Report of the Comptroller and Auditor General of India

for the year ended March 2006

Union Government (Commercial)

Public Sector Undertakings

Review of infrastructure and operational facilities

Airports Authority of India

No. 17 of 2007

(Performance Audit)

CONTENTS

PREFACE

A reference is invited to the prefatory remarks in Report No.9 of 2007 - Union Government (Commercial) of the Comptroller and Auditor General of India where a mention was made that reviews of the performance of Companies/Corporations by the Comptroller and Auditor General of India are contained in Report No.9 (Performance Audit – Blue Series) and in stand alone performance audit Reports.

This stand alone Report examines the creation and augmentation of infrastructure and operational facilities by the Airports Authority of India and their adequacy.

This Report is based on test check of records of 40 airports out of total 127 airports and the discussions held with the Management of Airports Authority of India. The selection of airports was made on the basis of geographical location, expenditure incurred, criticality of the project and physical progress of work.

The cases mentioned in the Report are among those which came to notice in the course of audit conducted during the year 2005-06 and during earlier years wherever relevant.

OVERVIEW

The Airports Authority of India (Authority) came into existence on 1 April 1995 by merging the International Airports Authority of India with the National Airports Authority. The main functions of the Authority were designing, construction and maintenance of airports including operational and terminal facilities, providing communication and navigational aids and providing passenger facilitation and information systems. The Authority was managing 127 airports as on 31 March 2006.

With the opening of skies to private operators, there was a continuing need for upgradation and modernisation of air traffic services. During the period 2000-01 to 2005-06, the Authority spent Rs.3161.94 crore for creation of infrastructure facilities at the airports. There was shortfall in actual expenditure compared to the plan outlay in all the years which ranged between 1.82 *per cent* (2005-06) and 58.35 *per cent* (2000-01). These were due to delays in finalisation of schemes and tenders, midway alteration and delays by contractors during execution of work etc. In respect of Delhi and Mumbai, due to the proposed restructuring of the airports, no major infrastructure project was taken up in the four years ending 2005-06.

The 84 airports which had meager/no commercial operations continued to incur revenue expenditure and in the four years upto 2005-06, 20 such airports ended with cash loss of Rs.50.38 crore. The share of non traffic revenue in the Authority which is above 50 *per cent* internationally was woefully short at around 11 to 14 *per cent*. The Authority did not finalise a land/ space lease policy for commercial exploitation of land to increase the share of non traffic revenue.

The Authority did not standardise its procedures and contract documents. The International Airports Division (IAD) and the National Airports Division (NAD) were following different Works Manuals and procedures with attendant inconsistencies. The infirmities in the contract conditions led to contractual complications, overpayments, delays and loss of revenue. Projects were taken up without any commitment from the users. These projects yielded only negative return.

Several works were foreclosed due to non availability of work sites/disputes leading to wasteful expenditure, cost and time overrun. Encroachments were not removed in time. 702 acres of land were still under encroachment in different airports depriving the Authority of land required for infrastructure development. Land acquisition problems with State Governments and Defence authorities were not resolved in time. Project monitoring and quality assurance were inadequate as these did not meet the standard requirements.

Installation and commissioning of Communication and Navigational equipment were inordinately delayed due to delays in finalisation of orders, non availability of sites, non synchronisation of allied activities etc. Terminal facilities at 11 out of 18 airports test checked were saturated. Customer satisfaction level in a number of airports was below 70 *per cent* in respect of general comfort, toilet facilities, flight information system and trolley availability. Cargo complex constructed at Amritsar remained unutilised.

The Authority did not meet the International Civil Aviation Organisation (ICAO) recommendations on safety standards fully. There was inordinate delay in taking decision regarding fresh procurement or refurbishment of fire tenders. The Authority placed orders for procurement of 130 X-ray machines costing Rs.39.09 crore for the international airports even after being aware that these machines were not meeting the requirements as required under ICAO guidelines.

The Authority has not been able to achieve fully the objectives laid down in the Policy on Airport Infrastructure due to delays in creation and augmentation of infrastructure and operational facilities resulting in envisaged benefits not being derived.

CREATION AND AUGMENTATION OF INFRASTRUTURE AND OPERATIONAL FACILITIES BY AIRPORTS AUTHORITY OF INDIA

HIGHLIGHTS

- The Authority did not prepare a Corporate Plan.

(Para 2.1)

- There was shortfall in actual expenditure compared to plan outlay in all the years examined in audit. The shortfall was mainly due to delay in finalisation of schemes, tenders, midway alteration in the scope of the work etc.

(Para 2.2)

- Audit noticed that there were instances where the Authority could not recover cost of works carried out on behalf of State Governments which resulted in blocking of funds of Rs.15.83 crore.

(Paras 2.4.1 and 2.4.2)

- Non-Traffic revenue constituted less than 15 *per cent* of the revenue of the Authority whereas internationally such revenue was more than 50 *per cent*.

(Para 2.5.1)

- The Authority had to incur extra expenditure of Rs.86.22 lakh in rectification of defective work executed at Agartala airport.

(Para 3.2.7)

- Cases of time overrun ranging upto 75 months and cost overrun upto Rs.3.47 crore were noticed in works undertaken at 17 airports.

(Para 3.2.9)

- Problem of encroachment continued unabated. 702 acres of land was under encroachment in 20 airports.

(Para 3.3.1)

- Delay in installation of Voice Communication system at three airports resulted in denial of improved communication interface between the airports.

(Para 4.3)

- Delay of five years in providing Dedicated Satellite Communication Network resulted in foregoing benefit of Rs.16 crore.

(Para 4.4)

- Eight wireless communication links remained uninstalled for more than one year after their receipt.

(Para 4.5)

- The decision of the Authority to enter into an agreement with Bharat Electronics Limited (BEL) without assessing the latter's capability to upgrade technology and produce radars at reasonable price resulted in infructuous expenditure of Rs.7.65 crore. There was a liability to pay an extra Rs.3.79 crore to BEL.

(Para 4.10)

- Delay in completion of the Flight Data Processing System project due to its non-integration with the existing radar system resulted in the Authority not being able to derive the benefits of an integrated system.

(Para 4.11)

- Flight Inspection System procured for Rs.19.50 crore in November 2004 had not been installed as the procurement of the aircraft in which it was to be fitted was delayed.

(Para 4.12)

- Out of 18 passenger terminals test checked, the capacity for customer services in 11 terminals was already saturated by 2004-05. Customer satisfaction level was less than 70 *per cent* in a number of airports. There was delay of more than two years in commissioning of Flight Information Display system at seven airports.

(Paras 5.2, 5.3 and 5.4)

- Terminal II-B of Mumbai airport remained idle from September 1999 to June 2005.

(Para 5.5.2)

- New domestic departure building was completed at Ahmedabad with a time overrun of 20 months. Non synchronisation of procurement of aerobridges with construction of the building kept the related facilities created at a cost of Rs.3.67 crore idle. Upgradation of Amritsar airport registered delay of three years. Time overrun of one year to three years was observed in completion of Phase I and II of the terminal building at Agartala due to delayed decisions and delay in handing over of the site.

(Paras 5.5.3, 5.5.4 and 5.5.6)

- The Amritsar cargo complex had not been commercially utilised till December 2006. The construction of integrated cargo complex at Kolkata had already suffered time overrun of more than one year.

(Paras 6.2 and 6.3)

- A bar code system for better monitoring and tracking of cargo at Delhi, Mumbai, Kolkata and Chennai airports, planned at a cost of Rs.5.81 crore could not be completed as the required software connectivity was not achieved.

(Para 6.4)

- The delay in taking decision either for procurement of new crash fire tenders or for the refurbishment of the existing ones for over four years resulted in many airports being left only with old fire tenders.

(Para 7.2.1)

- Airport Surface Friction Tester valuing Rs.61.91 lakh positioned at Guwahati airport remained unserviceable most of the time. New tester valuing Rs.80 lakh was purchased for Imphal even while the existing one was underutilized and even this equipment was lying unutilised at Guwahati.

(Para 7.5)

- There was no uniform Works Manual for both the divisions of the Authority resulting in adoption of different procedures by the two divisions.

(Para 9.2)

- No land/space lease policy had been finalised by the Authority.

(Para.10.1.1)

Gist of recommendations

- In terms of its Policy on Airport Infrastructure and as suggested by the Planning Commission, the Authority needs to work out measures to augment its non traffic revenue.
- A decision in line with Para 14.7 of the Policy needs to be taken to ensure that wherever non-viable projects are taken up for fulfillment of social objectives, the initial cost of the project and the recurring annual loss sustained by the Authority on this account would be reimbursed by the Government.
- The Authority should take up the issue with its administrative Ministry for setting up a high level committee, involving State Governments concerned, Central Departments and the Authority for coordinating land acquisition to avoid delays in infrastructure creation.
- Pre commissioning activities should be assessed and time limits fixed for each activity to synchronise various activities in projects and to avoid time and cost overrun.
- Unified common Works Manual should be framed to remove inconsistencies between International Airports Division and National Airports Division works.
- The Authority should take effective steps to remove encroachments. Project sites should be ready before receipt of equipment.
- Availability of aerobridges and flight information system should be ensured.
- ICAO level standards of safety should be maintained at the airports.
- Commercial exploitation of land available at the non operational airports should be explored. Land/space lease policy should be finalised immediately to enable the Authority to optimise its non traffic revenue.

Chapter 1

Introduction

1.1 Background of Airports Authority of India

The Airports Authority of India (Authority) managed 15 international airports, 86 domestic airports and 26 civil enclaves[♣] as on 31 March 2006 covering the entire Indian airspace. These 127 airports included 83 operational and 44 non operational and closed airports **(Annexure-I).** The five international airports at Delhi, Mumbai, Chennai, Kolkata and Thiruvananthapuram were managed by the Authority's International Airports Division (IAD) and the other airports by the National Airports Division (NAD).

1.2 Functions of the Authority

The main functions of the Authority relating to infrastructure are:

- Design, development, operation and maintenance of international and domestic airports and civil enclaves;
- Construction, modification and management of passenger terminals;
- Development and management of cargo terminals;
- Expansion and strengthening of operational areas viz. runways, aprons, taxiways; and
- Provision of communication, navigational and visual aids.

1.3 Air Transport Policy

The Air Corporations Act, 1953 was repealed with effect from 1 March 1994 and air transport in India was opened to operation of scheduled services by any carrier which fulfilled the statutory requirements ending the monopoly of the Indian Airlines Corporation and Air India International. Consequently, the number of scheduled operators grew steadily and as of March 2006, the number of such operators was 12. New bilateral agreements signed during the period with various countries also resulted in new international airlines starting international operations in airports other than at Delhi and Mumbai.

1.4 Increasing requirements for infrastructure development

With the opening of Indian skies to private and international operators, between 2000-01 and 2005-06, the number of aircraft movements grew from 4.90 lakh to 8.38 lakh and passenger traffic from 4.20 crore to 7.33 crore. This put immense pressure on airport infrastructure especially at the metro airports. It was therefore laid down in the Tenth Five Year Plan that navigation and surveillance facilities were to be upgraded as a matter of priority to be in line with world standards.

[♣] *Airports owned by Ministry of Defence*

1.5 Airport Infrastructure Policy

In December 1997, the Ministry of Civil Aviation (Ministry) announced the Policy on Airport Infrastructure. The main objectives of the Policy were:

- To provide a boost to international trade and tourism and enhance the country's image in the comity of nations;
- To provide airport capacity ahead of demand, in order to handle an increasing volume of air traffic and to garner maximum traffic share in the region;
- To enhance airport facilities to make the airports user friendly and achieve higher level of customer satisfaction;
- To ensure total safety and security of aircraft operations by introducing state of art air traffic, security and related services; and
- To foster development of a strong airport infrastructure, maintaining a balance between the need for economic viability and the objective of equitable regional dispersal of infrastructure facilities.

1.6 Scope of Audit

Audit conducted a pilot study by collecting records relating to conception, planning and implementation of various infrastructure projects at 20 international and domestic airports during the five year period ending 2004-05 spread over all five regions and six project offices to assess the extent to which the Authority was able to fulfill the objectives set out in the Policy on Airports Infrastructure and in the Tenth Five Year Plan. The selection of airports was made on the basis of geographical location, expenditure incurred, criticality of the project and physical progress of the work. A detailed Performance audit on 'Creation and augmentation of infrastructure and operational facilities by Airports Authority of India' was conducted covering further 20 airports **(Annexure II)**.

1.7 Audit Objectives

The Performance audit was conducted with a view to assessing whether:

- A strategic plan was prepared by the Authority for infrastructure development;
- The output was consistent with the goals set for infrastructure development;
- The management of infrastructure development projects was efficient to safeguard against possible risks to the economy and efficiency;
- The internal control system in the Authority was sufficiently sensitive to highlight variations in the estimated and actual cost and quantities;
- The Authority was sensitive to quality assurance procedures and controls and maintained effective oversight to ensure that the systems for quality assurance and quality control were robust and verifiable;
- Provision of Communication, Navigational, Surveillance (CNS) and safety facilities to cope with the increasing pressure on the air corridors and airports was adequate and state of the art technology was brought in by the Air Traffic Management; and

- Passenger facilitation and customer satisfaction were adequate and consistent with the norms set by ICAO.

1.8 Audit Criteria

The Audit criteria were:

- Traffic forecast;
- International best practice/norms for revenue composition and
- Compliance with ICAO, Director General of Civil Aviation (DGCA) and other regulatory authorities' stipulations on operational, safety and security aspects.

1.9 Audit Methodology

The pilot study covering a sample of 20 airports examined the infrastructure available and this revealed inadequacies and irregularities with financial implication of about Rs.159.52 crore **(Annexure II)** by way of defective estimation, midway change of scope, non synchronisation of activities, poor contract management and idle assets. Hence for the detailed Performance audit, 111 contracts/purchase orders executed during the years 2000-2001 to 2004-2005 totalling Rs.1449.62 crore in 40 airports were examined. The total capital expenditure incurred by the Authority during this period was Rs.2285.86 crore.

1.10 Acknowledgement

The audit programme, methodology and audit objectives were discussed in the entry conference with the Member (Finance) of the Authority in July 2005 and in several meetings during the course of audit. The draft review report was issued to the Authority in April 2006. A presentation on the audit findings was made during the exit conference with the Chairman of the Authority during August 2006. The Management's response was received during August/September 2006. Audit acknowledges the co-operation and assistance extended by the Management at various stages of the Performance audit.

Chapter 2

Performance

2.1 Absence of a Corporate Plan

The Authority did not have any Corporate Plan. An unsuccessful attempt was made in January 2004 for finalising such a Plan. The attempt was revived again in May 2005 when the Indian Institute of Technology, Delhi was appointed (at a cost of Rs. three lakh) to prepare a Corporate Plan for the Authority. The draft report was received in February 2006 but was yet to be approved. The Management stated (August 2006) that a Corporate Plan was under consideration.

2.2 Financial Outlay on Infrastructure/Capital Projects

The Tenth Plan documents for 2002-2007 laid great emphasis on infrastructure creation at the airports. The infrastructure facilities at terminals and runways and the operational and safety equipment needed upgradation, particularly at the international airports. Towards this end, major schemes in respect of the IAD and NAD were approved in the year wise plan outlay. The schemes included works of extension/strengthening of runways, runway lighting, construction of aprons, taxiways, hangers, terminal buildings, cargo complexes, car parks and provision of CNS, operational and passenger facilitation equipment.

The year wise Plan outlay and actual expenditure on capital works executed by the Authority in the six year period upto 2005-06 covered by Audit were as below:

(Rupees in crore)

Year	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
Original Plan Outlay	835.53	573.71	996.05	800.00	795.08	892.30
Actual Expenditure	348.00	319.49	445.66	566.22	606.49	876.08
Shortfall	487.53	254.22	550.39	233.78	188.59	16.22
Percentage of shortfall	**58.35**	**44.31**	**55.26**	**29.22**	**23.72**	**1.82**

The shortfall in expenditure that ranged from 1.82 *per cent* in 2005-06 to 58.35 *per cent* in 2000-01, was mainly due to delay in sanctioning of schemes, delay in finalisation of tenders, non availability of clear sites and modification and midway changes in scope of work **(Annexure III).** Some of the schemes relating to Delhi and Mumbai airports were kept in abeyance on account of the proposed restructuring of the airports. Consequently, the facilities planned were either not created or were completed after considerable time and cost overruns as discussed subsequently. The goal of creating capacity ahead of demand was thus not met fully.

2.3 Sources of Funds

The Authority's main sources of funds for incurring expenditure on infrastructure development were as below:

(Rupees in crore)

Source	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
Internal	**282.80**	**255.15**	**383.04**	**516.14**	**526.82**	**787.82**
North Eastern Council Grant	**20.00**	**20.00**	**25.00**	**4.50**	**7.88**	**5.00**
Budgetary support	**25.20**	**40.24**	**33.59**	**22.08**	**30.00**	**36.00**
Ministry of Defence/Andhra Pradesh Government	**-**	**-**	**-**	**23.50**	**38.50**	**46.45**
Himachal Pradesh Government	**-**	**-**	**4.03**	**-**	**3.29**	**0.81**
Foreign Loan	**20.00**	**4.10**	**-**	**-**	**-**	**-**
Total	**348.00**	**319.49**	**445.66**	**566.22**	**606.49**	**876.08**

2.4 Fund Management

The Authority undertook works for which as per agreements, the cost of construction was to be financed by the State Governments. In the following cases, the Authority did not recover the capital cost incurred on the projects as discussed below:

2.4.1 Non recovery of capital cost of Rs.7.25 crore from HP State Government

The development of Gaggal and Bhuntar airports in Himachal Pradesh at an estimated cost of Rs.18.23 crore was to be funded by the State Government as per the Memorandum of Understanding (MoU) signed (3 March 2000) between the Authority and the Government. For executing the project, the Authority was to receive five *per cent* deposit works fee of the approved estimated cost. As per the MoU, any increase in cost arising out of changes in scope of work or price escalation was to be borne by the State Government. As there was an increase in the project cost by Rs.7.25 crore due to additional works undertaken and due to escalation, the Authority approached (June 2004) the State Government for reimbursement but the latter expressed (November 2004) its inability to bear the extra expenditure. The Authority decided (February 2005) to meet the additional expenditure from its own funds.

Audit observed that the design and scope of work were changed midway during execution phase and these midway changes resulted in time and cost overrun. It was replied (September 2006) that changes in plan were necessitated due to operational requirements. As Gaggal and Bhuntar were regular 'cash loss' incurring airports, by not insisting on getting the reimbursement of this additional cost as per terms of the MoU and agreeing to bear the cost by itself, the Authority ended up incurring infructuous expenditure of Rs.7.25 crore in developing the airports. Even though it was replied that the creation of infrastructure cannot be considered only from the point of view of return and socio economic benefits derived in the region have also to take into account, the reply was not tenable as the investment in a project with a negative rate of return without financial support from the State Government was against the Policy on Airport Infrastructure.

2.4.2 Non recovery of capital cost of Rs.8.58 crore from Rajasthan Government

As per decision taken (August 2000) to extend the existing length of runway at Jaipur airport to make it fit for operation of wide bodied aircraft, the Authority acquired land at a cost of Rs.14.89 crore. To undertake the project, an existing nullah had to be diverted. The Rajasthan Government agreed to reimburse the cost of construction of a culvert over the nullah amounting to Rs.8.58 crore. The project was completed in December 2004. The Authority thereafter tried to recover the cost of construction of the culvert from Rajasthan Government but the amount could not be recovered resulting in blocking of funds to that extent. The Management stated (September 2006) that action was being taken to recover the amount from the State Government.

2.5 Traffic/Non Traffic Revenue

2.5.1 Declining share of Non Traffic Revenue

The task force set up by the Planning Commission suggested (October 2001) in its 'Integrated Transport Policy', an increase in the share of airport revenue from non-aeronautical services for making the airports viable and for generating surplus for further expansion. Audit observed that the position was far from encouraging as far as the Authority was concerned as shown below:

(Rupees in crore)

	2001-02	**2002-03**	**2003-04**	**2004-05**	**2005-06**
Traffic Revenue (A)	1531.28	1656.74	1764.15	2080.15	2387.23
Non Traffic Revenue (B)	267.20	312.80	346.71	414.07	489.96
Cargo and other Revenue	446.36	414.95	519.73	505.44	613.27
Total Revenue (C)	2244.84	2384.49	2630.59	2999.66	3490.46
Percentage of (A) to (C)	68.21	69.48	67.06	69.35	68.39
Percentage of (B) to (C)	11.90	13.12	13.18	13.80	14.04

It was observed in audit that the share of non traffic revenue was more than 50 *per cent* at major international airports*. In comparison, the share of non traffic revenue of the Authority was only 11.90 *per cent* in 2001-02 which increased marginally to 14.04 *per cent* in 2005-06.

Audit observed (April 2006) that commercial exploitation of land, which is the main source of non traffic revenue, was not optimal. This is discussed in Chapter 10.

Recommendations

- In terms of the Policy on Airports Infrastructure and as suggested by the Planning Commission, the Authority should work out measures to augment non traffic revenue.

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* ***British Airports Authority, Toronto, Sydney, Houston, Heathrow, Kuala Lampur, Los Angeles, Singapore, Paris and Zurich.***

- A decision in line with Para 14.7 of the Policy on Airports Infrastructure needs to be taken to ensure that wherever any Government requires the Authority to invest in non-viable projects for fulfillment of social objectives, the initial cost of the project and the recurring annual cash loss sustained by the Authority is reimbursed.
- Corporate Plan for the Authority should be approved early.

Chapter 3

Operational Area Infrastructure

3.1 The Policy on Airport Infrastructure acknowledged the fact that there was congestion in the international airports as well as in some of the domestic airports due to limited terminal and apron capacity at these airports, bunching of flights etc. Audit conducted a test check of major works executed by the Authority during the period 2001-2005 relating to runways, taxiways, aprons, hangers and parking bays. The results are discussed as under:

3.2 Airport capacity enhancement - runways, aprons and allied facilities

3.2.1 At **Delhi** airport, though there are two runways, only one is normally used for operations and the secondary runway is mainly used as a taxiway. Due to capacity constraints on account of a single runway, the aircraft were forced to hover over the sky till the air traffic control cleared the landing. An additional runway would have eased the situation. However the Ministry issued instructions to the Authority in April 2002 and reiterated it in June 2005 that no major construction activities in which execution had not yet commenced at Delhi and Mumbai airports should be initiated while the process of restructuring of the airports was on.

To overcome the problems arising due to the delay in creation of a parallel runway, a proposal for a rapid taxiway at an estimated cost of Rs.4.09 crore was put up to the Board of Directors (May 2004) for approval. As the proposal was not budgeted, it was decided to re appropriate unutilised funds from other works. Bids were received during November 2004 and the work was awarded for Rs.4.77 crore in March 2005. Though the scheduled completion date was in January 2006, the work was still in progress (March 2006). The Management stated (August 2006) that the work could not be completed due to operational constraints and all efforts would be made to complete the work at the earliest.

3.2.2 At **Mumbai** there are two intersecting runways but only one of them was being used at a time for operations because of cross-runway configuration. The designed capacity of both the runways is 24 landings per hour whereas the demand (as of 2005-06) was 40 and the projected demand after 10 years was 70.

3.2.2.1 The last upgradation of the main runway was carried out during November 1995. Even though complaints were received during April 2001, the decision to carry out resurfacing work of the runway was taken only during April 2002. The work was completed in June 2003 at a cost of Rs.10.83 crore (approximately) and the contractor had also made further claims amounting to Rs.9.68 crore. It was observed that as per agreement, the contractor was to use bulk bitumen. However he was paid higher rates for use of modified bitumen, the usage of which was not specified in the agreement and the extra expenditure on this amounted to Rs.86 lakh.

3.2.2.2 Similarly, the Authority failed to indicate soil conditions in the tender which are normally indicated in contracts relating to soil works. On completion of work, the contractor

demanded payment at higher rate on the plea that special efforts had to be put in as drilling was done in rocky strata. The claim had been taken up for arbitration. The Management replied that since the runway was under active operation at the time of award of work, it was not possible to ascertain the soil condition The reply was not acceptable as it was an old runway and the soil conditions would have been noted when the runway was originally constructed.

3.2.3 For strengthening the Main Runway (MRW) and to provide CAT-II lighting system on the runway at **Kolkata** airport, an estimate for Rs.16.95 crore was approved (April 2002). After inviting bids, order was placed (July 2003) for the work at a value of Rs.14.58 crore. The work was completed in April 2005 after a time overrun of one year. While reviewing the contract and its execution, the following lacunas were noticed in audit.

3.2.3.1 As per the conditions of the agreement, the contractor was supposed to mobilise and install plant and machinery within 25 days from the date of award letter. The contractor, however, did not deploy machinery at site as per the contract provisions. In the absence of any condition in the agreement for levy of penalty for delay in mobilisation of machinery, the Authority could not take any action against the contractor. Audit observed that at Patna airport for similar violation of contract conditions, the contractor was penalised at the rate of Rs.1000 per day. The Management replied (September 2006) that the work had suffered due to non availability of 'Notice to Airman" (NOTAM) that was to be arranged by the Authority. The provision of a penalty clause for short deployment of machinery would have provided a basis to the contractor for making idling claim against the Authority due to non availability of runway. This justification was not tenable as works contract should have a penalty clause for delay caused by either party.

3.2.3.2 The contract also did not have one of the general conditions followed by the NAD, viz, Performance Guarantee equivalent to five *per cent* of the contract value.

3.2.3.3 It was further observed in Audit that the work on the Main Runway (MRW) could be taken up only when the Secondary Runway (SRW) with required visibility was available. Even before the contractor was ready to commence the work and the availability of SRW was ensured, most of the materials (valuing Rs.2.38 crore) required for the work were supplied by the Authority and same valued at Rs.1.14 crore remained unutilised upto February 2005.

3.2.4 The Authority approved (July 1999) a proposal for construction of new hangers, relocation of some existing hangers and other works for an amount of Rs.9.49 crore at **Kolkata** airport to be completed within 24 months from start of the work. Except for the work relating to hanger and annexe, rest of the jobs were awarded after considerable delay. Some of the works of the project had long overshot their stipulated date of completion. The hanger and annexe work, which was scheduled for completion in October 2001, was completed in March 2003 and the apron work scheduled for completion in August 2002 was completed in May 2004. The road works, which were to be completed during May 2003, were still in progress (March 2006). The delay in completion of the works resulted in idling

of facilities and the hanger and annexe completed at a cost of Rs.2.33 crore were lying idle since April 2003. Due to delay in completion of related works, the hanger and annexe could not be allotted till February 2005 and April 2005 respectively which resulted in a loss of revenue of Rs.96.73 lakh.

3.2.5 At **Chennai** airport, the Authority proposed (1990) extension of parallel taxi track for operation of wide bodied aircraft. It was then informed that the proposed taxi track could not be used unless the adjacent land was acquired from defence authorities. The construction of parallel taxi track was completed during December 1992 at a cost of Rs.3.09 crore in anticipation of acquisition of the defence land. Ministry of Defence (MOD) offered (July 1997) outright sale of land at a cost of Rs.1.17 crore. This was not pursued. As the extended taxi track could not be put to use since December 1992 due to the non availability of the adjacent land, it was then proposed (2002) to shift the centre line of the taxi track to the runway side and the work was completed at a cost of Rs. 6.14 crore during 2004-05. The failure to acquire land when offered by the MOD thus resulted in incurring additional expenditure of Rs.4.97 crore on the shifting work.

3.2.6 Based on a request (April 2002) from Air India to start operation of A-310 type of aircraft from **Gaya,** the Authority approved (February 2003) an estimate amounting to Rs.62.52 crore for development of the existing airport. Audit observed that till March 2006, after three years of sanctioning the development project, work orders valuing Rs.39.66 crore (63.44 *per cent*) were issued only for 30 out of the 40 packages of the project. Time overrun had already occurred ranging from one month to three years in a number of packages. Due to the delay in completion of the project, Rs.14.08 crore spent on procurement of various equipment and on civil and electrical works already completed, remained idle. This included civil and electrical works completed at a cost of Rs.54.54 lakh, which were idle from December 2005 due to non placement of order for aerobridge. The Management stated (September 2006) that certain packages were required to be taken up after completion of the terminal building and a few other packages got delayed due to the prevalent law and order situation in Gaya. The overall progress of the project activities upto March 2006 for the 30 packages valuing Rs.39.66 crore was 86 *per cent* (Rs.34.23 crore).

3.2.7 At **Agartala**, the existing apron was in two parts, one rigid concrete part and the other bitumen part. The apron could accommodate two aircraft at a time. It was proposed (July 1994) to strengthen the bitumen apron and join it with the concrete apron for better manoeuvrability. It was also proposed to widen and strengthen the existing loop taxiway and join it with the main runway. Contract for the above works was awarded (February 1997) to M/s ASTRA Construction (ASTRA) at a cost of Rs.4.98 crore with scheduled date of completion by September 1998. However, due to reasons like failure by the Authority to hand over site in time and poor performance by the contractor, the work suffered and the contract was rescinded in August 2001, three years after the scheduled completion date. The Authority paid an amount of Rs.2.56 crore towards value of work done and Rs.27.06 lakh for escalation to ASTRA. The remaining work was re awarded (September 2002) to another contractor for Rs.3.35 crore and was completed during February 2004 at a cost of Rs.3.09 crore. Simultaneously, the work relating to rectification of defects in the apron work originally executed by ASTRA was also awarded to another contractor and the Authority

incurred extra expenditure of Rs.86.22 lakh rectifying the defects. ASTRA also took up the case for arbitration and based on the arbitration award (June 2004), the Authority had to make further payment of Rs.33.31 lakh to ASTRA. The apron work was taken up to facilitate parking of four AB-320 aircraft at a time. From the statistics verified by Audit, it was found that since June 2004, the maximum number of aircraft parked on the apron at a time was only three including one helicopter. Thus, the expected results of expansion at the cost of Rs.7.11 crore did not materialise.

3.2.8 In order to make **Jaipur** airport fit for operation of wide bodied aircraft, the Authority decided (August 2000) to extend and strengthen the existing runway. Land for this purpose was acquired at a cost of Rs.14.89 crore. However, basic strip of 150 metres on either side of the runway required as per IACO guidelines could not be constructed as a public road was passing through the land acquired. Despite lapse of more than five years, the diversion of public road could not be completed till date (March 2006). Meanwhile the work of extension and strengthening was completed and commissioned in December 2004. The runway was being used for wide bodied aircraft, but the mandatory guidelines were not being followed.

3.2.9 Audit also test checked works undertaken by the Authority in 17 other airports. Cases of time overrun upto 75 months due to reasons like absence of clear possession of land before taking up the work leading to delay and foreclosure of work, poor performance of the contractor leading to rescinding of the contract and subsequent reaward of work and cost overrun upto Rs.3.47 crore due to changes in scope of work leading to extra items of work were noticed **(Annexure IV).**

3.3 Other operational problems

3.3.1 Problems in land acquisition and encroachment on airport land

The Authority required land for expansion and upgradation of infrastructure facilities at the airports. The acquisition of land had to be done through State Governments. In many instances the Authority's efforts at land acquisition were held up due to procedural delays and litigation. Cases where creation of facilities was held up/abandoned due to land acquisition problems that were identified in a test check conducted by Audit are listed in **Annexure-V.** As per the Authority's records, 702 acres of land was under encroachment in 20 airports (March 2006). At Mumbai, the encroachment was to the extent of 171 acres. During five years ending 2005, the Authority was able to remove encroachment from only 30 acres of land, incurring in the process an expenditure of Rs.24.35 crore. In Delhi, though it was stated that only 4.5 acres were under encroachment, Audit noticed that 89 acres of land for which compensation had already been paid was yet to be handed over to the airport. Other major encroachments were at Hyderabad (97 acres), Kolkata (76 acres) and Amritsar (83 acres) airports. The encroachment at the airports hampered expansion and upgradation of facilities. The Management while accepting the fact stated (August 2006) that removal of encroachment at the airports was a herculean task which required the assistance of the local police and the State Government. Besides socio political difficulties, legal hurdles were also required to be taken care of.

3.3.2 Shortage of domestic parking stands and night parking facilities

As of August 2006, the scheduled operators owned 270 aircrafts. In view of the enormous growth in the aviation sector, many operators were also reported to have placed orders for a number of aircraft. As compared to the number of aircraft at present and expected to arrive in future, the Authority has only 208 night parking bays at the five international airports where operators desire night parking. All the parking bays at Delhi and Mumbai have been allotted to existing operators with no facility for new entrants who are already awaiting permission. At times international flights are held on taxiways due to non availability of parking bays. It was observed that applications are pending at Ahmedabad, Hyderabad and Jaipur for night parking which could not be provided because of non availability of sufficient parking stands. The Management replied (September 2006) that the projected number of aircraft to be purchased by the carriers spread over a long span of delivery period and there would be a time gap available to the Authority for creating the infrastructure facilities required to meet the demand for parking on induction of new aircraft. The Management also stated that the airlines were being persuaded to do the night parking at domestic airports as well, for which additional parking bays were being created.

3.4 Future work programme for the new larger aeroplane

The entry into service of the new larger aeroplane (NLA) namely Airbus A-380 is envisaged in 2006. ICAO developed (May 2003) a two phase action plan for smooth introduction of NLA. The maximum passenger capacity of the NLA is around 800. In view of the higher passenger capacity, overall weight, height and fuselage length and capacity, the operation of NLA not only calls for the strengthening of runway, taxiway and apron but also the terminal, conveyor, aerobridge and other passenger facilities. Three airlines (Singapore, Lufthansa and Emirates) requested the Authority to make necessary arrangements for operation of NLA from select Indian airports by 2006/2007. As of August 2006, the preparation for receipt of the NLA was not yet complete as even the parking bays for the aircraft had only been proposed in Delhi and Kolkata. In Mumbai and Chennai, these were under construction. Other facilities were yet to be created.

Recommendations

- Effective steps should be taken to remove encroachments.
- All project activities should be synchronised so that there is no idling of facilities created due to non completion of related activities.
- Planning should be detailed and comprehensive to avoid cost escalation and delays due to changes in scope of work.
- A high level committee involving the Authority, the Ministry and the State Governments concerned should be set up for coordinating land acquisition to avoid problems and delays.

Chapter 4

Air Traffic Management, Communication, Navigation and Surveillance Facilities Infrastructure

4.1 ICAO has framed International Standards and recommended practices and procedures for communication, navigation and surveillance facilities to be provided at the airports and the requirement towards these are met by the Communication, Navigation, Surveillance (CNS) and Air Traffic Management (ATM) Directorates of the Authority. Audit observed that the existing ground infrastructure in CNS and ATM had not kept pace with the increased traffic growth leading to overcrowding, increased incidence of airprox*, flight delays and avoidable fuel consumption by hovering aircraft awaiting permission to land. The Authority planned for introduction of new equipment to replace/upgrade the existing equipment. But the introduction was either delayed or not put to use due to procedural problems like delayed decisions, non synchronisation of allied activities and poor contract management as discussed in the subsequent paragraphs.

4.2 Delay in commissioning of Visual Simulator

An aerodrome visual simulator valuing Rs.7.14 crore for training of Air Traffic Control staff was received at the Civil Aviation Training College, Allahabad during September 2005. Though the work order for construction of the building to house the equipment was issued in March 2005 with a scheduled completion period of three months, the building was completed only in March 2006 as there were defects in the design which were noticed only at the execution stage resulting in stoppage of work midway. The non synchronisation of the arrival of equipment with the availability of site not only resulted in blocking of funds amounting to Rs.7.14 crore over six months but also denied the benefit of visual simulation training facilities for the ATC staff. The Management stated (August 2006) that it was contemplated to synchronise completion of the building with the availability of the equipment. However, delay occurred due to defect in the design and resulting modification. It was also stated that the system was likely to be commissioned by December 2006. However, only installation of system was completed in December 2006 and it was yet to be commissioned.

4.3 Delay in installation of Voice Communication System

The Authority approved (July 2003) proposal for providing Voice Communication System (VCS) at eight stations and purchase order for supply and installation of equipment was placed (April 2004) for Rs.16.89 crore (including foreign exchange component of GBP 1387717). The equipment were received in February 2005 and were expected to be installed within three months thereafter. However due to delays in getting the sites ready, installation

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* ***Airprox is the code word used to give a specified position of aircraft proximity, a situation in which in the opinion of a pilot or air traffic service personnel, the distance between two aircraft as well as their relative positions and speed was such that the safety of the aircraft may have been compromised.***

could be completed at only four stations by September 2005. There were delays ranging from six months to ten months in installation at three other stations and at one Station (Mumbai), the installation was still pending (March 2006). The Management stated (August 2006) that at Mumbai, the system was commissioned from June 2006.

4.4 Delay in commissioning Dedicated Satellite Communication Network

The Authority approved (December 1998) a proposal for providing a Dedicated Satellite Communication Network (DSCN) linking 80 airports with the objective of upgrading the existing low speed, less reliable and almost saturated telecom network to support high speed data and voice connectivity. DSCN infrastructure was considered essential for the world wide implementation of the new CNS/ATM systems. The complete network was planned to be commissioned in 24 months. The annual operational expenditure for the DSCN was estimated to be Rs. four crore on hiring a satellite transponder. Compared to this, the annual savings were estimated to be substantial by way of avoided cost of leasing of existing terrestrial links (Rs.4.20 crore) and leasing of high speed data circuits for radar net working (Rs. three crore). Additional facilities like video conferencing, wide area network of various units were also envisaged. The complete network was planned to be commissioned within two years, i.e., by March 2001. However, tender action initiated twice in March 2000 and in August 2001 did not succeed and it was stated that this was due to reasons like non-conformities in the bids, technology evolution and a general falling trend in prices for electronic equipment. Only the third tender initiated in May 2003 fructified and purchase order for the supply and installation of equipment was placed in October 2004. As per the Management's reply (August 2006), the equipment had been received and installation was under progress and expected to be completed by October 2006. The installation of the equipment was still in progress (December 2006). The inordinate delay of more than five years in commissioning the network resulted in deprivation of expected benefits as the main objective of replacing the low speed telecom network had not been achieved and in the process, the Authority had also foregone net cost savings amounting to Rs.16 crore during the period April 2001 to March 2006.

4.5 Delay in providing UHF links

Communication between ATC towers and the equipment sites at various airports for transfer of data/voice information required for monitoring CNS facilities was provided on lines leased from BSNL. As the information transmitted through these lines was often interrupted by cable faults for long periods, it was decided to provide Ultra High Frequency (UHF) wireless communication links. Purchase order was placed (May 2003) for ten 10-channel and twenty 4-channel UHF links at a cost of US $ 1.293 million (Rs.5.69 crore approx.[♣]) and the links were scheduled to be installed by March 2004. However even by June 2004, only 13 links out of the 30 links were installed. In the meantime, repeat order was placed (May 2004) for an additional ten 4-channel links for a value of US $ 380888 (equivalent to Rs.1.68 crore approximately). As the installation of the links was delayed mainly due to the fact that either the masts required for installation purposes were not available or there were hindrances in the line of sight, the supplier intimated (January 2005) that the warranty period

[♣] *At the rate of Rs.44 per US dollar*

for the first order would be over by February 2005 and it would not be possible for them to continue service under the contract. The supplier also declined to impart necessary training as required in the purchase orders. Consequently, the Authority decided to take up the work of installation of the pending links by itself and as of March 2006, out of the 27 links pending (including those of the second order), only 19 links could be installed. The failure to ensure site readiness before receipt of equipment resulted in delay of over two years in installation of the links depriving the Authority of the benefits of superior technology and improved performance as well as savings in recurring revenue expenditure on lease rent for BSNL lines. The Management while agreeing with the reasons for the delay stated (August 2006) that as on date, installation had been completed in respect of 36 links and four were pending.

4.6 Delays in installation and commissioning of ILS and DVORs

The delay in installation and commissioning of Instrument Landing System (ILS) at eight stations had already been commented in the Report of the Comptroller and Auditor General of India – Union Government (Commercial) No.3 of 2005. Despite a lapse of two years since then, installation and commissioning was completed only in respect of two more stations and six equipment costing Rs.9.17 crore received between January 2002 and February 2003 were still to be installed/commissioned (March 2006) at Bhavnagar, Chennai, Dimapur, Madurai, Visakhapatnam and Jammu.

Similarly in respect of Doppler Very High frequency Omni Ranges (DVORs), their non-installation at 10 stations had been commented upon in Audit Report No.12 of 2006 (Regularity Audit). Subsequently till March 2006, installation and commissioning had been completed in respect of only two stations and eight DVORs costing Rs.9.24 crore received between May 2003 and September 2003 were yet to be installed (March 2006) at Visakhapatnam, Lucknow, Katihar, Tirupathi, Surat, Dehradun, Delhi and Kolkata.

Non availability of site was stated (August 2006) to be the main reason for the delay in installation/commissioning of the equipment. The fact remains that absence of synchronisation of related activities in the procurement and installation of equipment resulted in defeating the objective of providing accurate navigational facilities.

4.7 Non replacement of ageing DMEs

The Authority accorded approval (April 2004) for procurement of 40 Distance Measuring Equipment (DME) – 33 as replacement and seven as new facility at different airports at an estimated cost of Rs.24.43 crore. Global tender notice was issued during May 2004. Even though a Central Vigilance Commission (CVC) guideline (circulated on 21 April 2004) stipulated that bids can be submitted either by the Indian supplier on behalf of the foreign supplier or the foreign supplier directly but not by both, tender forms were sold to two foreign suppliers, THALES and FERNEU in addition to their Indian suppliers, BEL and ECIL respectively. The matter was examined on receipt of a complaint from another bidder that the sale of tender forms to BEL and ECIL was not in order. It was then decided (May 2005) to cancel the tender and issue fresh NIT as per the guideline. Fresh tender was then issued (October 2005) and the tender evaluation process was still under process (March 2006). Due to non-observance of an existing CVC guideline at the initial stage, the

Authority was forced to cancel the original tender and invite fresh quotations resulting in delay in finalising the order. The installation of DME originally planned in April 2004 was therefore incomplete and the 33 DMEs which had already completed more than 10 years were not replaced with the result that these stations are still employing the old DMEs which have serious maintenance problems and associated safety risks. The Management stated (August 2006) that the DME equipment are maintained by procuring spares and establishing specialised maintenance units.

4.8 Delay in commissioning FANS

ICAO recommended (1991) implementation of the Future Air Navigation System (FANS) through a new CNS and ATM concept involving airspace planning methodology. The objective was application of available technologies in satellite and computers, data links and advanced flight avionics to cope with the growing future operational needs. The implementation of the system would make obsolete much of the present day ground based equipment. As per plan, the transition to the new CNS/ATM should be completed by 2009. The Authority approved (October 2003) that the FANS would be installed at Delhi and Mumbai primarily to cover the airspace beyond the radar coverage, which would enable more accurate surveillance in a non radar airspace. The total cost of the project was Rs.17.69 crore and the contract for the project was signed with M/s Raytheon Company in January 2004. The equipment was installed by the supplier and the site and stability acceptance test[♣] were also completed by June 2005. The Management stated (August 2006) that the system was made operational at Delhi and Mumbai airports on trial basis with effect from March 2006 and July 2006 respectively. Audit observed that the system at Mumbai had been made operational from September 2006 and in Delhi, it was still under trial run (December 2006).

4.9 Implementation of GAGAN project

ICAO endorsed (1994) Global Satellite Navigation as a primary future system for aviation industry to provide worldwide coverage for seamless aircraft navigation. Satellite transmission along with enhanced ground based equipment would enable the users to perform 'on board' position determination for enroute, terminal, non precision and precision approaches. The Authority decided (May 2001) to implement the indigenous satellite based regional Global Positioning System (GPS) augmentation as part of this CNS/ATM plan. An MoU was signed (25 August 2001) between the Authority and the Indian Space Research Organisation (ISRO) for design, development and implementation of GPS and Geo Augmented Navigation (GAGAN) in three phases, Technological Development System phase (TDS), Initial Experimental phase (IEP) and Fully Operational phase (FOP). The Authority approved (May 2001) expenditure of Rs.80 crore for the TDS phase to be equally shared between the Authority and ISRO and an amount of Rs.40 crore was paid in March 2005 to ISRO. During execution, the scope of the TDS phase was widened to include state of the art hardware for ground based elements etc. and the resultant increase in cost (Rs. 68

♣ ***Site acceptance test means the test conducted on the operational site hardware equipment using test procedures and simulated exercises of test scenarios. Stability acceptance test means the test conducted on the operational hardware equipment at site using test procedures under 'live' operational environment.***

crore) was to be funded wholly by the Authority. Approval of Board for incurring the additional expenditure was accorded in March 2006. Even though the GAGAN payload was expected to be carried in the GSAT-IV satellite, which was scheduled for launching by ISRO by February 2007, only the TDS phase of the project was under execution till March 2006. The Management stated (August 2006) that cost estimate of Rs.496 crore for the remaining phases had been submitted to the Project Investment Board.

4.10 Infructuous expenditure of Rs.7.65 crore on indigenous manufacture of Radars

The Authority signed a tripartite Technical Collaboration Agreement (TCA) in December 1992 with BEL and M/s Westinghouse Overseas Services Corporation, USA (WOSCO). As per the agreement, BEL would absorb the technology for indigenous manufacture of Airport Surveillance Radar (ASR) and Monopulse Secondary Surveillance Radar (MSSR) from WOSCO, produce the same indigenously and offer it to the Authority. The Authority also signed a separate MoU with BEL (June 1993) whereby the Authority agreed to bear the cost of transfer of technology and BEL would provide necessary price adjustment so as to enable the Authority amortise the cost of investment over a quantity of 20 MSSRs and 10 ASRs. In case the Authority did not place orders as above, the unabsorbed portion of BEL investment would be compensated by the Authority by a suitable arrangement to be mutually agreed upon. BEL obtained the technology incurring an expenditure of Rs.14.14 crore and the Authority paid an amount of Rs.10.35 crore towards part of its share. BEL claimed (July 2004) the balance of Rs.3.79 crore which was yet to be paid. The Authority placed orders only for two ASRs and six MSSRs; further orders were not placed due to unsatisfactory performance and failure of BEL to upgrade the technology and also due to the high cost quoted by BEL compared to directly imported radars. BEL allowed only Rs.2.70 crore as price adjustments towards amortisation of costs based on the orders placed, and the Authority has a further contingent liability to pay the balance of Rs.3.79 crore claimed by BEL. The Management stated (August 2006) that the decision on payment of claimed balance was pending. The decision of the Authority to enter into an agreement with BEL without assessing the latter's capability to upgrade technology and produce radars at reasonable price resulted in the Authority incurring infructuous expenditure of Rs.7.65 crore in the project.

4.11 Delay in integrating Flight Data Processing System

The main function of Flight Data Processing System (FDPS) was to receive, process and disseminate flight data. The system provided a facility to display as well as print flight progress strips as per the needs of the ATC officers. M/s ECIL, Hyderabad had developed an integrated Automatic Dependent Surveillance System (ADS)[♣] of which FDPS was a sub system. The Authority procured two ADS for Chennai and Kolkata airports. The Authority further accorded (April 1999) sanction for procurement of four more FDPS for installation at Nagpur, Varanasi, Ahmedabad and Thiruvananthapuram. As these FDPS systems being

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[♣] ***A surveillance technique in which aircraft automatically provide, via a data link, data derived from on-board navigation and position fixing systems, including aircraft identification, four dimensional position and additional data as appropriate.***

procured would eventually be linked to the ADS systems installed at Chennai and Kolkata airports, purchase order was placed (August 2001) on ECIL on single tender basis for Rs. 8.26 crore. As per the purchase order, installation and commissioning of the FDPS would be completed before February 2002. During installation it was noticed that ECIL was not able to integrate the FDPS with the existing radar system at all the six sites as it did not have the knowledge of data exchange protocol. These data formats were available only with NGOSCO, the supplier of the radar systems. As ECIL did not either procure the formats from NGOSCO or develop them in-house, the project was delayed. The Management replied (August 2006) that the formats were now available with ECIL and the integration had been completed at Chennai and was under evaluation. It was also stated that at Kolkata, the integration was presently underway. As the integration of the FDPS with the radar system was not complete, the benefits of advance surveillance technique contemplated could not be derived even four years after the scheduled completion of the project.

4.12 Idling of Flight Inspection System due to delay in procurement of aircraft

Radio navigational and surveillance aids available for use by aircraft are subject to periodic ground and flight tests. Flight inspection, i.e., calibration of navigation and surveillance systems verifies that certain technical parameters remain within precisely defined tolerances as laid down in international guidelines. The systems like ILS and VOR are required to be inspected at periodic intervals as per requirements of ICAO.

The Authority accorded (July 2003) approval for acquisition of one aircraft along with one Automatic Flight Inspection System (AFIS) to be fitted therein. The proposal for the new aircraft was made due to the fact that the present fleet of two dornier aircraft were not capable of flying at an altitude of 35000 ft. which was the mandatory requirement for radar calibration and were also incapable of calibrating VORs in airfields like Leh having elevation of more than 10000 ft. In the procurement advisory meeting (January 2004), which approved the proposal, it was clearly mentioned that the receipt of the AFIS should be synchronised with the receipt of the aircraft so as to ensure that the AFIS did not remain idle at any point of time. Purchase order was placed (February 2004) for the AFIS at a total cost of Euro 3663500 (equivalent to Rs.25.23 crore) and the equipment was received during November 2004. The synchronisation contemplated was however not achieved as the order for the aircraft was placed only during August 2005. The AFIS was lying idle since November 2004 resulting in blocking up of Rs.19.50 crore being cost of the equipment paid so far (March 2006) and consequent interest loss was Rs.1.82 crore upto March 2006. The Management while conceding the fact that there was considerable delay in placement of the order for procurement of the aircraft stated that the delay was due to various issues. It also stated that the aircraft was likely to be received by August 2006. It was observed (December 2006) in audit that though the aircraft was received in August 2006, the AFIS was yet to be fitted in it. (December 2006).

As a consequence, in the absence of the new aircraft capable of flying at high altitudes, the Authority had to engage the services of outside agencies through ICAO to conduct DVOR calibration at Leh and at Port Blair during December 2005 incurring an expenditure of Rs.65.10 lakh.

Recommendations

- All allied activities necessary for installation and commissioning of equipment should be synchronised with the procurement of equipment to avoid delays.
- Sites for installation of equipment should be ready before receipt of the equipment.

Chapter 5

Passenger Facilities Infrastructure

5.1 ICAO has laid down standards and recommended practices on 'Facilitation'. From an airport administration's point of view, the two important areas of facilitation which require to be closely monitored are the entry and departure of passengers and their baggage and the facilities and services available for the passengers in the airport.

5.2 Capacity saturated in major airports

One of the objectives of the Policy on Airport Infrastructure was to provide capacity ahead of demand in order to handle an increasing volume of air traffic and to garner maximum share of traffic in the region. The Authority was unable to achieve the objective in many of the airports. The Authority conducted surveys in selected airports during 2004-05 in areas like check-in, immigration, customs, security and baggage delivery. An analysis of the surveys revealed that the above facilities were either already saturated or inadequate for future passenger demands. In 11 out of the 18 airports surveyed (Ahmedabad, Amritsar, Bangalore, Chennai, Goa, Delhi (except Terminal 1A), Khajuraho, Madurai, Mumbai (except Terminal IA and IIC), Trichy and Varanasi), both the departure and arrival capacity were already saturated. In the remaining seven airports (Coimbatore, Hyderabad, Jaipur, Lucknow, Kolkata, Ranchi, and Thiruvananthapuram) these would be saturated between 2006-07 and 2018-19.

5.3 Fall in customer satisfaction level

The Authority carried out customer surveys at 40 airports through the Agricultural Finance Corporation during 2004-06 on the facilities and services provided by the Authority, expectations of customers, feedback on introduction of new services and reasons for dissatisfaction. Audit examined the report of the second round of survey conducted during April-May 2005. The overall customer satisfaction index during the second round was 74 *per cent* against 75 *per cent* in the first round conducted during October-November 2004. Audit observed that in some of the services the ratings were even below 70 *per cent* in the second round in a number of airports as shown below:

Facility	Airports
General comfort	Bangalore, Chennai, Kolkata, Bhopal, Calicut, Chandigarh, Dibrugarh, Imphal, Indore, Rajkot, Silchar, Srinagar, Trichy, Varanasi and Visakhapatnam.
Toilets	Ahmedabad, Amritsar, Bangalore, Chennai, Guwahati, Hyderabad, Kolkata, Mumbai, Bhopal, Calicut, Chandigarh, Coimbatore, Dibrugarh, Imphal, Indore, Madurai, Patna, Rajkot, Silchar, Srinagar, Trichy and Visakhapatnam.
Flight information system	Ahmedabad, Amritsar, Bangalore, Chennai, Guwahati, Kolkata, Agartala, Bhubaneswar, Chandigarh, Dibrugarh, Imphal, Indore, Madurai, Pune, Rajkot, Silchar, Srinagar, Trichy, Varanasi and Visakhapatnam.
Trolley accessibility	Ahmedabad, Amritsar, Bangalore, Chandigarh, Dibrugarh, Imphal, Srinagar and Visakhapatnam.

5.4 Delay in commissioning of Flight Information Display System

During 2002-03, the Authority installed Flight Information Display System (FIDS) at 14 domestic airports. Based on further urgent requirement from seven airports for nine systems, the Authority called for global tenders (October 2003) pending administrative approval and expenditure sanction of Rs.4.07 crore. The tender action was subsequently (November 2003) cancelled and regions were directed to initiate procurement at their level. No action for procurement was however initiated and the proposal was again taken up at Headquarters and sanction was accorded for Rs.8.25 crore (December 2005). Tender action had since been initiated (March 2006). The Management stated (September 2006) that as the procurement at regional level did not materialise, action was taken at Headquarters for consolidating the requirement and this exercise took time. Audit observed that in the earlier proposal (October 2003), tender action was initiated even before approval and sanction on the grounds that the installation was to be completed within three to four months. The delay of over two years in again taking up the proposal was unwarranted not only on account of the doubling of cost (from an estimated Rs.4.07 crore in October 2003 to Rs.8.25 crore in December 2005) but also on account of denial of facilities to the passengers as they had to depend on other flight information systems like public address system, closed circuit TV etc. which had their inbuilt deficiencies.

5.5 Planning and Managing Terminal Facilities

5.5.1 Inappropriate distribution of flights between terminals

The distribution of flight handled by the two departure terminals 1A and 1B at **Delhi** was not optimal. A study conducted by the Authority (June 2005) revealed that more than 35 *per cent* of Terminal 1A was underutilised whereas Terminal 1B was already saturated. Terminal 1A was exclusively being used by Indian Airlines and from April 2005, it allowed a private operator, Kingfisher Airline to use Terminal 1A as the latter entered into a ground handling agreement with the former. Audit observed that as per projections, Terminal 1A would be saturated only in 2016-17. The congestion now witnessed at Terminal 1B could have been at least minimized with a more appropriate distribution of flights between the two terminals.

5.5.2 Non utilisation of Terminal and Infructuous expenditure on project

Terminal II B at **Mumbai** airport was closed for operation on commissioning of Terminal II C in September 1999. The Authority approved (March 2003) proposal for extension of Terminal II B at a cost of Rs.48.60 crore and further modification and upgradation at a cost of Rs.45.50 crore. The works were, however, not taken up due to the proposed restructuring of the airport. Terminal II B, closed for operations in September 1999, remained idle upto June 2005. The Management stated (August 2006) that the terminal had been made fully functional by integration of operations at different levels. However, the Terminal II B was not used for passenger handling between September 1999 and June 2005.

The work relating to a new taxi stand at Mumbai airport was completed during September 2004 at a cost of Rs.2.53 crore. However till March 2006, the taxi stand was lying vacant. The Management stated (August 2006) that the new taxi parking had been planned to cater to the future modification of car park. Since the modification works of existing car park could

not be taken up due to restriction by the Ministry on taking up major schemes, the shifting of the taxi park could not take place. Non use of the new taxi stand amounted to denying better facilities to the passengers and rendering the amount spent on construction (Rs.2.53 crore) infructuous.

5.5.3 Non synchronisation of project activities

The work of construction of new domestic departure building at **Ahmedabad** awarded in June 2002 for Rs.11.93 crore with scheduled date of completion as December 2003 was completed in August 2005 at a cost of Rs.14.81 crore involving time overrun of 20 months and cost overrun of Rs.2.88 crore. The construction of the building included a cost of Rs.3.67 crore towards civil and electrical works for aerobridges and related facilities. Although the civil and electrical works for the aerobridges had been completed, the required aerobridges were yet to be procured (March 2006). Non synchronisation of the procurement of the aerobridges with the construction of the building thus kept the related facilities created at a cost of Rs.3.67 crore lying idle since August 2005. The Management stated (September 2006) that the procurement of aerobridges was under finalisation.

5.5.4 Delay in completion of upgradation work

The proposal for upgradation and development of the airport at **Amritsar** including construction of terminal building was approved (November 2000) at a cost of Rs.79.27 crore. The work was planned for completion within 36 months.

After a delay of 27 months since the approval of the project, the work of construction of the new terminal building was awarded (February 2003) to M/s HSCL for Rs.16.80 crore with a time schedule of 12 months for its completion. As the performance of the contractor was poor, the contract was rescinded (September 2003) and the remaining work was re awarded at the risk and cost of HSCL to M/s TLBT (May 2004) at a negotiated rate of Rs.16.34 crore with scheduled completion by March 2005. The amount recoverable from HSCL at this stage worked out to Rs.1.40 crore. The work was yet to be completed in full (March 2006). As regards recovery of the additional cost of Rs.1.40 crore from HSCL, the Management stated (August 2006) that the matter had gone for arbitration and the case was in the preliminary proceedings stage.

5.5.5 Capital investment in project with negative IRR

The work relating to expansion and modification of terminal building at **Srinagar** airport was awarded (October 2004) at a cost of Rs.36.15 crore. The work commenced in November 2004 and was expected to be completed by September 2006. Upto March 2006 however, only 30 *per cent* of the work had been completed. Audit observed that Srinagar was a loss making airport and the internal rate of return (IRR) for the project was negative. Therefore taking up the project without reimbursement of cost by the Government was not in accordance with the Policy on Airport Infrastructure. The Management stated (August 2006) that it had already requested the Ministry for providing grant for development of the airport. The Authority was yet (November 2006) to get any funds from Central or State Government to support the unviable project.

5.5.6 Delay in commencement of work after issue of award

The construction of the terminal building at **Agartala** commenced in April 1998, 33 months after award of work for preparation of detailed engineering, execution and project management to M/s RITES in July 1995. The project was expected to be completed by December 1999 in two phases, but was actually completed after a delay of one year for Phase-I (February 2001) and three years for Phase-II (August 2002). The delays were mainly due to delay in handing over of the entire site and belated decision of the Authority to aircondition the entire building. Phase-II also suffered due to delay in release of funds by the Authority. This necessitated revision in the project cost from Rs.18.45 crore to Rs.27.61 crore. Increase in total cost was due to additional works of Rs.5.76 crore and Rs.3.41 crore due to cost escalation. Against original sanction of Rs.13.15 crore for eight work packages, RITES had reassigned the packages to sub-contractors for an amount of Rs.16.24 crore without obtaining the Authority's prior approval for increase in cost as required under para 3.12 of scope of work of the agreement. On account of this increase, the Authority also had to bear additional Project Management Fee payable to RITES amounting to Rs.22.29 lakh. The Management replied (August 2006) that as per contract agreement project management fee was payable.

5.5.7 Delay in rescinding contract

The work of construction of new terminal building at **Porbandar** was awarded (February 2000) at a cost of Rs.5.28 crore and was scheduled to be completed by August 2001. The progress of the work was very slow from the beginning due to non availability of drawings from the consultants appointed by the Authority. The contractor stated (July 2000) that the whole process of execution of work would be jeopardised due to this. Extension of time upto February 2003 was then granted. Though the drawings were made available to the contractor by February 2002, the progress achieved upto December 2002 was only 22 *per cent*. The work was stopped by the contractor unilaterally from December 2004 even though further periodical extension of time was given by the Authority till March 2005. The Authority issued notice of termination to rescind the contract. But the contractor replied that the agreement between the parties had already expired in October 2004 and there could be no termination of an already expired contract. After filing a caveat the contract was finally rescinded in August 2005 and the work was re tendered in December 2005 and awarded to another contractor at the risk and cost of the first contractor. The work was in progress (March 2006). Audit observed that after considering the slow progress of work, the project in charge recommended (January 2003) rescinding of the contract but there was inordinate delay in taking the decision. The Authority also did not take action to renew the performance guarantee of the first contractor (Rs.26.38 lakh) which lapsed on 7 December 2004. In addition to the work relating to the terminal building, various work orders relating to air conditioning, sub-station equipment etc. were completed by other contractors. As the terminal building was not ready, these equipment valuing Rs.79.31 lakh remained idle. The Management in its reply (September 2006) did not dispute the Audit findings.

5.5.8 Terminal Buildings lying idle for want of flights

The terminal Building at **Gaggal** constructed at a cost of Rs.2.66 crore during April 2003 was lying idle without any use. Equipment such as baggage X-ray machines, door frame metal detector and conveyor belt installed in the new building at a cost of Rs.74.34 lakh were also lying idle as there was no scheduled flight operation in the airport.

Similarly the terminal building for the **Pathankot** airport completed at a cost of Rs.3.28 crore was lying idle since December 2003. The Management replied (August 2006) that the developmental works at Gaggal airport was taken up on the request of the Himachal Pradesh State Government and funded by them. However, the Authority was not able to recover the extra expenditure incurred on the project from the State Government (**Para 2.4.1 supra**). As regards Pathankot project, the Management stated (August 2006) that it was taken up on socio economic consideration for the benefit of the States of Punjab and Himachal Pradesh, since the airports at Bhuntar, Gaggal and Shimla were unable to cater to the operation of bigger type of aircraft. The reply is not acceptable as the Amritsar airport is situated very close to Pathankot and it can handle large aircraft.

5.6 Delay in shifting of Yellow Fever Hospital

During December 1997, it was suggested to shift the Yellow Fever Hospital (YFH) at Delhi airport from the existing location to an alternative location to augment the car park capacity at the Terminal – IA. Alternative locations were also suggested. However, after a lapse of seven years the proposal to shift the hospital was yet to be implemented. Audit observed that the traffic flow-revamping scheme undertaken at the airport also required clearance of the hospital area for implementation of the unidirectional movement pattern. The inordinate delay in shifting the YFH deprived the Authority of sizable non traffic revenue. The Management replied (September 2006) that the proposal involved relocation of many structures which was not found possible at that time and the experts were again requested to work out the traffic pattern to ease traffic flow at Terminal I B and II keeping in view the existing constraints. The traffic flow had however not eased as of September 2006.

Recommendations

- Terminal capacity should be created ahead of demand as contemplated in the Policy on Airports Infrastructure taking into consideration realistic passenger forecast, business potential and linkage with other airports.
- Adequate availability of aerobridges, passenger baggage trolleys, flight information systems etc. in good working condition may be ensured.

Chapter 6

Cargo Facilities Infrastructure

6.1 One of the major functions of the Authority as provided in Section 12 of the Airports Authority of India Act, 1994, was the establishment of warehouses and cargo complexes at the airports, for storage and processing of goods. There was 65.95 *per cent* growth in cargo operations from 8.46 lakh tonnes in 2000-01 to 14.04 lakh tonnes in 2005-06. Cargo operations generated revenue of Rs.369.90 crore and constituted 10.59 *per cent* of the total revenue of the Authority during 2005-06. The Authority carried out international cargo operations at airports in Nagpur, Guwahati, Lucknow and Coimbatore apart from the airports in the four metros. It had also constructed cargo complexes at Amritsar, Jammu and Lucknow airports for international cargo operations.

6.2 Avoidable expenditure in the construction of cargo complex

Construction of a cargo complex at Amritsar was proposed (1998-99) based on annual projected cargo growth of 11 *per cent*. Another cargo complex with a holding capacity of 1400 MT operated by the Central Warehousing Corporation (CWC), the Customs appointed Custodian, was already in existence at that time at Amritsar. Due to inadequate demand, CWC's cargo complex was underutilised. A committee which examined the proposal for the new cargo complex recommended (August 2000) against its construction in view of the underutilisation of the existing cargo complex. The Authority however justified the new construction by projecting cargo handling to the tune of 10619 MT in 1999-2000 and 19863 MT in 2005-06 and the work of construction of the cargo complex was awarded (July 2002). The complex was completed in November 2004 at a cost of Rs. 2.93 crore. In addition, two X-ray Baggage Inspection System (X-BIS) machines were installed in the cargo complex at a cost of Rs.84.52 lakh.

The complex had not been commercially utilised. The tenders for leasing the Air Cargo Complex to private entrepreneur had been invited in November 2006 and was yet to be finalised (December 2006). It was estimated that a recurring expenditure of Rs.40 lakh per annum for Customs manpower and Rs.31 lakh per annum for the Authority manpower would have to be borne by the Authority for running the operations. As against this, the revenue (both export and import cargo) was estimated to be to the tune of only Rs.9.59 lakh per annum. As CWC would also continue to run the operations from the airport as customs custodian, the return from the complex would be negative. The airport handled merely 1,312 MT of cargo during 2004-05 and 1,399 MT in 2005-06 for which the capacity owned by CWC at Amritsar airport was sufficient. Thus, the expenditure of Rs.3.78 crore incurred on construction of the cargo complex was avoidable.

6.3 Delay in establishment of integrated cargo complex

For smooth flow of cargo and to consolidate and integrate all functions under one roof, construction of an integrated cargo complex (ICC)–Phase I at Kolkata was proposed

(October 2000). Estimated completion time of the work was fixed as 30 months from the date of award of work and commissioning of the complex was projected in November 2004.

Though as per the PERT chart for the project, the date of award of work was before December 2002, the NIT for the work was issued in February 2003. This was attributed to the restrictions imposed by the Ministry in taking up capital works at the four metro airports in view of the proposed leasing. Time schedule for award of work was further delayed as the Ministry desired (April 2003) that such infrastructure works should be taken up on turn key basis for better coordination and expeditious completion. The tender action already initiated was therefore cancelled (June 2003). Further notice calling for tenders for the composite work was again issued (June 2003) and the work was awarded (August 2004) after a delay of more than one year at a cost of Rs.29.37 crore. Completion of the work was scheduled for February 2006 but even one month after the scheduled completion date (March 2006), civil works were completed only upto 74 *per cent* and electrical works upto 30 *per cent.* The Management replied (August 2006) that the integrated cargo facility had been put to use for handling export cargo and the import cargo was scheduled to be handled by the month end. It also stated that for the delay beyond justified period, necessary penalty would be levied on the contracts. However, the Authority had not levied any penalty till December 2006.

6.4 Implementation of Bar Code System

For better monitoring and tracking of cargo, the Authority planned to enhance the Integrated Cargo Management System (ICMS) by establishing electronic data interchange connectivity with airlines and other agencies. It was decided (March 2004) to implement a Bar Code System integrated with ICMS at the cargo terminals at Delhi, Mumbai, Kolkata and Chennai. Work order was issued (April 2004) on M/s Bar Code India Ltd. for implementation of the system at a cost of Rs.5.81 crore[♣] at four airports. The time allowed for completion of the work was 16 weeks in respect of Delhi and 20 weeks for the other stations from the date of issue of award. However till March 2006, an amount of Rs.5.15 crore had already been spent but the system was yet to be commissioned. The software connectivity between the bar code system and the ICMS which was to be provided by CMC Ltd., supplier of ICMS package, had not been completed as CMC had not been able to install the application software. The Management stated (August 2006) that over 75 *per cent* of the work of application development had been completed at Delhi and in respect of Mumbai, Kolkata and Chennai, application software would be loaded after operationalisation of the bar code system of Delhi cargo terminal. Thus even two years after the issue of work order, the implementation of the system was still in progress.

Recommendations

- The completed cargo complexes should be commissioned early to avoid idle investment.
- Before setting up cargo complexes, the Authority should assess its viability based on demand.

♣ ***Delhi – Rs.2.08 crore, Mumbai – Rs.1.41 crore, Kolkata – Rs.95 lakh and Chennai – Rs.1.37 crore.***

Chapter 7

Safety Infrastructure

7.1 Safety requirements

ICAO's Universal Safety Oversight Audit Programme is mandatory for all contracting states. In view of the ICAO requirements, the Authority created the Directorate of Aviation Safety and made Safety Audit mandatory for all operational airports once a year and for all other airports once in two years.

7.2 Requirement of Crash Fire Tenders

The Authority follows the Standards and Recommended Practices issued by ICAO with regard to deployment of rescue and fire fighting facilities at the airports. Accordingly, the airports were divided into various categories for providing crash fire tenders (CFT). A minimum number of CFTs for each category of airport had to be provided.

7.2.1 Delay in decision making and non replacement of CFTs

The Authority approved (October 2001) a proposal for procurement of 148 CFTs[♣] at a cost of Rs.287.26 crore and forwarded (May 2002) it to the Ministry for approval by the Project Investment Board. The Ministry asked (December 2002) the Authority to review the conditions of the existing CFTs and examine the possibility of refurbishment of the same. It was then proposed that refurbishment of these could be done at a cost of Rs.38 lakh each with a saving of Rs.1.60 crore per CFT. Based on the Ministry's observations, the proposal was reviewed (January 2004) and administrative approval and sanction was accorded by the Board for refurbishing 104 CFTs for NAD airports at a cost of Rs.44.26 crore. Subsequently, and after opening the tender and selection of the tenderer, the Board again decided (August 2004) to approach the Ministry for pursuing the earlier proposal for procurement of the CFTs. The Ministry directed (March 2005) the Authority to examine the whole issue of procurement/replacement/overhaul and refurbishment of the CFTs with regard to costs and reliability. The Board, after reviewing the matter again reversed (September 2005) its decision of August 2004 and consented to the proposal for refurbishment through calling of tenders. The NIT was issued in November 2005 but was withheld due to certain complaints received by the CVC. The Management stated (August 2006) that clearance had since been received from the CVC and work order for overhauling and refurbishing 75 CFTs was awarded during May 2006. It was ascertained in Audit (January 2007) that 12 CFTs had been refurbished and for 63 CFTs, work was in progress. Further, order for refurbishment of 19 CFTs had been placed on 22 January 2007. The delay in taking the decision to procure or refurbish by over five years resulted in many airports being equipped with old CFTs. The Safety Audit Reports of different airports had also raised concerns on the performance of these CFTs and recommended that the CFTs required immediate rectification or replacement as the vehicles were old.

[♣] ***For replacement of 126 existing CFTs and additional requirement of 22 CFTs in some airports***

7.3 Non upgradation of fire safety infrastructure at international airports

ICAO recommended that from January 2005, the level of protection provided at an airport for rescue and fire fighting should be equal to the airport category. Accordingly the level of protection at the five IAD airports at Delhi, Mumbai, Kolkata, Chennai and Thiruvananthapuram should be equal to that of a Category IX airport. While the airports at Delhi, Mumbai and Chennai were provided with Airfield Fire Fighting and Rescue Vehicles (AFFRV) suitable for Category IX airport, those at Kolkata and Thiruvananthapuram were provided with AFFRV suitable only for a Category VIII airport. These two airports were thus not meeting the ICAO requirements.

Audit in this connection observed that the Authority accorded (September 2002) approval for procurement of 25 AFFRV for the international airports. Global tender was invited during January 2003 which was subsequently cancelled for review of technical specifications. Based on the revised technical specifications, sanction was again accorded (April 2005). Global tenders were once again invited in July 2005 but the tender finalisation process was not yet complete (March 2006).

7.4 Fire fighting facilities rendered idle

At Kolkata, the work relating to construction of underground water storage tank was completed in October 2003 at a cost of Rs.61.13 lakh. But the related works like provision of sprinkler, fire hydrant, electrical works including pump and motors were not taken up as the international terminal building (ITB) in which these were to be installed was still under construction (September 2006), with the result that the expenditure of Rs.61.13 lakh incurred on the construction of the tank remained idle since October 2003. The Management stated (January 2007) that the remaining works relating to underground water tank would be taken up on the completion of proposed construction of international departure hall of ITB.

7.5 Underutilisation of friction tester machine

Adequate runway friction is required for three distinct purposes, viz. maintenance of directional control during the ground roll, on take off or landing, wheel spin at touch down and deceleration of the aircraft after landing or rejected take off. For runway testing of all the airports under North Eastern region, an airport surface friction tester (ASFT) valuing Rs.61.91 lakh was positioned at Guwahati in 1996. The equipment was used for the first time only during February/March 2005. The ASFT remained unserviceable most of the time due to non availability of spares and absence of trained personnel. The tester was out of order from January 2001 to March 2002 and again from January 2003 to February 2004. The need to conduct periodical friction testing could not be met as required.

As the reliability of the equipment was extremely poor, the region opposed (July 2004), the placement of any further new equipment at the region. Despite being aware of the fact regarding non utilisation of the existing ASFT, equipment valuing Rs.80 lakh was procured for Imphal which was received in Guwahati in July 2005. The Management stated (August

2006) that a policy decision was taken to place a second ASFT at sub regional workshops of all regions including Imphal. However, the decision to procure an additional ASFT, when the existing one could not be utilised properly and was found unreliable, lacked justification. It was also ascertained in Audit (January 2007) that the newly procured ASFT could not be sent to Imphal and was lying in unused condition in Guwahati (December 2006).

7.6 Absence of RESA due to non availability of land

ICAO guidelines prescribe the general standards for provision of Runway End Safety Area (RESA) in aerodromes. RESA should be provided at each end of a runway strip and should extend from the end of runway strip to a distance of at least 90 metres and should as far as practicable extend to a distance of 240/120 metres. Audit observed from a test check of Safety Audit Reports that RESA was either not available or available only for a shorter length than desired at Amritsar, Bhuntar, Kolkata, Kangra, Khajuraho, Ludhiana, Mangalore, Pantnagar, Shimla and Udaipur airports. The Management noted (September 2006) Audit's observation in this regard.

Recommendations

- Adequate number of CFTs/AFFRVs should be maintained at the airports in good working condition according to requirements.
- RESA may be provided at all the airports at the earliest.

Chapter 8

Security Infrastructure

8.1 Security Management at the airports

ICAO Standards and recommended practices specify security standards in the field of aviation. In India, the Bureau of Civil Aviation Security (BCAS) is responsible for laying down standards and measures in respect of security of civil flights at international and domestic airports in India.

The Central Industrial Security Force (CISF) is in charge of security at most of the airports. For the services rendered by CISF, the Authority incurs expenditure (both revenue and capital) which forms a significant portion of the total expenditure of the Authority. These are recovered by the Authority through the Passenger Service Fee.

While reviewing the security infrastructure at airports, the following points were noticed in audit.

8.2 X- ray Baggage Inspection (X-BIS) Machines rendered surplus

The Authority placed (September 2002), a consolidated order of Rs.49.55 crore for the supply of 220 X-BIS machines for all the airports of which 130 were meant for the international airports and the balance for domestic airports. These X-BIS machines were capable of identifying organic and inorganic materials but technically not suitable for identifying explosives. As per ICAO recommendations (April 2002), effective from 1 January 2006, hold baggage should be screened for explosives prior to loading them on aircraft engaged in international operations and the Bureau of Civil Aviation Security (BCAS) also directed the Authority to install X-BIS system capable of detecting explosives. The Authority had also issued global pre-qualification tender notice for such X-BIS machines with last date of submission of applications as 16 October 2006. By installation of these machines, the stand alone machines presently positioned in the security check area were to be dispensed with. Thus, despite being aware of the ICAO recommendations issued in April 2002, the Authority went ahead with the procurement of 130 X-BIS machines valuing Rs.39.09 crore for the international airports in September 2002 which would become surplus if the new X-BIS machines capable of detecting explosives were installed. The Management replied (August 2006) that the machines procured during 2002-03 were as per the then prevailing BCAS technical specifications and also capable of detecting explosives. The reply is not acceptable, as it was stated in the proposal for the procurement of new machines that these machines were incapable of detecting explosives and that was the main reason for floating fresh global tender.

8.3 Discrepancies in allocation of X-BIS machines

Out of the 90 X-BIS machines procured for domestic airports, 11 were meant for the six airports in North Eastern region and these were received between February and May 2003. On arrival of the machines, it was observed that seven machines were either not required or

distribution was wrongly planned. Finally based on re allocation decision, order was placed (January 2004) at cost of Rs.1.90 lakh for shifting one machine from Guwahati to Agartala, one machine from Lilabari to Dibrugarh and five machines to other regions. Installation of the shifted machines at Agartala and Dibrugarh was completed only in February-March 2004. Thus due to wrong distribution, seven machines costing Rs.1.67 crore remained idle for about eight months. Audit also observed other cases of uninstalled/unused machines. One machine was received at Calicut in February 2003 but was lying in packed condition without installation till September 2004 when it was dispatched to Trichy airport. Similarly, one machine at Guwahati airport installed during August 2003 was never utilised as the airlines were using their own machines. These machines cost around Rs.42 lakh each. The Management stated (September 2006) that the procurement was initially made based on the requirement received from various regions/airports. The delivery of the equipment was also made to the airports/units accordingly. Subsequently, some of these machines had to be shifted to other units/airports due to urgent operational requirements. The reply was not acceptable as the requirement was not assessed properly before procurement was made. Audit physically observed during visit to Amritsar airport (July 2006) that the machine procured for that station was still lying outside the terminal building unpacked and unused.

Recommendations

- Before procurement of security equipment, the latest ICAO/DGCA/BCAS guidelines in this regard should be studied for requirement and compliance.
- Utilisation of all X-ray machines should be reviewed and early action should be taken for commissioning of all uninstalled machines.

Chapter 9

Project Monitoring, Quality Assurance and Internal Control

9.1 The Directorate of Project Monitoring and Quality Assurance is responsible for monitoring projects and expenditure incurred thereon as also assuring the quality of work. The Directorate conducts quality assurance tests of projects. As per practice and as confirmed by the Management in its reply (August 2006), the site checks are carried out on instructions from the Member (Planning) and the programme is intimated in advance to the concerned project in charge. Audit observed that this practice was not a desirable one as the inspection should be at the discretion of the Directorate and without advance intimation to the project in charge. The Directorate was not given the discretion to select the project to be inspected, nor empowered to examine in detail, the time and cost overrun and the reasons and reasonableness of the variations. The purpose of quality checks was defeated by the advance intimation. Audit also observed that no periodical monitoring of the projects apart from what was done by the concerned Directorate was undertaken to ensure that the work was progressing as per schedule and the variations in time and cost were justified. It was seen that the Directorate was required to compile and issue circulars on lessons learnt/remedial measures to be taken in respect of past projects. During the period from April 2003 to March 2006, the Directorate issued nine such circulars but in none of the circulars issued under pre tender activity, the need for taking action for prior acquisition of land was specified. After this issue was raised by Audit (April 2006), the Management issued a circular in July 2006 for prior acquisition of land before award of works.

9.2 No uniformity between NAD and IAD contracts

The Authority did not have a works manual of its own. For the NAD projects, the division was adopting the NAD manual prepared earlier and for the IAD projects, the CPWD manual was followed. Lack of uniformity in respect of the two divisions had the result that different procedures for escalation, penalty, security deposit, performance guarantee etc. were adopted for the same items of work in IAD and NAD projects. The application of procedures prescribed in the NAD/CPWD manuals was also not uniform. To this, the Management replied (July 2006) that the common works manual was on the verge of finalisation.

9.3 Internal Audit

There was no internal audit manual outlining the scope and programme of work. There was no annual audit plan for internal audit and in the absence of any prescribed procedure for selection, the units for audit were got approved only before taking up the audit. The periodicity, scope and extent of coverage were also not adequate. The Management stated (July 2006) that considering the available manpower in internal audit, the periodicity of audit was restricted.

Recommendations

- Internal Audit should function independently and report their findings directly to the Chief Executive.
- A system for selection of projects for inspection should be evolved.
- Unified systems and manuals should be framed and implemented for both IAD and NAD of the Authority.
- Internal audit should be properly planned and its scope, extent and periodicity improved.

Chapter 10

Commercial Utilisation of Land and Other Topics of Interest

10.1 Commercial utilisation of land

The task force set up by the Planning Commission suggested (October 2001) an increase in the share of airport revenue from non-aeronautical services for making the airports viable and for generating surplus for further expansion. Audit observed that the Authority did not make optimal commercial utilisation of land to achieve higher non traffic revenue.

10.1.1 Non finalisation of land/space lease policy

Until April 1995, the erstwhile International Airports Authority (IAA) and National Airports Authority (NAA) were following separate bases for fixing rates of land leased and space allotted at airports under their control. Upon formation of the Authority by merger of IAA and NAA in April 1995, the practice of adhoc annual escalation of ten *per cent* per annum was followed pending finalisation of the land lease policy. Committees were formed in this respect in both IAD and NAD. The Committee reports were received by the Authority in July 1997 and September 1997 respectively. The policy was however not finalised and it was decided to appoint a consultant in the matter. The consultant, M/s Colliers Jardine gave its final report (June 1999) and recommended fixation of land/space rental on the basis of categorisation of airports into five categories based on traffic and escalation of licence fee annually by eight *per cent* instead of the prevalent ten *per cent*. The consultant also recommended revision of land lease policy and licence fee every six years. The licence fee/rental for land was worked out on the basis of 3.33 *per cent* return per annum on the total cost of land which included infrastructure development. The report was discussed by the Board (March 2000) but no uniform land lease policy was finalised. Pending finalisation of a uniform methodology, adhoc revisions were effected in lease rentals from time to time. In September 2005, another consultant was appointed to advise the Authority regarding ways and means of fully exploiting the potential for increasing non traffic revenue and also the methodology to be adopted for fixation and revision of land/space rental. The consultant submitted his draft report which was yet to be deliberated upon by the Board (March 2006). Audit thus observed that despite a lapse of more than ten years from the formation of the Authority, it had not been able to firm up a uniform land/space lease policy. Different periods and rates of adhoc annual escalation were being applied by the IAD and the NAD resulting in non scientific fixation of lease rentals without any relation to market rates, cost of land/space and potential of the airport depending upon the traffic handled. The Management stated (August 2006) that efforts were on to have a unified policy for fixation of lease rentals as well as revision and annual escalation thereof.

10.1.2 Revenue loss on account of withholding of commercial contracts at metro airports

The Ministry instructed (April 2002) the Authority not to initiate any new major commercial activities at Delhi, Mumbai, Kolkata and Chennai airports including leasing of land, ground

handling, duty free shops etc. while the process of restructuring of these airports through long term leasing was on. It was further directed to put on hold any activity already initiated in this regard. As a result of the above directive, the Authority could not invite fresh tenders for major commercial contracts at the four airports when the existing contracts expired. As regards advertisement contracts and duty free shops which form the major chunk of non traffic revenue at the four airports, no fresh tenders were invited after December 2002 and adhoc extensions were given from time to time on the existing terms and conditions. The Management stated (August 2006) that the Authority continued to get the licence fee with ten *per cent* compound escalation applicable and hence there was no loss. However, the Authority was deprived of the benefits of inviting fresh tenders which would have resulted in additional non traffic revenue through competitive quotations.

10.1.3 Loss of revenue due to non execution of agreements and non revision of rates

Prior to the formation of NAA (June 1986), the Director General of Civil Aviation (DGCA) leased land/ hanger space to seventeen entities at a nominal rate of Re. one per annum. These were mainly Government subsidised flying clubs. Between June 1992 and April 1998, eight more flying clubs were also allotted space at a license fee varying from Rs.390 to Rs.4044 per sqm. As on 31 March 2004, 24 flying clubs were operating from the Authority's land. Due to the inequality in licence fee charged, the private flying clubs demanded parity. The Board discussed (March 2003) the proposal to charge licence fee at current market rates with ten per cent annual increase from all the entities operating at the airports. It decided to conduct a survey to identify those flying clubs which were undertaking flying as well as non-flying activities and those flying clubs undertaking only commercial activities to consider the matter further. However, no such survey was conducted. Audit observed that the Authority did not enter into fresh agreements with the subsidised entities and did not raise revised licence fee bills at current space rental rates on the flying clubs which were undertaking purely commercial activities. The Management stated (August 2006) that a policy paper was being prepared and would be put up to the Board for consideration and approval so that inequity in licence fee could be eliminated.

10.1.4 Loss of revenue due to delay in utilisation of flight kitchen premises

Proposals were initiated (May 2003) to lease the temporary flight kitchen premises (about 7900 sqm) vacated by M/s Taj Flight Caterers in Delhi. Two enquiries were also received by that time. No further action was taken on the proposals and the premises had not been let out so far (March 2006). The rental revenue value of the area worked out to Rs.7.68 lakh per month. The Management replied (August 2006) that the Authority wanted to use this land for various purposes[*] which could not materialise and there was no loss as the land was within the airport complex and for the structure taken over from M/s Taj Flight Caterers, no compensation was paid. The reply was not acceptable as the Authority itself initiated action in May 2003 to lease the above structure but the area had neither been leased out (March 2006) nor used by the Authority for its own purpose.

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[*] ***viz. accommodating CISF personnel in the said structure etc.***

Other Topics of Interest

10.2 Cochin International airport

Cochin International airport is a Government of Kerala sponsored project with public participation from Non Resident Indians. The project of new airport for Cochin envisaged to overcome the operational shortcoming of the then existing Naval airport. At a meeting held in October 1991, with representatives from the State Government, the then National Airports Authority, Defence, Railways and Port Trust decided to pursue the project for construction of a new airport instead of expanding the existing airport. The airport started functioning from June 1999. An MoU was signed between the Authority and Cochin International Airport Limited (CIAL) for treating the value of CNS equipment installed at the airport (Rs.7.78 crore) as the Authority's equity. However the MoU had not been ratified by the CIAL Board with the result that the equipment continued to be shown as Authority's assets in its books. An amount of Rs.21.75 crore was also due from CIAL as on 31 March 2006 towards ATM services rendered by the Authority. The matter regarding payment of this amount was also undecided. The Management replied (August 2006) that the issue of non payment of dues had been regularly intimated to the Ministry with a request to intervene and sort out the pending issues.

10.3 Non Operated/ Meagrely Operated Airports

During 2005-06, the airports handled 8.38 lakh aircraft movements in all, out of which 36 airports handled only 0.26 lakh movements (3.10 per cent) which indicated that these airports were almost non operational **(Annexure VI)**. The Authority incurred substantial expenditure in creating and augmenting infrastructure in some of these airports like Gaya, Khajuraho, Bhuntar and Gaggal during the period 2000-01 to 2005-06. Further, four airports handled only non commercial movements and 44 airports did not have any operation at all during 2005-06. Land available in these airports was also not commercially exploited. Audit observed that in addition to substantial investments already made in developing these airports, the Authority continued to incur revenue expenditure relating to salaries to staff, electricity charges etc. in respect of these airports. Audit test checked 20 airports **(Annexure VII)** and it was noticed that these airports suffered cash losses amounting to Rs. 50.38 crore during the four years ending 2005-06 and the Authority was not able to recoup the expenditure incurred on staff, repairs and maintenance etc. The Management replied (August 2006) that these airports were required to be maintained on social and economic considerations to provide connectivity to inaccessible areas.

Recommendations

- The Authority should formulate land/space lease policy to ensure optimal commercial utilisation of land to achieve higher non traffic revenue.
- Wherever land/space is available for rent, these should be allotted immediately to avoid loss of revenue.

- Agreements should be finalised with the flying clubs early and a decision on bringing parity in the lease rentals charged from various flying clubs should be expedited.
- The matter regarding non recognition of MoU by CIAL and non recovery of ATM dues should be followed up through the Ministry for an early settlement.
- The possibility of making the non operational airports functional should be explored.

C. V. Avadhani

(C. V. AVADHANI)
Deputy Comptroller and Auditor General
cum Chairman, Audit Board

New Delhi
Dated: 27 मार्च MAR 2007

Countersigned

(VIJAYENDRA N. KAUL)
Comptroller and Auditor General of India

New Delhi
Dated: 29 MAR 2007

Annexure –I

(Referred to in Para 1.1)

List of airports owned and managed by Airports Authority of India

Sl. No.	NAME OF AIRPORT	STATE	STATUS
		International Airports	
1.	Mumbai	Maharashtra	Operational
2.	Delhi (IGI)	Delhi	Operational
3.	Kolkata	West Bengal	Operational
4.	Chennai	Tamilnadu	Operational
5.	Thiruvananthapuram	Kerala	Operational
6.	Bangalore (C.E)	Karnataka	Operational
7.	Hyderabad	Andhra Pradesh	Operational
8.	Ahmedabad	Gujarat	Operational
9.	Goa (C.E)	Goa	Operational
10.	Guwahati	Assam	Operational
11.	Amritsar	Punjab	Operational
12.	Jaipur	Rajasthan	Operational
13.	Srinagar (C.E)	Jammu and Kashmir	Operational
14.	Nagpur	Maharashtra	Operational
15.	Calicut`	Kerala	Operational
		Domestic Airports	
16.	Agartala	Tripura	Operational
17.	Agatti	Lakshadweep Island	Operational
18.	Agra (C.E.)	Uttar Pradesh	Operational
19.	Allahabad (C.E.)	Uttar Pradesh	Operational
20.	Aurangabad	Maharashtra	Operational
21.	Bagdogra (C.E.)	West Bengal	Operational
22.	Belgaum	Karnataka	Operational
23.	Bhavanagar	Gujarat	Operational
24.	Bhopal	Madhya Pradesh	Operational
25.	Bhubaneswar	Orissa	Operational
26.	Bhuj (C.E.)	Gujarat	Operational
27.	Bhuntar (Kullu)	Himachal Pradesh	Operational

28.	Chandigarh (C.E.)	Union Territory	Operational
29.	Coimbatore	Tamilnadu	Operational
30.	Dehradun	Uttaranchal	Operational
31.	Dibrugarh	Assam	Operational
32.	Delhi (Safdarjung)	Delhi	Operational
33.	Dimapur	Nagaland	Operational
34.	Gaggal (Kangra)	Himachal Pradesh	Operational
35.	Gaya	Bihar	Operational
36.	Gorakhpur (C.E.)	Uttar Pradesh	Operational
37.	Gwalior (C.E.)	Madhya Pradesh	Operational
38.	Hubli	Karnataka	Operational
39.	Imphal	Manipur	Operational
40.	Indore	Madhya Pradesh	Operational
41.	Jabalpur	Madhya Pradesh	Operational
42.	Jammu (C.E.)	Jammu and Kashmir	Operational
43.	Jamnagar (C.E.)	Gujarat	Operational
44.	Jodhpur (C.E.)	Rajasthan	Operational
45.	Jorhat(C.E.)	Assam	Operational
46.	Juhu (Mumbai)	Maharashtra	Operational
47.	Kandla	Gujarat	Operational
48.	Kanpur (civil)	Uttar Pradesh	Operational
49.	Kanpur (Chakeri) (C.E)	Uttar Pradesh	Operational
50.	Keshod	Gujarat	Operational
51.	Khajuraho	Madhya Pradesh	Operational
52.	Kolhapur	Maharashtra	Operational
53.	Leh (C.E.)	Jammu and Kashmir	Operational
54.	Lucknow	Uttar Pradesh	Operational
55.	Ludhiana	Punjab	Operational
56.	Madurai	Tamilnadu	Operational
57.	Mangalore	Karnataka	Operational
58.	North Lakhimpur	Assam	Operational
59.	Pantnagar	Uttranchal	Operational
60.	Patna	Bihar	Operational
61.	Pondicherry	Union Territory	Operational
62.	Porbandar	Gujarat	Operational
63.	Port Blair (C.E.)	Andaman & Nicobar Island	Operational

64.	Pune (C.E.)	Maharashtra	Operational
65.	Raipur	Chhattisgarh	Operational
66.	Rajamundry	Andhra Pradesh	Operational
67.	Rajkot	Gujarat	Operational
68.	Ranchi	Jharkhand	Operational
69.	Salem	Tamilnadu	Operational
70.	Shillong (Barapani)	Meghalya	Operational
71.	Shimla	Himachal Pradesh	Operational
72.	Silchar (C.E.)	Assam	Operational
73.	Surat	Gujarat	Operational
74.	Tezpur (C.E.)	Assam	Operational
75.	Tezu (C.E.)	Arunachal Pradesh	Operational
76.	Tiruchirapalli	Tamilnadu	Operational
77.	Tirupathi	Andhra Pradesh	Operational
78.	Tuticorin	Tamilnadu	Operational
79.	Udaipur	Rajasthan	Operational
80.	Vadodara	Gujarat	Operational
81.	Varanasi	Uttar Pradesh	Operational
82.	Vijayawada	Andhra Pradesh	Operational
83.	Visakhapatnam (C.E.)	Andhra Pradesh	Operational
84.	Akola	Maharashtra	Non-operational
85.	Along (C.E.)	Arunachal Pradesh	Non-operational
86.	Balurghat	West Bengal	Non-operational
87.	Behala	West Bengal	Non Operational
88.	Bilaspur	Chhattisgarh	Non-operational
89.	Cochin (C.E)	Kerala	Non-operational
90.	Cooch-Behar	West Bengal	Non-operational
91.	Cuddapah	Andhra Pradesh	Non-operational
92.	Daporizo (C.E.)	Arunachal Pradesh	Non-operational
93.	Deesa (Palanpur)	Gujarat	Non-operational
94.	Jaisalmer (C.E)	Rajasthan	Non-operational
95.	Jhansi	Uttar Pradesh	Non-operational
96.	Jharsuguda	Orissa	Non-operational
97.	Kailashahar	Tripura	Non-operational
98.	Kamalpur	Tripura	Non-operational
99.	Kota	Rajasthan	Non-operational

100.	Lalitpur	Uttar Pradesh	Non-operational
101.	Muzzaffarpur	Bihar	Non-operational
102.	Mysore	Karnataka	Non-operational
103.	Nadirgul	Andhra Pradesh	Non-operational
104.	Nal (Bikaner) (C.E.)	Rajasthan	Non-operational
105.	Pathankot (C.E)	Punjab	Non-operational
106.	Satna	Madhya Pradesh	Non-operational
107.	Sholapur	Maharashtra	Non-operational
108.	Vellore	Tamilnadu	Non-operational
109.	Warangal	Andhra Pradesh	Non-operational
110.	Ziro (C.E.)	Arunachal Pradesh	Non-operational
111.	Hassan	Karnataka	Not fit for operations
112.	Hadapssar	Maharashtra	Not fit for operations
113.	Gondia	Maharashtra	Under construction
114.	Kargil	Jammu & Kashmir	Leased to IAF
115.	Aizwal (Turial)	Mizoram	Closed
116.	Asansol	West Bengal	Closed
117.	Chakulia	Bihar	Closed
118.	Donakonda	Andhra Pradesh	Closed
119.	Jogbani	Bihar	Closed
120.	Khandwa	Madhya Pradesh	Closed
121.	Khowai	Tripura	Closed
122.	Malda	West Bengal	Closed
123.	Panna	Madhya Pradesh	Closed
124.	Passighat	Arunachal Pradesh	Closed
125.	Raxaul	Bihar	Closed
126.	Rupsi	Assam	Closed
127.	Shella	Assam	Closed

Annexure-II

(Referred to in Paras 1.6 and 1.9)

(a)

List of airports where Pilot study was conducted

Delhi, Mumbai, Kolkata, Chennai, Thiruvananthapuram, Hyderabad, Lucknow, Guwahati, Jaipur, Amritsar, Varanasi, Agartala, Bhuj, Gaya, Pathankot, Gaggal, Jammu, Jabalpur, Imphal, Rajamundhry.

(b)

Inadequacies and irregularities noticed during pilot study

Inadequacies/irregularities	Rs. in crore
Large scale changes in scope of work as a result of improper estimation leading to cost escalation and time overruns at Lucknow, Jammu, Gaggal, Pathankot, Chennai, Thiruvananthapuram and Kolkata.	6.84
Inadequate planning and non synchronisation of various activities leading to idleness of assets created at Delhi, Gaggal, Guwahati, Kolkata, Lucknow, Mumbai and Varanasi.	114.09
Assets lying idle or not put to use due to reasons like no operation at the airports.	38.59
Total	**159.52**

(c)

List of additional airports where projects for Performance audit were reviewed

Coimbatore, Bhubaneswar, Patna, Visakhapatnam, Mangalore, Trichy, Madurai, Dibrugarh, Goa, Pune, Dehradun, Thanjavur, Khajuraho, Porbandar, Ahmedabad, Srinagar, Indore, Calicut, Bhavnagar and Nagpur

Annexure-III

(Referred to in Para 2.2)

Shortfall in execution of targets as per plan outlay

Year	Reasons for shortfall
2000-01	1. Non sanctioning of domestic terminal phase II at Mumbai. 2. Delay in sanction of integrated cargo complex at Kolkata. 3. Delay in approval of scheme for arrival block at Chennai. 4. Modification of drawings and delay in clearance of car parking at Mumbai and Kolkata respectively. 5. Delay in finalisation of global tenders for major and minor crash fire tenders.
2001-02	1. Reduction in plan outlay resulting in deferment of expenditure to subsequent years due to long time taken in clearance of projects, non availability of clear site, delay due to unforeseen causes, modification and changes in scope of work. 2. State Government ban on quarrying. 3. Inclement weather and law and order problems. 4. Lengthy tendering procedure, litigation and post tendering works. 5. Anticipated delay in supply of Doppler Very High Frequency Omnirange. 6. Re-tendering for Dedicated Satellite Communication Network due to infirmities in the bids, technology evolution and downward trend in prices.
2002-03	1. Apart from reasons mentioned at S.No. 1 to 3 for 2001-02, non-diversion of road at Varanasi by State Government. 2. Shelving of runway extension at Guwahati as no operator requested for operating jumbo aircraft. 3. Delay in finalisation of contract with ISRO for area augmentation and specification for High altitude aircraft. 4. Delay in administrative approval for Airport surface friction Testers.
2003-04	1. Keeping in abeyance works like new domestic terminal phase II , modification and extension of terminal II-B at Mumbai, and modification of domestic terminal and new international passenger terminal phase II at Delhi due to proposed restructuring of Delhi and Mumbai airports. 2. Delay of work connected with private airline hanger. 3. Dropping of scheme for provision of chair, interior decoration and artificial plants inside terminal.
2004-05	1. The works at Delhi and Mumbai airports kept in abeyance due to proposed restructuring. 2. Delay in extension of canopy work at Chennai due to slow progress by the contractor. 3. Delay due to lengthy process of land acquisition in NAD airports. 4. Delay in finalisation of order for Satellite communication system. 5. Delay in evaluation of bids for high altitude aircraft. 6. Automatic Dependent Surveillance System for Delhi and Mumbai delayed due to delays in opening of Letter of Credits.

Annexure-IV

(Referred to in Para 3.2.9)

Cases of time and cost overrun in creation of operational facilities

Airport	Work	Date of award and amount of award	Scheduled completion	Actual completion and Actual cost	Time overrun and cost overrun	Remarks
1. Bhubaneswar	Extension of runway for operation of A-300 aircraft	December 1996 – Rs. 7.69 crore	December 1999	-	75 months upto March 2006	There was no clear possession of land. A public road cutting across was not diverted. Work was foreclosed in September 2001. Cost incurred upto foreclosure was Rs. 8.13 crore. The work was again awarded in March 2005 for Rs. 15.46 crore with scheduled completion by November 2005. Upto March 2006 only 62 *per cent* of the work was complete.
2. Coimbatore	Strengthening and extension of runway	December 2003 – Rs. 16 crore	December 2004	October 2005 – Rs. 17.96 crore	10 months – Rs. 1.96 crore	Bituminous depth which was planned for 184 mm at first was changed to 235 mm resulting in additional cost. Bitumen content of concrete which should be 90 Kg per cubic metre was actually 108.90 Kg per cubic metre leading to extra expenditure.
3. Dibrugarh	Extension of runway	June 2004 – Rs. 10.53 crore	December 2005	-	-	The work did not start even by March 2005 due to non diversion of a public road. Work was foreclosed in August 2005. Cost incurred upto foreclosure amounted to Rs. 7 lakh.
4. Dehradun	Construction of boundary wall	December 2004 – Rs. 2.38 crore	October 2005	-	-	The State Government has not handed over the land which holds up pavement work. Work also held up due to land dispute with the villagers. Cost incurred upto March 2006 amounted to Rs. 96.29 lakh.
5. Gaggal	Expansion and development of airport	January 2001 – Rs. 2.81 crore	September 2001	-	-	The work included development of RESA, boundary wall, drainage etc. The work was held up due to non diversion of a public road and was foreclosed in August 2002. Amount incurred upto foreclosure was Rs.2.44 crore.

6. Guwahati	Strengthening of runway and allied works	July 1999- Rs. 21.79 crore	July 2001	June 2001 – Rs. 24.17 crore	Nil – Rs. 2.38 crore	Extension of runway work was kept in abeyance for want of firm commitment from the airlines. Operation of B-747 type of aircraft is not possible unless extension work is also done. Expenditure thus incurred on strengthening work became infructuous.
	Construction of boundary wall	August 1999- Rs. 1.85 crore	August 2001	-	-	Due to not handing over of the land, work was foreclosed in April 2005. Expenditure incurred upto foreclosure amounted to Rs.72.36 lakh.
7. Imphal	Resurfacing of runway and construction of isolation bay	June 2001 – Rs. 16.03 crore	July 2003	December 2004 – Rs. 14.77 crore (final bill yet to be paid)	17 months	Out of 17 months of time overrun for which extension of time was given, nearly 12 months was on account of rain. Rain being a natural phenomenon, hindrance on this account should have been foreseen and time for completion fixed accordingly. Though extension of time was given for extra items of work done, no reassessment of time was worked out for some deleted items of work.
8. Khajuraho	Strengthening and extension of runway	June 2002 – Rs. 12.80 crore	December 2003	July 2004 – Rs. 16.27 crore	17 months – Rs.3.47 crore	The work was delayed for more than one year due to non-diversion of approach road. Due to non availability of site, electrical works for CAT-I lighting foreclosed resulting in idleness of equipment worth Rs. 75 lakh. The extended portion of runway could not however be used unless the obstructions are removed.
9. Lucknow	Extension of runway	September 2001 – Rs. 21.81 crore	April 2003	January 2004 - Rs. 19.88 crore	9 months – Nil	CAT-II lighting facilities created for Rs. 4.75 crore could not be used due to non clearance of obstruction in approach funnel. Land for clearance of obstruction for which Rs. 11.09 crore was paid in December 2003 is yet to be acquired (March 2006). Due to hindrances in approach funnel, the runway is not utilised for the purpose intended, viz, as an alternative for Delhi airport during fog for landing of bigger flights.
	Strengthening of main and VIP apron	September 1997 - Rs. 9.62 crore	April 1999	May 2003 – Rs. 8.97 crore	49 months – Nil	During execution of the contract, the thickness of the extended portion of the apron as well as overlay was reduced. It was projected that an amount of Rs. 1.89 crore could be saved due to the reduction. However, the size of the apron was increased and one more new work of strengthening of culvert was added.

10. Mangalore	Secondary runway	April 2004 – Rs. 33.16 crore	October 2005	March 2006 - Rs. 35.45 crore	5 months – Rs.2.29 crore	Even though the runway work is complete, the new runway cannot be used for B-737 type of aircraft and below due to unfavourable cross wind.
11. Pathankot	Construction of apron, link taxiway	November 2001 - Rs. 6.51 crore	November 2002	August 2005 – Rs. 5.41 crore	33 months – Nil	Reduction in cost of completion was due to reduction in scope of work. The work was taken up without working out the returns. Since Jammu and Amritsar airports are nearby, there is very little traffic potential. The airport is yet (March 2006) to be operationalised as no scheduled flight has landed in the airport. The facilities created are thus remaining idle.
12. Patna	Construction of shoulder, turning pad and perimeter road	November 2002 – Rs. 2.56 crore	May 2003	March 2005 – Rs. 3.04 crore	22 months – Rs. 48 lakh	The work was rescinded during July 2003 due to poor performance of the contractor and re awarded again in February 2004. A part of the claim of the Authority is locked up in arbitration with the original contractor. The balance work was got done under 'risk and cost' of the original contractor.
13. Porbandar	Construction of apron, taxi track and shoulder	September 1999 – Rs. 1.23 crore	June 2000	June 2001 – Rs. 1.25 crore	12 months – Rs. 2 lakh	Apron, taxi track and shoulder work completed in June 2001. However as the terminal building is still in progress as of March 2006, these facilities are not being put to use.
	Construction of fire station	April 2003 – Rs. 1.36 crore	October 2004	February 2006 – Rs. 1.23 crore	16 months - Nil	As the progress of the work was slow, the contractor was given periodical extension for completion of the project. No liquidated damages hade been levied and recovered by the Authority so far (March 2006) for the delay in completion of the work.
14. Rajmundry	Construction of apron and strengthening of runway	March 2001 – Rs. 4.73 crore	March 2002	May 2002 - Rs. 5.53 crore	2 months – Rs. 80 lakh	The strengthened runway is not used as there is no scheduled aircraft movement in the airport. Due to monsoon conditions, the bituminous layer of the runway is already eroded and the condition of the runway was reported to be bad.
15. Silchar	Extension and strengthening of runway	March 2005 – Rs. 23.28 crore	March 2007	-	-	Land for the work was taken over in the year 2000 but due to non execution of an MoU with IAF (since it is an IAF airfield), work order could be issued only in March 2005. The Authority paid interest of Rs. 90.88 lakh to the State Government for procuring the land even though it was not due. Till March 2006, only 45 *per cent* of the work is complete.

16. Tiruchirapalli	Extension and strengthening of runway	December 2003 – Rs. 14.71 crore	January 2005	-	14 months till March 2006	Only 82 *per cent* of the work had been completed till March 2006. The deletion of embankment work from the scope and wrong estimation without proper analysis resulted in abnormal delay. A public road cutting across in the proposed extended runway not diverted.
17. Varanasi	Extension of runway and allied works	November 2002 – Rs. 17.62 crore	April 2004	January 2005 – Rs. 18.83 crore	9 months – Rs. 1.21 crore	The work relating to strengthening of existing runway, taxiway and apron were taken up as an allied work of the main work relating to extension of runway. However the main work was not taken up and only the allied works were completed due to non diversion of a public road. In the absence of extended runway, the strengthening work became infructuous as wide bodied aircraft cannot be operated in the existing runway.

Annexure–V

(Referred to in Para 3.3.1)

Cases of problems in acquisition of land needed for development purposes

Airport	Purpose of requirement	Reasons for non/delayed acquisition	Infrastructure facility denied
1. Chennai	Development of airport	23.89 acres of land already in possession of the Authority since 1980 was not legally acquired. The State Government issued notification in August 2000 for land acquisition and the Authority made initial payment of Rs. 1.10 crore in March 2002. Award for the balance amount of Rs. 1.78 crore was passed in September 2002, which is being contested (March 2006).	The perimeter wall around the airport was constructed without clearly acquiring possession of the entire area encircled.
2. Coimbatore	Wire transmitting station and navigational equipment	Land required for runway extension was acquired in 1994. However, land where the wire transmitting and navigational facilities were installed is yet to be acquired.	The installation of CAT-I lighting system is still pending
3. Jammu	Extension of runway	Land was acquired in 2000-01 at a cost of Rs. 2.75 crore for extension of runway. However a portion of land in between the existing runway and the land acquired for extension could not be acquired (March 2006).	Proposed extension of runway by 1,300 feet had not been taken up and the land already acquired could not be utilised.
4. Kolkata	Extension of secondary runway	Due to presence of public road in the south and religious place of worship in the north, extension of runway is not possible. The project approved in June 2003 is yet to be taken up.	Bigger aircraft cannot be operated in the present secondary runway.
5. Lucknow	Construction of boundary wall	Due to lack of clear possession, the work only partially completed in the site handed over. Further work was held up due to dispute over land.	Incomplete boundary wall around the airport.
6. Mangalore	Land for construction of control tower, fire station, link taxiway etc.	Exact requirement of land for development of airport was not decided initially and the requirement was changed many times and land acquisition being a lengthy process, the delay in finalisation of requirement delayed acquisition of additional land.	A-300 type of aircraft could not be operated from the airport due to limited length of runway and terminal capacity.
7. Madurai	Extension of runway length from 5990 feet to 7500 feet	State Government handed over only part of land required. The balance land required is yet to be transferred (March 2006).	Delay in extension of runway. The installation of ILS and DME equipment was pending for want of extended runway.
8. Mumbai	Land required for expansion	13927 sqm of land within Mumbai airport was given on lease to Indian Airlines in 1959 for use as a play ground. The Authority requested for vacation of land in May 1993 for expansion purposes. The land is yet (March 2006) to be handed over.	The land required for expansion of Mumbai airport is not available.
9. Pune	Expansion of apron and additional taxiway	7276.20 sqm of defence land acquired with conditional no objection from the defence authorities.	Since the area is restricted, creation of the operational facilities are hampered.

Annexure-VI

(Referred to in Para 10.3)

List of 36 Airports with meager aircraft movements

(In numbers)

Sl. No.	Airport	Scheduled aircraft movements		Non scheduled aircraft movements		Total movements	
		2004-05	2005-06	2004-05	2005-06	2004-05	2005-06
1.	Gaya	338	432	82	162	420	594
2.	Gorakhpur	808	608	32	2	840	610
3.	Agra	372	0	294	370	666	370
4.	Bhuj	706	720	6	4	712	724
5.	Bhavnagar	1516	1408	0	38	1516	1446
6.	Khajuraho	962	754	40	56	1002	810
7.	Jamnagar	728	756	1122	946	1850	1702
8.	Aizwal	1368	1438	0	4	1368	1442
9.	Tirupati	1038	1208	46	42	1084	1250
10.	Jorhat	604	582	0	20	604	602
11.	Dimapur	1154	770	20	28	1174	798
12.	Belgaum	1386	1396	0	4	1386	1400
13.	Vijayawada	672	1022	4	22	676	1044
14.	Bhuntar	787	734	294	390	1081	1124
15.	Porbandar	606	572	0	22	606	594
16.	Rajamundhry	0	0	2240	2700	2240	2700
17.	Diu	612	580	12	4	624	584
18.	Hubli	662	680	6	0	668	680
19.	Kolhapur	660	658	2	26	662	684
20.	Agatti	680	606	798	768	1478	1374
21.	Allahabad	598	498	14	30	612	528
22.	Tezpur	202	174	8	2	210	176
23.	Dehradun	156	692	0	110	156	802
24.	Barapani	432	280	0	4	432	284
25.	Surat	206	144	48	54	254	198
26.	Lakhimpur	198	126	14	4	212	130
27.	Shimla	368	274	30	162	398	436
28.	Kanpur (Chakeri)	50	420	2	6	52	426
29.	Gaggal	200	188	20	22	220	210
30.	Tezu	0	0	310	152	310	152
31.	Ludhiana	0	0	46	28	46	28
32.	Pondicherry	0	0	22	6	22	6
33.	Gwalior	0	994	36	16	36	1010
34.	Pantnagar	0	212	0	10	0	222
35.	Jabalpur	0	656	2	22	2	678
36.	Salem	0	0	0	4	0	4
	Total	**18069**	**19582**	**5550**	**6240**	**23619**	**25822**

Annexure-II

(Referred to in Para 10.3)

Cash loss making non commercially operated/non functional airports – Test checked cases

(Rs. in lakh)

Airport	2002-03			2003-04			2004-05			2005-06*		
	Revenue	Expenditure (excl. depn)	Cash Loss	Revenue	Expenditure (excl.)	Cash Loss	Revenue	Expenditure (excl. depn)	Cash Loss	Revenue	Expenditure (excl.)	Cash Loss
1. Jaisalmer	-	2.47	2.47	-	6.37	6.37	0.03	32.97	32.94	-	16.15	16.15
2. Kandla	1.15	55.33	54.18	1.66	49.89	48.23	1.44	55.49	54.05	3.71	59.80	56.09
3. Kanpur (civil)	2.33	127.11	124.78	5.58	162.63	157.05	8.90	152.14	143.24	47.16	206.10	158.94
4. Kota	6.26	63.42	57.16	4.40	89.03	84.63	65.34	57.47	(7.87)	17.97	46.31	28.34
5. Pantnagar	5.46	77.44	71.98	5.80	84.57	78.77	1.85	82.82	80.97	0.27	80.58	80.31
6. Safdarjung	96.53	716.00	619.47	166.81	811.04	644.23	315.45	822.35	506.90	104.29	918.25	813.96
7. Salem	1.13	14.74	13.61	0.69	17.53	16.84	1.17	22.10	20.93	0.58	11.19	10.61
8. Tuticorin	-	15.57	15.57	-	22.70	22.70	-	20.61	20.61	0.52	18.21	17.69
9. Bikaner	-	47.95	47.95	-	46.15	46.15	-	51.87	51.87	-	65.18	65.18
10.Cuddapah	-	8.06	8.06	-	5.91	5.91	-	2.64	2.64	-	8.95	8.95
11. Pathankot	-	34.38	34.38	-	47.03	47.03	-	67.55	67.55	-	119.50	119.50
12. Vellore	-	3.35	3.35	-	6.75	6.75	-	5.39	5.39	-	5.13	5.13
13. Jharsuguda	0.14	53.48	53.34	0.14	47.48	47.34	0.49	50.99	50.50	0.53	58.52	57.99
14. Balurghat	0.03	5.23	5.20	0.43	4.77	4.34	1.75	5.60	3.85	0.46	5.44	4.98
15. Behala	0.05	17.29	17.24	0.05	17.50	17.45	0.09	20.38	20.29	0.13	18.38	18.25
16. Malda	0.23	8.00	7.77	3.04	16.13	13.09	3.06	9.06	6.00	0.85	17.59	16.74
17. Cooch Behar	-	18.07	18.07	0.47	12.33	11.86	0.47	12.19	11.72	0.11	19.54	19.43
18. Kailashar	-	10.97	10.97	-	11.71	11.71	-	11.71	11.71	-	-	-
19. Passighat	-	3.81	3.81	-	4.09	4.09	-	4.09	4.09	-	-	-
20. Rupsi	-	3.87	3.87	-	2.15	2.15	-	2.15	2.15	-	-	-
Total Cash Loss			**1173.23**			**1276.69**			**1089.53**			**1498.24**

* *The figures for 2005-06 are provisional.*

GLOSSARY OF ABBREVIATIONS

Sl.No.	Abbreviation	Full form
1.	Authority	Airports Authority of India
2.	ADS	Automatic Dependent Surveillance
3.	AFFRV	Air Field Fire fighting and Rescue Vehicle
4.	ARSR	Air Route Surveillance Radar
5.	ASR	Airport Surveillance Radar
6.	ASFT	Airport Surface Friction Tester
7.	ATC	Air Traffic Control
8.	ATM	Air Traffic Management
9.	ATS	Air Traffic Services
10.	CFT	Crash Fire Tender
11.	CISF	Central Industrial Security Force
12.	CNS-P	Communication, Navigational and Surveillance - Planning
13.	CVC	Central Vigilance Commission
14.	DGCA	Director General of Civil Aviation
15.	DME	Distance Measuring Equipment
16.	DSCN	Dedicated Satellite Communication Network
17.	DVOR	Doppler Very High Frequency Omni Range
18.	FANS	Future Air Navigation System
19.	FDPS	Flight Data Processing System
20.	GAGAN	GPS And Geo Augmented Navigation
21.	GPS	Global Positioning System
22.	GBP	Great Britain Pound
23.	IAD	International Airports Division
24.	ICAO	International Civil Aviation Organisation
25.	ILS	Instrument Landing System
26.	IRR	Internal Rate of Return
27.	ISRO	Indian Space Research Organisation
28.	NAD	National Airports Division
29.	NIT	Notice Inviting Tenders
30.	NOTAM	Notice to Airmen
31.	Ministry	Ministry of Civil Aviation
32.	MoU	Memorandum of Understanding
33.	MSSR	Monopulse Secondary Surveillance Radar
34.	PCN	Pavement Classification Number
35.	RDPS	Radar Data Processing System
36.	UHF	Ultra High Frequency
37.	VCS	Voice Communication System
38.	X-BIS	X ray Bagage Inspection System

GLOSSARY OF TECHNICAL TERMS

Sl.No.	Item	Description
1.	Aerobridge	An aerobridge is a movable bridge normally enclosed which extends from an airport terminal allowing the passengers to board an airplane without having to go outside.
2.	Apron	A defined area in an airport intended to accommodate aircraft for purposes of loading or unloading passengers or cargo, fuelling, parking or maintenance.
3.	Approach funnel	A specified airspace around an approach path within which an aircraft approaching to land is considered to be making a normal approach.
4.	CAT I, II, III A, B, C	An instrument runway served by ILS and visual aids intended for operation with different runway visual ranges.
5.	DVOR	DVOR or Doppler Very High Frequency Omni Range provides electronic navigation to an aircraft. The DVOR gives accurate, specific directional information enabling pilots to determine their relative direction to or from a station.
6.	ILS	A ground based precision approach system that provides course and vertical guidance to landing aircraft.
7.	NOTAM	A notice containing information, the timely knowledge of which is essential to personnel concerned with flight operations.
8.	PCN	A number representing the bearing strength of a pavement for unrestricted operations by an aircraft.
9.	Radar	A radio detection device which provides information on range and elevation of objects.
10.	Rapid exit taxiway	A taxiway connected to a runway at an acute angle and designed to allow landing aircraft to turn off at higher speeds than are achieved on other exit taxiways thereby minimizing runway occupancy times.
11.	RESA	An area symmetrical about the extended runway centre line and adjacent to the end of the strip primarily intended to reduce the risk of damage to an aircraft undershooting or overrunning the runway.
12.	Runway	A defined rectangular area in an airport prepared for the landing and take-off of aircraft.
13.	Runway Friction	Condition of the runway surface determining aeroplane braking performance.
14.	Shoulders	An area adjacent to the edge of a pavement so prepared as to provide a transition between the pavement and the adjacent surface.
15.	Taxiways	A defined path in an airport established for the taxing of aircraft and intended to provide a link between one part of the airport from another.
16.	X- BIS machine	X ray Baggage Inspection machine for screening baggage.