November 1994 revealed that tender enquiries were not issued to the minimum of 15 firms even in a single case.

20.8 Monitoring of supply orders

The lead time for procurement of the stores against requisition to monitor progress of procurement was fixed as three to four months for local purchase and six to eight months for central purchase. Test check of 221 local purchase orders pertaining to the period April 1994 to June 1994 in respect of CPRO Bombay, revealed that the delay in procurement of the stores ranged from 8 to 69 months in 128 cases. In the remaining 93 cases, supplies had not materialised as of October 1995. In respect of 24 central purchase orders during the same period, the delay varied between 11 and 81 months. In CPRO Visakhapatnam, out of 58 local purchase orders placed during 1994-95, the delay in respect of 18 cases ranged from 4 to 38 months and in the remaining 40 cases, the supplies had not materialised as of October 1995 against 7 to 80 months old requisitions. The Ministry stated, in May 1995, that adherence to the prescribed lead time was not feasible in all cases due to in built delay on account of mandatory procedural requirements, non-availability of stock samples, nature of items, inspection delay in clearance of developmental/ substitute items and non-execution of orders by firms. The contention of the Ministry is inconsistent with and runs contrary to their submission before the PAC while indicating fixation of lead time.

The long lead time for materialisation of supplies had affected the compliance of demand for stores besides increasing the quantum of local purchases.

20.9 Local purchase vis-a-vis central purchase

The normal mode of procurement of stores is through central purchase based on indents prepared on the basis of annual provisioning reviews. Local purchase is also resorted to meet urgent requirements of units and for replenishment of stock to bring it upto six months requirements. On the question of local purchase being far in excess of the central purchase during early eighties, the PAC had recommended that every effort be made to improve the availability of stores through central purchase so as to reduce the necessity for local purchase to the barest minimum. However, as would be evident from the table given overleaf, except during 1993-94 in CPRO Bombay, the proportion of local purchase continued to be high:

CPRO, BOMBAY

Year		Number of orders	Items covered	Percentage of total number of orders	total number of items	Total amount of orders (Rs in crores)
1990-91	CP/DP	235	1501	8.40	26.07	4.95
	LP	2564	4256	91.60	73.93	8.56
1991-92	CP/DP	362	1115	10.30	19.68	0.09
	LP	3154	4550	89.70	80.32	12.24
1992-93	CP/DP	396	NA	14.22	NA	NA
	LP	2387	NA	85.78	NA	NA
1993-94	CP/DP	316	1180	9.01	9.76	240.50
	LP	3190	10902	90.99	90.24	43.37
1994-95	CP/DP	374	887	10.94	9.28	123.94
	LP	3044	8668	89.06	90.72	53.91

CPRO, VISAKHAPATNAM

1990-91	CP/DP	417	3239	21.29	42.29	6.93
	LP	1542	4420	78.71	57.71	6.13
1991-92	CP/DP	297	1599	15.31	18.09	8.27
	LP	1643	7241	84.69	81.91	8.99
1992-93	CP/DP	447	2084	31.43	44.27	6.03
	LP	975	2624	68.57	55.73	5.72
1993-94	CP/DP	939	3894	37.07	39.61	16.68
	LP	1594	5937	62.93	60.39	11.77
1994-95	CP/DP	255	1428	13.36	17.42	17.50
	LP	1653	6770	86.64	82.58	23.74

CP/DP - Central Purchase/Direct Purchase
LP - Local Purchase

While CPRO, Bombay had shown some improvement in controlling local purchases during the last two years, the same does not hold good for CPRO Visakhapatnam.

The Ministry stated, in May 1995, that local purchase had to be resorted to meet urgent/operational requirement and to bring the stock up to six months requirement. Be that as it may, an effective procedure to reduce the quantum of local purchase, as per recommendations of the PAC has not yet been evolved.

20.10 Irregular import of spares

CPRO, Bombay placed an order in July 1993 on a foreign firm for supply of 24 items of spares at a cost of Rs 10.07 lakhs in foreign exchange. The spares were airfreighted at a cost of Rs 0.57 lakh in September 1993. However, no payment could be made to the firm as CPRO had no authority to make payment in foreign exchange.

Subsequently, two orders for the same spares already supplied by the foreign firm were placed on a local firm in February 1994 at a cost of Rs 11.66 lakhs. The earlier order placed on the foreign firm in July 1993 was cancelled in August 1994. In order to make the entire transaction appear as bonafide, fresh documents were prepared to show procurement of the spares through the local firm. The imported spares received in September 1993 were taken on charge in August 1994 and an amount of Rs 11.66 lakhs was paid to the local firm in March 1995.

It was noticed that spares costing Rs 6.48 lakhs out of Rs 11.66 lakhs imported in September 1993 on grounds of urgency were still held in stock as of March 1995.

Thus, CPRO, Bombay not only imported spares costing Rs 11.66 lakhs in violation of extant rules but also manipulated the records to cover up the irregular transaction.

20.11 Other points of interest

20.11.1 Procurement of bearing repeater compass

Based on a demand received from a ship 'A' in August 1990, Controller of Material Planning, Bombay raised purchase requisition on CPRO, Bombay in September 1990 for procurement of one bearing repeater compass (compass). After a delay of three years, CPRO Bombay placed an order on a firm in December 1993 for supply of three

such compasses at a cost of Rs 10.54 lakhs. The materials were supplied in April 1994.

Out of three compasses, one issued to the ship 'A' in May 1994, was returned in June 1994 as it was a vertically mounted version as against horizontally mounted version required. All the three compasses were lying in stock as of March 1995. The procurement of three compasses against one required and that too of wrong specification resulted in wastage of Rs 10.54 lakhs.

20.11.2 Procurement of items on DGSD rate contract through local purchase

According to the instructions issued by Naval HQ in October 1987, items covered under Directorate General of Supplies and Disposals (DGSD) rate contracts should not be procured through local purchases.

Though soft soap was covered under DGSD rate contract and was available at Rs 8 per kilogram (Kg), CPRO, Bombay in disregard of the existing instructions, purchased 1,02,190 kg of soap through local purchase at the rate of Rs 13.25 per kg during 1993 and 1994 resulting in an extra expenditure of Rs 5.36 lakhs. According to Material Organisation, Bombay (MOB), the rate contracts finalised by DGSD were received very late by CPRO, Bombay and as such soap was procured locally, presuming that no rate contract existed.

20.11.3 Spares for propulsion control system

In February 1992, CPRO, Visakhapatnam floated a limited tender enquiry for purchase of 19 items of spares for propulsion control system. Five firms quoted their rates in June 1992 and the lowest offer was Rs 12.80 lakhs. However, the tender papers were not put up for consideration of Tender Purchase Committee (TPC) as required under existing instructions and CPRO, Visakhapatnam ordered re-tendering in June 1992 itself on the ground that the lowest rates of Rs 12.80 lakhs were exorbitant. On re-tendering, the lowest rates obtained were higher than those obtained earlier and 19 items of spares were procured at a cost of Rs 14.92 lakhs during July/September 1992 involving an extra expenditure of Rs 2.12 lakhs.

The Ministry stated, in May 1995, that due to operational requirement and likelihood of the firm not executing the order, the order had to be placed on a firm which could fulfill the order. This was, however, contrary to the reasons recorded while re-tendering.

20.11.4 Avoidable procurement of MIBK

CPRO, Visakhapatnam placed an order in November 1990, for supply of 36,960 Kg of Methyl Isobutyl Ketone (MIBK) at a cost of Rs 13.68 lakhs on Material Organisation, Visakhapatnam (MOV). In December 1990, the consignee was changed to MOB instead of MOV. The entire quantity of MIBK received in March 1991 was issued to MOV by MOB in May - August 1991. MOV utilised only 17,920 Kg of MIBK. Due to change in the paint manufacturing programme, there was no further requirement for MIBK at MOV. Therefore, the balance quantity of 19,040 Kg MIBK valuing Rs 7.05 lakhs with limited residual shelf life was backloaded to MOB in November/December 1992 after incurring an expenditure of Rs 0.32 lakh towards transportation charges. As the shelf life of MIBK had already expired in the meantime, MIBK was disposed of in June 1993 for Rs 5.36 lakhs. This resulted in a loss of Rs 2.01 lakhs which could have been avoided if the requirement for the item had been initially assessed properly.

20.12 Outstanding advance payments

The advances drawn for making payments to firms for supplies, are to be adjusted within one month of their drawal by submission of detailed adjustment bills. Test check in audit revealed that an amount of Rs 92 lakhs drawn as advance in respect of 23 cases between January 1986 and June 1992 was pending adjustment at CPRO, Bombay.

The matter was referred to the Ministry in September 1995; their reply was awaited as of November 1995.

ACQUISITIONS

21. Delay in operational deployment of imported systems

In order to meet operational requirement of the Navy, Government concluded a contract with a foreign firm 'A' in June 1979 for supply of one electronic warfare system at a cost of Rs 4.18 crores and placed another order in October 1980 for supply of one more of the same system at a cost of Rs 4.02 crores. The systems, received in December 1980 and May 1982, were installed in Naval ships 'P' and 'Q' in November 1983 and November 1985 respectively.

Factory Acceptance Tests (FATs) stipulated in the contract were carried out before delivery of the systems, but no defects were noticed. However, after installation,

it was found that the systems had major defects and had to be upgraded to achieve the contracted performance level. Firm 'A' undertook the upgradation work and completed the same by December 1990, after which sea acceptance trials were successfully performed between January and October 1991.

Without proving the two systems already installed in 1983 and 1985 as to their satisfactory performance, Government placed orders for supply of three more systems in June 1985 on firm 'A' at a total cost of Rs 22.06 crores. After conducting FATs, two of the three systems were received in July 1987/ August 1988. Supply of the third system was awaited as of November 1995, although an advance of Rs 1.47 crores was paid in June 1986.

Of the two systems received, one was installed in ship 'R' in December 1987 but the said system had similar defects and required upgradation to achieve the contracted performance level. The trials were completed in February 1990, after upgradation. The other system was installed in ship 'S' in May 1995 and was yet to be proved during trials as of November 1995. Upto September 1995, the firm had been paid Rs 17.72 crores for the supplies made against the contract, including the advance.

Events show that Naval authorities failed to detect shortfall in performance during FATs and accepted the systems in spite of their experience about the performance of the two earlier systems installed in ship 'P' and 'Q'.

In view of delay in delivery, poor material state of the systems and uncooperative attitude of the firm, Naval Headquarters (HQ) had recommended to Ministry of Defence (Ministry) in January 1990 itself for withholding payments to the firm but reversed their stand in September 1991 for stated reasons that the payment would enable them to obtain essential spares for maintaining the systems already installed. While processing the proposal for spares, the Ministry, *inter alia*, observed in July 1994 that:

- loss of interest on the advance payments made to the firm from June 1986 amounted to approximately Rs 10 crores;
- the imported system being of seventies vintage were no more relevant;
- Naval HQ had agreed to waive off penalties (Rs 3.28 crores approximately) leviable under the contract for delayed delivery without the consent of the Ministry and

spares valuing Rs 9.54 lakhs sent to the firm between November 1991 and January 1992 for upgradation/repairs under warranty had not been returned by it.

In the above background, the Ministry took a serious view and ordered, in July 1994, a special audit by their Internal Audit to determine the lapses/deficiencies in the execution of the contract and fix responsibility therefor.

Thus, Naval authorities accepted defective systems supplied under the second contract of June 1985, though they were aware of performance shortfalls in the systems received under the first contract. All the systems imported were of seventies vintage for which a total payment of Rs 25.92 crores had been made and the last system for which Rs 1.47 crores was paid as advance in June 1986 was yet to be supplied.

The matter was referred to the Ministry in August 1995; their reply was awaited as of November 1995.

22. Import of defective systems

In order to protect Naval vessels against new generation missiles, the requirement of a special system was projected by Naval Headquarters (HQ) in 1986, but Ministry of Defence (Ministry) concluded a contract only in January 1992 with a foreign firm for supply and installation of three such systems at a cost of Rs 13.04 crores to be delivered by June 1993. As per the contractual provisions, an advance of Rs 3.91 crores was paid to the firm in July 1992.

The contract further stipulated that the systems were to be delivered after satisfactory completion of Factory Acceptance Tests (FATs) at the premises of the firm in the presence of the representatives of the Navy. Accordingly, a team of officers was deputed in March 1993 and, during FATs, it was found that specifications did not conform to the contracted ones, in addition to major deficiencies in the systems.

In case of failure of FATs, the contract provided that "should the FATs not be successful, FATs shall be re-scheduled on dates to be mutually agreed by the parties". There was no provision to deviate from the contracted specifications. As the FATs in March - April 1993 were unsuccessful, the matter was taken up for necessary re-scheduling and the firm also agreed in June 1993 to modify the systems.

In October 1993, however, Naval HQ held discussions with the firm and signed a protocol, according to which modifications to the system were to be carried out within

one year of its delivery, which altered the scope of the contractual provisions finalised by the Ministry. As per the protocol, a team of Naval officers was deputed again in November - December 1993 and accepted the system without the desired modifications. The three systems were received in January 1994 and the firm was paid an amount of Rs 7.48 crores, while 10 *per cent* of the contracted value was retained pending satisfactory performance of the systems.

In August 1994, Naval HQ sought approval of the Ministry for deputing a team for validation of the required modifications from which the Ministry became aware of the fact that Naval HQ accepted the systems which did not conform to the contractual specifications and that the scope of the contract concluded in January 1992 was altered by Naval HQ without jurisdiction. Thus, instead of according sanction for deputation of the team to visit firm's premises, the Ministry directed Naval HQ in June 1995 to investigate the case at the highest level for deviation from the terms of the original contract concluded by the Ministry in January 1992.

It would, thus, be seen that the desired protection of Naval vessels from new generation of missiles could not yet (November 1995) be provided on account of unauthorised acceptance of the systems beyond the scope of the contract, while for supply of systems, which did not meet the said requirement of the Navy, an amount of Rs 11.39 crores had already been spent.

The matter was referred to the Ministry in July 1995; their reply was awaited as of November 1995.

23. Delay in manufacture of a tanker

In order to enhance the operational capability of Naval ships, Government sanctioned, in March 1985, construction of a tanker by a public sector undertaking (PSU) at an estimated cost of Rs 65 crores. While seeking the approval of Government, Ministry of Defence (Ministry) had stated that PSU had the requisite expertise and spare capacity for construction of the tanker. A contract for construction of the tanker on 'cost plus' basis was concluded with the PSU in August 1987, after a delay of over 29 months. The tanker was scheduled to be delivered by December 1991, but the construction was yet to be completed as of November 1995.

Meanwhile, the cost of the tanker increased from Rs 65 crores to Rs 207 crores, which was agreed to by the Ministry in December 1993 and the revised date of delivery was re-fixed as June 1996. However, no revised sanction for the price agreed had been

issued as of November 1995. The PSU had also been paid an amount of Rs 143.64 crores as of March 1995 against the original sanction of Rs 65 crores.

An analysis of the original estimates of Rs 65 crores vis-a-vis the revised cost of Rs 207 crores revealed that barring Rs 17.79 crores which was due to initial under-estimation of material cost, the increase of Rs 124.21 crores was mainly due to increase in material and labour cost and variations in exchange rate/duties which arose mainly from the abnormal delay in the construction of the tanker.

Thus, the tanker required to enhance the operational capability of Navy was yet to be made available 10 years after its need was established and more than four years after it was scheduled to be delivered. An expenditure of Rs 78.64 crores had also been incurred without sanction of Government.

The matter was referred to the Ministry in July 1995; their reply was awaited as of November 1995.

WORKS SERVICES

24. Delay in setting up of a missile complex

The absence of facilities for storage, preparation and maintenance of certain missiles in a zone had imposed severe operational limitations in the deployment of missiles by the Navy. Considering the threat perception and the urgent need for deployment of the missiles in the zone, an interim missile complex was set up in 1982 at a cost of Rs 3.34 crores. Equipment worth Rs 47 crores imported in 1980 was installed in the said interim complex.

The said complex was required to be augmented and converted into a permanent one as the existing arrangement of transporting explosives from a depot at a different location had not only an adverse effect on reaction time in the event of hostilities, but also created logistic problems, involving extra expenditure. Ministry of Defence (Ministry) sanctioned in March 1985, creation of a permanent complex for completion by March 1990 at total cost of Rs 9.58 crores.

The construction of magazine and ammunition workshop buildings for the permanent complex could not, however, be taken up as the existing land was found inadequate to provide the mandatory safety distance from the civilian population for storage of ammunition. Additional land measuring 65 acres acquired at a cost of

Rs 28.33 lakhs in July 1989 was also found to be inadequate. Notwithstanding such inadequacy of space, Naval Headquarters decided in February 1992 to commence construction of magazine/ammunition workshop buildings, restricting its use for storage of only such explosives that met the existing level of safety distance.

The magazine/ammunition workshop buildings were scheduled to be completed by June 1995, but the completion report of the same was awaited as of November 1995. It is, thus, seen that, although construction of a permanent complex was sanctioned in March 1985, the completion of the said facilities had been delayed under above-mentioned circumstances. As a result thereof, equipment procured at a cost of Rs 47 crores in 1980 and the interim complex created at a cost of Rs 3.34 crores in 1982 continued to be used with operational limitations, involving not only extra expenditure but also affecting the reaction time.

Besides, the delay of over five years in completion of the magazine/ammunition workshop buildings of the permanent complex, there was delay in firming up requirements of the fire-fighting arrangements for which the initial estimated cost of Rs 17 lakhs had increased to Rs 1.21 crores. It was also noticed in Audit that an additional amount of Rs 11.04 lakhs had been paid to a contractor as compensation for delay in handing over certain buildings for air conditioning.

The matter was referred to the Ministry in August 1995; their reply was awaited as of November 1995.

25. Non-utilisation of a workshop

Mention was made in paragraph 41 of Report No.9 of 1992 of the Comptroller and Auditor General of India, Union Government, Defence Services (Air Force and Navy) regarding delay in providing special power supply and consequent non-utilisation of an avionics workshop. The said workshop was constructed in a Naval establishment in September 1990 at a cost of Rs 43.81 lakhs to augment avionics test facilities for newly inducted aircraft 'A' and to cater for third and fourth line repair facilities for helicopters.

In their Action Taken Note, Ministry of Defence (Ministry) had stated in October 1992 that provision of special power supply would be completed by December 1992, but it was actually completed in December 1993. However, even after providing the required facilities and setting up the workshop at a total cost of Rs 91.80 lakhs, it had not been put to its intended use. According to the Naval establishment, the avionics components intended to be serviced/repaired in the workshop were serviced/repaired in

the existing two avionics workshops and non-availability of the additional workshop did not affect their operational, production and maintenance requirements. This was wholly contrary to and inconsistent with the justification given in June 1985 for setting up of the additional workshop. Naval establishment stated, in January 1995, that it had been decided to utilise the facility for repair/overhaul of avionics components, instruments etc. of another type of aircraft 'B'. However, procurement of necessary equipment for this purpose was still under consideration of Government.

The case, thus, revealed that planning for setting up of the additional avionics workshop was not realistic. Even after it became obvious that the workshop was not needed for the purpose for which it was constructed, it has not been put to alternative use as requisite equipment for repair/overhaul of avionics components of aircraft 'B' have not been made available for which no benefit could be derived from an investment of Rs 91.80 lakhs as of November 1995.

The matter was referred to the Ministry in June 1995; their reply was awaited as of November 1995.

26. Non-utilisation of a hangar

For newly acquired helicopters scheduled for delivery at a Naval establishment during March - December 1989, a Naval Command sanctioned, in March 1987, construction of a hangar at an estimated cost of Rs 68.82 lakhs revised to Rs 83.74 lakhs in June 1991 by Naval Headquarters. Though a lean-to facility (annexe) was inescapable for operating helicopter squadron from the hangar, no provision for the annexe was made while planning/sanctioning the work. Provision for the annexe was sanctioned by the Naval Command in February 1991 at an estimated cost of Rs 19.49 lakhs, revised to Rs 22.68 lakhs in January 1992. The work for construction of the annexe was awarded in February 1992 to a firm other than the one which constructed the hangar, at a cost of Rs 16.14 lakhs for completion by August 1992.

The hangar due for completion by December 1990 was actually completed in May 1994 at a cost of Rs 93.22 lakhs. However, the construction of the annexe could not be taken up for want of adequate working space to allow two firms to work simultaneously. The contract for the annexe had to be cancelled in October 1993. Consequently, the hangar had not been taken over by the users as of April 1995. Proposal for revised sanction for construction of annexe at an estimated cost of Rs 35.62 lakhs was pending with the Naval Command since August 1994.

Thus, failure of Navy to provide for the annexe simultaneously with hangar resulted in the latter built at a cost of Rs 93.22 lakhs remaining unutilised since May 1994, besides estimated cost escalation of Rs 12.94 lakhs in construction of the annexe.

The matter was referred to Ministry of Defence in June 1995; their reply was awaited as of November 1995.

27. Non-installation of a radar

A radar procured during May 1982 at a cost of Rs 66 lakhs was rendered surplus as the ship for which it was procured had been decommissioned in 1986. In June 1987, Naval Headquarters (HQ) sought Government sanction for installation of the radar in a Naval training establishment (NTE) to improve the quality of training.

Without obtaining Government sanction for using the radar for the NTE, Naval Command sanctioned, in September 1988, civil works which were completed at a cost of Rs 60.95 lakhs in July 1992, whereafter the building was handed over to the NTE. Without installing the radar in the NTE, Naval HQ, instead, proposed in May 1993 to instal the radar in another ship at a cost of Rs 23.72 lakhs and obtained requisite Government sanction in March 1995. The building constructed at a cost of Rs 60.95 lakhs in July 1992 to house the radar at the NTE was, thus, rendered surplus and remained unused and the radar had remained unutilised since decommissioning of the mother ship in 1986.

The matter was referred to Ministry of Defence in July 1995; their reply was awaited as of November 1995.

28. Unauthorised provision of ground

As per scales of accommodation, a large Naval training establishment is authorised to have three separate grounds for parade, football and hockey. At one such establishment, even though the authorised three grounds were available, Southern Naval Command sanctioned two additional grounds in January 1994, pursuant to which a Commander Works Engineer concluded a contract in September 1994 for Rs 15.43 lakhs. The work was expected to be completed by October 1995 at a cost of Rs 17.61 lakhs.

Thus, the aforesaid amount was spent to provide facilities in excess of the authorised limit.

The matter was referred to Ministry of Defence in June 1995; their reply was awaited as of November 1995.

PROVISIONING

29. Procurement of personal survival packs and dinghies

Directorate of Technical Development and Production (DTDP) placed an order in February 1991 on a firm for supply of 100 personal survival packs (PSP) at a cost of Rs 24.50 lakhs. As per the order, the goods were required to be inspected by the designated agency at the premises of the manufacturer before despatch. The procedure also envisaged inspection in the user's premises after receipt.

PSPs were inspected at the premises of the firm in April 1992 and were cleared for despatch. But inspection at the user's end in September 1992 revealed that 14 PSPs were serviceable and the balance 86 were defective. These were to be repaired by the firm as per contractual provisions. Upto June 1994, 11 PSPs were repaired, raising the stock of serviceable PSPs to 25.

DTDP placed another order on the same firm in October 1993 for supply of 94 dinghies at a cost of Rs 24.91 lakhs. The designated agency inspected the dinghies at the premises of the firm in January 1994 and cleared 93 dinghies for despatch. At the user's end, inspection in March 1994 showed that all 93 dinghies were defective.

The matter was being pursued with the firm from November 1994 for rectification of defects both in the remaining PSPs and the dinghies but as of October 1995, 75 PSPs and 93 dinghies, valuing Rs 43.02 lakhs were awaiting repairs.

Naval Headquarters stated, in March 1995, that non-availability of PSPs and dinghies had caused operational difficulties.

Thus, an amount of Rs 43.02 lakhs in procurement of the above mentioned goods has remained blocked without deriving commensurate benefit in spite of the fact that the goods were cleared for despatch by the designated inspecting agency at the premises of the manufacturer.

The matter was referred to Ministry of Defence in June 1995; their reply was awaited as of November 1995.

30. Over-provisioning and unnecessary procurement of spares

In course of test check, three cases have come to notice of Audit which revealed over-provisioning of stores to the extent of Rs 27.57 lakhs.

CASE I

Based on an operational demand of Material Organisation, Visakhapatnam (MOV), Naval Headquarters (HQ) raised an indent in November 1990 for import of spares for engine 'X'. A contract was accordingly concluded in March 1991 at a cost of Rs 14.99 lakhs. It was, however, noticed in audit that MOV held adequate stock of the same spares, although they indicated the stock position as 'nil' while raising the operational demand. In April 1992, MOV even recommended cancellation of the contract for import of spares but as the goods had already been shipped, the contract could not be cancelled and the spares were received in July 1992. It was found that as of November 1995, only 1.2 *per cent* of these spares had been consumed.

CASE II

On the basis of a demand of MOV, Naval HQ placed an order on a firm in November 1989 for supply of some spares for diesel engines at a cost of Rs 5.13 lakhs. After placement of the order, MOV found that one of the spares costing Rs 4.41 lakhs was wrongly projected upon which efforts to cancel the order proved futile. As a result, the said item costing Rs 4.41 lakhs received during 1990-91 was lying in stock unutilised as of November 1995.

CASE III

On the basis of a demand from Controller of Material Planning, Bombay (CMPB), Naval HQ raised an indent in May 1989 for procurement of certain spares and accordingly a contract was concluded by Controller of Procurement, Bombay (CPRO) in January 1990 with firm 'A' for supply of the spares at a cost of Rs 17.24 lakhs. A review of stock position of spares by CMPB revealed in July 1990 that the projected requirement of the spares was over-assessed. However, no action for cancellation or amendment of the contract to restrict the procurement as per requirement was taken, resulting in unnecessary procurement of spares valuing Rs 8.35 lakhs.

The matter was referred to Ministry of Defence in June 1995; their reply was awaited as of November 1995.

31. Avoidable expenditure

A particular class of submarines acquired in late eighties were based at two stations 'A' and 'B'. It was realised that the plants for charging the torpedoes, imported along with the submarines were not suitable for tropical climate, which warranted charging at higher pressure.

While Government sanction for an indigenous plant for charging the torpedoes at higher pressure for station 'A' was accorded in May 1990, sanction for the plant for the other station was accorded in November 1991.

Naval Headquarters concluded contract with an Indian firm for procurement of the plant for station 'A' at Rs 28.60 lakhs in August 1991. The contract with the same supplier for the plant at station 'B' was concluded in May 1992 at Rs 38.78 lakhs.

Thus, while Navy and Ministry of Defence were aware that charging plant was necessary for both stations 'A' and 'B', their action to accord piece-meal sanction resulted in an avoidable expenditure of Rs 10.18 lakhs.

32. Extra expenditure on procurement of steel plates

Naval Headquarters (HQ) concluded a contract with firm 'X' in July 1994 for supply of 140 tonne of imported steel plates of four different specifications ('A', 'B', 'C' and 'D') at a total cost of Rs 45.22 lakhs. The agreed rate for plates of specification 'A' and 'B' was Rs 30,839 per tonne and that of specification 'C' and 'D' was Rs 34,254 per tonne. The materials were received between January and March 1995.

Controller of Procurement, Bombay (CPRO) had placed orders on a firm 'Y' in May 1993 for supply of steel plates of specifications 'B', 'C' and 'D' at a rate of Rs 55,080 per tonne, and by exercising an option clause, placed further orders for urgent supply of 120 tonne of plates of the same specifications in April 1994. While placing the repeat order, CPRO ignored the fact that the price of steel plates had declined substantially because of reduction of customs duty. As would be evidenced from the Naval HQ's contract with firm 'X', the rate differential in respect of plates of specification 'B' was Rs 24,241 per tonne and those of specification 'C' and 'D' was

Rs 20,826 per tonne. Thus, by procuring 120 tonne of steel plates at prices higher than the prevailing market rate, an avoidable expenditure of Rs 26.36 lakhs was incurred.

The matter was referred to Ministry of Defence in August 1995; their reply was awaited as of November 1995.

OTHER CASES

33. Non-installation of training equipment

For imparting cost-effective training on operational and maintenance aspects of a certain type of Naval vessel, Naval Headquarters felt the need to import certain equipment and accordingly negotiated with a foreign supplier in 1987/1988 for its procurement. But, as the price quoted was considered to be very high, the requirements were pruned down to nine major equipment in October 1989. The Naval authorities stressed the urgent need for import of these equipment, as the existing method of imparting training by using computer aided lessons and the models was considered inadequate, and training on equipment on Naval vessels was expensive and had certain limitations. The lack of the required equipment was, thus, having a serious repercussion on the operational preparedness, compromising safety of the Naval vessels.

Pursuant to this demand, two agreements were concluded with the foreign supplier in January 1991 for supply of nine equipment costing Rs 33.98 crores and technical documents valuing Rs 1.88 crores to be delivered by January 1993. While the technical documents were received in March 1992, only six of the nine equipment costing Rs 18.16 crores were supplied between August 1992 and February 1994.

It was noticed that although the civil works necessary for installation of the equipment were completed to the extent of 95 *per cent* at a cost of Rs 25.25 lakhs by September 1995, the equipment could not be commissioned in the absence of inter-unit cables and power supply units, the procurement of which was not envisaged in the contracts concluded in January 1991. No decision has yet (July 1995) been taken to obtain the accessories for commissioning the six equipment already received.

Thus, the total amount of Rs 20.29 crores on procurement of the equipment, technical documents and civil works had not only remained blocked but non-commissioning of the equipment had denied the much needed in depth training facility in a cost-effective manner to the Naval trainees for improving their operational preparedness.

The matter was referred to Ministry of Defence in August 1995; their reply was awaited as of November 1995.

34. Injudicious procurement of a machine

Director General Naval Project, Bombay (DGNP) concluded a contract in September 1988, with a firm for supply, installation and commissioning of a heavy duty hydraulic honing machine in a Naval dockyard. The machine, which was installed and commissioned in February 1990 at a cost of Rs 31.56 lakhs, carried a warranty of 18 months from the date of despatch or 12 months from date of its commissioning whichever was later. DGNP certified in September 1991, that the work had been executed satisfactorily and discharged the firm from its obligations under the warranty.

It was, however, noticed by Audit that the machine had not been utilised for the purpose for which it was procured due to defects since its commissioning and that the issue of certificate in March 1990 regarding satisfactory commissioning was not based on the actual functional state of the machine. Naval Headquarters stated, in August 1995, that as the necessity for using the machine for its intended purpose had not arisen since its commissioning, it was being utilised for training of personnel.

Thus, the DGNP issued certificate of commissioning without ensuring that the machine was defect free. Besides, the procurement itself was injudicious since occasion for its intended use had not arisen since its procurement, more than five years ago.

The matter was referred to Ministry of Defence in July 1995; their reply was awaited as of November 1995.

35. Recovery at the instance of Audit

Repair of five Naval ships was entrusted to a public sector undertaking (PSU) between September 1992 and May 1993. Naval dockyard negotiated the rate for fire safety arrangements during the period of repair at Rs 4.23 lakhs per ship in place of Rs 8.46 lakhs to Rs 12.69 lakhs quoted by the PSU.

Audit noticed in January 1994 that the PSU was paid for fire safety measures at the rates indicated in its quotations instead of at the negotiated rate resulting in over-payment of Rs 35.29 lakhs. On being pointed out by Audit, Naval dockyard recovered

Rs 25.38 lakhs till December 1994. It stated that the balance amount of Rs 9.91 lakhs would be recovered from the pending bills of the PSU.

The matter was referred to Ministry of Defence in August 1995; their reply was awaited as of November 1995.

CHAPTER V

COAST GUARD

36. Delay in installation of communication equipment

Coast Guard Headquarters placed five supply orders on a public sector undertaking (PSU) between May 1987 and October 1991 for procurement of communication equipment costing Rs 173.51 lakhs for installation at nine communication stations. PSU supplied the equipment between December 1988 and December 1993. Of these, equipment worth Rs 42.57 lakhs could not be installed and put to use at four stations till January 1995 due to non-availability of land (one station), lack of accommodation (two stations) and non-availability of certain essential spares (one station).

In October 1995, Ministry of Defence (Ministry) stated that equipment at three stations had been installed during February/May 1995 either by using the existing accommodation or by transferring spares from Headquarters, while the equipment for the fourth station was transferred on loan to another station. The Ministry admitted that there had been delays in installation due to procedural and organisational lapses, adding that the non-installation of the equipment had serious adverse effect on functioning of the communication stations.

Thus, due to inadequate planning equipment costing Rs 42.57 lakhs remained without use for periods ranging upto six years.

37. Loss due to improper storage

Coast Guard Headquarters procured five high frequency transmitters at a cost of Rs 25 lakhs from a firm between September 1986 and January 1988. After completion of necessary civil works for installation of the transmitters in October 1989, it was found that four of the five transmitters were defective and could not be commissioned. Two of these four transmitters were, however, commissioned in November 1990 by cannibalising parts from the other two, which were downgraded and declared as beyond local repair.

A Board of Inquiry which assembled in February 1991 concluded that the

transmitters were damaged on account of their retention in an unused state as also due to the failure of the Coast Guard authorities to take precautions for storing the equipment under proper condition.

Ministry of Defence, while accepting the facts stated, in November 1995, that instructions had been issued to avoid recurrence of such instances in future.

Thus, proper care and attention in storing the equipment could have avoided a loss of Rs 10 lakhs.

CHAPTER VI

RESEARCH AND DEVELOPMENT ORGANISATION

38. Working of Naval Research and Development Laboratories

38.1 Introduction

The Department of Defence Research and Development is engaged in pursuit of self reliance in critical technologies of relevance to national security. The department formulates and executes programmes of scientific research, design, development and evaluation in diverse disciplines of defence research and development (R&D), leading to induction of new systems. Defence Research and Development Organisation (DRDO) has a network of laboratories, of which three, viz Naval Physical and Oceanographic Laboratory (NPOL), Naval Scientific and Technological Laboratory (NSTL) and Naval Material Research Laboratory (NMRL) are dedicated to meet the requirements of the Navy.

38.2 Organisational set up

Director, Naval Research and Development (DNRD) at DRDO Headquarters (HQ) acts as Technical Director of the Naval R&D laboratories. Each laboratory is headed by a Director. NPOL is engaged in R&D work relating to underwater detection systems and research studies. NSTL is engaged in R&D work relating to underwater weapons/explosions/test ranges and related matters. NMRL is engaged in R&D activities relating to protective measures against marine corrosion, special steel, ceramics, polymers, etc. for marine application and environmental studies.

38.3 Scope of Audit

The status of various projects undertaken by NPOL, NSTL and NMRL (formerly Naval Chemical and Metallurgical Laboratory), manpower planning, inventory control and system of financial and accounting control were commented upon in paragraph 49 of Report No 3 of 1989 of the Comptroller and Auditor General of India, Union Government - Defence Services (Air Force and Navy) for the year ended 31 March 1988. The present review *inter alia* covers management of these

aspects in the three laboratories for the period 1990-95 in addition to production and utilisation of the technology developed by DRDO.

38.4 Highlights

- **Despite creation of Steering Committees to ensure timely completion of projects, there were delays in completion of projects. Of the 123 projects completed by the laboratories during 1987 to 1994, there were delays upto two years in 53 projects, from two to five years in 31 projects and from five to ten years in five projects. In two projects, the time overrun exceeded ten years.**
- **Benefits of projects i.e development of towed array sonar, sonobuoy and composite sonar and tactical weapon control system etc. completed by the laboratories at a cost of Rs 27.24 crores have not been tapped by Navy, either due to the change of requirement or due to the products not meeting their requirements.**
- **A marine acoustic research ship built at a cost of Rs 63 crores was never used for her intended role since its commissioning in July 1994 on account of defects.**
- **Budgetary procedure in the laboratories had deficiencies as evidenced from the wide variations between the estimated requirement and actual expenditure.**
- **The ratio of human resource cost to the total expenditure of laboratory was very high in two laboratories.**
- **Absence of system for periodical review of inventory held by laboratories resulted in accumulation of obsolete stores over the years. 74 items costing Rs 42.86 lakhs and 548 items, whose value was not available, were identified by two laboratories as surplus/obsolete. These were awaiting disposal.**

- **Equipment imported and installed at a cost of Rs 28.31 lakhs was lying unused since installation in March 1989.**

38.5 Budgetary control

In response to audit observation made in paragraph 49 of Report 3 of 1989 about poor forecasting of resources and unsatisfactory budgetary control, Ministry of Defence (Ministry) in their Action Taken Note had assured in October 1990 that the existing budget format was being revised to be in line with the activities of the organisation for projection of a more realistic budget. Though the budget format was revised in September 1991, there had been no perceptible improvement and the forecasting of resources continued to be unsatisfactory as would be evident from the following table:-

(Rs. in Crores)					
Year	Budget estimate	Allotment	Revised estimate	Actual expenditure	Percentage of actual expenditure to budget estimate
(N P O L)					
1990-91	29.16	21.12	26.94	20.85	71.50
1991-92	35.83	18.42	33.18	18.51	51.66
1992-93	34.70	12.29	24.87	12.24	35.27
1993-94	38.77	21.82	38.51	21.74	56.07
1994-95	26.32	17.32	22.46	17.39	66.07
(N S T L)					
1990-91	47.11	7.88	8.42	8.51	18.06
1991-92	55.88	9.03	11.14	9.13	16.34
1992-93	15.10	10.51	11.04	10.91	72.25
1993-94	16.23	8.12	15.61	12.77	78.68
1994-95	23.33	11.56	16.06	13.13	56.28

(N M R L)

1990-91	3.98	1.31	1.87	1.71	42.96
1991-92	5.22	1.74	2.24	2.16	41.38
1992-93	3.32	1.68	2.37	2.04	61.45
1993-94	4.21	2.59	3.31	2.59	61.52
1994-95	4.64	2.32	3.35	2.59	55.82

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The aforesaid paragraph 49 also commented upon non-introduction of performance budgeting for project analysis, continuous monitoring, evaluation and review of various activities. The Ministry had stated, in October 1990, that on account of shortage of qualified manpower, the system of performance budgeting could not be implemented. After a period of five years, it has been noticed that the said system had not been introduced as of June 1995.

38.6 Human resource

The human resource for the laboratories consisted of core permanent establishment sanctioned for the laboratories and additional staff sanctioned for specific projects. The staff employed for specific projects were to be retrenched on completion of the project or shifted to new projects.

In 1985, a manpower review committee recommended that the ratio of human resource cost to the total expenditure of the laboratories should be around 0.21. As against this, the actual ratio averaged 0.49 at NMRL and 0.40 at NSTL during the period 1990-95 which was suggestive of either deployment of excessive human resource or underfunding of other components of research and/or utilisation of equipment from completed/terminated projects.

38.7 Time overruns

Considering the importance of high value R&D programmes of Naval laboratories, five steering committees were set up in May 1985. These committees were required to meet at least once in six months to effectively monitor physical and fiscal progress of the projects, coordinate, guide, steer and make recommendations for timely implementation of all projects and to arrest slippages in probable dates of completion (PDC), revision of PDC and closure of projects. The committee was to hold 50 meetings in five years against which only 19 meetings were held.

Thus, the steering committees which were to ensure timely completion of projects, failed in the discharge of their responsibilities as is evident from the following:

Laboratory	No of projects completed during January 1987 to December 1994					
	Total	Within time	After a delay of			
			up to two years	over two up to five years	over five up to ten years	over ten years
NSTL	65	5	28	25	5	2
NPOL	21	6	12	3	-	-
NMRL	37	21	13	3	-	-
Total	123	32	53	31	5	2

Though in Action Taken Note, the Ministry had stated in October 1990 that action would be taken to avoid recurrence of delays in completion of the projects, there had been no perceptible improvement and significant delays still persisted in the completion of the projects.

There had been delays in preparing closure reports also; NPOL was yet to prepare closure reports for three projects completed during 1988 and 1989, NSTL was to prepare closure reports in case of ten projects completed during 1987 to 1994, while closure reports in respect of five projects completed during 1993 and 1994 were yet to be prepared at NMRL. NPOL and NSTL stated that the closure reports could not be prepared due to re-deployment of staff to other projects. According to NMRL, the closure reports were held up pending completion of user trials of the items developed.

38.8 Inventory control and material management

The Ministry had stated, in October 1990, that a common stores procedure for

DRDO was under preparation but the revised procedure was yet to be introduced as of June 1995. The three laboratories have considerable inventory built up through purchases made over the years. While the value of the total inventory at NSTL was Rs 23.58 crores as of May 1995, those at NMRL and NPOL could not be computed as the ledgers were incomplete. At NMRL, 74 items valued at Rs 42.86 lakhs declared surplus/obsolete in July 1993, had not been disposed of until June 1995. Similarly, at NPOL, 548 items whose value was not available, were declared as unserviceable/beyond economical repairs in January 1994. These were still held in stock as of October 1995.

38.9 Utilisation of inputs from major projects

Some of the major projects undertaken by the laboratories were examined by Audit to assess the user satisfaction of the products developed and the extent to which the objectives were achieved. Test check revealed that in the following cases the laboratories failed to accomplish the objectives of the projects or the users did not derive any benefit out of the investment made as the items developed could not be put to any use.

38.9.1 NPOL

38.9.1.1 Towed array sonar

A project was sanctioned in June 1986 to carry out feasibility study and develop a prototype of a towed array sonar at an estimated cost of Rs 6.04 crores for completion by April 1991. The sonar, when developed and proved, was expected to be fitted in all future anti-submarine ships of the Navy to enable them to detect silent submarines within a certain range. The project was completed in October 1991 at a cost of Rs 2.82 crores. The prototype developed by the laboratory was subjected to trials during August 1990 to March 1992. However, in none of the trials the prototype could detect silent submarines.

The expenditure of Rs 2.82 crores incurred on the project, thus, did not yield the intended benefits.

38.9.1.2 Sonobuoys

In October 1980, Government sanctioned development of a sonobuoy

for anti-submarine warfare. The sonobuoy was developed in 1985 at a cost of Rs 80.90 lakhs. Thereafter, the production model of these sonobuoys was developed under another project sanctioned in September 1985 and trials were completed in March 1989 after spending Rs 32.10 lakhs. Pursuant to the successful trials, sanction was given in March 1991, for procurement of 4,300 sonobuoys for the Navy at a cost of Rs 4.58 crores. Department of Defence Production and Supplies of the Ministry placed orders in March 1991 on two firms which had been associated during production of the model, for supply of 2,150 sonobuoys by each at a total cost of Rs 4.58 crores by March 1995. A total advance of Rs 45.74 lakhs was paid to the firms.

The performance of first lot of 25 sonobuoys manufactured by the firms as pilot samples evaluated for users trials was found to be very poor due to malfunctioning of batteries supplied by another firm. The batteries were improved by the supplier in April 1993 and the performance level was claimed to have been achieved. But the Navy was not satisfied with the audio level of the sonobuoys, following which NPOL had proposed incorporation of certain changes in the sonobuoys. Pending this, the bulk production of the sonobuoys was held up as of June 1995.

Thus, even after nine years from the date of sanction and expenditure of Rs 1.13 crores on development of sonobuoys, Navy was yet to derive any benefit from the investment on the project.

38.9.1.3 Sonobuoy processing and control system

At the request of the Navy, NPOL had developed a signal processing system in June 1989 at a cost of Rs 2.15 crores for Naval aircraft. The system was expected to facilitate detection, classification and localisation of submarines. Even though the system had been developed successfully in 1989, the Navy could not decide the type of aircraft on which it was to be fitted as its possible integration with different types of on board navigation avionics was under study.

In February 1994, it was found that the system could be installed on two classes of aircraft 'A' and 'B'. In March 1994, Naval HQ initiated a proposal to procure eight sets of the system at an estimated cost of Rs 13.60 crores. It was, however, noticed that while aircraft 'A' was not capable of deployment for anti-submarine operations during night, aircraft 'B' proposed to be fitted with the system, was not equipped with any anti-submarine weapons. Further, as the system was a

stand alone' system and there being no device to integrate it with navigation and weapon delivery system in both types of aircraft, possibility of its leading to wasted strike efforts could not be eliminated and as such the utility of these aircraft for anti-submarine operation would be limited.

Thus, despite development of a system at a cost of Rs 2.15 crores in 1989 on the specific request of the Navy, the system could not be exploited as yet (June 1995). The user's qualitative requirements for the system were framed without linking its capability of being fitted, integrated and exploited on a suitable aircraft for the intended role.

38.9.1.4 Composite sonar and tactical weapon control system

Mention was made in paragraph 54 of Report No.11 of 1990 of the Comptroller and Auditor General of India, Union Government, Defence Services (Air Force and Navy) about the necessity of carrying out an interim appraisal of the project for development of composite sonar and tactical weapon control system sanctioned in August 1987 at a cost of Rs 31.22 crores, as the residual operational life of the submarines on which it was proposed to be fitted was short and thus, it was not financially viable. The Ministry, in their Action Taken Note stated, in February 1992, that the project was reviewed in January 1990 and it was decided to go ahead with the project for achieving self reliance in the field of submarine sonars, both for replacing the existing systems as well as for installation on future indigenous submarines.

The project was assigned to NPOL and NSTL, the former being responsible for development of the sonar and the latter for development of weapon control system. NPOL was the coordinating laboratory. The development and engineering model of the sonar system developed by NPOL was manufactured by a public sector undertaking (PSU) in September 1993 at a cost of Rs 9.70 crores. Though the factory acceptance tests were completed during August - December 1994, harbour and sea acceptance trials had not been taken up until May 1995. In the meantime, considering the state of the submarines on which the system was intended to be fitted, DNRD requested the Navy in September 1992, to suggest another class of submarines for fitment of the system. No decision had, however, been taken in this regard as of June 1995. The expenditure incurred on the project till December 1994 was Rs 19.55 crores.

38.9.2 NSTL

38.9.2.1 Feasibility study for setting up of under-water ranges

In order to meet Navy's requirements for the measurement of radiated noise and magnetic signatures of ships and submarines and demagnetisation station, a project was sanctioned in April 1987 for conducting a feasibility study for setting up under-water ranges. The study was completed in July 1992, with a time overrun of four years at cost of Rs 1.23 crores.

Consequent thereon, Naval HQ desired to set up degaussing and shallow noise ranges at a total cost of Rs 33.62 crores. In September 1992, DRDO proposed that the project cell set up for feasibility study be allowed to continue as range technology centre so that it could render scientific support to the Navy in execution of the work and all subsequent assistance required in analysis and research work in this area. The continuation of the project cell with staff complement of 15 was sanctioned in December 1992. The project for the construction of the ranges initiated in mid 1992 was withdrawn in 1993 due to funding difficulties. Based on the revised proposal submitted in 1994, sanction for setting up the ranges by December 1998 at an estimated cost of Rs 18.41 crores was issued in June 1995. The range technology centre, however, continued for which an expenditure of Rs 37.80 lakhs was incurred till May 1995. Thus, apart from the fact that the benefits of the study undertaken at a cost of Rs 1.23 crores were yet to be realised, the range technology centre set up to assist the creation of the facility, continued even though construction of the ranges themselves was not sanctioned till June 1995.

38.9.2.2 Design and development of pseudo synchronous propulsion system

In August 1990, NSTL established a facility for designing and developing a pseudo synchronous propulsion system at a cost of Rs 7.38 lakhs. The system, expected to provide longer submerged endurance to the submarines, was to be developed in three stages, i.e. motors prototype of 100 KW, 1 MW and 5 MW target ratings. In November 1990, the laboratory was directed to submit a statement of case for sanction of the first stage. The project, however, was not initiated. The laboratory stated, in July 1995, that the need for fitment of motors of large capacity had not arisen. The next stages were consequently, not taken up as a result of which an expenditure of Rs 7.38 lakhs turned out to be infructuous.

38.9.3 NMRL

38.9.3.1 Development of acoustic tiles

A project for development of special purpose elastomers and polymers for indigenisation of rubber tiles and adhesives for a class of submarines was successfully completed in February 1992 at a cost of Rs 29 lakhs.

Naval HQ stated, in August 1993, that based on specification for the tiles drawn in 1992, offers from certain firms were obtained and their products were compared with the tiles developed by NMRL. On testing, Naval HQ found in September 1994 that the tiles fabricated by NMRL did not conform to the required specifications revised earlier but intimated by Naval HQ in August 1993, while the tiles offered by a private firm were found suitable. The tiles developed by NMRL were, therefore, rejected. The expenditure of Rs 29 lakhs incurred on the project was rendered infructuous.

38.10 Other topics of interest

38.10.1 Marine acoustic research ship

A project for design and construction of a marine acoustic research ship together with scientific equipment was sanctioned in October 1987 at an estimated cost of Rs 45 crores. A contract for construction and delivery of the ship by June 1991 at a cost of Rs 36.45 crores was awarded to a PSU in March 1988. Another contract for scientific equipment was awarded to the PSU on cost plus basis in October 1989.

Due to delay in finalisation of critical pre-launch equipment and large number of changes made in the design of the ship, the construction was delayed by two years. The ship was commissioned in July 1994, after a delay of 37 months. In order to meet the additional cost due to escalation, exchange rate variations, additional items and statutory levies, the revised cost of Rs 63 crores was approved in May 1994. Till March 1995, a sum of Rs 62.41 crores had been paid to the PSU.

Although the ship had been commissioned after a considerable delay in July 1994, it had not been deployed for any research work due to a number of defects. The ship was due for refit and guarantee repairs from June 1995 which was estimated to cost Rs 3.63 crores. The laboratory stated, in July 1995, that it expected to deploy

the ship for research by December 1995.

38.10.2 Non-utilisation of imported equipment

An oceanographic data buoy costing Rs 25.29 lakhs was imported by NPOL in March 1988 from a foreign firm for collection of oceanographic data. On its commissioning in March 1989, it was found that functioning of the transmitter receiver was unsatisfactory/defective. Though the firm had agreed to rectify the defects free of cost, NPOL did not send it for repairs for want of bank guarantee from the firm for the safe return of the buoy after repairs. The matter continued to remain under correspondence with the firm.

The firm stated, in January 1994, that it was six years since the item was supplied originally and therefore, their offer for repair free of charge stood withdrawn. Efforts were being made to get the buoy repaired locally by the laboratory. In addition to the cost of the equipment, an expenditure of Rs 3.02 lakhs was incurred on its installation and trials. Thus, an expenditure of Rs 28.31 lakhs incurred on import and installation of the data buoy was questionable. In the absence of the buoy, the laboratory had to resort to ship borne data collection.

The matter was referred to the Ministry in September 1995; their reply was awaited as of November 1995.

OTHER CASES

39. Delay in development-cum-production of a system

Preliminary work for development of an electronic warfare system (system) to meet urgent operational requirement of the Navy was completed by a Defence Research and Development Laboratory (Lab) in May 1978 at a cost of Rs 94.50 lakhs. Thereafter, Ministry of Defence (Ministry) entrusted to the Lab in May 1979 development of the system to be completed by May 1982, the actual cost of which on completion of the project, worked out to Rs 3.44 crores.

In September 1983, the Ministry placed a letter of intent on a public sector undertaking (PSU) for manufacture of five systems by November 1986 on the basis of the specifications supplied by the Lab. Later, firm orders for manufacture of six such systems at a cost of Rs 21.09 crores were placed on the PSU between July 1985 and

March 1986, but there were slippages in production schedule mainly on account of technology transfer. All the six systems had since been delivered in stages from 1988 by the PSU and a payment of Rs 17.93 crores was made as advance-cum-stage payments upto January 1989. Five of the six systems since received had been installed but all had failed in sea acceptance trials necessitating certain modifications.

Thus, even after incurring an expenditure of Rs 4.39 crores on development and Rs 17.93 crores on procurement of the systems till date, no system had worked satisfactorily and the urgent requirement of the Navy for which the development of the system was ordered, was yet to be satisfied after a lapse of 13 years as of November 1995.

New Delhi
Dated the

20 FEB 1996



(PRAVIN TRIPATHI)
Principal Director of Audit
Air Force and Navy

Countersigned



New Delhi
Dated the

22 FEB 1996

(C.G.SOMIAH)
Comptroller and Auditor General of India

ANNEXURE - I

(Referred to in Paragraph 4)

Position of ATNs outstanding as of December 1995

Sl. No.	Report No. and Year	Chapter of the Report	Para No.	Pertains to	Brief Subject	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	9 of 1992	IV	28	Navy	Delay in setting up of an essential Training facility	
2.	9 of 1993	IV	25	Navy	Avoidable expenditure on consultancy services	
3.	9 of 1993	IV	27	Navy	Unauthorised use of Government building for running Naval Public Schools	Final ATN awaited
4.	9 of 1993	IV	31	Navy	Non-utilisation of underground cables	
5.	9 of 1993	IV	37	Navy	Avoidable expenditure in the construction of submarine	
6.	9 of 1993	IV	38	Navy	Unauthorised provision of residential telephone	
7.	9 of 1993	IV	40	Navy	Non-utilisation of turbine	Final ATN awaited
8.	9 of 1993	IV	42	Navy	Delay in procurement of communication equipment	

9.	9 of 1993	IV	43	Navy	Delay in commissioning of liquid nitrogen plant	
10.	9 of 1994	II	3	(MOD) Navy	Avoidable extra expenditure in the procurement of tellurometer	
11.	9 of 1994	IV	20	Navy	Fire fighting facilities in multistorey buildings	
12.	9 of 1994	IV	23	Navy	Procurement of time fuzes without detonators	
13.	9 of 1994	IV	24	Navy	Procurement of communication equipment	
14.	9 of 1994	IV	25	Navy	Procurement of soot blowers	
15.	9 of 1994	IV	28	Navy	Excess payment of electricity charges	
16.	9 of 1994	IV	29	Navy	Avoidable expenditure in hiring of a generator	
17.	9 of 1994	VI	35	Navy	Avoidable expenditure in the hiring of buildings for a project	Final ATN awaited
18.	9 of 1995	II	2	(MOD) Navy	Avoidable expenditure in chartering of a vessel	
19.	9 of 1995	II	3	(MOD) Navy	Unauthorised funding of a project	

20.	9 of 1995	III	5	Air Force	Extra expenditure due to delayed sanctioning of civil works	
21.	9 of 1995	III	9	Air Force	Procurement of a missile system	Final ATN awaited
22.	9 of 1995	III	10	Air Force	Premature failure of overhauled	Final ATN awaited
23.	9 of 1995	IV	15	Navy	aero-engines Naval Air Stations	
24.	9 of 1995	IV	16	Navy	Naval Yardcraft	
25.	9 of 1995	IV	17	Navy	Working of Foreign Procurement Cell in Naval Headquarters	
26.	9 of 1995	IV	18	Navy	Idle investment on manufacture of gas turbine	
27.	9 of 1995	IV	19	Navy	Excess expenditure over sanctioned cost	
28.	9 of 1995	IV	20	Navy	Delay in construction of a dry dock	
29.	9 of 1995	IV	21	Navy	Delay in setting up of a permanent Naval Academy	
30.	9 of 1995	IV	22	Navy	Delay in modification of a slipway	
31.	9 of 1995	IV	23	Navy	Overprovisioning of an item	
32.	9 of 1995	IV	24	Navy	Blocking of funds	

33.	9 of 1995	IV	25	Navy	Extra expenditure on procurement of transmitters	
34.	9 of 1995	IV	26	Navy	Excessive procurement of valves and fittings	
35.	9 of 1995	IV	27	Navy	Extra payments on power consumption	
36.	9 of 1995	IV	28	Navy	Non-utilisation of assets	
37.	9 of 1995	IV	29	Navy	Loss due to delay in disposal of a ship	
38.	9 of 1995	IV	30	Navy	Delay in induction of a life saving equipment	
39.	9 of 1995	VI	32	R&D Org	Avoidable expenditure on a project	Final ATN awaited
40.	9 of 1995	VI	33	R&D Org	Development of a weapon	Final ATN awaited
41.	9 of 1995	VI	35	R&D Org	Irregular expenditure	

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ANNEXURE - II
(Referred to in Paragraph 5.10.2)

**Showing the sanctioned and posted strength of
instructors in TETTRA schools**

Name of TETTRA school	1990-91			1991-92			1992-93			1993-94			1994-95		
	SE	PS	% (-)(+)	SE	PS	% (-)(+)	SE	PS	% (-)(+)	SE	PS	% (-)(+)	SE	PS	% (-)(+)
<u>No.1TS</u>															
Officer Instr	24	09	(-)63	24	09	(-)63	20	15	(-)25	20	13	(-)35	20	14	(-)30
Airmen Instr	73	51	(-)30	73	54	(-)26	73	58	(-)21	73	59	(-)19	75	72	(-)4
<u>No.2 TS</u>															
Officer Instr	06	07	(+)17	06	05	(-)17	06	04	(-)33	06	05	(-)17	06	04	(-)33
Airmen Instr	20	24	(+)20	20	24	(+)20	20	22	(+)10	20	31	(+)55	20	33	(+)65
<u>No.3 TS</u>															
Officer Instr	07	04	(-)43	07	03	(-)57	07	03	(-)57	07	04	(-)43	07	04	(-)43
Airmen Instr	21	25	(+)19	21	26	(+)24	21	22	(+)05	21	20	(-)05	21	19	(-)10
<u>No.4 TS</u>															
Officer Instr	06	04	(-)33	06	04	(-)33	06	04	(-)33	06	05	(-)17	06	05	(-)17
Airmen Instr	17	17		17	18	(+)06	17	18	(+)06	17	21	(+)24	17	20	(+)18
<u>No.5 TS</u>															
Officer Instr	16	07	(-)56	16	06	(-)63	16	10	(-)38	16	09	(-)44	16	08	(-)50
Airmen Instr	59	56	(-)05	59	66	(+)12	59	77	(+)31	59	54	(-)08	59	53	(-)10

No.6 TS

Officer Instr 08 04 (-)50 08 03 (-)63 08 05 (-)38 08 05 (-)38 08 04 (-)50

Airmen Instr 19 - (-)100 19 17 (-)11 19 18 (-)05 19 19 - 19 18 (-)05

No.7 TS

Officer Instr 10 07 (-)30 10 06 (-)40 10 04 (-)60 10 06 (-)40 10 05 (-)50

Airmen Instr 23 21 (-)09 23 22 (-)04 23 24 (+)04 23 24 (+)04 23 25 (+)09

No.8 TS

Officer Instr 05 05 - 05 05 - 05 05 - 05 05 - 05 04 (-)20

Airmen Instr 15 15 - 15 15 - 15 15 - 15 15 - 15 15 -

No.9 TS

Officer Instr 06 - (-)100 06 04 (-)33 06 05 (-)17 06 04 (-)33 06 05 (-)17

Airmen Instr 26 28 (+)08 26 26 - 26 23 (-)12 26 25 (-)04 26 26 -

S.E - **Sanctioned Establishment**

P.S - **Posted Strength**

% (-)/(+) - **Percentage of Deficiency/Surplus**

Instr - **Instructor**

ANNEXURE - III
(Referred to in Paragraph 5.11)

TT&GE/Training aid

Name of TETTRA School	Financial value of items of TT&GE/Training aid (Rupees in lakhs)			
	Authorised	Held	Deficiency	Percentage of deficiency
No.1	915.40	Not yet assessed	Not yet assessed	Not known
No.2	557.51	457.33	100.18	18
No.3	985.45	842.83	142.62	14
No.4	5,757.50	5,459.43	298.07	5
No.5	1,373.28	1,282.83	90.45	7
No.6	433.51	326.38	107.13	25
No.7	897.24	228.79	668.45	75
No.8	2120.78	176.97	1,943.81	92
No.9	2,658.84	1,220.99	1,437.85	54



ERRATA

Sl.No.	Page	Line	For	Read
1.	iv	10 from above	storag	storage
2.	20	7 from below	demandd	demanded
3.	22	10 from below	paragraph 4 the Report No.9 of 1993	paragraph 4 of the Report No. 9 of 1993
4.	28	16 from above	tha	that
5.	50	10 from above	recipt	receipt

